

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2011-XXXX

NPDES NO. CAS0084077

FACT SHEET
FOR
STOCKTON PORT DISTRICT
FACILITY-WIDE STORM WATER DISCHARGES FROM
MUNICIPAL SEPARATE STORM SEWER SYSTEM AND
NON-STORM WATER DISCHARGES FROM THE STOCKTON PORT DISTRICT
SAN JOAQUIN COUNTY

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I. PURPOSE

The Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) will be considering adoption of a renewal of the Stockton Port District's (hereafter "Permittee") Municipal Separate Storm Sewer System [National Pollutant Discharge Elimination System \(NPDES\)](#) Permit (hereinafter referred to as "Permit"). The purpose of this Fact Sheet is to provide the Permittee and interested persons an overview of the proposed permit as well as to provide the regulatory, technical, and background basis for the Permit requirements. Sections II through IV describe water quality problems from storm water and urban runoff, and Permit conditions designed to address these problems. Sections V and VI discuss each major element of the Permittee's Storm Water Management Plan (SWMP) that will be adopted by the Central Valley Water Board and is considered an integral and enforceable component of the proposed permit.

The proposed permit specifies requirements necessary for the Permittee to reduce the discharge of pollutants in urban runoff to the [Maximum Extent Practicable \(MEP\) in accordance with the requirements of the Clean Water Act \(CWA\) and state law](#). However, since compliance with the MEP standard is an iterative process, the Permittee's storm water programs must continually be assessed and modified as urban runoff management knowledge increases, to incorporate improved programs, control measures, best management practices (BMPs), etc. in order to achieve the MEP standard. This continual assessment, revision, and improvement of storm water management program implementation are expected to achieve compliance with water quality standards [over time](#).

II. THE NEED TO REGULATE STORM WATER DISCHARGES

A. Impacts

The quality of storm water and urban runoff are fundamentally important to the health of the environment and the quality of life in the Central Valley Region. Polluted storm

water runoff is a leading cause of water quality impairment in the Stockton Port District area, as well as other potential sources such as aerial deposition and runoff from sources outside the urban area. Storm water and urban runoff (during dry and wet weather) are often polluted with pesticides, fertilizers, animal droppings, trash, food wastes, automotive byproducts, and many other toxic substances generated by urban environments. Water that flows over streets, parking lots, construction sites, and industrial, commercial, residential, and municipal areas carries these pollutants through the storm drain systems directly into receiving waters.

The water quality impacts and increased public health risks from municipal separate storm sewer system (MS4) discharges are well documented. According to receiving water monitoring data collected since the early 1990s, the pollutants of greatest concern that are discharged by the Port are biochemical and chemical oxygen demand, dissolved solids, nitrate, sulfate, and possibly pesticides and mercury. These are the pollutants that are most likely to periodically cause or contribute to an exceedance of applicable water quality standards in receiving waters.

A historic study by the National Urban Runoff Program (NURP) Study [U.S. Environmental Protection Agency (USEPA) 1983], performed before MS4 discharges were regulated under the CWA, showed that MS4 discharges draining from residential, commercial, and light industrial areas contained significant loadings of total suspended solids. Although the NURP Study did not cover industrial sites, the study suggested that runoff from industrial sites may have significantly higher contaminant levels than runoff from other urban land use sites. Several studies tend to support this observation. For example, in Fresno, a NURP project site, industrial areas had the poorest storm water quality of the four land uses evaluated. The study found that pollutant levels from illicit discharges were high enough to significantly degrade receiving water quality, and threaten aquatic life, wildlife, and human health.

The 1992, 1994, and 1996 National Water Quality Inventory Reports to Congress prepared by USEPA showed a trend of impairment in the nation's waters from contaminated storm water and urban runoff. The 1998 National Water Quality Inventory [305(b) Report]¹ showed that urban runoff/storm water discharges affect 11% of rivers, 12% of lakes, and 28% of estuaries. The report notes that urban runoff and storm water discharges are the leading source of pollution and the main factor in the degradation of surface water quality² in California's rivers and streams.

¹ *Quality of Our Nation's Waters: Summary of the National Water Quality Inventory 1998 Report to Congress* - USEPA 841-S-00-001 - June 2000; *Water Quality Conditions in the United States: Profile from the 1998 National Water Quality Inventory Report to Congress* - USEPA 841-F-00-006 - June 2000

² *Quality of Our Nation's Waters: Summary of the National Water Quality Inventory 1998 Report to Congress*, Chapter 12 State and Territory Summaries, California., pp. 282-83: 1998.

The Natural Resources Defense Council (NRDC) 1999 report, *Stormwater Strategies, Community Responses to Runoff Pollution*³ identifies two main causes of the storm water pollution problem in urban areas. Both causes are directly related to development in urban and urbanizing areas:

1. Increased volume and velocity of surface runoff. There are three types of human-made impervious covers that increase the volume and velocity of runoff: (i) rooftop, (ii) transportation imperviousness, and (iii) non-porous (impervious) surfaces. As these impervious surfaces increase, infiltration will decrease, forcing more water to run off the surface, picking up speed and pollutants.
2. High concentration of pollutants in the runoff. Certain activities, such as those from industrial sites, are large contributors of pollutant concentrations to the storm water system.

The report also identified several activities causing storm water pollution from urban areas, practices of homeowners, businesses, and government agencies.

Studies conducted by United States Geological Survey (USGS)⁴ confirm the link between urbanization and water quality impairments in urban watersheds due to polluted storm water runoff. Furthermore, the water quality impacts of urbanization and urban storm water discharges have been summarized by several other U.S. EPA reports.⁵ Urbanization may causes changes in hydrology and increases pollutant loads that adversely impact water quality and may impairs the beneficial uses of receiving waters.

Increases in population density and imperviousness may result in changes to stream hydrology including:

1. Increased peak discharges compared to predevelopment levels;
2. Increased volume of storm water runoff with each storm compared to pre-development levels;
3. Decreased travel time to reach receiving water; increased frequency and severity of floods;

³ *Clean Water & Oceans: Water Pollution: In Depth Report Stormwater Strategies, Community Responses to Runoff Pollution.* Natural Resources Defense Council (NRDC), 1999.

⁴ *Water Quality in the Puget Sound Basin, Washington and British Columbia, 1996-98*, Circular 1216 - USGS 2000; *Water Quality in the Long Island-New Jersey Coastal Drainages, New Jersey and New York, 1996-98*, Circular 1201 - USGS 2000

⁵ *Storm Water Phase II Report to Congress* (USEPA 1995); *Report to Congress on the Phase II Storm Water Regulations* (USEPA 1999); *Coastal Zone Management Measures Guidance* (USEPA 1992)

4. Reduced stream flow during prolonged periods of dry weather due to reduced levels of infiltration;
5. Increased runoff velocity during storms due to a combination of effects of higher discharge peaks, rapid time of concentration, and smoother hydraulic surfaces from channelization; and
6. Decreased infiltration and diminished groundwater recharge.

In order to reduce pollutants and runoff flows from new development and redevelopment to the MEP, the Permittee is required to ensure that all feasible BMPs are considered. The MEP standard involves applying BMPs that are effective in reducing the discharge of pollutants in storm water runoff. In discussing the MEP standard, the State Water Board has said the following: "There must be a serious attempt to comply, and practical solutions may not be lightly rejected. If, from the list of BMPs, a permittee chooses only a few of the least expensive methods, it is likely that MEP has not been met. On the other hand, if a permittee employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit to be derived, it would have met the standard. MEP requires permittees to choose effective BMPs, and to reject applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the cost would be prohibitive." (Order WQ 2000-11, at p.20.) MEP is the result of the cumulative effect of implementing, continuously evaluating, and making corresponding changes to a variety of technically and economically feasible BMPs that ensure the most appropriate controls are implemented in the most effective manner. This process of implementing, evaluating, revising, or adding new BMPs is commonly referred to as the iterative approach. For Small MS4s, EPA has stated that pollutant reductions to the MEP will be realized by implementing BMPs through the six minimum measures described in the permit. (64 Federal Register 68753.)

B. Benefits of Permit Program Implementation

Implementation of ~~Best Management Practices (BMPs)~~ will reduce pollutant discharges and improve surface water quality to the ~~maximum extent practicable (MEP)~~. The expected benefits of implementing the provisions of the Stockton Port District MS4 ~~National Pollutant Discharge Elimination System (NPDES)~~ permit include:

1. **Enhanced Aesthetic Value:** Storm water ~~may~~ affects the appearance and quality of a water body, and the desirability of working, living, traveling, or owning property near that water body. Reducing storm water pollution ~~will~~ may increase aesthetic benefits as these water bodies recover and become more desirable.

2. **Enhanced Opportunities for Boating:** reducing sediment and other pollutants, and increasing water clarity, which enhances the boating experience for users, offer additional benefits.
3. **Enhanced Commercial Fishing:** Important because commercial fisheries are a significant part of the nation's economy, and 28% of the estuaries nationwide in the 1998 305(b) Report were impacted by storm water/urban runoff.
4. **Enhanced Recreational and Subsistence Fishing:** Pollutants in storm water can eliminate or decrease the numbers, or size, of sport fish and shellfish in receiving waters.
5. **Reduced Flood Damage:** Storm water runoff controls may mitigate flood damage by addressing problems due to the diversion of runoff, insufficient storage capacity, and reduced channel capacity from sedimentation.
6. **Reduced Illness from Consuming Contaminated Fish:** Storm water controls may reduce the presence of pathogens in fish caught by recreational anglers.
7. **Reduced Illness from Swimming in Contaminated Water:** Epidemiological studies indicate that swimmers in water contaminated by storm water runoff are more likely to experience illness than those who swim farther away from a storm water outfall.
8. **Enhanced Opportunities for Non-contact Recreation:** Storm water controls reduce turbidity, odors, floating trash, and other pollutants, which then allow waters to be used as focal point for recreation, and enhance the experience of the users.
9. **Drinking Water Benefits:** Pollutants from storm water runoff, such as solids, toxic pollutants, and bacteria may pose additional costs for treatment, or render the water unusable for drinking.
- ~~10. **Water Storage Benefits:** Storm water is a major source of impairment for reservoirs. The heavy solids load deposited by storm water runoff can lead to rapid sedimentation of reservoirs and loss of water storage capacity.⁶~~
- 11.10. **Improved Habitat Benefits:** Storm water can have significant impacts to habitat and aquatic life. Storm water controls can minimize impacts to creek corridors and the wildlife dependent on them.

⁶ Report to Congress on Phase II Storm Water Regulations. USEPA, Office of Water. EPA-833-R-99-001, Oct. 1999.

III. STATUTORY AND REGULATORY HISTORY AND OTHER CONSIDERATIONS OF THE STORM WATER PROGRAM

A. Basis for Permit Conditions

In the 15 years following the introduction of the Clean Water Act in 1972, water pollution control efforts focused primarily on wastewater discharges from facilities such as factories and sewage treatment plants, with less emphasis on diffuse sources. The Federal ~~Clean Water Act (CWA)~~ prohibits the discharge of any pollutant to waters from a point source, unless a NPDES permit authorizes the discharge. Because the focus on reducing pollutants was centered on industrial and sewage treatment discharges, the U.S. Congress amended the CWA in 1987, requiring the USEPA to create phased NPDES requirements for storm water discharges.

In response to the 1987 Amendments to the CWA, the U.S. EPA developed Phase I of the NPDES Storm Water Program in 1990. Phase I required NPDES permits for storm water discharges from: (i) "medium" and "large" MS4s generally serving, or located in incorporated places or counties with, populations of 100,000 or more people; and (ii) eleven categories of industrial activity (including construction activity that disturbs five acres or greater of land).

Phase II, adopted in December 2000 and implemented in March 2003, required operators of small MS4s and small construction sites (construction activity disturbing greater than or equal to 1 acre of land or less than 1 acre if part of a larger common plan of development or sale) in urban areas to control storm water runoff discharges. The Phase II Storm Water regulations also allowed MS4s that are automatically designated because they are within an urbanized area to obtain a waiver from the otherwise applicable requirements if the discharges from small MS4s are not causing impairment of a receiving water body. Qualifications for the waivers vary depending on whether the MS4 serves a population under 1,000 or a population under 10,000. The Port has no permanent residents and a transient daily worker population of approximately 3,500.

B. Statutory Basis for Permit Conditions

The intent of the permit conditions is to meet the statutory mandate of the CWA. The conditions established by this permit are based on Section 402(p)(3)(B) of the CWA, which mandates that a permit for discharges from MS4s must: (1) effectively prohibit the discharges of non-storm water to the MS4; and (2) require controls to reduce pollutants in discharges from MS4 to the maximum extent practicable (MEP) including best management practices, control techniques, system design and engineering methods, and such other provisions determined to be appropriate. Compliance with

water quality standards is to be achieved over time, through an iterative approach requiring improved BMPs.

The permit requires the implementation of a comprehensive ~~Storm Water Management Plan (SWMP)~~ through using a selection of BMPs [see 40 Code of Federal Regulations (CFR) §122.44(k)] as the mechanism ~~to for~~ achieving the reduction of pollutants in storm water to the ~~maximum extent practicable (MEP)~~ [see CWA, § 402(p)(3)(B)(iii)].

C. Regulatory Basis for Permit Conditions

As a result of the statutory requirements of the CWA, the U.S. EPA promulgated the MS4 Permit application regulations set forth in 40 CFR §122.26(d) for large and medium MS4s and in 40 CFR §122.33 for small MS4s. These federal regulations described in detail the permit application requirements for MS4s operators. The information in the Report of Waste Discharge was used to develop the permit conditions and determine the Permittee's status in relationship to these conditions.

D. Discharge Limitations

Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for several constituents including pesticides, metals, toxicity, pH, dissolved oxygen, suspended solids, ammonia, nitrate and sulfate from illicit discharges.

No numeric effluent limitations are proposed at this time. Pursuant to 40 CFR §122.44(k), the ~~USEPA-Central Valley Water Board~~ has required a series of increasingly more effective BMPs,⁷ in the form of a comprehensive SWMP and performance standards, in lieu of numeric effluent limitations.⁸

E. Permitting Approach

The 1987 amendments to the Clean Water Act required municipalities to apply for MS4 permits that would reduce the pollutants in discharges to the maximum extent practicable. EPA Phase I Final Rule and Regulations then established the regulations for NPDES permit application requirements for large and medium-sized MS4s. EPA

⁷ Interpretative Policy Memorandum on Reapplication Requirements of MS4s issued by USEPA (61 Fed. Reg. —41697)

⁸ Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits (61 Fed. Reg. 43761)

discussed how the language of CWA section 402(p)(3) contemplated fundamentally different characteristics of many municipalities and that municipalities would have permits tailored to meet particular geographical, hydrological, and climatic conditions. EPA continued to discuss that if MS4 permit conditions required ~~storm water management programs (SWMPs)~~ to be developed and implemented, the program elements ~~were~~ would be enforceable in accordance with the terms of permit. EPA further pointed out that the permit goal for MS4 discharges is to avoid inflexibility in the types and levels of control. EPA stated that if mandatory requirements were appropriate, these requirements should be established under the authority of 40 CFR ~~§122.26(d) and §122.33~~ Section 402(p)(6), which addresses permit application requirements.

The SWMP is required as part of the Report of Waste Discharge pursuant to 40 CFR ~~§122.26(2)(d)(iv)~~; therefore is an integral and enforceable component of the MS4 permit. In addition, the California Superior Court ruled, *“Because the Storm ~~W~~water Management Plan is incorporated and is deemed an integral part of the Permits...any changes to the Plan are actually changes to the Permits. Because these are changes to the Permits, the notice and comment requirements must be complied with.”* (San Francisco Baykeeper vs. Regional Water Quality Control Board, San Francisco Bay Region, Consolidated Case No. 500527, California Superior Court, 14 November 2003).

F. Policy

State Water Board Resolution 68-16 (*Statement of Policy with Respect to Maintaining High Quality of Waters in California*) (the “Antidegradation Policy”) prohibits the Central Valley Water Board from issuing permits that allow high-quality waters to be degraded, unless the Board makes certain findings regarding the need for the degradation, and also includes requirements in the permit that ensure that best practicable treatment or control measures are implemented to minimize any degradation that may occur. With regard to the need for the degradation, the Central Valley Water Board must find that the change in water quality is consistent with the maximum benefit to the people of the state. Further, the required best practicable treatment and control measures must not allow the discharge to unreasonably affect present and anticipated beneficial uses, create a condition of pollution or nuisance, or result in water quality lower than applicable standards.

For the purposes of an anti-degradation analysis of an MS4 Permit, the Central Valley Water Board is primarily concerned with growth and development in the MS4’s service area, as growth and development may result in higher mass loading and concentrations of pollutant constituents that have the potential to degrade high-quality waters. Consistent with the Antidegradation Policy, the Central Valley Water Board considers the economic growth and development of the Stockton Port District to be consistent with the maximum benefit of the people of the state.

Furthermore, the Central Valley Water Board considers the conditions imposed by this permit to require the Stockton Port District to implement best practicable treatment and control of the discharges from its MS4 system through the implementation of BMPs. Although the Stockton Port District has continued to develop since adoption of the previous permit, when combined with the more stringent requirements imposed by the Board in this permit, any increase in the volume and mass of pollutants from the new urban runoff will not have significant impacts on aquatic life, municipal and domestic supply, and recreation uses, which are the beneficial uses most likely affected by the pollutants discharged.

The Stockton Port District submitted a basic antidegradation analysis on 10 November 2010. The water quality impacts discussed in the analysis reflect what the information was presented in the Port's 2009-2010 Annual Report. According to the analysis, storm water runoff emanating from urban development projected to occur in the Stockton Port District area during the next five years will produce only minor changes to the mass loadings and concentrations of the seven pollutants that were evaluated in the analysis. The pollutants evaluated include: pH, chemical oxygen demand (COD), aluminum, specific conductivity, biological oxygen demand (BOD), zinc, and nitrate as N. This Order also requires further analysis of several additional constituents, including those identified by the Permittees as pollutants of concern in the Report of Waste Discharge, constituents for which the Central Valley Water Board is developing TMDLs in the area of the Port, and constituents considered particularly relevant to the water quality of the Sacramento-San Joaquin Delta. The anti-degradation analysis describes the Stockton Port District's projected growth as well as its plans to mitigate any potential degradation caused by such growth.

This Order requires the Stockton Port District to revise the-its development standards [a.k.a. *Storm Water Development Standards*, (2005, Revised 2007)],⁹ as part of the SWMP, which states that all new urban development and significant redevelopment priority projects are subject to the source control measures, runoff reduction control measures, and treatment control measures (a.k.a. Low Impact Development or LID measures). Site design and site-specific source controls are generally the most effective means to control urban runoff pollution because they minimize the need for treatment and are required for all applicable projects. Treatment controls are required in addition to source controls to minimize the discharge of pollutants to the storm water conveyance system. This Order requires the Stockton Port District to implement a BMP Effectiveness Study of source or treatment control BMPs. A pilot test system using the CONTECH Storm Water Solutions is currently underway. A large scale system will be installed at outfalls to treat discharges from the East Complex if found successful. The Board finds that the requirements imposed in this Order constitute the best practicable treatment and control of the discharges from the MS4 system.

⁹ Stockton Port District, *Storm Water Development Standards*, 2005- Revised 2007. WGR Southwest, Inc.

The discharge from continued urban development may result in some minimal degradation of waters of the State and navigable waters of the United States, but in this case, such degradation will not unreasonably affect present and anticipated beneficial uses, create a condition of pollution or nuisance, or result in water quality lower than applicable standards. Compliance with these requirements will result in the reduction of discharge pollutants from the urban areas to the MEP. Reducing pollutants in the discharge to MEP will result in an insignificant adverse impact and potentially a beneficial impact on existing water quality.

G. Consistency with Other MS4 Permits

In December 2007, the Regional Board adopted Waste Discharge Requirements Order R5-2007-0173 for discharges of urban runoff from the MS4s of the City of Stockton and contiguous developed area in San Joaquin County. We have incorporated appropriate portions of the Stockton MS4 permit into the Port's permit to ensure a regional consistency.

IV. BACKGROUND – STOCKTON PORT DISTRICT MS4

A. Stockton Port District MS4 Permit History

The Permittee is a special district that owns and operates the Stockton Port District and its storm sewer system. The Port is located within the City of Stockton, which is the largest city in San Joaquin County, with a population of about 287,000; however the daily, non-residential population of the Port is only approximately 3,500. In February 1992, the Permittee filed a Notice of Intent with the State Water Resources Control Board to obtain coverage for the East Complex under the State of California's General Permit for Storm Water Discharges Associated with Industrial Activities (General Permit; Order 91-13-DWQ, as amended by Order 92-12-DWQ).

In February 1997, the Central Valley Water Board issued an administrative civil liability (ACL) against the Permittee for a multitude of General Permit violations that occurred between February 1992 and January 1997. These violations included the Permittee's failure to implement a facility-wide Storm Water Pollution Prevention Plan; failure to implement adequate BMPs to control pollution discharges; failure to document dry and wet weather visual inspections; and the discharge of pollutants (pH and suspended solids) that caused or contributed to the exceedance of applicable water quality standards. The ACL resulted in the payment of a substantial monetary fine by the Permittee.

As part of the outcome of the ACL, the Central Valley Water Board issued an MS4 permit (Order No. 97-042) to the Port that regulated it-the Port as a medium municipal separate storm sewer system under federal storm water regulations (40 CFR Section

122.26(b)(7)), even though it did not qualify for the population requirements. This action was taken in February 1997 with the consent of the Permittee, which at that time wished ~~for its MS4~~ to be regulated separately from the City of Stockton's. The portion of the storm sewer system operated by the City of Stockton is separately regulated under Waste Discharge Requirements Order R5-2007-0173, NPDES No. CAS083470.

In October 2004, the Central Valley Water Board adopted the second MS4 permit still as a Phase I permit. The Permittee is currently regulated by Waste Discharge Requirements Order R5-2004-0136 NPDES No. CAS0084077, adopted on 15 October 2004. The Permittee's SWMP¹⁰ submitted with the Report of Waste Discharge in April of 2009 describes the history and evolution of the Stockton Port District's program in more detail, including a summary of accomplishments and findings.

U.S. EPA Region 9, with assistance from the Central Valley Water Board, and PG Environmental, LLC conducted an audit of the Stockton Port District's Municipal Separate Storm Sewer System program on 18-20 March 2008. The purpose of the audit was to assess the Port's compliance with requirements contained in Order R5-2004-0136. The audit report identified areas in the Port's programs that were deficient or could be improved. The findings from the audit and U.S. EPA's recommendations are incorporated in this Order.

B. Storm Drain System

The Permittee has jurisdiction over and maintenance responsibility for its MS4. The Port is divided into a West Complex (formerly Rough & Ready Island) and an East Complex. The 640-acre East Complex is older and more developed than the 1,460-acre West Complex, which was acquired from the United States Navy in September 2003. The West Complex is being converted and developed for full-scale shipping and manufacturing operations, which will include maritime, industrial, and commercial uses.

The Port's storm sewer discharges consist of urban discharges from areas used for a wide variety of businesses including commercial, light industrial, heavy industrial, agricultural, transportation, and the industrial unloading, warehousing, and loading of goods for production and distribution. The quality and quantity of these storm water discharges varies considerably, owing to the affects of land use, season, geology, and sequence and duration of hydrologic events. The Port's receiving waters are the San Joaquin River, the Deep Water Ship Channel, and Burns Cutoff.

C. Total Maximum Daily Loads (TMDLs)

¹⁰ Stockton Port District, *Proposed Storm Water Management Plan and Report of Waste Discharge*, Draft April 2009.

Legal Authority

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.44(d)(1) requires ~~municipal stormwater~~ permits to include any requirements necessary to, “(a) achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to, “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

However, the requirements for stormwater allow MS4 permits to include BMPs in lieu of numeric effluent limitations. 40 CFR 122.44(k).

Basin Plan Requirements: Chapter IV. Control Action considerations of the State Water Board, of the Region’s Water Quality Control Plan (Basin Plan) *Urban Runoff Policy* requires:

- a. Subregional municipal and industrial plans are required to assess the impact of urban runoff on receiving water quality and consider abatement measures if problem exist; and
- b. Effluent limitations of storm water runoff are to be included in NPDES permits where it results in water quality problems.

Storm water permits include requirements to prevent or reduce discharges of pollutants that cause or contribute to violations of water quality objectives. In the first phase, the Central Valley Water Board requires implementation of technically and economically feasible control measures to reduce pollutants in stormwater to the MEP. If this first phase does not result in attainment of water quality objectives, the Central Valley Water Board will consider permit conditions that might require implementation of additional control measures. For example, the control measures required as a result of TMDLs may go beyond the measures required in the first phase of the program.

Discussion of Requirements in this Permit

Total Maximum Daily Loads (TMDLs) are one of the Central Valley Water Board's highest priorities. The Central Valley Water Board considers storm water discharges from the ~~Stockton~~ Port ~~District~~ to be significant sources of pollutants. The proposed Permit includes a list of 303(d) listed waterbodies, some of which have TMDLs that are in various stages of completion. NPDES permits must be consistent with approved TMDL waste load allocations where the discharge is demonstrated to contain the constituents of concern at levels above the applicable water quality standards. To implement adopted TMDLs, this proposed Permit implements control programs developed to attain waste load allocations.

In compliance with the current Order R5-2004-0136, the Permittee submitted a Pesticide Plan,¹¹ as a component of the SWMP, which was approved by the Central Valley Water Board. The plan addresses their own use of pesticides including diazinon, chlorpyrifos, and other lower priority pesticides and use of such pesticides by other sources within their jurisdiction. This proposed Order fulfills a component of the TMDL Implementation Plan adopted by this Central Valley Water Board on 23 June 2006 for diazinon and chlorpyrifos for the Sacramento-San Joaquin Delta Waterways and by requiring a management plan which includes BMPs, BMP implementation plan, effectiveness assessment, and compliance schedule that describes actions that will be taken to reduce diazinon and chlorpyrifos discharges and meet the applicable allocations. This proposed Order includes Provisions consistent with the TMDL waste load allocations and the Basin Plan implementation program. This proposed Order specifies monitoring and assessment requirements to implement these Provisions. The establishment of Water Quality Based Effluent Limits expressed as iterative BMPs to achieve the Waste Load Allocation (WLA) compliance schedule is appropriate and is expected to be sufficient to achieve the WLA specified in the TMDL.

The proposed Order requires the Permittee to continue or initiate implementation of control programs for pollutants that have been identified to cause or contribute to exceedances of water quality standards and potential impairment of beneficial uses. The proposed permit requires the Permittee to submit a Mercury/Methylmercury Control Program, Low Dissolved Oxygen Plan, an updated Pesticide Plan, and conduct sampling for Sediment Toxicity for pesticides (e.g., pyrethroids). The proposed permit requires continued sampling, implementation of BMPs, and assessment of the effectiveness of the BMPs to ensure that they are performing to the MEP.

The Central Valley Water Board is currently in the process of developing TMDLs for listed water bodies within the Region. The proposed Order includes Provisions

¹¹ Stockton Port District, *Pesticide, Herbicide and Fertilizer Management Plan*, 2005- Revised 2006, 2008). WGR Southwest Inc.

consistent with the TMDL waste load allocations, the need to developed TMDLs for impaired waterbodies, and the Basin Plan implementation program. The Permittee should continue to implement actions and/or assessments to address water quality impairments. Once the Central Valley Water Board and U.S. EPA approve TMDLs, the proposed Order may be reopened to incorporate provisions to be consistent with waste load allocations established under the TMDLs.

The CWA Section 303(d) (2010 Integrated Report) Listed Waterbodies in the Stockton Port District include the following. These impairments are based on identified exceedances of water quality standards.

Waterbody	Reach	Estimated Size affected	Pollutant/Stressor(s)
Delta Waterways	Eastern Portion	2972 acres	Chlorpyrifos (TMDL) DDT Diazinon (TMDL) Invasive Species Group A Pesticides Mercury Toxicity of Unknown Origin
Delta Waterways	Southern Portion	3125 acres	Chlorpyrifos (TMDL) DDT Diazinon (TMDL) Electrical Conductivity Group A Pesticides Invasive Species Mercury Toxicity of Unknown Origin
Delta Waterways	Stockton Ship Channel	1,603 acres	Chlorpyrifos (TMDL) DDT Diazinon (TMDL) Dioxin Invasive Species Furan Compounds Group A Pesticides Mercury Low Dissolved Oxygen (TMDL) Pathogens PCBs (Polychlorinated Biphenyls) Toxicity of Unknown Origin

TMDLs for these water bodies are in various stages of completion. NPDES permits must be consistent with approved TMDL waste load allocations. This Order implements control programs developed to attain waste load allocations.

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The Central Valley Water Board Toxic Hot Spots Clean-up Plan (California Water Code section 13394) identified the following hot spots that are applicable to this discharge:

- a. Mercury in the Delta; and
- b. Diazinon and Chlorpyrifos in the Delta; and
- c. Dissolved oxygen in the San Joaquin River at City of Stockton

The California Water Code section 13395 requires the reevaluation of waste discharge requirements for dischargers who have discharged pollutants causing all or part of the toxic hot spot. The waste discharge requirements must be revised to include requirements that “prevent the maintenance or further pollution of existing toxic hot spots.” Further “(t)he Regional Water Board may determine it is not necessary to revise a waste discharge requirement only if it finds that the toxic hot spot resulted from practices no longer being conducted by the discharger... or that the discharger’s contribution to the creation or maintenance of the toxic hot spot is not significant.” Requirements to prevent the creation of new or maintenance of existing toxic hot spots are included with the provisions to address the 303(d) listings for these waterbodies.

Finding No. 84 of the proposed Order states: “CWA Section 303(d) and 40 CFR130.7 require states to identify water quality-impaired water bodies and pollutants of concern, and develop Total Maximum Daily Loads (TMDLs). A TMDL is a quantitative assessment of the total pollutant load that can be discharged from all sources each day while still meeting water quality objectives. The Central Valley Water Board is currently in the process of developing TMDLs for listed water bodies within the Region. Prior to TMDLs being adopted and approved, Permittees must implement actions to address their contribution to the water quality impairments. Once the Central Valley Water Board and U.S. EPA approve TMDLs, this Order may be amended to incorporate provisions consistent with waste load allocations established under the TMDLs.”

Provision D.4.d. of the proposed Order requires the Permittee revise their SWMP to comply with regional or watershed-specific requirements, and/or waste load allocations developed and approved pursuant to the process for the designation and implementation of TMDLs for impaired water bodies.

V. STORM WATER MANAGEMENT PLAN

Federal regulations (40 CFR 122.26(d)(2)(iv)) provide that, “A proposed management program covers the duration of the permit. It shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate. The program shall also include

a description of staff and equipment available to implement the program.”

As part of their application for permit renewal, the Permittee has submitted a draft SWMP describing the framework for management of storm water discharges during the term of this permit. The draft SWMP represents an improvement over the previous SWMP because it incorporates new and enhanced control measures and performance standards. The draft SWMP provides the goals and objectives, legal authorities, source identification process, funding sources, best management practices (BMPs) evaluation and improvement process, approach for effectiveness assessments of the programs, and a monitoring plan. The draft SWMP also includes specificity for each program element and control measures that identifies what actions are to be taken, the timeframe for the actions, the responsible parties and the data that needs to be collected in order to identify if the program is effective. The overall goals of the Permittee’s SWMP are to a) reduce the degradation of waters of the State and Waters of the United States (U.S.) by urban runoff and protect their beneficial uses, and b) develop and implement an effective SWMP that is well understood and broadly supported by regional stakeholders. The SWMP is an integral and enforceable component of the proposed permit.

The SWMP includes the following program components:

- Program Management
 - Legal Authority
 - Fiscal Analysis

- Programs Elements
 - Construction Program
 - Industrial and Commercial Program
 - Municipal Operations Program
 - Illicit/Illegal Discharge Program
 - Public Education and Outreach Program
 - Storm Water Planning and Development Standards

- Baseline Monitoring
 - Urban Discharge Monitoring
 - Receiving Water Monitoring
 - East Complex Retention Basin Monitoring
 - Port Owned Industrial Monitoring
 - Ship Loading and Unloading Monitoring
 - Water Column Toxicity Monitoring
 - Dry Weather Field Screening

- Sediment Toxicity Monitoring

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- Water Quality Based Programs
 - o Pesticide Plan
 - o Low Dissolved Oxygen Plan
 - o Total Mercury and Methylmercury Control Program
- Special Studies
 - o Retention Basin Monitoring
 - o BMP Effectiveness Studies
- Program Effectiveness Assessment and Reporting

Some of these program elements and the corresponding proposed permit requirements under those elements are discussed below.

A. Program Management

Program management includes planning, fiscal analysis, legal authority, staffing, inter and intra-agency coordination, and internal and external (i.e., compliance) reporting. The proposed permit requires submission of an Annual Work Plan by 1 April of each year. This plan provides the Permittee's proposed activities for the upcoming year beginning 1 July of current year and ending 30 June the following year. The proposed permit also requires submission of an annual report by 1 October of each year. The annual report documents the status of SWMP implementation and the Permittee's activities during the previous fiscal year, including the results of a qualitative and quantitative field level assessment of activities implemented by the Permittee, and the performance of tasks contained in the SWMP. The annual report includes a compilation of deliverables and milestones completed during the previous 12-month period, as described in the SWMP and annual work plan.

Fiscal Analysis

40 CFR §126.26(d)(2)(vi) requires MS4 permittees to include a fiscal analysis with their municipal storm water permit applications. The purpose of this fiscal analysis is to identify the necessary capital and operation and maintenance expenditures necessary to accomplish the activities of the storm water monitoring and management programs.

The permit requires a fiscal analysis to be included with the Port's annual work plans. The annual fiscal analysis includes (1) a budget summary of expenditures for implementing the SWMP, and (2) a description of the sources of funds for these expenditures.

EPA estimated that the annual cost, on average, would be \$1,525 fixed cost per municipality plus a per person cost of \$8.93.¹² For the Port, this estimated annual cost in 1999 dollars would be:

$$\underline{\$32,780 = \$1525 + (3500 * 8.93).}$$

However, the Port's annual budget for stormwater management and program implementation is currently approximately \$700,000 (more than 20 times the EPA cost estimates), and expected to increase with the newly proposed changes included in the tentative permit.

Legal Authority

40 CFR ~~§126~~§122.26(d)(2)(i) requires large and medium MS4 permittees to include, as part of their municipal storm water permit applications, a demonstration that the applicant can operate pursuant to legal authority established by statute, ordinance, or series of contracts to, among other things, control pollutant discharges to storm sewer systems. The proposed MS4 permit requires the Permittee's legal authority to, at a minimum, accomplish the following:

- Control the contribution of pollutants in discharges of runoff associated with industrial and construction activities to storm sewer systems;
- Prohibit unauthorized non-storm water discharges where pollutants have not been reduced to the MEP;
- Prohibit and eliminate illicit connections to storm sewer systems;
- Control the discharge of spills, dumping, or disposal of materials other than storm water to storm sewer systems;
- Carry out inspections, surveillance, and monitoring necessary to determine compliance with local ordinances;
- Use enforcement mechanisms to obtain compliance with storm water ordinances;
- Require the use of BMPs to prevent or reduce the discharge of pollutants to storm sewer systems; and
- Require that treatment control BMPs be properly operated and maintained.

B. Construction Element

Legal Authority

Federal regulations (40 CFR §122.26(d)(2)(iv)(D)) provide that a proposed management program must include “[a] description of a program to implement and

¹² Report to Congress on Phase II Storm Water Regulations. USEPA, Office of Water. EPA-833-R-99-001 at II-4, Oct. 1999.

maintain structural and non-structural best management practices to reduce pollutants in storm water runoff from construction sites to the municipal storm sewer system.”

Discussion of the Requirements in This Permit

As stated in the *California Storm Water Best Management Practice Handbook for Construction Activity* (BMP Handbook), “Construction usually increases the amount of impervious area causing more of the rainfall to runoff, and increasing the speed at which runoff occurs. Unless properly managed, this increased runoff will erode natural and/or unprotected watercourses causing the watercourse to widen...Sedimentation can also contribute to accelerated filling of reservoirs, harbors, and drainage systems.”¹³

This Permit requires the continuation of the Permittee’s review, inspection, and enforcement activities, and further requires the performance of an assessment to determine the effectiveness of these activities and identify any necessary modifications for continuous improvement.

C. Industrial and Commercial Element

Legal Authority and Discussion

Federal regulations (40 CFR §122.26(d)(2)(iv)(C)) require large and medium MS4s to include, “A description of a program to monitor and control pollutants in storm water discharges to municipal systems from municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the municipal storm sewer system. The program shall:

- (1) Identify priorities and procedures for inspections and establishing and implementing control measures for such discharges; and
- (2) Describe a monitoring program for storm water discharges associated with industrial facilities...”

The municipality is ultimately responsible for discharges from the MS4. Because industrial awareness of the program may not be complete, there may be facilities within the MS4 area that should be permitted under the General Industrial Permit, but are not (i.e., non-filers). The Phase I regulations requirement for industries to obtain permit coverage for storm water discharges is largely based on Standard Industrial

¹³ *California Storm Water Best Management Practice Handbook for Construction Activity*. 1993.

Classification (SIC) Codes. This classification system has been shown to be **incomplete** in identifying all industries (which may include commercial businesses) that may be significant sources of storm water pollution. In addition, the permitting authority may not have adequate resources to provide the necessary oversight of permitted facilities. Therefore, it is in the municipality's best interest to assess the specific situation and implement a commercial/industrial inspection and enforcement program to control the contribution of pollutants to the MS4 from all of these potential sources.

In the preamble to the 1990 regulations, the U.S. EPA clearly states the intended strategy for discharges of storm water associated with industrial activity:

"Municipal operators of large and medium municipal separate storm sewer systems are responsible for obtaining system-wide or area permits for their system's discharges. These permits are expected to require that controls be placed on storm water discharges associated with industrial activity which discharge through the municipal system."

The U.S. EPA also notes in the preamble that *"municipalities will be required to meet the terms of their permits related to industrial dischargers."*

Similarly, in the U.S. EPA's Guidance Manual¹⁰ (Chapter 3.0), it is specified that MS4 applicants must demonstrate that they possess adequate legal authority to:

- Control construction site and other industrial discharges to MS4s;
- Prohibit illicit discharges and control spills and dumping;
- Carry out inspection, surveillance, and monitoring procedures.¹⁴

The document goes on to explain that *"control"*, in this context means not only to require disclosure of information, but also to *limit, discourage, or terminate* a non-storm water discharge to the MS4. Further, to satisfy its permit conditions, a municipality may need to impose additional requirements on discharges from permitted industrial facilities, as well as discharges from industrial facilities and construction sites *not* required to obtain permits.

In the same Guidance Manual¹⁵ (Chapter 6.3.3), it is stated that the municipality is ultimately responsible for discharges from their MS4. Consequently, the MS4 applicant must describe how the municipality will help the U.S. EPA and authorized NPDES States to:

¹⁴ *Guidance Manual For the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems* - U.S. EPA -November 1992

¹⁵ *Id.*

- Identify priority industries discharging to their systems;
- Review and evaluate storm water pollution prevention plans (SWPPPs) and other procedures that industrial facilities must develop under general or individual permits;
- Establish and implement BMPs to reduce pollutants from these industrial facilities (or require industry to implement them); and
- Inspect and monitor industrial facilities discharging storm water to the municipal systems to ensure these facilities are in compliance with their NPDES storm water permit, if required.

Recognizing that the Permittee is ultimately responsible for the quality of storm water discharges from the MS4, the Permittee must effectively regulate industrial/commercial facilities and activities to maintain compliance with their stormwater ordinances by continuing implementation of their current programs and enhancing them, as needed, based on effectiveness assessments.

It may be necessary to update existing ordinances and other legal mechanisms if they do not provide sufficient legal authority to implement the above components as required by the regulations.

Discussion of Requirements in This Permit

This Permit requires the continuation of the Permittee's inspection, response and enforcement activities at priority commercial/industrial facilities and coordination with the Central Valley Water Board at facilities covered under the Industrial General Permit. The Permit also requires the performance of an assessment to determine the effectiveness of these activities and identify any necessary modifications for continuous improvement.

Recognizing the dual coverage envisioned by the federal regulations¹⁶, and suggested partnership between local and State authorities, this Permit requires the Permittee to coordinate with State activities for the implementation of the General Industrial Activities Storm Water Permit (General Industrial Permit). The goal is to control industrial sources and other sources not specifically covered under Phase I storm water regulations but identified as significant contributors of pollutants by the municipalities through their identification and prioritization studies. The net result should be a better and improved coordinated program with greater impact on limiting and eliminating (as a final goal) the contribution of pollutants to the receiving water while maintaining and/or restoring the capacity of the receiving water to sustain the beneficial uses without impairments.

¹⁶ Federal Register Vol. 55, No 222, pp. 48000; U.S. EPA Storm Water Phase II Compliance Assistance Guide, 2000, pp. 4-32 and 5-11, where it clarifies the dual responsibility

Based on the dual coverage and partnership approach between the permitting authority and municipalities that the U.S. EPA envisioned in the storm water regulations,^{17,18} and in order to best use limited resources at the State and local levels, the Permit includes improvements-new mandates requiring the Permittee to: (i) Control the storm water discharges associated with industrial activities and other commercial facilities identified as significant contributors of pollutants; and (ii) Assist the Central Valley Water Board in implementing the general permit for industrial activities.

This approach is consistent with the nationwide approach used by the U.S. EPA in issuing *second term* MS4 permits.¹⁹ Also, this approach is consistent with other MS4 permits issued in California: San Diego, Santa Clara, and Los Angeles permits. The education and outreach should be continued under ~~the auspices of~~ the Public Education program.

D. Municipal Operations Element

Legal Authority and Discussion

Federal regulations (40 CFR §122.26(d)(2)(iv)(A)(1,3,4,5,and 6)) require MS4 permittees to develop a program to reduce the discharge of pollutants from the MS4 to the MEP for all urban land uses and activities, including municipal areas and activities.

The Permittee is required to update and continue to implement a Municipal Operations Program Element in its SWMP to effectively prohibit non-storm water discharges and prevent or reduce pollutants in runoff from all municipal land use areas, facilities, and activities to the MEP. The permit requirements for the Municipal Element are intended to provide a framework for the Permittee to meet the MEP standard. The specific requirements are too numerous to summarize here. Please see Provision 11 of the permit for a complete listing of these requirements.

Discussion of the Requirements in This Permit

This Permit requires the continuation of the Permittee's efforts from the previous permit term to control stormwater pollution resulting from the operation and maintenance of permittee-owned land use areas, facilities, and activities. The Permit

¹⁷ Letter dated December 19, 2000, from Alexis Strauss, Director, Water Division, U.S. EPA Region IX, to Dennis Dickerson, Executive Officer, Regional Water Quality Control Board-Los Angeles Region; see also Letter dated April 30, 2001, from Alexis Strauss, Director, Water Division, U.S. EPA Region IX, to Honorable Stephen Horn, U.S. House of Representatives.

¹⁸ ~~Letter dated April 30, 2001, from Alexis Strauss, Director, Water Division, U.S. EPA Region IX, to Honorable Stephen Horn, U.S. House of Representatives~~

¹⁹ MS4 NPDES Permits issued to Palm Beach County, Broward County, Sarasota County, Florida, Tulsa, Oklahoma, Denver, Colorado.

further requires the performance of an assessment to determine the effectiveness of these activities and identify any necessary modifications for continuous improvement.

E. Illicit Discharge Detection and Elimination Element

Legal Authority and Discussion

Federal regulations (40 CFR §122.26(d)(2)(iv)(B)) state that large and medium MS4s must include, “[a] ~~proposed management program shall be based on a~~ description of a program, including a schedule, to detect and remove (or require the discharger to the municipal storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer.” The regulations state further that a permittee must include in its proposed management program “[a] description of a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal storm sewer system...”²⁰

During dry weather, much of the discharge to storm drain systems consists of wastes and wastewater from non-storm water sources. A significant amount of such these discharges may be from illicit discharges, illicit-or connections, or both. Illicit discharges and connections may occur either through direct connections, such as deliberate or mistaken piping, or through indirect connections, such as dumping, spillage, subsurface infiltration, and wash down.

The Permittee is required to update and continue to implement an Illicit Discharge Detection and Elimination Program component of the SWMP to actively seek and eliminate illicit discharges and connections to the MEP.

Discussion of Requirements in This Permit

This Permit requires the continuation of the Permittee’s inspection, response, and enforcement activities, and further requires the performance of an assessment to determine the effectiveness of these activities and identify any necessary modifications for continuous improvement.

F. Public Education and Outreach Program (Collectively Public Outreach Program)

Legal Authority and Discussion

Federal regulations [40 CFR 122.26(d)(2)(iv)(A)(6)] provide that the proposed management program for large and medium MS4s include, “[a] ~~A~~ description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewer s ~~system~~ associated with the application of pesticides,

²⁰ 40 CFR 122.26(d)(2)(iv)(B)(1).

herbicides, and fertilizer which will include, as appropriate, controls such as educational activities, permits, certifications, and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities.” These regulations [40 CFR 122.26(d)(2)(iv)(B)(6)] also provide that the proposed management program for each large and medium MS4 include, “[a] description of education activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials.”

To satisfy the Public Outreach Program, the Permittee needs to: (i) Implement a public education program to distribute educational materials to the community, or conduct equivalent outreach activities about the impacts of storm water discharges on local water bodies and the steps that can be taken to reduce storm water pollution; and (ii) Determine the appropriate BMPs and measurable goals for this minimum control measure.

Discussion of Requirements in This Permit

Implementation of a Public Outreach Program is a critical BMP and a necessary component of a storm water management program. The State Board Technical Advisory Committee “recognizes that education with an emphasis on pollution prevention is the fundamental basis for solving nonpoint source pollution problems.” The U.S. EPA Phase II Fact Sheet 2.3 finds that “[a]n informed and knowledgeable community is critical to the success of a storm water management program since it helps insure the following: (i) greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important, and (ii) greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters.”²¹

Furthermore, the public can provide valuable input and assistance to a municipal storm water management program and should play an active role in the development and implementation of the program. An active and involved community is essential to the success of a storm water management program.

The Permittee should continue their-its educational storm water and urban runoff outreach programs. According to the U.S. EPA, materials and activities should be relevant to local situations and issues, and incorporate a variety of strategies to ensure maximum coverage.²² To help address local situations and sources of specific pollutants, the Public Outreach Program requires specific programs for targeted

²¹ Storm Water Phase II Final Rule - Public Education and Outreach Minimum Control Measure. U.S. EPA Fact Sheet 2.3, January 2000.

²² Phase II Fact Sheet 2.3

communities, for example, ethnic groups, retail gasoline outlets (RGOs), and restaurants, that may not be reached by or understand existing storm water educational materials. In an effort to reach these groups the Public Outreach Program must require the development of a strategy to provide outreach information including bilingual materials to target ethnic communities. The U.S. EPA encourages partnerships and cooperation.²³ The proposed permit requires coordination between the Permittee and other MS4 permittees. This requirement will ensure that the Permittee is apprised of the most efficient and effective program. It is generally more cost-effective to have numerous operators coordinate to use an existing program than all developing their own local programs. Furthermore, directing materials or outreach programs toward specific groups of commercial, industrial, and institutional entities likely to have significant storm water impacts is recommended.²⁴ The next step in this targeted outreach program is education of specific businesses to facilitate employee compliance. Therefore, the permit requires implementation of a business outreach program to educate management and employees at prioritized businesses about storm water regulations. Also, a non-regulatory business assistance program would encourage small businesses that lack access to the expertise necessary to comply with storm water regulations and to implement pollution prevention measures. The business assistance program is not a requirement; however, its implementation is encouraged.

The Permittee is required to continue implementing ~~ing its a~~ Public Outreach Program using appropriate media to: (1) measurably increase the knowledge of target communities regarding MS4s, impacts of urban runoff on receiving waters, and potential BMP solutions for the target audience; and (2) to change the behavior of target communities and thereby reduce pollutant releases to MS4s and the environment.

The Permittee is also required to update and continue to implement the Public Outreach Component of its SWMP to educate the public and encourage their participation in the implementation of the SWMP to the MEP. ~~In addition, the Permittee is required to continue to incorporate a mechanism for public participation in the implementation of the SWMP (i.e., programs that engage the public in cleaning up creeks, removal of litter in river embankments, etc.).~~

G. Water Quality-Based Programs

Provision D.28 pertains to pollutants of concern, including those for which TMDLs are being developed or implemented.

Legal Authority

²³ *Id.*

²⁴ Phase II Fact Sheet 2.3

The following legal authority applies to provision D.28

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.44(d)(1) requires municipal stormwater NPDES permits to include any requirements necessary to, “[a]chieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.” However, courts have held that MS4 discharges need not strictly comply with water quality standards. (See *Defenders of Wildlife v. Browner*, 191 F.3d 1159, 1165 (9th Cir. 1999.) Further, the State Water Board has clearly held, when reviewing the template permit language used for the MS4 Permits, that:

“we point out that our language, similar to U.S. EPA’s permit language discussed in the *Browner* case, does not require strict compliance with water quality standards. Our language requires that storm water quality management plans be designed to achieve water quality standards. Compliance is to be achieved over time, through an iterative approach requiring improved BMPs.”

(See SWRCB WQ Order 2001-15 at 7 (emphasis added).)

Federal NPDES regulation 40 CFR §122.44(d)(1)(i) requires NPDES permits to include limitations to, “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.” However, these limitations need not be numeric effluent limitations and may be BMP-based. 40 CFR §122.44(k).

Basin Plan Requirements: Chapter IV. Control Action Considerations of the State Water Board, of the Region’s Water Quality Control Plan (Basin Plan) *Urban Runoff Policy* requires;

- a. Subregional municipal and industrial plans are required to assess the impact of urban runoff on receiving water quality and consider abatement measures if a problems exist~~s~~s; and
- b. Effluent limitations for storm water runoff are to be included in NPDES permits where it results in water quality problems.

Stormwater permits include requirements to prevent or reduce discharges of pollutants that cause or contribute to violations of water quality objectives. In the first phase, the Central Valley Water Board ~~requires~~ required implementation of technically and economically feasible control measures to reduce pollutants in stormwater to the MEP. If this first phase does not result in attainment of water quality objectives, the Central Valley Water Board will consider permit conditions that might require implementation of additional control measures. For example, the control measures required as a result of TMDLs may go beyond the measures required in the first phase of the program.

General Strategy for Sediment-Bound Pollutants (Total Mercury, methylmercury, legacy pesticides)

The control measures for total mercury and methylmercury are intended to implement the urban runoff requirements stemming from TMDLs for these pollutants for the Central Valley Water Board, where a discharge is demonstrated to be contributing to that impairment. The total mercury/methylmercury TMDL is pending adoption by the State Water Board, the Office of Administrative Law, and U.S. EPA. The urban runoff management requirements for total mercury and methylmercury call for permit-term requirements based on an assessment of controls to reduce total mercury and methylmercury to the MEP, and that is the intended approach of the required provisions for all pollutants of concern. Many of the control actions addressing mercury will result in reductions of a host of sediment-bound pollutants, including legacy pesticides. The strategy for these pollutants is to use total mercury and methylmercury control guide decisions concerning where to focus effort, but implementation of the control efforts would take into account the benefits for controlling other pollutants of concern. Further, because many of the control strategies addressing these pollutants of concern are relatively untested, the Central Valley Water Board will implement control measures in the following modes:

1. Full-scale implementation throughout the region.
2. Focused implementation in areas where benefits are most likely to accrue.
3. Pilot-testing in a few specific locations.
4. Other: This may refer to experimental control measures, Research and Development, desktop analysis, laboratory studies, and/or literature review.

The logic of such categorization is that, as actions are tested and confidence is gained regarding level of experience and confidence in the control measure's effectiveness, the control measure may be implemented with a greater scope. For example, an untested control measure for which the effectiveness is uncertain may be implemented as a pilot project in a few locations during this permit term. If benefits result, and the action is deemed effective, it will be implemented in subsequent permit terms in a focused fashion in more locations or perhaps fully implemented throughout the Region, depending upon the nature of the measure. On the other hand there may be some control measures in which there is sufficient confidence, on the basis of prior

experience, that the control action should be implemented, if economically and technically feasible, in all applicable locations and/or situations. By conducting actions in this way and gathering information about the effectiveness and cost, we will the understanding about potential controls will be advanced ~~our understanding~~ and will increase the Central Valley Water Board's ability ~~be able~~ to perform an updated assessment of the suite of actions that will constitute MEP for the following permit term. In ~~fact in~~ addition to implementing control measures, gathering the necessary information about control measure effectiveness is a vital part of what needs to be accomplished by the Permittee during this permit term. In the next permit term, control measures will be implemented on the basis of what we is learned in this term, and ~~we will~~, thus, ~~achieve~~ iterative refinement and improvement will be achieved over ~~through~~ time.

Background on Specific Provisions: Provisions D.28.a. (Pesticides Toxicity Control Program), D.28.b. (Low Dissolved Oxygen Program), and D.28.c. (Total Mercury and Methylmercury Control Program) contain both technology-based requirements to control pollutants and water quality ~~-~~ based requirements to prevent or reduce discharges of pollutants that may cause or contribute to violations of water quality standards to the MEP. Provision D.28.a. of the Permit incorporates requirements for the TMDLs that have been fully approved (Pesticides) and are effective for the Permittee. These TMDLs are for pesticide-related toxicity, specifically Diazinon and Chlorpyrifos, in urban creeks and the Delta Waterways. Provision D.28.b. of the Permit also incorporates requirements for the TMDL that has been fully approved (Dissolved Oxygen Impairment) and are effective for the Permittee. The goal of this TMDL is to maintain the existing dissolved oxygen water quality objectives in the San Joaquin River (between Turner Cut and Stockton) and the Delta Waterways. Additionally, Provision D.28.c. contains measures that address total mercury and methylmercury in compliance with the Basin Plan. The Central Valley Water Board has adopted a total mercury and methylmercury TMDL, but it this TMDL is still pending approval by the State Water Board, the Office of Administrative Law, and U.S. EPA. The methylmercury TMDL includes requirements that would be consistent with this provision.

Where a TMDL has been approved, NPDES permits must contain effluent limitations and conditions consistent with the requirements and assumptions of any available wasteload allocation (WLA) given to the Port that is contained in the TMDL.²⁵ Effluent limitations are generally expressed in numerical form. However, U.S. EPA ~~recommends regulations state~~ that for NPDES-regulated municipal and small construction stormwater discharges, effluent limitations should be expressed as BMPs or other similar requirements rather than as numeric effluent limitations.²⁶ Consistent

²⁵ 40 CFR §122.44(d)(1)(vii)(B)

²⁶ 40 CFR §122.44(k); USEPA, 2002. Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and
—NPDES Permit Requirements Based on Those WLAs. p.4.

with U.S. EPA's ~~recommendation~~regulations, this section implements Water Quality Based Effluent Limits (WQBELs) expressed as an iterative BMP approach capable of meeting the WLAs over time in accordance with the associated compliance schedule. The Permit's WQBELs include the numeric WLA as a performance standard and not as an enforceable effluent limitation. The WLA can be used to assess if additional BMPs are needed to achieve the TMDL Numeric Target in the waterbody.

1. Pesticides Toxicity Control Program

This Permit fulfills the Basin Plan amendments that the Central Valley Water Board adopted that establish Water Quality Objectives for Inland Surface Waters and Implementation Program for the TMDL for Diazinon and Chlorpyrifos Runoff into the Sacramento-San Joaquin Delta Waterways (as identified in Appendix 42). The Water Quality Objectives for Inland Surface Waters and the Implementation Program requires the Permittee to minimize their-its own pesticide use, conduct outreach to others, and lead monitoring efforts, if its discharges are causing or contributing to the impairment. If such contributions are demonstrated, cControl measures implemented by urban runoff management agencies (i.e., Permittee) and other entities (except construction and industrial sites) shall reduce pesticides in urban runoff to the MEP and the Permittee will use the included numeric WLAs as performance standards to determine if additional BMPs are needed to achieve the TMDL Numeric Target in the waterbody.

The Central Valley Water Board has adopted water quality objectives for:

- Diazinon: 160 nanograms per liter (ng/L or parts per trillion), one-hour average, not to be exceeded more than once in a three-year period and 100 ng/L, four-day average, not to be exceeded more than once in a three-year period, which apply to Sacramento-San Joaquin Delta Waterways (Delta Waterways) (Basin Plan);
- Chlorpyrifos: 25 ng/L, one-hour average, not to be exceeded more than once in a three-year period and 15 ng/L, four-day average, not to be exceeded more than once in a three-year period, which apply to Delta Waterways (Basin Plan).

The Permittee must consider whether any proposed alternative to the use of diazinon or chlorpyrifos has the potential to degrade ground or surface water. If the alternative has the potential to degrade groundwater, alternative pest control methods must be considered. If the alternative has the potential to degrade surface water, control measures must be implemented to ensure that applicable

water quality objectives and Central Valley Water Boards plans and policies are not violated, including the State Water Resources Control Board Resolution 68-16.

The TMDL is allocated to all urban runoff, including urban runoff associated with MS4s, Caltrans facilities, and industrial, construction, and institutional sites. The allocations are expressed in terms of diazinon and chlorpyrifos waste load allocations.

The Central Valley Water Board has also established in the Basin Plan the Loading Capacity (LC) for the Delta Waterways, ~~Waste Load Allocations (WLA_s)~~, and Load Allocations (LA) for discharges to the Delta Waterways, which shall not exceed the sum (S) of one (1) as defined below:

$$S = \frac{C_D}{WQO_D} + \frac{C_C}{WQO_C} \leq 1.0$$

where:

C_D = diazinon concentration in $\mu\text{g/L}$ of point source discharge for the WLA; nonpoint source discharge for the LA; or a Delta Waterway for the LC.

C_C = chlorpyrifos concentration in $\mu\text{g/L}$ of point source discharge for the WLA; nonpoint source discharge for the LA; or a Delta Waterway for the LC.

WQO_D = acute or chronic diazinon water quality objective in $\mu\text{g/L}$.

WQO_C = acute or chronic chlorpyrifos water quality objective in $\mu\text{g/L}$.

Compliance with the ~~waste load allocation~~ WLA is required by 1 December 2011 (Basin Plan).

The Central Valley Water Board's Basin Plan requires dischargers of diazinon and chlorpyrifos to Delta Waterways to submit a management plan (i.e., Integrated Pest Management plan (IPM) that incorporates, at a minimum, BMPs, BMP implementation plan, effectiveness assessment, and schedule) that describes actions that will be taken to reduce diazinon and chlorpyrifos discharges and meet the applicable allocations.

The approved IPM plan, and any modifications to it, meets the requirements for a management plan as described in the Basin Plan.

Specific Provision D.28.a. Requirements

D.28.a. provisions fully implement the TMDL for Diazinon and Chlorpyrifos Runoff into the Sacramento-San Joaquin Delta Waterways (as identified in Appendix 42). All D.28.a. provisions are stated explicitly in the implementation plan for this

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TMDL. The Permittee is encouraged to coordinate activities with the County Agriculture Commission and Extension Service, and other agencies, organizations, and interested stakeholders.

Provision D.28.a.i. is designed to insure that an integrated pest management (IPM) is adopted and implemented as policy by the Permittee. IPM is a pest control strategy that uses an array of complementary methods: natural predators and parasites, pest-resistant varieties, cultural practices, biological controls, various physical techniques, and pesticides as a last resort. If implemented properly, ~~IPM~~ is an approach that can significantly reduce or eliminate the use of pesticides. The implementation of an IPM program will be assured through training of municipal employees and the requirement that the Permittee only hire IPM-certified contractors.

Provision D.28.a.ii. directs the Permittee to conduct outreach to consumers at point of purchase and provide targeted information on proper pesticide use and disposal, potential adverse impacts on water quality, and less toxic methods of pest prevention and control. One way in which this can be accomplished is for the Permittee to participate in and provide resources for the “Our Water, Our World” program (www.ourwaterourworld.org) or a functionally equivalent pesticide use reduction outreach program. The “Our Water, Our World” program has developed a Web site with many resources, “to assist consumers in managing home and garden pests in a way that helps protect” the environment.

Provisions D.28.a.iii. is critical to the success of municipal efforts to control pesticide-related toxicity. Future permits must be based on an updated assessment of what is working and what is not. With every provision comes the responsibility to assess its effectiveness and report on these findings through the permit. The particulars of assessment will depend on the nature of the control measure.

Provision D.28.a.iv. requires that the Permittee (either individually or through cooperation and participation with other municipalities, agencies, and/or programs) track and participate in pesticide regulatory processes like the U.S. EPA pesticide evaluation and registration activities related to surface water quality, and the California Department of Pesticide Regulation (DPR) pesticide evaluation activities. The goal of these efforts is to encourage both the state and federal pesticide regulatory agencies to accommodate water quality concerns within the pesticide regulation or registration process. Through these efforts, it could be possible to prevent pesticide-related water quality problems from happening by affecting which products are brought to market.

2. Low Dissolved Oxygen Program

The Central Valley Water Board adopted a basin plan amendment (Resolution No. R5-2005-0005) that meets the requirements of a TMDL for the 303(d) listing for Organic Enrichment/Low Dissolved Oxygen impairment in the Stockton Deep Water Ship Channel (DWSC). The goal of the ~~D~~dissolved ~~O~~xygen (~~DO~~) control program is to achieve compliance with the Basin Plan ~~dissolved-oxygen~~DO water quality objectives in the DWSC.

- a. The Basin Plan identified the ~~dissolved-oxygen~~DO water quality objectives in the San Joaquin River (Stockton DWSC). These objectives are 6.0 mg/L between Turner Cut and Stockton (1 September through 30 November); and 5.0 mg/L in all other Delta waters.
- b. The low ~~dissolved-oxygen~~DO impairment in the DWSC is caused by the following three main contributing factors:
 - i. Loads of oxygen demanding substances from upstream sources that react by numerous chemical, biological, and physical mechanisms to remove dissolved oxygen from the water column in the DWSC;
 - ii. Geometry of the DWSC that impacts various mechanisms that add or remove dissolved oxygen from the water column, such that net oxygen demand exerted in the DWSC is increased; and
 - iii. Reduced flow through the DWSC that impacts various mechanisms that add or remove ~~dissolved-oxygen~~DO from the water column, such that net oxygen demand exerted in the DWSC is increased.
- c. Entities responsible for point and non-point sources of oxygen demanding substances and their precursors within the TMDL source area are required to perform oxygen demand and precursor studies by December 2008. These studies may be conducted by individual responsible entities or in collaboration with other entities. These studies must identify and quantify:
 - i. sources of oxygen demanding substances and their precursors in the dissolved oxygen TMDL source area;
 - ii. growth or degradation mechanisms of these oxygen demanding substances in transit through the source area to the DWSC; and
 - iii. the impact of these oxygen demanding substances on dissolved oxygen concentrations in the DWSC under a range of environmental conditions and considering the effects of chemical, biological, and physical mechanisms that add or remove dissolved oxygen from the water column

in the DWSC.

- d. Within the Basin Plan Amendment, the Central Valley Water Board established the following waste load allocations:
 - i. Waste load allocations of oxygen demanding substances and their precursors for all NPDES-permitted discharges are initially set at the corresponding effluent limitations applicable on 28 January 2005.
 - ii. Waste load allocations and permit conditions for new or expanded point source discharges in the San Joaquin River Basin upstream of the DWSC, including NPDES and stormwater, will be based on the discharger demonstrating that the discharge will have no reasonable potential to cause or contribute to a negative impact on the ~~dissolved oxygen~~DO impairment in the DWSC.
- e. Alternate measures, as opposed to direct control, of certain contributing factors would be considered by the Regional Board if the alternate measures adequately address the impact on the ~~dissolved oxygen~~DO impairment and do not degrade water quality in any other way.
- f. Compliance with the waste load allocations for oxygen demanding substances and their precursors, and development of alternate measures to address non-load related factors will be required by 31 December 2011.

The Permittee was issued a unilateral Waste Discharge Requirements Order R5-2006-0078 for the West Complex Docks 14 and 15 Dredging Project, wholly unrelated to its storm water discharges. This Order, which is not included or incorporated by reference into the MS4 permit, requires the following mitigation measures for dissolved oxygenDO due to dredging activities in the Deep Water Ship Channel-;

- a. Paragraph 3, Finding Number 62 of Order R5-2006-0078 states “The mitigation for dissolved oxygen, identified in the EIR, is required by this Order. Consistent with 14 CCR Section 15096, the Order includes additional measures beyond those identified in the EIR to address DO, including requiring compliance with the applicable water quality objective in the receiving water for DO contained in the Basin Plan. The Order requires that the Port provide additional oxygen to mitigate for increased channel geometry as a result of dredging and operate an additional aeration device to address dissolved oxygen impacts while dredging operations are underway. The requirements to address dissolved oxygen are specified in the Aeration Requirement, Attachment C.”

- b. Provision Number 5. of Order R5-2006-0078 states “The Discharger shall comply with the Aeration Requirement, Attachment C, which specifies the rate of oxygen that the Discharger must diffuse into the water column of the San Joaquin River on a daily basis. Failure to diffuse the prescribed rates of oxygen is a violation of this Order.”

To address the ~~dissolved oxygen~~DO impairment and toxic hot spot identified in the Stockton Area waterways, the ~~Discharger Port is was~~ required to monitor and assess the impacts from discharges on receiving water under Order R5-2006-0078. Low ~~dissolved oxygen~~ (DO) can cause physiological stress to aquatic organisms that result in adverse effects on survival, growth and reproduction. Low ~~dissolved oxygen~~DO conditions of less than 5 mg/L in the San Joaquin River near Stockton have been cited as barriers to adult Chinook salmon migration. Dissolved oxygen levels must be maintained to protect the aquatic life in the waterways.

Specific Provision D.28.b. Requirements

D.28.b. provisions implement the TMDL for ~~dissolved oxygen~~DO impairment in the DWSC. The Permittee is encouraged to coordinate activities with the City of Stockton, County of San Joaquin, California Department of Water Resources, U.S. Army Corp of Engineers, and other agencies, organizations, and interested stakeholders.

Provision D.28.b.i. The Permittee is required to conduct ~~dissolved oxygen~~DO contribution studies to evaluate their contributions of oxygen demanding substances from stormwater runoff to the DWSC. The Basin Plan defines oxygen demanding substances and their precursors as any substance or substances that consume, have the potential to consume, or contribute to the growth or formations of substances that consume or have the potential to consume oxygen from the water column.

Provision D.28.b.ii. The Permittee is currently issued unilateral ~~dissolved oxygen~~DO monitoring requirements under Order R5-2006-0078, the Permittee shall use the data collected under that Order to assess and evaluate the Low Dissolved Oxygen Program effectiveness.

Provision D.28.b.iii. Coordinating efforts with other agencies operating aerators and conducting monitoring studies in the DWSC will provide effective and efficient means to understanding and preventing the dissolved oxygen impairment in the DWSC.

Provision D.28.b.iv. The Permittee is required to conduct ~~dissolved oxygen~~DO contribution studies to monitor and evaluate the effectiveness of existing BMPs on the control of oxygen demanding substances, and develop and evaluate additional BMPs, to reduce oxygen demanding substances from discharging into the DWSC. To meet the Basin Plan's ~~waste load allocation~~WLA compliance date of 31 December, 2011, and the Permittee is required to submit the plan no later than 1 September 2011 as an inclusion in the Permittee's annual report.

3. Total Mercury and Methylmercury Control Program

The Delta is impaired because of elevated levels of methylmercury in fish. The Delta is on the Clean Water Act 303(d) list for mercury and the State Water Resources Control Board has designated the Delta as a toxic hot spot under the Bay Protection and Toxic Hot Spot Cleanup Program. Mercury problems are a legacy pollutant problem from historic gold mining operations and from air deposition that is evident region-wide. The main concern with mercury is that, ~~like selenium,~~ it bioaccumulates in aquatic systems to levels that are harmful to fish and their predators. Health advisories have been issued which recommend limiting consumption of fish taken from the Bay/Delta, tributaries to the Delta, and many lakes and reservoirs in the Central Valley. Concentrations of mercury in other water bodies approach or exceed National Academy of Science (NSA), ~~U.S. Environmental Protection Agency~~ (U.S. EPA), and /or U.S. Food and Drug Administration (FDA) guidelines for wildlife and human protection. In addition to these concerns, fish-eating birds taken from some bodies of water in the Basins may have levels of mercury that can be expected to cause toxic effects. ~~Several bird kills in Lake Berryessa in the 1980s have been lined to mercury. (There is also concern for birds in the Delta, but no studies have been completed.)~~

To address the mercury impairments, ~~Central Valley Regional Water Quality Control Board~~ (the Central Valley Water Board) staff has ~~been developing~~ ing a mercury control ~~programs (also know as total maximum daily load (TMDL) control programs)~~ for waterbodies on the 303(d) list. The Central Valley Water Board has adopted a Basin Plan amendment to the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* for the Control of Methylmercury and Total Mercury in the Sacramento-San Joaquin Delta Estuary (Resolution No. R5-2010-0043), which and is pending ~~subsequent~~ approval by the State Water Board, the Office of Administrative Law, and U.S. EPA. U.S. EPA approval of the TMDL is expected in 2011, which is within the five year term of this Order.

Annual methylmercury loads in urban runoff in MS4 service areas within the Delta may be calculated by the following method or by an alternate method approved by the Executive Officer. The annual methylmercury load in urban runoff for a given MS4 service area during a given year may be calculated by the sum of wet weather

and dry weather methylmercury loads. To estimate wet weather methylmercury loads discharged by MS4 urban areas, the average of wet weather methylmercury concentrations observed at the MS4's compliance locations may be multiplied by the wet weather runoff volume estimated for all urban areas within the MS4 service area within the Delta. To estimate dry weather methylmercury loads, the average of dry weather methylmercury concentrations observed at the MS4's compliance locations may be multiplied by the estimated dry weather urban runoff volume in the MS4 service area within the Delta. This method is consistent with that used to develop load estimates in the methylmercury TMDL.

Specific Provision D.28.c. Requirements

The D.28.c. provisions implement the methylmercury TMDL and are consistent with the general approach for sediment-bound pollutants discussed above where the Central Valley Water Board seeks to build an understanding and level of certainty concerning pollution prevention measures and control actions by implementing actions in a phased approach. ~~We then expand~~ implementation of those actions that prove effective will then be expanded, and ~~others that are not effective may be perhaps~~ scaled back or discontinued ~~those that are not effective~~.

Provision D.28.c.i. Mercury is found in a wide variety of consumer products (e.g., fluorescent bulbs) that are subject to recycling requirements. These recycling efforts are already happening throughout the Region, and Provision D.28.c.i. requires that if the Port is demonstrated to be a contributor to the mercury impairment, the Permittee promote~~ion~~, facilitate~~ion~~ and/or participate~~ion~~ in these region-wide recycling efforts to increase effectiveness and public participation. Industrial and commercial entities will be required to divert mercury-containing waste products (e.g., gauges).

Provision D.28.c.ii. If the Port is demonstrated to be a contributor to the mercury impairment, ~~t~~The Permittee is required to evaluate ways to enhance mercury load reduction benefits of operation and maintenance activities that remove or manage sediment. The purpose of this task is to implement these management practices at the pilot scale. The knowledge and experience gained through pilot implementation will be used to determine the feasibility and efficacy of enhanced sediment removal and management practices in subsequent permit terms. The Delta Mercury Control Program specifies that the Permittee shall implement pollution prevention measures and BMPs to minimize total (inorganic) mercury discharges. This requirement will be implemented through mercury reduction strategies required by this permit and other Orders. Annually, the Permittee will be required to report on the results of monitoring and a description of implemented pollution prevention measures and their effectiveness from identified control measures. All sources in the Delta will be required to implement reasonable, feasible actions to reduce sediment in runoff with the goal of reducing inorganic

mercury loading to the Delta, in compliance with existing Basin Plan objectives and requirements.

Provision D.28.c.iii. If the Port is demonstrated to be a contributor to the mercury impairment, ~~t~~The Permittee is required to include mercury pollution prevention and control-related messages designed to reach ~~residential, commercial and~~ industrial users or sources of mercury-containing products or emissions as part of the Public Outreach and Information Element of the Order. For public outreach ~~(e.g., auto dismantlers)~~ and municipal operations, the Permittee's mercury control programs ~~(e.g., enhance household hazardous waste collection program)~~ are required to coordinate with the countywide universal waste (U-Waste) management strategy in compliance with the Department of Toxic Substances Control (DTSC) Universal Waste Rule (Reference Number: R-97-08, Effective Date: 02/08/02). The Permittee may participate with other organizations to develop programs to reduce or eliminate sources of mercury within the Permittee's urbanized area. The Permittee may coordinate with publicly owned treatment works and other agencies to develop cooperative plans and programs. Annual reporting is required to determine the effectiveness of these control programs.

Provision D.28.c.iv. This permit requires methylmercury monitoring, or coordinated monitoring with other entities in the area. The purpose of the monitoring required through this provision is to obtain seasonal information and to assess the magnitude and spatial/temporal patterns of methylmercury concentrations in urban runoff.

Provision D.28.c.v. After the U.S. EPA approves the methylmercury TMDL and if the Permittee is determined to be a significant source of mercury, the Permittee is required to conduct methylmercury control studies to monitor and evaluate the effectiveness of existing BMPs on the control of methylmercury, and to develop and evaluate additional BMPs, as needed, to reduce mercury and methylmercury in storm water discharges to the Delta and meet methylmercury ~~waste load allocations~~ WLAs. Control Studies will be implemented through a Control Study Workplan ~~s~~ to be submitted nine months after the U.S. EPA has approved the methylmercury TMDL.

Provision D.28.c.vi. After the U.S. EPA approves the Delta methylmercury TMDL and if the Permittee is determined to be a significant source of mercury, the Permittee will be required to complete an Exposure Reduction Strategy, either individually or cooperatively with other dischargers. While methylmercury and mercury source reductions are occurring, the Central Valley Water Board recognizes that activities should be undertaken to protect those people who eat Delta fish by reducing their methylmercury exposure and its potential health risks. The Exposure Reduction Program (ERP) is not intended to replace timely reduction of mercury and methylmercury loads to Delta waters. Activities will

require collaboration with public health agencies to develop an ERP strategy; submission of an Exposure Reduction Workplan; implementation of the workplan and reporting. Specific elements of the workplan require: (1) community-driven activities to reduce mercury exposure, (2) raising awareness, (3) integrating community-based organizations into the ERP process, (4) identifying resources, (5) expand upon and create new activities or materials, and (6) program effectiveness. Specific timelines are identified based upon the U.S. EPA TMDL approval date.

H. Storm Water Planning and Development Standards

Legal Authority and Discussion

Federal [law \(33 USC §1342\(p\)\(3\)\(B\)\(iii\)\)](#) and regulations (40 CFR [§122.26](#) and [§122.34\(a\)](#)) require that pollutants in [municipal](#) storm water be reduced to the MEP. The U.S. EPA's definition is intentionally broad to provide maximum flexibility in MS4 permitting and to give municipalities the opportunity to optimize pollutant reductions on a program-to-program basis.²⁷ The definition of MEP has generally been applied to mean implementation of economically achievable management practices. Because storm water runoff rates can vary from storm to storm, the statistical probabilities of rainfall or runoff events become economically significant and are central to the control of pollutants through cost effective BMPs. Further, it is recommended that storm water BMPs be designed to manage ~~both flows and~~ water quality for best performance.²⁸ It is equally important that treatment BMPs, once implemented, be routinely maintained.

This Permit requires permittee to reduce pollutants and runoff flows from new development and redevelopment to the MEP. The MEP standard involves applying ~~best management practices (BMPs)~~ that are effective in reducing the discharge of pollutants in storm water runoff. If, from a list of BMPs, a permittee chooses only a few of the least expensive methods, it is likely that MEP has not been met [unless it can be demonstrated that the applicable water quality objectives are being met](#). Alternatively, if a permittee employs all applicable BMPs, except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit to be derived, it would have met the standard. MEP requires the permittee to choose effective BMPs, and to reject applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the cost would be prohibitive. MEP is the result of the cumulative effect of implementing, continuously evaluating, and making corresponding changes to a variety of technically and economically feasible BMPs that ensure the most appropriate controls are implemented in the most effective manner.

²⁷ *Storm Water Phase II Final Rule* – Pre-Federal Register Version, p 87 (U.S. EPA 1999). See U.S. EPA's discussion in response to challenges that the definition is sufficiently vague to be deemed adequate notice for purposes of compliance with the regulation.

²⁸ *Urban Runoff Pollution – Summary Thoughts* – The State of Practice Today and For the 21st Century. Wat. Sci. Tech. 39(2) pp. 353-360. L.A. Roesner (1999)

The U.S. EPA, based on the 1983 NURP, supports the first half-inch of rainfall as generating first flush runoff.²⁹ First flush runoff is associated with the highest pollutant concentrations, ~~and but~~ not pollutant load. The U.S. EPA considers the first flush treatment method, the rainfall volume method, and the runoff capture volume method as common approaches for the sizing of water quality BMPs.

On 5 October 2000, the State Water Board adopted Order WQ 2000-11³⁰ concerning the use of Standard Urban Storm Water Mitigation Plans (SUSMPs) in municipal storm water permits for new developments and significant redevelopments by the private sector. The precedent-setting decision largely sustained the LA Regional Board SUSMPs. The State Board amended the SUSMP to limit its application to discretionary projects as defined by CEQA, eliminated the category for projects in environmentally sensitive areas, and set aside the requirement for retail gasoline outlets to treat storm water until a threshold is developed in the future. In addition, the State Board articulated its support for regional solutions and mitigation banking. The State Water Board recognized that the decision includes significant legal or policy determinations that are likely to recur (Gov. Code §11425.60). Due to the precedent setting nature of WQ 2000-11, the proposed permit must be consistent with applicable portions of the State Water Board's decision and include SUSMPs, referred to in the proposed permit as Development Standards to the extent applicable. More detailed information is available at the Los Angeles Water Board's website:
www.swrcb.ca.gov/rwqcb4/html/programs/stormwater/la_ms4_final.html

Discussion of Requirements in This Permit

This component of the Permit requires the Permittee to update and continue to implement the Planning and New Development Element of its SWMP to minimize the short and long-term impacts on receiving water quality from new development and redevelopment. The Permit requires the continued implementation of the Permittee's Development Standards during ~~the entitlement and CEQA process and the~~ development plan review process.

~~To address low impact development (LID) and hydromodification, t~~This Permit requires the Permittee to revise their Development Standards and associated technical guidance (a.k.a. *Stormwater Quality Design Manual*) ~~and submit a Hydromodification Management Plan (HMP).~~

The Permittee is also required to revise applicable ordinances, ~~/~~standards, or ~~/~~specifications following amendment of Development Standards.

²⁹ *A Watershed Approach to Urban Runoff: Handbook for Decisionmakers*, Terrene Institute and U.S. EPA Region 5 (1996). See discussion on sizing rules for water quality purposes, p 36.

³⁰ *State Water Board Order WQ 2000-11: SUSMP*; Memorandum from Chief Counsel to Regional Board Executive Officers, (December 26, 2000) discusses statewide policy implications of the decision.

~~Finally, the Permit requires the performance of an assessment to determine the effectiveness of the Element activities and identification of any necessary modifications for continuous improvement.~~

VI. MONITORING AND REPORTING PROGRAM

Legal Authority

Federal regulations ~~(40 CFR 122.26(d)(2))~~ require the following: (1) quantitative data from representative outfalls designated by the permitting authority, which shall designate between five and ten outfalls or field screening points as representative of the commercial, residential, and industrial land use activities of the drainage area contributing to the MS4 ~~(40 CFR §122.26(d)(2)(iii)(A))~~; (2) estimates of the annual pollutant load of the cumulative discharges to waters of the United States from all identified municipal outfalls and the event mean concentration of the cumulative discharges for constituents of concern (COCs)³¹ ~~(40 CFR §122.26(d)(2)(iii)(B))~~; (3) estimated reductions in loadings of pollutants from discharges of municipal storm sewer constituents from municipal storm sewer systems expected as the result of SWMP implementation ~~(40 CFR §122.26(d)(2)(v))~~; and (4) the Discharger to submit an annual report that identifies, among other things, water quality improvements or degradation. Items 1-3 are required as Part 2 of the initial application. However, since they are needed to evaluate the SWMP, they are being incorporated into this Order.

A. Urban Discharge Monitoring

There are ~~six-five~~ urban discharge monitoring stations at the East Complex: ~~stations D-2, D-4, D-10, D-11, the retention basin inlet,~~ and the retention basin outfall. The West Complex has a single discharge point that is monitored at a pump station at the southwest corner of the island. These stations account for every urban discharge outfall at the Port. The goals of this monitoring are to act as a performance standard to monitor long-term trends in urban storm water quality, and provide data for estimating pollutant loads discharged to receiving waters. If additional sample station locations are needed, they shall be established under the direction of Board staff, and a description of the stations shall be attached to this MRP. Urban discharge monitoring shall be consistent with the frequency and schedule shown on Table F. Sample collection and analysis shall follow standard U.S. EPA protocols. Each year, samples shall be collected **during three storm events** ~~(40 CFR §122.26(d)(2)(iii)(A)(1))~~; and **two during the dry season**, at a minimum.

The COCs for the different monitoring stations vary depending on the known pollutant sources and the size of the drainage area. Monitoring stations with large drainage

³¹ ~~The regulation references the following constituents: BOD5, COD, TSS, dissolved solids, total nitrogen, total ammonia plus organic nitrogen, total phosphorus, dissolved phosphorus, cadmium, copper, lead, and zinc. /d. However, if previous characterizations of the Permittee's discharges demonstrate that any of these are not COCs, then these need not be monitored.~~

areas generally have more COCs to be analyzed. Urban discharges are monitored during the same three wet season storm events per year as receiving water.

The proposed permit requires the Permittee to conduct upstream source identification within its storm sewer system if urban runoff monitoring results in a detection of a constituent above applicable water quality objectives. This monitoring would occur during subsequent qualifying rain events.

B. Receiving Water Monitoring

The receiving water monitoring component of the Monitoring and Reporting Program (MRP) includes three monitoring stations in the San Joaquin River, ~~and one in the Deep Water Ship Channel (DWSC), and one in Burns Cutoff.~~ Stations are located either upstream and downstream of the Port's storm sewer discharges, depending on the time relative to the tidal cycle.

All receiving water samples shall be grab samples, collected at mid-depth, in mid-stream of the receiving water. Receiving water sampling may be postponed or eliminated if hazardous weather and/or river flow conditions prevent safe access to sampling location. Receiving water monitoring shall be taken after discharges from D-2, D-4, D-10, and D-11 have occurred and shall be consistent with the frequency and schedule shown on Table F. Attachment B shows the approximate locations of the receiving water sampling stations. Sample collection and analysis shall follow standard U.S. Environmental Protection Agency (US EPA) protocols. ~~Each year, samples shall be collected during three storm events and two during the dry season, at a minimum.~~

C. Ship Loading and Unloading Monitoring

The Permittee and its tenants are engaged in the shipping, loading and unloading (vessels and trains) of bulk commodities. Because handling bulk commodities at the Port may result in pollutants (e.g., fertilizers and livestock feed) being spilled on the ground and discharged to adjacent water bodies during rain events, or being directly spilled into those water bodies, monitoring during these activities is required.

During all bulk material loading and unloading events, the Permittee shall conduct visual observations of these activities to monitor the effectiveness of spill prevention BMPs. The Permittee shall also monitor-notify ship activities to prevent, to the maximum extent possible (MEP), ~~ship operators from that~~ discharging vessel equipment wash water and deck wash-down water must be in compliance with the U.S. EPA 2008 NPDES Vessel General Permit. Documentation of monitoring activities shall include the date and time of inspection, the name and title of the inspector, the dock where material transfer occurred, ~~the material and quantity transferred,~~ whether

~~or not~~ any material was spilled, a description of efforts to cleanup any spills, and weather conditions.

D. Method Detection Monitoring

~~The~~ Minimum Levels (MLs) ~~listed in Appendix 4 of the State Board Policy for Implementation of Toxics Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, 2000 (SIP)~~ represent the lowest quantifiable concentration in a sample based on the proper application of all method-based analytical procedures and the absence of any matrix interferences.³² ~~These~~ MLs must be incorporated into all water quality monitoring programs to detect priority toxic pollutants. The MLs are the only established criteria-monitoring methodologies that take into consideration recent improvements in chemical analytical methods. If ~~they~~ MLs are not used in the storm water program, concentrations of concern of priority toxic pollutants may not be detected. Detection and control of toxic pollutants in surface waters is necessary to achieve the CWA's goals and objectives.³³

Numeric criteria for toxic pollutants are necessary to evaluate the adequacy of existing and potential control measures to protect aquatic ecosystems and human health.³⁴ Also, using MLs will provide quantifiable data that is necessary to better assess water quality and to develop Waste Load Allocations and Load Allocations for TMDLs. Furthermore, non-detects cannot be used to accurately determine mass loadings. The criteria established in the CTR are legally applicable in the State of California for inland surface waters, enclosed bays and estuaries for all purposes and programs under the CWA.³⁵ CWA section 402(p)(3)(B)(iii) gives USEPA and states the authority to incorporate appropriate water quality-based effluent limitations in NPDES permits for discharges from MS4s.³⁶ However, California has made the decision to impose receiving water limitations and an iterative BMP-based regulatory approach in lieu of water quality-based effluent limitations.

E. Water Column Toxicity Monitoring

Studies conducted by Regional Board staff found toxicity in the San Joaquin River and the ~~Deep Water Ship Channel~~ DWSC. Toxicity monitoring is therefore required by this Order.³⁷

³² SIP

³³ 65 Fed. Reg. 31683

³⁴ *Id.*

³⁵ 65 Fed. Reg. 31682

³⁶ 65 Fed. Reg. 31703

³⁷ Review of the City of Stockton Urban Stormwater Runoff, Aquatic Life Toxicity Studies Conducted by the CVRWQCB, DeltaKeeper and the University of California, Davis, Aquatic Toxicology Laboratory, between 1994 and 2000. G. Fred Lee, PhD, DEE and Anne Jones-Lee, PhD.

Toxicity testing is used to assess the impact of storm water pollutants on the overall quality of aquatic systems.³⁸ It can be a useful tool for storm water managers. The Center for Watershed Protection rated toxicity testing as a "very useful" indicator for assessing municipal storm water programs. Toxicity testing can also be used to evaluate the effectiveness of storm water BMPs and other storm water pollution reduction measures.³⁹ Managers can use the results of toxicity testing to identify areas of high concern and to establish priority locations for BMPs. Furthermore, Toxicity Identification Evaluations (TIEs) and Toxicity Reduction Evaluations (TREs) can be used to identify specific pollutants and their sources so that management actions can be more specifically prioritized.

Toxicity testing using multiple species is needed to provide a complete assessment of the causes of toxicity in storm water.⁴⁰ Reliance on single species tests may not provide an accurate assessment of toxicity.⁴¹ Because different species vary in their sensitivity to contaminants, tests with multiple species are needed to determine if other contaminants are present at toxic concentrations⁴². Specifically, an organism that is sensitive to pesticides, which have been found to be important factors in the toxicity of storm water from other watersheds, should be used⁴³. USEPA recommends the use of the *Ceriodaphnia dubia* (water flea) reproduction and survival test for the measurement of receiving water toxicity. The water flea is one of the most sensitive aquatic species to diazinon, ~~whereas the sea urchin fertilization test is insensitive to organophosphorus pesticides.~~⁴⁴ ~~By contrast, sea urchin sperm are approximately 10 times more sensitive to trace metals than are water fleas.~~

Furthermore, the toxicity component of the Monitoring Program should include ~~toxicity identification~~TIE procedures so that potential COCs can be confirmed and others can be discounted. TIEs are needed to prioritize management actions.

Toxicity testing will be conducted at two urban runoff monitoring stations and three (down stream) receiving water monitoring stations on an **annual** basis. Annual data collection allows for characterizing a range of hydrologic conditions that vary from year to year and to more fully characterize potential sources of contaminants and toxicity that may be contributing to the decline of fish populations in the Delta. ~~If toxicants are discovered in the first toxicity testing, the Permittee will perform additional toxicity test as directed by the Executive Officer. When a sample is substantially toxic to either test~~

³⁸ Center for Watershed Protection, Environmental Indicators to Assess Stormwater Control Programs and Practices (1996).

³⁹ Ibid.

⁴⁰ Bay, Jones, Schiff. Study of the Impact of Stormwater Discharge on Santa Monica Bay (1999).

⁴¹ Center for Watershed Protection

⁴² Bay, et al.

⁴³ Bay, et al.

⁴⁴ Kinnetic Laboratories, inc., City of Long Beach Storm Water Monitoring Report (2000-2001).

~~species, a Phase I TIE will begin immediately. Substantial toxicity means the amount of toxicity necessary to successfully conduct a Phase I TIE. For example, *Ceriodaphnia* TIEs require at least 50 percent mortality in undiluted sample at any time during the 7-day duration of the initial chronic bioassay.⁴⁵ If enough toxicity is not present at the beginning of a TIE, it cannot be successfully completed.~~

~~Furthermore, after a toxic pollutant or class of pollutants is identified as causing at least 50 percent of the toxic responses in at least three samples at a sampling location, Toxicity Reduction Evaluations (TRE) will be conducted. If a Phase I TIE only identifies a broad category of toxicants (i.e., non-polar organics), additional TIE analysis, to the extent possible, will be conducted until the source of toxicity is identified. Overall, the toxicity monitoring program will assess the impact of storm water on the overall quality of aquatic systems and implement measures to ensure that those impacts are eliminated or reduced. Chemical monitoring does not necessarily reveal the impacts of storm water on aquatic life or beneficial uses of water bodies. Toxicity monitoring therefore is a necessary component of a storm water monitoring program.~~

F. Sediment Toxicity

Ambient water and sediment quality monitoring by the Surface Water Ambient Monitoring Program (SWAMP - Sacramento Basin) identified a high incidence of sediment toxicity in several urban creeks that drain the suburbs of Roseville (Weston et al., 2005).⁴⁶ Nearly all creek sediments sampled caused toxicity to the resident aquatic amphipod *Hyaella azteca*, and about half the samples (10 of 21) caused nearly complete mortality (>90%). Another study by the Sacramento River Watershed Program (SRWP) observed sediment toxicity in almost every Sacramento area urban creek that was tested (Amweg et al., 2006).⁴⁷ Several pyrethroid pesticides were present in sediment samples from both studies at acutely toxic concentrations. Pyrethroid pesticides are persistent, hydrophobic, and rapidly sorb to sediments in aquatic environments. The sediment toxicity observed was localized to within tens to hundreds of meters downstream of storm water outfalls draining residential areas.

~~The phase-out of the sale of diazinon and chlorpyrifos for most residential and commercial uses resulted in an increase in the use of pyrethroid pesticide use in urban and residential areas. Monitoring of sediment quality (sediment toxicity testing) and urban runoff/discharges is needed to characterize sediment/water quality conditions, determine the significance of the increase in urban pyrethroid usage, and assess management practice effectiveness.~~

⁴⁵ SCCWRP

⁴⁶ Weston, D.P., R.W. Holmes, J. You, and M.J. Lydy. 2005. Aquatic toxicity due to residential use of pyrethroid insecticides. *Environ. Sci. & Technol.* 39: 9778-9784.

⁴⁷ Amweg, E.L., D.P. Weston, J. You, and M.J. Lydy. 2006. Pyrethroid insecticides and sediment toxicity in urban creeks from California and Tennessee. *Environ. Sci. & Technol.* Published on web 1/31/2006.

VII. SPECIAL STUDIES

G. Retention Basin Studies

The Permittee is required to update and submit the Retention Basin Monitoring Work Plan, as part of the SWMP, to reflect additional monitoring ~~of for certain the following constituents to be monitored: total mercury, pyrethroids and methylmercury in water; pyrethroids and total mercury in sediment and water. Constituents that shall continue to be sampled in the retention basin include: total suspended solids (TSS), bacteria, turbidity, total dissolved solids (TDS) and organophosphate pesticides (chlorpyrifos and diazinon). The work plan is designed to perform influent, effluent, and sediment chemistry/toxicity monitoring of the retention basin. Monitoring shall be conducted during at least two wet seasons and two dry seasons within the five year period. Monitoring shall be designed to evaluate the effectiveness of the retention basin in removing pollutants of concern. The Permittee may propose a joint study with other Central Valley MS4 permittees if they can demonstrate that data collected in other jurisdictions is applicable to retention basins in the Permittee's jurisdictions.~~

H. BMP Effectiveness Studies

The Permittee is required to conduct studies to evaluate the effectiveness of source or treatment control BMPs. The objective of these studies will include the following:

1. Monitor the reduction of pollutants of concern in storm water ~~including, but not limited to, pathogen indicators, nutrients, heavy metals, mercury and pesticides from a minimum of one BMP. Monitoring will be continued until the effectiveness of the BMP can be determined~~ due to BMPs;
 2. Evaluate the requirements for and installation and maintenance cost of each BMP; and
 3. Develop recommendations for appropriate BMPs for the reduction of pollutants of concern in storm water ~~in at the Stockton Port District.~~
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