

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2008-0142

NPDES NO. CAS082597

WASTE DISCHARGE REQUIREMENTS

CITIES OF CITRUS HEIGHTS, ELK GROVE, FOLSOM, GALT, RANCHO CORDOVA,  
SACRAMENTO, AND COUNTY OF SACRAMENTO  
STORM WATER DISCHARGES FROM  
MUNICIPAL SEPARATE STORM SEWER SYSTEM  
SACRAMENTO COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Water Board) finds that:

1. The Cities of Citrus Heights, Elk Grove, Folsom, Galt, Rancho Cordova, Sacramento and the County of Sacramento, hereafter jointly referred to as Permittees, submitted a completed Report of Waste Discharge (ROWD) on 1 June 2007, requesting reissuance of waste discharge requirements under the National Pollutant Discharge Elimination System (NPDES) area-wide municipal separate storm sewer system (MS4) permit to discharge storm water runoff from storm drains within their jurisdictions. Included with the ROWD was the Permittees' Stormwater Quality Improvement Plans (SQIPs, a.k.a. Storm Water Management Plan (SWMP)). The SQIP is required as part of the ROWD pursuant to 40 CFR 122.26(d)(2)(iv); therefore it is an integral and enforceable component of the MS4 permit. In addition, the California Superior Court ruled, *"Because the Storm 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).
2. The Permittees have chosen the title of Stormwater Quality Improvement Plan (SQIP) to refer to any SWMP requirements or references in this Order.
3. Prior to issuance of this Order, the Permittees were covered under the NPDES area-wide MS4 permit, Order No. R5-2002-0206 (NPDES No. CAS082597), adopted on 6 December 2002. The MS4 permit was originally issued in 1990 and this will be the Permittees fourth permit term.
4. The County and the City of Sacramento (population approximately 1.4 million) are defined as large municipalities (i.e., those with populations greater than 250,000) in the Code of Federal Regulations (40 CFR 122.26(b)(7)). As such, the County and the City of

Sacramento must obtain an NPDES municipal storm water permit. The City of Sacramento has a population of approximately 468,000.

5. The City of Folsom is an urbanized area with a population of about 71,000. Because of its proximity to the urbanized areas of the County, and the location of its storm sewer system discharges relative to discharges from the County's system, Folsom was designated in 1990 as part of the large MS4 (40 CFR 122.26(b)(4)(iii)).
6. The City of Galt is an urbanized area with a population of about 24,000. Galt is unlike the other Permittees in that its MS4 is non-contiguous with the other MS4s; it is also surrounded by rural and agricultural areas that are not subject to the NPDES regulations. Galt became part of the Phase I Sacramento Storm Water Management Program voluntarily in 1990.
7. The Cities of Citrus Heights and Rancho Cordova have a population of less than 100,000 with contiguous urbanized areas within the County. Therefore, the Cities of Citrus Heights and Rancho Cordova are designated as part of the large MS4.
8. The City of Elk Grove has a population of approximately 137,000 and has the nation's fastest growth rate among large cities (100,000 or more population) between July 1, 2004, and July 1, 2005, according to new U.S. Census Bureau population estimates. The City is a contiguous urbanized area within the County. Therefore, the City of Elk Grove is designated as part of the large MS4.
9. Additional cities located in Sacramento County may be incorporated during the life of this Order. If that occurs, the Order may be reopened to consider designating those cities as part of the large MS4, and subject to the requirements of the Order.
10. The MS4 Permit does not apply to all areas within Sacramento County. The MS4 permit covers the land within the Sacramento County Urban Service Area boundary, as well as the City of Galt and the Sacramento International Airport. Land designated within the Urban Service Area includes the Cities of Citrus Heights, Elk Grove, Folsom, Rancho Cordova, Sacramento and unincorporated Sacramento County.
11. The Permittees have jurisdiction over and/or maintenance responsibilities for their respective MS4s that they own and operate in the Sacramento Urbanized Area. The storm water discharge consists of urban runoff generated from various land uses discharging from MS4s into smaller tributary watercourses and the primary rivers flowing through the area. The quality and quantity of these discharges varies considerably due to the effects of land use, season, geology, and the sequence and duration of hydrologic events.
12. Development which is not guided by water quality planning policies and principles can result in increased pollutant load discharges, flow rates, and flow durations, which can impact receiving water beneficial uses. Construction sites without adequate best management practices (BMPs) implementation result in sediment runoff rates which can

greatly exceed natural erosion rates of undisturbed lands, causing siltation and impairment of receiving waters. Existing development without adequate BMPs can generate substantial pollutant loads, which can be discharged in urban runoff to receiving waters.

13. The Permittees' land use authority allows urban developments that may generate pollutants and runoff that could impair receiving water quality and beneficial uses. The Permittees are therefore responsible for considering potential storm water impacts when making planning decisions in order to fulfill the Clean Water Act (CWA) requirement to reduce the discharge of pollutants in municipal storm water to the MEP from new development and redevelopment activities. In addition, the Permittees must exercise their legal authority to ensure that the increased pollutant loads and flows do not degrade the beneficial uses of the receiving water.
14. This Order is not intended to prohibit the inspection for or abatement of vectors by the State Department of Health Services or local vector agencies in accordance with California Health and Safety Code § 2270 et seq. and §116110 et seq. Certain Treatment Control Best Management Practices (BMPs) if not properly designed, operated or maintained may create habitats for vectors (e.g. mosquito and rodents). This Order expects that the Permittees will closely cooperate and collaborate with local vector control agencies and the State Department of Health Services for the implementation, operation, and maintenance of Treatment Control BMPs in order to minimize the risk to public health from vector borne diseases.
15. There are portions of the Sacramento MS4 that are rural, and open space lands. It is not the intent of the federal storm water regulations to regulate storm water discharges from land uses of these types. Therefore, these areas are exempt from the requirements of this Order. However, discharges from these sources may be subject to TMDL allocations and control programs.
16. When natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, and parking lots, the natural absorption and infiltration abilities of the land are lost. Therefore, runoff leaving a developed urban area is significantly greater in runoff volume, velocity, and peak flow rate than pre-development runoff from the same area. Runoff durations can also increase as a result of flood control and other efforts to control peak flow rates. Increased volume, velocity, rate, and duration of runoff can accelerate the erosion of downstream natural channels. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as a 10% conversion from natural to impervious surfaces. The increased runoff characteristics from new development must be controlled to protect against increased erosion of channel beds and banks, sediment pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive forces.<sup>1</sup>

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<sup>1</sup> USEPA, 1999. Part II. 40 CFR Parts 9, 122, 123, and 124. National Pollutant Discharge Elimination System –Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. Federal Register.

17. Urban development creates new pollution sources as human population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc. which can be washed or directly dumped into the MS4. As a result, the runoff leaving the developed urban area may be significantly greater in pollutant load than the pre-development runoff from the same area. These increased pollutant loads must be controlled to protect downstream receiving water quality.
18. Development and urbanization may threaten environmentally sensitive areas (ESAs), which are water bodies supporting a rare beneficial use (supporting rare, threatened or endangered species) and CWA 303(d) impaired water bodies. These waters have a reduced capacity to withstand certain pollutant loads. In essence, development that is ordinarily insignificant in its impact on the environment may be significant in a particular sensitive environment. Therefore, additional control to reduce pollutants from new and existing development may be necessary for areas adjacent to or discharging directly to an ESA.
19. Infiltration is a technique that can be used to treat and reduce site runoff in areas with appropriate soils where the infiltration of storm water would not pose a potential threat to groundwater quality. Precautions must be taken to avoid damage to structures, roadways and utilities. The risks associated with infiltration can be managed by various techniques, such as: (1) designing landscape drainage features that promote infiltration of runoff, but do not "inject" runoff (injection bypasses the natural processes of filtering and transformation that occur in the soil); (2) taking reasonable steps to prevent the illegal disposal of wastes; (3) requiring setbacks and other features to protect footings and foundations; and (4) ensuring that each drainage feature is adequately maintained in perpetuity.
20. The Permittees implement New Development Standards to mitigate potential urban runoff pollution and other water quality impacts associated with new development and redevelopment. As indicated by the anti-degradation analysis submitted in October 2007, and the 2005 Discharge Characterization study, the Permittee New Development Standards have been implemented to mitigate water quality impacts with new development and redevelopment.

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21. The quality and quantity of MS4 discharges vary considerably because of the effects of hydrology, geology, land use, season, and sequence and duration of precipitation events. Urban storm water runoff may contain pollutants that may lower the quality of receiving waters and adversely impact beneficial uses of the Lower Sacramento and American River watersheds. Studies indicate there may be increases in pollutant levels and aquatic toxicity in receiving waters as a result of urban storm water discharges.
22. Pollutants that may be contained in storm water include, but are not limited to, certain heavy metals; sediments; petroleum hydrocarbons from sources such as used motor oil;

microbial pathogens; pesticides; sources of acute and chronic aquatic toxicity; and nutrients that cause or contribute to the depletion of dissolved oxygen and/or toxic conditions in the receiving water. Excessive flow rates of storm water may cause or contribute to downstream erosion and/or excessive sediment discharge and deposition in stream channels.

23. The discharge of wash waters and polluted storm water from industries and businesses is an environmental threat, and can also adversely impact public health and safety. The pollutants of concern in such wash waters include food waste, oil and grease, and toxic chemicals (Washtenaw County Statutory Drainage Board – 1987 Huron River Pollution Abatement Program). Other storm water/industrial waste programs in California have reported similar observations and have identified illicit discharges from automotive and food service facilities as a major cause of contamination and water quality problems.
24. Certain pollutants present in storm water and/or urban runoff may be derived from extraneous sources that Permittees have no or limited jurisdiction over. Examples of such pollutants and their respective sources are: polyaromatic hydrocarbons which are products of internal combustion engine operation, nitrates, bis (2-ethylhexyl) phthalate, pesticides, metals, and mercury from wet and dry atmospheric deposition; lead from fuels, copper from brake pad wear; zinc from tire wear; bacteria from natural sources including wildlife; dioxins as products of combustion, and natural-occurring minerals from local geology. However, the implementation of the measures set forth in this Order is intended to reduce the entry of these pollutants into storm water and their discharge to receiving waters to the MEP.
25. The Permittees have been monitoring storm water discharges since inception of the program in 1990. The Permittees have conducted various types of monitoring and maintain a database that includes data from river, creek and urban run-off discharge quality characterization, as well as water column toxicity and bioassessment monitoring.
26. The previous permit required under Discharge Prohibition. B. Receiving Water Limitations, the submittal of a report of water quality exceedance (RWQE) upon determination by either the Permittee or Regional Water Board that discharges are causing or contributing to an exceedance of applicable Water Quality Standards. As a result, the Permittees initiated studies for pesticide and metals persistence, and assessment of metals toxicity, and follow-up monitoring related to exceedances for pH, temperature, and dissolved oxygen in urban tributaries and pathogen source identification efforts.
27. In addition, the Permittees have developed and implemented a Target Pollutant Program (referred to as Water Quality Based Programs in this Order) to target specific pollutants that have been identified to cause or contribute to exceedances of water quality standards and potential impairment of beneficial uses. During the third permit term these programs included:
  - Pesticide Plan (including organophosphate pesticides);

- Mercury Plan
- Fecal Waste Reduction Strategy
- Lead and Copper Control Strategies

The progress in implementing these plans has been reported in the Permittees' annual reports.

## STATUTORY AND REGULATORY CONSIDERATIONS

28. The CWA authorizes the U.S. Environmental Protection Agency (U.S. EPA) to permit a state to serve as the NPDES permitting authority in lieu of the U.S. EPA. The State of California has in-lieu authority for the NPDES program. The Porter-Cologne Water Quality Control Act or California Water Code (CWC) authorizes the State Water Resources Control Board (State Board), through the Regional Water Boards, to regulate and control the discharge of pollutants into waters of the State. On 22 September 1989, the State Board entered into a memorandum of agreement with the U.S. EPA to administer the NPDES Program governing discharges to waters of the United States.
29. This Order does not constitute an unfunded local government mandate subject to subvention under Article XIII B, Section (6) of the California Constitution for several reasons, including, but not limited to, the following. First, this Order implements federally mandated requirements under federal Clean Water Act section 402, subdivision (p)(3)(B). (33 U.S.C. § 1342(p)(3)(B).) This includes federal requirements to effectively prohibit non-storm water discharges, to reduce the discharge of pollutants to the maximum extent practicable, and to include such other provisions as the Administrator or the State determines appropriate for the control of such pollutants. Federal cases have held these provisions require the development of permits and permit provisions on a case-by-case basis to satisfy federal requirements. (*Natural Resources Defense Council, Inc. v. U.S. E.P.A.* (9th Cir. 1992) 966 F.2d 1292, 1308, fn. 17.) The authority exercised under this Order is not reserved state authority under the Clean Water Act's savings clause (*cf. Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613, 627-628 [relying on 33 U.S.C. § 1370, which allows a state to develop requirements which are not "less stringent" than federal requirements]), but instead, is part of a federal mandate to develop pollutant reduction requirements for municipal separate storm sewer systems. To this extent, it is entirely federal authority that forms the legal basis to establish the permit provisions. (See, *City of Rancho Cucamonga v. Regional Water Quality Control Bd.- Santa Ana Region* (2006) 135 Cal.App.4th 1377, 1389; *Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866, 882-883.)

Likewise, the provisions of this Order to implement total maximum daily loads (TMDLs) are federal mandates. The federal Clean Water Act requires TMDLs to be developed for water bodies that do not meet federal water quality standards. (33 U.S.C. § 1313(d).) Once the U.S. Environmental Protection Agency or a state develops a TMDL, federal law requires that permits must contain effluent limitations consistent with the assumptions of any applicable waste load allocation. [(40 C.F.R. § 122.44(d)(1)(vii)(B))]

Second, the local agency permittees' obligations under this Order are similar to the obligations of non-governmental dischargers who are issued NPDES permits for storm water discharges. With a few inapplicable exceptions, the Clean Water Act regulates the discharge of pollutants from point sources (33 U.S.C. § 1342) and the Porter-Cologne regulates the discharge of waste (Wat. Code, § 13263), both without regard to the source of the pollutant or waste. As a result, the "costs incurred by local agencies" to protect water quality reflect an overarching regulatory scheme that places similar requirements on governmental and nongovernmental dischargers. (See *County of Los Angeles v. State of California* (1987) 43 Cal.3d 46, 57-58 [finding comprehensive workers compensation scheme did not create a cost for local agencies that was subject to state subvention].)

Third, the local agency permittees have the authority to levy service charges, fees, or assessments sufficient to pay for compliance with this Order. The fact sheet demonstrates that numerous activities contribute to the pollutant loading in the municipal separate storm sewer system. Local agencies can levy service charges, fees, or assessments on these activities, independent of real property ownership. (See, e.g., *Apartment Ass'n of Los Angeles County, Inc. v. City of Los Angeles* (2001) 24 Cal.4th 830, 842 [upholding inspection fees associated with renting property].) The ability of a local agency to defray the cost of a program without raising taxes indicates that a program does not entail a cost subject to subvention. (*County of Fresno v. State of California* (1991) 53 Cal.3d 482, 487-488.)

Fourth, the permittees have requested permit coverage in lieu of compliance with the complete prohibition against the discharge of pollutants contained in federal Clean Water Act section 301, subdivision (a) (33 U.S.C. § 1311(a)) and in lieu of numeric restrictions on their discharges. To the extent, the local agencies have voluntarily availed themselves of the permit, the program is not a state mandate. (Accord *County of San Diego v. State of California* (1997) 15 Cal.4th 68, 107-108.) Likewise, the permittees have voluntarily sought a program-based municipal storm water permit in lieu of a numeric limits approach. (See *City of Abilene v. U.S. E.P.A.* (5th Cir. 2003) 325 F.3d 657, 662-663 [noting that municipalities can choose between a management permit or a permit with numeric limits].) The local agencies' voluntary decision to file a report of waste discharge proposing a program-based permit is a voluntary decision not subject to subvention. (See *Environmental Defense Center v. USEPA* (9th Cir. 2003) 344 F.3d 832, 845-848.)

Fifth, the local agencies' responsibility for preventing discharges of waste that can create conditions of pollution or nuisance from conveyances that are within their ownership or control under state law predates the enactment of Article XIIIB, Section (6) of the California Constitution.

30. The Water Quality Act of 1987 added Section 402(p) to the Clean Water Act (CWA 33 U.S.C. § 1251-1387). This section requires the U.S. EPA to establish regulations setting forth NPDES requirements for storm water discharges in two phases.

- The U.S. EPA Phase I storm water regulations were directed at MS4s serving a population of 100,000 or more, including interconnected systems and storm water discharges associated with industrial activities, including construction activities. The Phase I Final Rule was published on November 16, 1990 (55 *Fed. Reg.* 47990).
  - The U.S. EPA Phase II storm water regulations are directed at storm water discharges not covered in Phase I, including small MS4s (serving a population of less than 100,000), small construction projects (one to five acres), municipal facilities with delayed coverage under the Intermodal Surface Transportation Efficiency Act of 1991, and other discharges for which the U.S. EPA Administrator or the State determines that the storm water discharge contributes to a violation of a water quality standard, or is a significant contributor of pollutants to waters of the United States. The Phase II Final Rule was published on December 8, 1999 (64 *Fed. Reg.* 68722).
31. This Order specifies requirements necessary for the Permittees to reduce the discharge of pollutants in urban runoff to the maximum extent practicable (MEP).<sup>2</sup> However, since MEP is a dynamic performance standard which evolves over time as urban runoff management knowledge increases, the Permittees' storm water programs must continually be assessed and modified to incorporate improved programs, control measures, and best management practices (BMPs), etc. in order to achieve the evolving MEP standard. MEP is a technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) that operators of MS4s must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve. Factors that must be considered when defining MEP include, but is not limited to; effectiveness, regulatory compliance, public acceptance, cost and technical feasibility. This continual assessment, revision, and improvement of storm water management program implementation is expected to ultimately achieve compliance with water quality standards.
32. This Order contains requirements based on assessments by Regional Water Board staff. Those assessments found that modifications were necessary to improve the Permittees efforts to reduce the discharge of pollutants in urban runoff to the MEP and achieve water quality standards.
33. This Order is intended to develop, achieve, and implement a timely, comprehensive, cost-effective storm water pollution control program to reduce the discharge of pollutants in storm water runoff to the MEP from the permitted areas in the Sacramento Urbanized Area subject to the Permittees' jurisdiction to receiving waters.
34. Section 402(p)(3)(B)(ii) of the CWA requires that NPDES permits effectively prohibit non-storm water discharges into MS4s. Federal regulation 40 CFR 122.26(d)(2)(iv)(B)(1) requires control programs to prevent illicit discharges to MS4s and allows certain categories of non-storm water discharges to MS4s, provided that the Permittees

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<sup>2</sup> A definition of MEP may be found in Attachment C.



eliminate such discharges once they are identified as sources of pollutants to waters of the United States. Illicit discharges can include low levels of chlorine if they originate from potable water sources.

35. The State Board has issued two statewide general NPDES permits for storm water discharges: one for storm water from industrial sites [NPDES No. CAS000001, General Industrial Activity Storm Water Permit (General Industrial Permit)] and the other for storm water from construction sites [NPDES No. CAS000002, General Construction Activity Storm Water Permit (General Construction Permit)]. These two General Permits are scheduled for renewal during this 5-year term of this Order. In addition, the Regional Water Board has issued General Permit Order No. R5-2008-0081 for dewatering and other low threat discharges, which authorizes such discharges to the MS4s owned and operated by Permittees. This Order requires the Permittees to conduct compliance inspections at industries and construction sites that discharge to their MS4s. Many of these sites are currently covered under State NPDES General Permits.
36. The Permittees have adopted their own respective storm water ordinances. These ordinances provide the Permittees the authority to protect and enhance the water quality of watercourses, water bodies, and wetlands in the Sacramento Urbanized Area in a manner pursuant to and consistent with the CWA and the Porter-Cologne Water Quality Control Act.
37. Federal regulations 40 CFR 122.26(d)(2)(iv)(A) and 40 CFR 122.26(d)(2)(iv)(C) require that MS4 Permittees implement a program to monitor and control pollutants in discharges to the municipal system from industrial and commercial facilities that contribute a substantial pollutant load to the MS4. Federal regulations require that Permittees establish priorities and procedures for inspection of industrial facilities and priority commercial establishments. This permit, consistent with the U.S. EPA policy, incorporates a cooperative partnership, including the specifications of minimum expectations, between the Regional Water Board and the Permittees for the inspection of industrial facilities and priority commercial establishments to control pollutants in storm water discharges (58 Fed. Reg. 61157).
38. When industrial or construction site discharges occur in violation of local permits and ordinances, the Regional Water Board defers first to the municipality where the discharge occurs for appropriate actions. If the municipality has demonstrated a good faith effort to educate and enforce but remains unsuccessful, the Regional Water Board may assist the municipality and conduct a cooperative investigation and/or enforcement effort including enforcement of the applicable statewide General Permit. If the municipality has not demonstrated a good faith enforcement effort, the Regional Water Board may initiate enforcement action against both the industrial or construction discharger under the statewide General Permits, as well as against the authorizing municipal Permittee for violations of this Order. Each Permittee must also provide the first level of enforcement against illegal discharges from other land uses it has authorized, such as commercial and residential developments.

39. This Order shall assure compliance with water quality standards. This Order therefore includes requirements to the effect that discharges shall not cause or contribute to violations of water quality standards that would cause or create a condition of nuisance, pollution, or water quality impairment in receiving waters. The Regional Water Board is requiring that these requirements be addressed through the effective implementation of Best Management Practices (BMPs) to reduce pollutants in storm water.
40. Regulations in 40 CFR 122.26(d)(2)(iv) require that the SQIP be implemented during the entire duration of the permit, which is five years. The Permittees shall demonstrate substantial compliance with the SQIP and this Order through the information and data supplied in the Annual Report. The SQIP shall remain in effect as an integral and enforceable part of this Order until revised and approved by the Regional Water Board. If there are conflicts between the SQIP and this Order, then the Order supercedes the SQIP.
41. Federal, state, regional, or local entities within the Permittees' boundaries, not currently named in this Order, operate storm drain facilities and/or discharge storm water to the storm drains covered by this Order. The Permittees may lack legal jurisdiction over these entities under applicable state and federal authorities. Consequently, the Regional Water Board recognizes that the Permittees should not be held responsible for such facilities and/or discharges. However, Permittees should notify the Regional Water Board upon recognition of discharges, which are a threat to storm water quality protection.
42. The State and Regional Water Boards may consider issuing separate NPDES storm water permits to other federal, state, or regional entities operating and discharging within the Permittees' boundaries that may not be subject to direct regulation by the Permittees. Federal agencies are not subject to municipal storm water requirements although they may be permitted as industrial dischargers.
43. The State Water Resources Control Board adopted an NPDES General Permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2003-0005-DWQ) to provide permit coverage for smaller municipalities, including non-traditional Small MS4s, which are governmental facilities such as military bases, public campuses, and prison and hospital complexes. Currently the following entities have been designated to have a separate NPDES Small MS4 General Permit located within the Sacramento County Urbanized area:
  - California Exposition and Fair;
  - California State University at Sacramento;
  - Cosumnes Community Services District; and
  - Elk Grove Unified School District under the purview of Sacramento County Office of Education

The Permittees should work cooperatively with these entities for the purpose of maintaining mutually beneficial storm water management program coordination,

cooperation and communication. This will help provide consistency of storm water regulations throughout each Permittee's jurisdiction.

44. The Regional Water Board adopted the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. This Order implements the Basin Plan.
45. The beneficial uses of the American River, Cosumnes River, Mokelumne River, Sacramento River, and the Delta downstream of the discharge as identified in Table II-1 of the Basin Plan are municipal, domestic, industrial and agricultural supply; water contact and non-contact recreation; aesthetic enjoyment; navigation; groundwater recharge; fresh water replenishment; and preservation and enhancement of fish, wildlife and other aquatic resources. Tributaries of the waters may have similar beneficial uses.
46. The beneficial uses of the underlying ground water beneath the Sacramento Urbanized Area as identified in the Basin Plan are municipal and domestic water supply, industrial service, industrial process, and agricultural supply.
47. Congress has determined that it is not feasible at this time to establish numeric effluent limits for pollutants in storm water discharges from MS4s [Clean Water Act (CWA)<sup>3</sup> Section 402(p)(3)(B)(iii)<sup>4</sup>]. In addition, the California Superior Court ruled; "*Water quality-based effluent limitations are not required for municipal Stormwater discharges [33 USC §1342(p)(3)(B)] and [40 CFR §122.44(k)(3)]. For municipal stormwater discharges, the Permits must contain best management practices (BMPs), which reduce pollutants to the maximum extent practicable [33 USC §1342(p)(3)(B)]. These Permits do contain these through the Stormwater Management Plan which is incorporated into the Permits by reference.*" (*San Francisco Baykeeper vs. Regional Water Quality Control Board, San Francisco Bay Region*, Case No. 500527, 14 November 2003). Therefore, the effluent limitations in this Order are narrative, and include the requirement to reduce pollutants in storm water discharges to the MEP. In lieu of numeric effluent limitations, this Order requires the implementation of BMPs identified in the Permittees' SQIP to control and abate the discharge of pollutants in storm water discharges. Implementation of BMPs, compliance with long-term performance standards in accordance with the Permittees' SQIP and its schedules, an established maintenance program with enforcement procedures, constitutes compliance with the MEP standard.

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<sup>3</sup> The U.S. Environmental Protection Agency (EPA) published the regulation entitled "National Pollutant Discharge Elimination System - Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges" (Federal Register, Volume 64, Number 235, pages 68722-68852) on December 8, 1999 as required by Section 402(p) of the Clean Water Act (CWA).

<sup>4</sup> CWA Section 402(p)(3)(B)(iii): "...controls to reduce pollutants to the maximum extent practicable, including management practices, control techniques, and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants."

48. 40 CFR 122.26(d)(2)(iv)(B)(1)]<sup>5</sup> lists types of non-storm water flows that are not required to be prohibited unless such discharges are specifically identified by the Phase I MS4 Permittees as sources of pollutants to waters of the United States.
49. The State Water Resources Control Board (SWRCB) convened a Storm Water Panel (Blue Ribbon Panel) of experts to address the issue of numeric effluent limits<sup>6</sup>. The study concluded that it is not feasible at this time to set enforceable numeric effluent criteria for storm water and non-storm water discharges from MS4s.
50. The U.S. EPA published an 'Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits' on August 26, 1996 (61 Fed. Reg. 43761). This policy discusses the appropriate kinds of water quality-based effluent limitations to be included in NPDES storm water permits to provide for the attainment of water quality standards.
51. On 12 March 2001, the U.S. Court of Appeals ruled that it is necessary to obtain an NPDES permit for application of aquatic pesticides to waterways [Headwaters, Inc. vs. Talent Irrigation District, 243 F.3d. 526 (Ninth Cir., 2001)]. The U.S. EPA issued a Final Rule on 17 October 2006, that exempts the application of a pesticide to or over, including near, waters of the United States if conducted consistent with all relevant requirements under the Federal Insecticide and Fungicide Rodenticide Act (FIFRA), from an NPDES permit under the Clean Water Act in the following two circumstances: (a) the application of pesticides directly to waters of the United States in order to control pests, and (b) The application of pesticides to control pests that are present over waters of the United States, including near such waters, that results in a portion of the pesticides being deposited to waters of the United States (40 CFR 122.3(h)).
52. On 17 June 1999, the State Board adopted Order No. WQ 99-05 (SBO 99-05), a precedent setting-decision, which identifies acceptable receiving water limitations language to be included in municipal storm water permits issued by the State and Regional Water Boards. The receiving water limitations included herein are consistent with the State Board Order, U.S. EPA policy, and the U.S. Court of Appeals decision in *Defenders of Wildlife v. Browner* (Ninth Cir., 1999). The State Board's OCC has determined that the federal court decision did not conflict with SBO 99-05 (memorandum dated October 14, 1999).

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<sup>5</sup>40 CFR 122.26(d)(2)(iv)(B)(1) A description of a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal separate storm sewer system; this program description shall address all types of illicit discharges, however the following category of non-storm water discharges or flows shall be addressed where such discharges are identified by the municipality as sources of pollutants to waters of the United States: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water (program descriptions shall address discharges or flows from fire fighting only where such discharges or flows are identified as significant sources of pollutants to waters of the United States).

<sup>6</sup> Recommendations of the Blue Ribbon Panel were finalized as *The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities*, dated 19 June 2006.

53. Federal regulation 40 CFR 122.42(c)(7) requires the Permittees to submit an annual report that identifies water quality improvements or degradation.
54. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (Public Resources Code, Section 21100, et. seq.) in accordance with Section 13389 of the California Water Code.
55. This Order serves as an NPDES permit, pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect 50 days from the date of hearing, provided that U.S. EPA has no objections.
56. This Order does not authorize any take of endangered species. To ensure that endangered species issues have been raised to the responsible agencies, the Regional Water Board notified the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the California Department of Fish and Game of Regional Water Board consideration of this Order.
57. State law pre-empts local storm water programs from regulating pesticide sales and use. Regulatory activities by state and federal agencies, especially the state Department of Pesticide Regulation DPR and the United States Environmental Protection Agency (USEPA), are critical for achieving adequate control of pesticide uses that result in pesticide discharges in storm water. Pesticide registration and re-registration activities, which are very active areas of pesticide regulation, are especially important in the control of pesticide use.
58. Individually, and through California Stormwater Quality Association (CASQA), the Permittees have actively participated in State and Federal organizations and processes to address regulatory issues. This includes the Urban Pesticide Committee (UPC) and Department of Pesticide Regulation's (DPR) Pest Management Advisory Committee (PMAC) and Pesticide Registration and Evaluation Committee (PREC), and various committees convened by the State Structural Pest Control Board. These committees provide forums in which USEPA, DPR, and the Regional Water Boards participate, and have been effective in bringing water quality concerns to the attention of state and federal pesticide regulators. Ongoing support and participation in these efforts by the Regional Water Boards is an important factor for continued progress. Progress in these efforts has been documented in reports submitted to the San Francisco Bay Regional Water Board by the San Francisco Estuary Project.

### **STORM WATER QUALITY IMPROVEMENT PLAN**

59. The Permittees submitted a Report of Waste Discharge (ROWD), as well as a proposed SQIP on 1 June 2007. The ROWD evaluated the effectiveness of the Permittees' storm water programs over the third permit term, identified which BMPs should continue to be implemented, and, as part of the iterative process, determined what additional efforts may be necessary in order to improve the storm water program and reduce the discharge

of pollutants to the MEP. Based on the evaluation, the ROWD and proposed SQIP propose a wide range of continuing, enhanced and new BMPs, control measures, and performance standards to be implemented during the fourth term Permit period (2008-2013).

60. Federal regulation 40 CFR 122.26(d)(2)(iv) requires the Permittees to submit a SQIP to reduce the discharge of pollutants in storm water to the MEP, and to effectively prohibit non-storm water discharges into municipal storm drain systems within the Permittees' jurisdictions during the five-year duration of the permit. During the fourth term permit period, the Permittees shall continue to demonstrate substantial compliance with their respective SQIP and this Order through the information and data supplied in the Annual Reports. The SQIP shall remain in effect, as an enforceable component of this Order, until revised and approved by the Regional Water Board. If there are conflicts between the SQIP and this Order, then the Order supersedes the SQIP.
61. This Order requires evaluation of water quality impacts of storm water discharges from existing urbanized areas and new developments. This Order also requires implementation and evaluation of the SQIP and related programs to reduce the discharge of pollutants in storm water runoff to MEP and to improve water quality and protect beneficial uses.
62. The Permittees are required to submit a revised SQIP by **11 March 2009** (or 6 months after the effective date of this Order, whichever is later). The SQIP fulfills the Regional Water Board's permit application requirements subject to the condition that it will be improved and revised in accordance with the provisions of this Order. The SQIP includes program elements and control measures that each Permittee will implement to reduce the discharge of pollutants in storm water to the MEP, and to effectively prohibit non-storm water discharges into MS4s and watercourses within each Permittees jurisdiction. The Permittee's SQIP is a site-specific modification of the existing Storm Water Management Plan required under the previous MS4 permit Order No. R5-2002-0206. The various components of the SQIP, taken as a whole rather than individually, are expected to reduce pollutants in storm water and urban runoff to the MEP.
63. The SQIP describes the framework for management of storm water discharges during the term of this Order. The Permittees' SQIPs contain comprehensive activities that provide the framework and direction for each Permittee to implement BMPs. The Permittees' SQIPs include joint program and individual Permittee activities as described below.
  - a. Joint Program Activities:
    - i. Program Management – Planning, cost-sharing and coordination activities.
    - ii. Target Pollutant Program – Based on the Permittees methodologies, Target Pollutants have been identified and prioritized that have the potential to cause exceedances of water quality standards and impairment of beneficial uses. Some of these Target Pollutants are also 303(d) listed constituents. Pollutant

sources and control measures are identified and strategies developed to focus joint program resources and activities.

- iii. Monitoring Program - This program includes extensive monitoring to provide data used to characterize storm water discharge and receiving water quality, evaluate BMP performance and assess SQIP effectiveness.
- iv. Special Studies – Includes effectiveness evaluations for various new development storm water quality control measures, such as a wet detention basin and proprietary treatment control devices.
- v. Regional Public Outreach – The Permittees conduct regional public outreach programs to educate residents, school children, and businesses about the harmful effects of storm water pollution and create opportunities for public involvement. The Permittee's public outreach implementation strategy includes, but is not limited to, developing and distributing educational materials, conducting media campaigns, and participating in public outreach events.
- vi. Program Effectiveness Assessment - Evaluation activities are a required and important aspect of the Program. Conducting assessments and evaluating performance standards and BMP studies allow for modification and continued improvement of program activities.

b. Individual Permittee-Specific Activities

The Permittees' SQIPs include a description of each Permittee's program organization, legal authority and funding. The following implementation activities are also described:

- i. Program Management (includes planning, staffing and fiscal analysis)
- ii. Construction
- iii. Illicit Discharge
- iv. Commercial/Industrial
- v. Municipal Operations and Facilities
- vi. Planning and New Development
- vii. Public Education and Outreach
- viii. Watershed Stewardship
- xi. Program Effectiveness Assessment and Reporting

64. The overall goals of the Permittees' SQIP 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 SQIP that is well understood and broadly supported by regional stakeholders.

The core objectives are to:

- a. Identify and control those pollutants in urban runoff that pose significant threats to the waters of the State and waters of the U.S. and their beneficial uses;
  - b. Comply with the federal regulations to eliminate or control, to the MEP, the discharge of pollutants from urban runoff associated with the storm drain system;
  - c. Achieve compliance with water quality standards;
  - d. Develop a cost-effective program which focuses on pollution prevention of urban storm water;
  - e. Seek cost effective alternative solutions where prevention is not a practical solution for a significant problem; and
  - f. Coordinate implementation of control measures with other agencies.
65. This Order includes a Monitoring Program that incorporates analytical Minimum Levels (MLs) established under the State Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP). The SIP's MLs represent the lowest quantifiable concentration for priority toxic pollutants that is measurable with the use of proper method-based analytical procedures and factoring out matrix interference. The SIP's MLs therefore represent the best available science for determining MLs and are appropriate for a storm water monitoring program. The use of MLs allows the detection of toxic priority pollutants at concentrations of concern using recent advances in chemical analytical methods.
66. The Permittees' proposed SQIPs contain control measures that identify the specific BMPs that each Permittee will implement to reduce the discharge of pollutants from their respective MS4s to the MEP. The SQIPs also include performance standards for each Control Measure to establish the level of effort required to comply with this Order and the federal MEP standard and an implementation schedule to identify when certain activities must be completed. Each Program Element also identifies how effectiveness assessments will be utilized to ensure that the program is resulting in the desired outcomes and that the resources that are expended are providing commensurate benefit and are protective of water quality.
67. The SQIPs and modifications or revisions to the SQIPs that are approved in accordance with this Order, are an integral and enforceable component of this Order. USEPA Phase I Final Rule and Regulations states the Clean Water Act contemplated MS4 permit conditions requiring storm water management programs to be developed and implemented or required specific practices, those program elements were enforceable in accordance with the terms of permit.
68. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16. Resolution 68-16 incorporates the federal antidegradation policy (40 CFR 131.12) where the federal policy applies under federal law. The proposed discharge complies with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. Resolution 68-16 requires in part:



- 1) High quality waters be maintained until it has been demonstrated that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies; and
- 2) Any activity, which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

The Permittees submitted an antidegradation analysis in October 2007. The report demonstrates that the proposed increase in discharge as a result of continued urban development will result in some minimal degradation of waters of the State and navigable waters of the United States, but in this case, such degradation is consistent with the maximum benefit to the people of the state. Limited degradation that does not cause exceedance of water quality objectives is warranted to allow for the economic benefit stemming from local growth. There is a need in Sacramento to accommodate growth. The Regional Water Board does not have the jurisdiction to control growth in the Sacramento Urbanized Area, but is required to assure that the receiving waters are adequately protected as a result of urban discharges. The proposed Order allows the service necessary to accommodate housing and economic expansion in the area and is considered to be a benefit to the people of the State. The Fact Sheet contains additional information regarding the antidegradation analysis and constituents of concern in the waste discharge. The run-off concentrations for all constituents are based on water quality objectives and an increase in mass for some constituents, if any, will be insignificant. While the accommodation of the development can in some circumstances justifies lowering of receiving water quality, in this case, the proposed Order would authorize, very minimal, if any lowering of receiving water quality given the requirement to meet MEP by this Order.

These requirements implement best management practices and reduce pollutants to the maximum extent practicable to assure that pollution or nuisance will not occur and that the highest water quality consistent with maximum benefit to the people of the State will be maintained. Due to the high level of source and treatment control measures to prevent and reduce discharges to surface waters, the proposed order will result in maintenance of existing in-stream uses.

### **DEVELOPMENT STANDARDS**

69. The primary purpose of the New Development Standards is to mitigate urban run-off pollution and other water quality impacts associated with new development and redevelopment.

70. On 5 October 2000, the State Board adopted Order WQ 2000-11, a precedent setting decision concerning the use of Standard Urban Storm Water Mitigation Plans (hereafter Development Standards) in municipal storm water permits for new developments and significant redevelopments. The State 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 Order WQ 2000-11, the Regional Water Board's MS4 permits must be consistent with applicable portions of the State Board's decision and include Development Standards.
71. Federal regulation 40 CFR 131.10(a) prohibits states from designating waste transport or waste assimilation as a use for any water of the United States. Authorizing the construction of a storm water/urban runoff treatment facility in a jurisdictional water body would be tantamount to accepting waste assimilation as an appropriate use for that water body. Furthermore, the construction and operation of a pollution control facility in a water body can impact the physical, chemical, and biological integrity as well as the beneficial uses of the water body. Therefore, storm water treatment in accordance with Development Standards and any other requirements of this Order must occur prior to the discharge of storm water into a water of the United States.
72. The Permittees are implementing programs consistent with their Development Standards Plan (DSP), which was approved by the Regional Water Board on 18 May 2005. The DSP requires the Permittees to have development standards related to storm water quality management for eight categories of new development and significant redevelopment and consistent with State Board adopted Order WQ 2000-11. Each Permittee amended its development standards (effective 18 May 2006) to conform to the DSP. Compliance with the Permittees' development standards requires the selection of post-construction storm water quality controls (BMPs) to reduce pollutants from new development and significant redevelopment to the MEP.
73. The Permittees published updated technical design guidelines on 18 May 2007 to help the development community understand and comply with the Permittees' amended development standards. Use of the guidelines requires a thoughtful process to select from the menu of BMPs those that are most appropriate for the site's land use (expected pollutant loadings) and unique site conditions. The Permittees consider potential storm water impacts when making planning decisions in order to fulfill the Clean Water Act (CWA) requirement to reduce the discharge of pollutants in municipal storm water to the maximum extent practicable (MEP) from new development and redevelopment projects within their local jurisdiction. In doing so, each Permittee exercises their legal authority to ensure that the increased pollutant loads and flows do not degrade the beneficial uses of their local receiving waters. This was demonstrated by the Antidegradation Analysis completed by the Permittees in 2007.
74. Urbanization is defined as the transformation of land into residential, commercial and industrial properties, and associated drainages, roads, sewers and other community planned infrastructure. Urbanization modifies natural watershed and stream processes by altering the terrain, modifying the vegetation and soil characteristics, introducing

impervious surfaces such as pavement and buildings, installing drainage and flood control infrastructure and altering the condition of stream channels through straightening, deepening, and armoring. These changes affect hydrologic characteristics in the watershed (rainfall interception, infiltration, runoff and stream flows) and affect the supply and transport of sediment in the stream system. The change in runoff characteristics from a watershed caused by changes in land use conditions (i.e., urbanization) is defined as hydrograph modification, or hydromodification.<sup>7</sup> When development projects do not address and mitigate for this change in runoff characteristics, a variety of problems can result, such as: excess sediment flowing into streams; downstream erosion and sedimentation; flooding; disruption of natural drainage patterns, stream flows and riparian habitat; and elevated water temperatures.

75. Urban development includes both new development and redevelopment of existing properties. These development projects may be undertaken by either private or public entities. Policies governing review and approval of development projects for compliance with this Order vary among the Permittees.
76. The quality and quantity of storm water runoff must be considered early during project planning to identify permanent (post-construction) BMPs that will be included in project design, constructed as part of the project, and ultimately implemented and maintained for the life of each category of urban development in order to protect storm water quality.
77. On January 20, 2005, the State Water Resources Control Board adopted sustainability as a core value for all California Water Boards' activities and programs, and directed California Water Boards' staff to consider sustainability in all future policies, guidelines, and regulatory actions.
78. Low Impact Development (LID) sometimes referred to as Low Impact Design, is a sustainable practice that benefits water supply and contributes to water quality protection. LID uses site design and storm water management to maintain the site's pre-development runoff rates and volumes. The goal of LID is to mimic a site's predevelopment hydrology by using de-centralized design techniques that infiltrate, filter, store, evaporate, and detain runoff close to the source of rainfall. LID has been a proven approach in other parts of the country and is seen in California as an alternative to traditional storm water management. The Water Boards are advancing LID in California in various ways, specifically through regulation of site-specific (Phase I MS4) and general permits (Phase II MS4).
79. In a study conducted for the San Diego region, it was concluded that LID substantially preserves pre-development hydrologic conditions and prevents most or all pollutant transport to receiving waters from urbanization.<sup>8</sup> Further, it was concluded that LID reduces storm water run-off and contaminants by decreasing their generation at sources,

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<sup>7</sup> Santa Clara Valley Urban Runoff Pollution Prevention Program. March 2005. Hydromodification Management Report. (Chapter 1, Problem Statement).

<sup>8</sup> Horner, Richard R., Ph.D., "Investigation of the feasibility and benefits of Low Impact Design (LID) practices for the San Diego Region," University of Washington.

infiltrating into the soil or evaporating storm flows before they can enter surface receiving waters, treating flow remaining on surface through contact with vegetation and soil, or a combination of these strategies.<sup>9</sup> LID practices maintain and restore the natural hydrologic functions of a site to achieve natural resource protection objectives.

80. During the initial site layout and design planning of new development or re-development for LID integration, there is a higher probability for preservation/integration of existing natural resource features (trees and other vegetation, creek buffers, wetlands, vernal pools, and open space).
81. In November 2005, under the direction of EPA Assistance Agreement funded by the Office of Water, The Low Impact Development Center prepared a document titled, "Low Impact Development for Big Box Retailers."<sup>10</sup> The document provides recommendations to large building and site footprint high volume retailers with strategies that integrate innovative and highly effective LID storm water management techniques into their site designs for regulatory compliance and natural resource protection at the local levels.
82. Studies indicate that facilities with paved surfaces subject to frequent motor vehicle traffic (such as parking lots and fast food restaurants), or facilities that perform vehicle repair, maintenance, or fueling (automotive service facilities) are potential sources of pollutants of concern in storm water. [References: Pitt et al., Urban Storm Water Toxic Pollutants: Assessment, Sources, and Treatability, Water Environment Res., 67, 260 (1995); Results of Retail Gas Outlet and Commercial Parking Lot Storm Water Runoff Study, Western States Petroleum Association and American Petroleum Institute, (1994); Action Plan Demonstration Project, Demonstration of Gasoline Fueling Station Best Management Practices, Final Report, County of Sacramento (1993); Source Characterization, R. Pitt, In Innovative Urban Wet-Weather Flow Management Systems (2000) Technomic Press, Field, R et al. editors; Characteristics of Parking Lot Runoff Produced by Simulated Rainfall, L.L. Tiefenthaler et al. Technical Report 343, Southern California Coastal Water Research Project (2001)].
83. Retail Gasoline Outlets (RGOs) are significant sources of pollutants in urban runoff. RGOs are points of convergence for motor vehicles for automotive related services such as repair, refueling, tire inflation, and radiator fill-up and consequently produce significantly higher loadings of hydrocarbons and trace metals (including copper and zinc) than other urban areas. To meet MEP, source control and treatment control BMPs are needed at RGOs.

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<sup>9</sup> Ibid.

<sup>10</sup> "Low Impact Development for Big Box Retailers," EPA Office of Water, November 2005

84. The Los Angeles and San Diego Regional Water Quality Control Boards have jointly prepared a Technical Report on the applicability of new development BMP design criteria for RGOs, [Retail Gasoline Outlets: New Development Design Standards for Mitigation of Storm Water Impacts, (June 2001)]. RGOs in Washington, Oregon, and other parts of the United States are already subject to numerical BMP design criteria under the MS4 program.
85. Each Permittee is individually responsible for adopting and enforcing local ordinances necessary to implement effective BMPs to prevent or reduce pollutants in storm water, and for providing funds for capital, operation, and maintenance expenditures necessary to implement such BMPs for the storm drain system that it owns and/or operates. Enforcement actions concerning this Order will, whenever necessary, be pursued only against the individual Permittee responsible for specific violations of this Order.

### **IMPAIRED WATER BODIES**

86. Section 303(d)(1)(A) of the CWA requires that "Each state shall identify those waters within its boundaries for which the effluent limitations...are not stringent enough to implement any water quality standard (WQS) applicable to such waters." The CWA also requires states to establish a priority ranking of impaired waterbodies known as Water Quality Limited Segments and to establish Total Maximum Daily Loads (TMDLs) for such waters. This priority list of impaired waterbodies is called the Section 303(d) List.
87. CWA Section 303(d) and 40 CFR 130.7 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 Regional Water Board is currently in the process of developing TMDLs for listed water bodies within the Region. Prior to TMDL's being adopted and approved, Permittees must implement actions to address their contribution to the water quality impairments. Once the Regional 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.
88. The Regional Water Board considers storm water discharges from the Sacramento Urbanized Area to be significant sources of pollutants. The CWA Section 303(d) Listed Waterbodies in the Sacramento Urbanized Area include the following. These impairments are based on identified exceedances of water quality standards.

<b>Waterbody</b>	<b>Reach</b>	<b>Estimated Size Affected</b>	<b>Pollutant/Stressor(s)</b>
Sacramento San Joaquin Delta		41,746 acres	Chlordane DDT Dieldrin Dioxin Compounds (including 2,3,7,8-TCDD) Exotic Species Furan Compounds Mercury Nickel PCBs (Polychlorinated biphenyls) PCBs (Polychlorinated biphenyls (dioxin-like)) Selenium
American River (Nimbus Dam to confluence with Sacramento River)	Lower	27 miles	Mercury
Arcade Creek		9.9 miles	Chlorpyrifos Diazinon Copper
Morrison Creek	Morrison Creek from Elk Grove-Florin Rd to Beach Lake	26 miles	Chlorpyrifos Diazinon
Elder Creek		11 miles	Chlorpyrifos Diazinon
Elk Grove Creek		6.9 miles	Chlorpyrifos Diazinon
Strong Ranch Slough		6.4 miles	Chlorpyrifos Diazinon

<b>Waterbody</b>	<b>Reach</b>	<b>Estimated Size Affected</b>	<b>Pollutant/Stressor(s)</b>
Chicken Ranch Slough		8 miles	Chlorpyrifos Diazinon
Natoma, Lake		485 acres	Mercury
Natomas East Main Drainage Canal	(aka Steelhead Creek, downstream of confluence with Arcade Creek)	3.5 miles	Diazinon PCBs (Polychlorinated biphenyls)
Natomas East Main Drainage Canal	(aka Steelhead Creek, upstream of confluence with Arcade Creek)	12 miles	PCBs (Polychlorinated biphenyls)
Sacramento River	Knights Landing to the Delta	16 miles	Mercury Diazinon Unknown Toxicity

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

89. The Permittees submitted to the Regional Water Board a Pesticide Plan (in 2004) to fulfill the need for a pesticide toxicity control plan as required by the urban creeks pesticide TMDL. The Pesticide Plan was subsequently approved by the Regional 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.
90. The Regional 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 Morrison Creek in the City of Sacramento.
91. The Porter-Cologne Act (§ 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."

- a. The data are not available to determine the relative contribution of the Permittee's discharge (compared to upstream and atmospheric contributions from non-urban sources) to the diazinon and chlorpyrifos levels in 303(d) listed waters and toxic hot spots. The provisions in the previous Order that addressed pesticide toxicity were intended to satisfy the toxic hot spot requirements for waste discharge requirement revisions. In compliance with those provisions, the Permittees submitted a Pesticide Plan, which was subsequently approved by the Regional Water Board. Implementation of the approved Pesticide Plan will continue under this Order, and satisfies the Permittee's toxic hot spot requirement to establish a control plan for pesticide toxicity.
- b. The phase-out of the sale of diazinon and chlorpyrifos for most residential and commercial uses was expected to reduce or eliminate the contribution of the Permittees' discharge to the non-attainment of water quality standards in the 303(d) listed waters and the maintenance of the diazinon and chlorpyrifos hot spots.
- c. The monitoring of diazinon and chlorpyrifos was conducted to determine the significance of the Permittees' contribution to diazinon and chlorpyrifos levels in 303(d) listed waters and the toxic hot spots. The monitoring was also conducted to determine the effectiveness of the phase-out of urban uses of diazinon and chlorpyrifos; to assess whether the hot spots are maintained; and to assess whether water quality objectives are met. The monitoring results were submitted in the June 2007 ROWD as well as prior years' annual reports.

Since the 2005 phase-out of urban uses, diazinon concentrations in receiving waters, when detected, have been consistently below water quality objectives and chlorpyrifos has been rarely detected in receiving waters. Diazinon and chlorpyrifos monitoring of the six additional pesticide locations and the Morrison Creek at Brookfield is no longer necessary. The data indicated that the seven creeks sampled had similar concentrations and those concentrations were reduced to non-detectable levels by 2005 once the phase-out went into effect. Analysis of the data shows that these sites are sufficiently characterized by the Arcade Creek at Watt Avenue and Willow Creek at Blue Ravine Road locations, which are part of the monitoring and reporting program of this Order.<sup>11</sup>

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<sup>11</sup> *Evaluation of Additional Pesticide Monitoring Data – 2007 Update*. May 25, 2007 memorandum by Larry Walker Associates to Delia McGrath, City of Sacramento and Janet Parris, Sacramento County.



- d. The Regional Water Board has adopted water quality objectives for:
- i. 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<sup>12</sup>);
  - ii. Diazinon: 80 nanograms per liter (ng/L or parts per trillion), one-hour average, not to be exceeded more than once every three years on average and 50 ng/L, four-day average, not to be exceeded more than once every three years on average (Sacramento River from the Colusa Basin Drain to I Street Bridge); and<sup>13</sup>
  - iii. 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).<sup>14</sup>
- e. The Regional Water Board has also established in the Basin Plan the Loading Capacity for the Delta Waterways and Sacramento River<sup>15</sup>, Waste Load Allocations, and Load Allocations for discharges to the Delta Waterways and Sacramento River, which are equal to:

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

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  $\mu\text{g/L}$ .

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<sup>12</sup> Sacramento-San Joaquin Delta Waterways, Central Valley Regional Water Quality Control Board, *Water Quality Control Plan (Basin Plan), Central Valley Region, Sacramento River and San Joaquin River Basins (Fourth Edition, revised Oct. 2007)* including Appendix 42 –

<sup>13</sup> Amended by Regional Water Board Resolution R5-2007-0034 to 160 nanograms per liter (ng/L or parts per trillion), one-hour average, not to be exceeded more than once every three years on average and 100 ng/L, four-day average, not to be exceeded more than once every three years on average. Pending California's Office of Administrative Law and U.S. EPA approval.

<sup>14</sup> Amended by Regional Water Board Resolution R5-2007-0034 to include the Sacramento and Feather Rivers. Pending U.S. EPA approval.

<sup>15</sup> Revised requirements for Diazinon and Chlorpyrifos discharges into the Sacramento River were adopted by the Regional Water Board by Resolution R5-2007-0034 and will become effective upon U.S. EPA approval.

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

- f. Regional Water Board's Basin Plan requires dischargers of diazinon and chlorpyrifos to Delta Waterways and the Sacramento River to submit a management plan (i.e., BMPs, BMP implementation plan, effectiveness assessment, schedule) that describes actions that will be taken to reduce diazinon and chlorpyrifos discharges and meet the applicable allocations.
  - g. The approved Pesticide Plan and any modifications to it, as proposed in the SQIP, meet the requirements for a management plan as described in the Basin Plan.
  - h. This Order includes Provisions consistent with the TMDL waste load allocations and the Basin Plan implementation program. This Order specifies monitoring and assessment requirements to implement these Provisions.
92. The Delta, Sacramento River, American River, and Lake Natoma are on the Clean Water Act Section 303(d) List as mercury impaired because of elevated methylmercury levels in fish. In addition, as stated above, the State Water Resources Control Board (State Water Board) designated the Delta as a toxic hot spot for mercury under the Bay Protection and Toxic Hot Spot Cleanup Program. Urban runoff from the Sacramento area contributes total (inorganic) mercury and methylmercury to these mercury-impaired water bodies.
93. This Order requires an evaluation of total mercury and methylmercury data collected under the previous Order and additional urban discharge monitoring to determine how much methylmercury and total mercury loading urban lands within the Sacramento Area contribute to the individual impaired water bodies (Delta, Sacramento River, American River, and Lake Natoma). In addition, the Order also requires that the Permittees estimate the amount of total mercury and sediment prevented from discharging to receiving waters by existing BMPs such as (but not limited to) street cleaning, detention basins, and erosion and sediment controls. This Order also requires that the Permittees consider including monitoring in the design of future BMP studies to estimate the extent to which existing and new BMPs reduce total mercury transport and reduce and/or increase methylmercury discharges. The Monitoring and Reporting Program (MRP) portion of this Order specifies monitoring and assessment requirements that must be implemented to gather information for mercury control programs for impaired water bodies. Once the Delta mercury control program is approved, there may be additional monitoring requirements to identify the sources of, and controls for, the methylmercury and total mercury in urban runoff.
94. The Permittees identified mercury as a top ranked target pollutant in 2002. The Permittees submitted to the Regional Water Board a Mercury Plan in 2004 that outlined the Permittees' strategy to reduce mercury in Sacramento area urban runoff. The Mercury Plan also included background information on mercury pollution in local waters, a summary of key regulations, and a description of related mercury control efforts and

studies. Adequate progress was made on all Mercury Plan commitments during the term of the previous Order.

95. 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<sup>16</sup>). 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<sup>17</sup>). 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 pyrethroid concentrations in sediment is needed to characterize sediment quality conditions, determine the significance of the increase in urban pyrethroid usage, and assess management practice effectiveness.

96. The Permittees have performed bioassessment monitoring at selected urban creek sites, in compliance with the Monitoring and Reporting Program requirements of previous Orders. The purpose of the bioassessment requirement is to assess the biological integrity of receiving waters, to detect biological responses to pollution, and to identify probable causes of impairment not detected by chemical and physical water quality analysis. The State Water Resources Control Board (State Board) has developed a statewide strategy for the Surface Water Ambient Monitoring Program (SWAMP), with an emphasis on utilizing bioassessment to assess biological integrity in waters of the state. Characterizing the chemical (water quality), physical (sediment quality) and biological (bioassessment) processes of the waterways provides a holistic approach to designing BMPs. This Order requires the Permittees to evaluate the bioassessment data collected during previous years.

## PUBLIC PROCESS

97. The Regional Water Board has notified the Permittees and interested parties of its intent to prescribe waste discharge requirements for this discharge. These parties have been given an opportunity to address the Regional Water Board at a public hearing and an opportunity to submit their written views and recommendations to the Regional Water Board.

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<sup>16</sup> 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.

<sup>17</sup> 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.

98. The Regional Water Board has considered the information in the attached Fact Sheet in developing the Findings of this Order. The attached Fact Sheet is in informational part of this Order.
99. The Regional Water Board, in a public meeting, has heard and considered all comments pertaining to the discharge.

**IT IS HEREBY ORDERED** that Order No. R5-2002-0206 is rescinded, and that the Permittees, their agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

**A. Discharge Prohibitions – Storm Water Discharges**

1. Discharges from MS4s in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code are prohibited.
2. Discharges from MS4s, which cause or contribute to exceedances of receiving water quality standards and water quality objectives (designated beneficial uses of the Basin Plan<sup>18</sup> and water quality objectives developed to protect beneficial uses) for surface water or ground water are prohibited.
3. Discharges from MS4s containing pollutants, which have not been reduced to the MEP, are prohibited.

**B. Discharge Prohibitions – Non-Storm Water Discharges**

1. Each Permittee shall effectively prohibit all types of non-storm water discharges into its MS4s unless such discharges are either authorized by a separate NPDES permit, or not prohibited in accordance with this Order.
2. Pursuant to 40 CFR 122.26(d)(2)(iv)(B)(1), the following categories of non-storm water discharges need only be prohibited from entering a MS4 if such categories of discharges are identified as a source of pollutants to waters of the United States:
  - a. Diverted stream flows;
  - b. Rising ground waters;
  - c. Uncontaminated ground water infiltration as defined by 40 CFR 35.2005(20);
  - d. Uncontaminated pumped ground water;
  - e. Foundation drains;

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<sup>18</sup> California Water Code Section 13243 provides that a Regional Water Board, in a water quality control plan, may specify certain conditions or areas where the discharge of waste, or certain types of waste is not permitted. The discharge prohibitions are applicable to any person, as defined by Section 13050(c) of the California Water Code, who is a citizen, domiciliary, or political agency or entity of California whose activities in California could affect the quality of waters of the state within the boundaries of the Central Valley Region.

- f. Springs;
  - g. Water from crawl space pumps;
  - h. Footing drains;
  - i. Air conditioning condensation;
  - j. Flows from riparian habitats and wetlands;
  - k. Water line flushing;
  - l. Landscape irrigation;
  - m. Discharges from potable water sources;
  - n. Irrigation water;
  - o. Individual residential car washing;
  - p. De-chlorinated swimming pool discharges;
  - q. Lawn watering; and
  - r. Street wash water.
3. When a non-storm water discharge category above is identified as a source of pollutants to waters of the United States, the Permittees shall either:
- a. Prohibit the discharge category from entering its MS4s; or
  - b. Not prohibit the discharge category and implement, or require the responsible parties to implement, BMPs which will reduce pollutants to the MEP. In addition, permittees shall submit the following information to the Regional Water Board as part of the Annual Report:
    - i. The non-storm water discharge category listed above that the Permittee elects not to prohibit; and
    - ii. The BMPs for each discharge category listed above that the Permittee will implement, or require the responsible parties to implement, to prevent or reduce pollutants to the MEP.
4. Emergency fire fighting flows (i.e., flows necessary for the protection of life or property) do not require immediate implementation of BMPs and are not prohibited.
5. Each Permittee shall examine all dry weather analytical monitoring results collected in accordance with the Monitoring and Reporting Program of this Order to identify water quality problems that may be the result of any non-storm water discharge, including any non-prohibited discharge category(ies). Follow-up investigations shall be conducted to identify and control any non-storm water discharges that are sources of pollutants. Non-prohibited discharges listed above containing pollutants that cannot be reduced to the MEP by the implementation of BMPs shall be prohibited on a categorical or case-by-case basis.

### **C. Receiving Water Limitations**

1. Receiving water limitations are site-specific interpretations of water quality standards from applicable water quality control plans. As such they are required as part of the permit. However, a receiving water condition not in conformance with the limitation is not necessarily a violation of this Order. The Regional Water Board may require an investigation to determine cause and culpability prior to asserting a violation has occurred.

Discharges from MS4s shall not cause the following in receiving waters:

- a. Concentrations of dissolved oxygen to fall below 6.0 mg/l from 1 September through 30 November and 5.0 mg/l the remainder of the year.
- b. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.
- c. Oils, greases, waxes, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.
- d. Aesthetically undesirable discoloration.
- e. Fungi, slimes, or other objectionable growths.
- f. The 30-day average for turbidity to increase as follows:
  - i. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.
  - ii. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
  - iii. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
  - iv. More than 10 percent where natural turbidity is greater than 100 NTUs.
- g. The normal ambient pH to fall below 6.5, exceed 8.5, or change by more than 0.5 unit.
- h. Deposition of material that causes nuisance or adversely affects beneficial uses.
- i. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.

- j. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal or aquatic life; or that result in the accumulation of Radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
  - k. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.
  - l. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.
  - m. In waters designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.
  - n. Violation of any applicable water quality standard for receiving waters adopted by the Regional Water Board or the State Board pursuant to the CWA and regulations adopted thereunder.
2. The discharge shall not cause or contribute to an exceedance of any applicable water quality standards.
3. The Permittees shall comply with Discharge Prohibition A.2 and Receiving Water Limitations C.1 and C.2 through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the SQIP and other requirements of this Order, including any modifications. The SQIP shall be designed to achieve compliance with Receiving Water Limitations C.1 and C.2. If exceedance(s) of water quality objectives or water quality standards (collectively, WQS) persist notwithstanding implementation of the SQIP and other requirements of this Order, the Permittees shall assure compliance with Discharge Prohibition A.2 and Receiving Water Limitations C.1 and C.2 by complying with the following procedure:
- a. The Permittees shall prepare Notification of Water Quality Exceedances (NWQE) pursuant to notification requirements set forth in the Monitoring and Reporting Program of this Order.
  - b. The Permittees shall submit a Report of Water Quality Exceedance (RWQE) annually to the Executive Officer for reporting discharges that cause or contribute to an exceedance of applicable water quality standards. The RWQE shall describe BMPs that are currently being implemented and additional BMPs

that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of WQSSs. The Report of Water Quality Exceedance (RWQE) shall be incorporated in the Annual Report. The report shall include proposed revisions to the SQIP and an implementation schedule containing milestones and performance standards for new or improved BMPs, if applicable. The RWQE shall also include a monitoring program and the rationale for new or improved BMPs, including a discussion of expected pollutant reductions and how implementation of additional BMPs will prevent future exceedance of WQSSs. The Regional Water Board may require modifications to the RWQE.

- c. Within **30 days** following approval of the RWQE by the Executive Officer, the Permittees shall revise the SQIP and monitoring program to incorporate the approved modified BMPs that have been and will be implemented, implementation schedule, and any additional monitoring required.
- d. The Permittees shall implement the revised SQIP and monitoring program in accordance with the approved schedule after Regional Water Board approval of the revised SQIP.

So long as the Permittees have complied with the procedures set forth above and are implementing the revised SQIP, the Permittees do not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the Executive Officer to develop additional BMPs.

#### **D. Provisions**

- 1. Within its geographic jurisdiction, each Permittee shall:
  - a. Comply with the requirements of this Order, the SQIP, any modifications to the SQIP, and directives of the Executive Officer concerning this Order;
  - b. Coordinate among its internal departments and agencies, as appropriate, to facilitate the implementation of the requirements of the SQIP applicable to such Permittee in an efficient and cost-effective manner;
  - c. Participate in intra-agency coordination with agencies outside of its jurisdictional control (e.g. Federal and State agencies and special districts such as utility, sanitation, fire, park and recreation and school) necessary to successfully implement the provisions of this Order and the SQIP.

#### **STORM WATER QUALITY IMPROVEMENT PLAN**

- 2. Upon the effective date of this Order, the Permittees shall modify their SQIPs to address the requirements of this Order and submit the revised SQIPs by **11 March 2009** (or six months after the Order is effective, whichever is later), for



public review and comment, and Regional Water Board approval. The SQIPs shall include an implementation schedule containing identifiable milestones, performance standards, and a compliance monitoring and reporting program. The Permittees shall incorporate newly developed or updated BMPs and assessment tools/Performance Standards into applicable annual revisions to the SQIPs and adhere to implementation of the new/revised BMPs. The approved SQIPs shall serve as the framework for identification, assignment, and implementation of BMPs. The Permittees shall implement or require implementation of BMPs in the approved SQIPs to ensure that pollutant discharges from the MS4 are prevented or reduced to the MEP. The SQIPs shall contain the following components:

- a. Program Management
  - i. Legal Authority
  - ii. Fiscal Analysis
- b. Program Effectiveness Assessment
- c. Program Elements
  - i. Construction
  - ii. Commercial/Industrial
  - iii. Municipal Operations
  - iv. Illicit (Illegal) Discharges
  - v. Public Education and Outreach
  - vi. Planning and New Development
  - vii. Monitoring Program (including Special Studies)
  - viii. Water Quality Based Program (Target Pollutant Program)

Each Permittee's SQIP shall include a section that identifies all departments within the jurisdiction that conduct activities that may potentially impact urban runoff quality, and their roles and responsibilities under this Order. The annual report shall include an up-to-date organizational chart specifying these departments and key personnel responsible for issuance of enforcement actions.

### **PROGRAM MANAGEMENT**

- 3. Program management involves ensuring that all elements of the SQIP are implemented on schedule and all requirements of this Order are complied with.
  - a. **Annual Work Plan:** The Permittees shall submit an Annual Work Plan by **1 May** of each year. The Annual Work Plan shall provide the Permittee's proposed activities for the upcoming fiscal year beginning 1 July of the current year and ending 30 June the following year. The Permittees may submit combined Annual Work Plans that cover more than one Permittee's jurisdiction, or they may submit separate Annual Work Plans.
  - b. **Annual Report:** The Permittees shall submit an Annual Report by **1 October** of each year. The Annual Report shall document the status of the SQIPs and the

Permittees' activities during the previous fiscal year, including the results of a qualitative and quantitative assessment of activities implemented by the Dischargers, and the performance of tasks contained in the SQIP. The Annual Report shall include a compilation of deliverables and milestones completed during the previous 12-month period, as described in the SQIP and Annual Work Plan. The Annual Report shall include a program effectiveness assessment and recommended modifications for each Program Element. Each Annual Report shall build upon the previous year's efforts. In each Annual Report, the Permittees may propose pertinent updates, improvements, or revisions to the SQIP, which shall be complied with under this Order.

- c. **SQIP Implementation:** Each Permittee shall continue implementation of their current SQIP until such time that the SQIP has been modified to be consistent with this Order and approved by the Regional Water Board. Once approved, the Permittees shall implement the modified SQIP consistent with the schedule specified within this Order. The SQIP, with modifications, revisions, or amendments as may be approved by the Executive Officer or Regional Water Board, is an enforceable part of this Order.
- d. **SQIP Modification:** The Permittees' SQIP may need to be modified, revised, or amended from time to time to respond to a change in conditions and to incorporate more effective approaches to pollutant control. Provisions of this Order require review and/or revision of the certain components of the Permittees' SQIP. Proposed SQIP revisions will be part of the annual review process and incorporated in the Annual Report.

In addition, the Permittees shall revise their SQIP 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.

A thirty-day public notice and comment period shall apply to all proposed significant revisions to the SQIP. Significant revisions include the Hydromodification Management Plan (HMP) and *The Stormwater Quality Design Manual for Sacramento and South Placer Regions* required under this Order. SQIP revisions which are significant in terms of the magnitude of public interest, as evidenced by public comments, shall be brought before the Regional Water Board for review and approval. Minor, non-substantive changes to the SQIP are not significant and therefore are not subject to the thirty-day public notice and comment period. Minor SQIP revisions may be approved by the Executive Officer.

- e. **Memorandum of Understanding:** The Permittees shall collaborate with each other to address common issues, promote consistency between SQIPs and Monitoring Programs, and to plan and coordinate activities required under this Order.

- i. The Permittees shall review and revise their existing Memorandum of Understanding (MOU) to ensure that it provides for a management structure that includes the items below, and submit the updated MOU to the Regional Water Board no later than **11 March 2009** (or six months after the effective date of this Order, whichever is later), The MOU should address the following:
    - a) Designation of Joint Responsibilities;
    - b) Decision making;
    - c) Cost sharing;
    - d) Information management of data and reports, including the requirements under this Order; and
    - e) Any and all other collaborative arrangements for compliance with this Order.
  - ii. The Permittees shall jointly develop and/or update the standardized format(s) for all reports required under this Order (e.g., annual reports, monitoring reports, fiscal analysis reports, and program effectiveness reports, etc.). The standardized reporting format(s) shall be used by all Permittees and shall include protocols for electronic reporting, specifically data reporting.
- 4. **Legal Authority:** The Permittees shall review, revise, maintain, and enforce adequate legal authority to control pollutant discharges from their MS4s through ordinance, statute, permit, contract, or similar means. This legal authority must, at a minimum, authorize the Permittees to:
  - a. Control the contribution of pollutants in discharges of runoff associated with industrial and construction activity to their MS4s. This requirement applies both to industrial and construction sites, which have coverage under the statewide general industrial or construction storm water permits, as well as to those sites that do not require permit coverage;
  - b. Effectively prohibit identified illegal discharges (e.g., discharges consisting of or resulting from the following: surface cleaning wastewater from gas stations (RGOs) and parking lots; wastewater from mobile business activities; commercial vehicle and equipment washing wastewater; discharges of pool water containing chlorine or bromine; discharges/dumping of sediment, construction debris, pet waste, vegetation or food related wastes; pesticide dumping and rinsate; charitable car washes, etc.).
  - c. Prohibit and eliminate illicit connections to the MS4s;
  - d. Prohibit the discharge of spills, dumping, or disposal of materials other than storm water and permitted non-storm water discharges to its MS4s;

- e. Use enforcement mechanisms to require compliance with the Permittees storm water ordinances, permits, contracts, or orders;
  - f. Carry out all inspections, surveillance, and monitoring necessary to determine compliance and noncompliance with local ordinances and permits, including the prohibition on illicit discharges to the MS4s;
  - g. Require the use of BMPs to prevent or reduce the discharge of pollutants from MS4s to the MEP; and
  - h. Require that Treatment Control BMPs be properly operated and maintained.
5. Each Permittee shall amend its existing ordinances to enforce all the requirements of this Order within **one year** after Regional Water Board approval of the SQIP. The ordinance(s) shall contain implementable and progressive enforcement procedures.
6. Each Permittee shall provide to the Executive Officer a statement certified by its chief legal counsel that it has adequate legal authority to implement and enforce each of the requirements contained in 40 CFR 122.26(d)(2)(i)(A-F) and this Order, including any modifications thereto in effect when the certified statement is provided. This statement shall be included in Permittees' revised SQIP(s), which shall describe the following:
- a. Citation of urban runoff related ordinances adopted by the Permittees and the reasons they are enforceable;
  - b. Progressive enforcement policy and how it will be effectively implemented;
  - c. Identification of the local administrative and legal procedures available to mandate compliance with urban runoff related ordinances and therefore with the conditions of this Order;
  - d. Description of how these ordinances are implemented and how enforcement actions under these ordinances may be appealed; and
  - e. Description of whether the municipality can issue administrative orders and injunctions or if it must go through the court system for enforcement actions.
  - f. Description of the Permittee's storm water management structure. There might be different departments that are to develop, implement, and enforce various components of the program. Summarize how the various departments communicate and coordinate activities.
7. **Fiscal Analysis:** Each Permittee shall secure the resources necessary to meet the requirements of this Order and shall prepare an annual fiscal summary as part of the SQIP Annual Report. This summary shall, for each fiscal year covered by

this Order, identify the expenditures for the previous fiscal year and the budget for the following year necessary to accomplish the activities of the SQIP. Such summary shall include a description of the source(s) of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds.

## **PROGRAM ELEMENTS**

### **8. Construction Program Element**

- a. The objectives of the Construction Program are to:
  - i. Provide adequate legal authority to control pollutants from construction sites with land disturbance greater than or equal to one acre in size;
  - ii. Review construction plans and issue grading permits consistent with Permittee requirements;
  - iii. Require BMPs to control sediment and pollutants from construction sites;
  - iv. Maintain a tracking systems (inventory) of active construction sites;
  - v. Maintain tracking system of inspections and enforcement data;
  - vi. Inspect construction sites to ensure proper BMP implementation and compliance with Permittee requirements (e.g., Erosion and Sediment Control Plan [ESC plan]) and applicable Provisions of this Order;
  - vii. Bring forth enforcement actions for sites in violation of Permittee requirements and advise the Regional Water Board of violations of Construction General Permit requirements;
  - viii. Provide regular internal and external training on applicable components of the SQIP and related Permits; and
  - ix. Conduct an assessment as a part of the annual reporting process, determine the effectiveness of the Program Element and identify any necessary modifications.
- b. Each Permittee shall update and continue to implement the Construction Program Element of its SQIP to reduce pollutants in runoff from construction sites during all construction phases to the MEP. At a minimum, the Construction Program Element shall address the objectives listed above, as well as the following control measures:
  - Pollutant Source Identification
  - Threat to Water Quality Prioritization

- Reporting of Non-compliant Sites
- c. Each Permittee shall continue to implement and enforce a program to control runoff from all construction sites subject to the NPDES General Construction Permit. The program shall ensure the following minimum requirements are effectively implemented at these construction sites:
  - i. Sediments generated on the project site shall be retained using adequate Source Control BMPs;
  - ii. Construction-related materials, wastes, spills, or residues shall be retained at the project site to avoid discharge to streets, drainage facilities, receiving waters, or adjacent properties by wind or runoff;
  - iii. Non-storm water runoff from equipment and vehicle washing and any other activity shall be contained at the project site;
  - iv. Erosion from slopes and channels shall be controlled by implementing an effective combination of BMPs such as but not limited to; inspecting graded areas during rain events; limiting grading during the wet season; planting and maintenance of vegetation on slopes; and covering erosion susceptible slopes.
  - v. Prior to issuing a grading permit for a construction site, each Permittee must require submittal of an erosion and sediment control plan to the permitting agency that meets Permittee requirements.
    - (a) Prior to issuing a grading permit for a construction site, each Permittee shall require proof that a State General Construction Permit has been obtained, if applicable. Permittees shall verify that the State Storm Water Pollution Prevention Plan (SWPPP) contains, at a minimum, the following:
      - (i) If applicable to the site, a certification or proof that a Notice of Intent has been submitted to the State Water Board.
      - (ii) A vicinity map showing nearby roadways, the construction site perimeter, and the geographic features and general topography surrounding the site;
      - (iii) A site map showing the construction project in detail, including the existing and planned paved areas and buildings; general topography both before and after construction; drainage patterns across the project area; and anticipated storm water discharge locations (i.e., the receiving water, a conduit to receiving water, and/or drain inlets);

- (iv) A description of BMPs to address contractor activities that generates pollutants including, at a minimum, vehicle washing, equipment maintenance, and waste handling.
  - (v) A description of the type and general location of erosion and sediment control BMPs, such as but not limited to, limited grading during the wet season, and planting and maintenance of vegetation on slopes, to be employed at the site; and
  - (vi) The name and telephone number of the qualified person responsible for implementing the Storm Water Pollution Prevention Plan (SWPPP).
- d. If applicable, all environmental permits must be obtained from agencies such as Department of Fish and Game, U.S. Army Corp of Engineers, and the Regional Water Board's 401 Water Quality Certification.
- e. Inspections

The Permittees shall include the inspection frequency for construction sites for compliance with local ordinances in the SQIP and shall continue to inspect each site until construction activities are completed and the site has been stabilized. The inspections shall occur at a frequency determined to be effective by the Permittees and shall include a higher inspection frequency during the winter months (wet season) than during the summer months (dry season).

The Permittees shall inspect these sites for compliance with the local ordinances and the ESC plan described above and as prescribed in the SQIP. In addition, if the Permittees observe chronic (e.g., three or more) violations of their respective storm water ordinances at a given construction site, they shall notify the Regional Water Board as described in the SQIP. Each Permittee shall use its legal authority to promptly and effectively enforce its storm water ordinance to correct any violations observed during inspections.

- f. Interdepartmental Coordination and Agreement
  - i. Each Permittee shall enter into an agreement with other departments/entities charged with compliance of this section of the Order.
  - ii. The agreement shall describe policies and procedures and relationships of each interdepartmental coordination, in compliance of this Order.

**9. Industrial/Commercial Program:**

- a. The objectives of the Industrial/Commercial Program are to:
  - i. Provide adequate legal authority to control pollutants from industrial and commercial facilities;
  - ii. Develop and maintain an inventory of priority industrial and commercial facilities located within the Permittee's jurisdiction;
  - iii. Prioritize the industrial and commercial facilities within the inventory based on their threat to water quality;
  - iv. Conduct inspections of the priority industrial and commercial facilities that pose a significant threat to water quality with an inspection frequency based on the prioritization of the facility. Conduct follow-up inspections to verify compliance;
  - v. Implement a progressive enforcement policy to ensure that adequate enforcement is conducted;
  - vi. Refer significant violations of the Permittees' storm water ordinances and potential General Industrial Permit non-filers to the Regional Water Board. Coordinate inspections and enforcement with the Regional Water Board.
  - vii. Provide regular internal and external training on components of the SQIP and related Permits; and
  - viii. Conduct an assessment as described in the SQIP to determine the effectiveness of the Program Element and identify any necessary modifications.
- b. Each Permittee shall update and continue to implement the existing Industrial and Commercial Program component of its SQIP. At a minimum, the Industrial and Commercial Program shall address the objectives listed above, as well as to the following control measures:
  - i. Priority Facility Inventory/Tracking
  - ii. Prioritization and Inspection
  - iii. Industrial/Commercial Outreach
  - iv. Enforcement
  - v. Training
  - vi. Effectiveness Assessment

The program shall address the following priority commercial and industrial businesses: auto body shops, auto dealers, auto repair shops, equipment rental companies, nurseries, kennels, restaurants, retail gasoline outlets and



those covered by the General Industrial Permit. The list of industries may be revised based on further prioritization or results of effectiveness assessment as reported in the annual reports.

- c. Each Permittee shall require implementation of pollutant reduction and control measures for activities associated with priority industrial and commercial businesses, with the objective of effectively prohibiting non-storm water runoff and reducing pollutants in storm water runoff to the MEP. Except as specified in other sections of this Order, pollutant reduction and control measures can be used alone or in combination, and can include Structural and Source Control BMPs, and operation and maintenance procedures, which can be applied before, during, and/or after pollution generating activities. The Regional Board recognizes that property owners are responsible for selecting and implementing BMPs since the Permittees do not have the authority to specify BMPs.

## 10. **Municipal Program**

- a. The objectives of the Municipal Program are to:
  - i. Respond quickly and appropriately if an illicit discharge threatens to enter or enters the storm drain system;
  - ii. Implement standards that require BMPs to reduce pollutants from Permittee owned development and construction projects as specified in the New Development and Construction Elements;
  - iii. Implement pollution prevention BMPs for public facilities (e.g., corporation yards, material storage facilities, and vehicle/equipment maintenance facilities) having the potential to discharge pollutants to the storm drain system;
  - iv. Implement integrated pest management (IPM) and pesticide storage, usage, and disposal procedures as described in the Pesticide Plan;
  - v. Maintain the storm drain system (e.g., drain inlets, ditches/channels, detention basins and pump stations) to remove debris accumulation and prevent flooding;
  - vi. Ensure that storm drain inlets are properly and legibly marked to discourage illicit discharges into the storm drain system.
  - vii. Conduct street sweeping activities;
  - viii. Maintain Permittee-owned parking facilities to minimize the build-up and discharge of pollutants to the storm drain system;
  - ix. Permittees having a fire protection agency within their jurisdictional control shall develop and implement a response plan to minimize the impact of

fire fighting flows to the environment. BMPs must be implemented to reduce pollutants from non-emergency fire fighting flows (i.e., flows from controlled or practice blazes) identified by the Permittees to be significant sources of pollutants to waters of the State. The response plan and BMPs shall be updated and submitted with the Annual Reports.

- x. Provide regular internal training on applicable components of the SQIP; and
  - xi. Conduct an assessment as a part of the annual reporting process, determine the effectiveness of the Program Element and identify any necessary modifications.
- b. Each Permittee shall update and continue to implement a Municipal Program in its SQIP 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. At a minimum, the Municipal Program shall address the objectives listed above, as well as include the following control measures:
- i. New Development and Construction Requirements for Municipal Capital Improvement Projects;
  - ii. Pollution Prevention at Permittee Facilities;
  - iii. Landscape and Pest Management;
  - iv. Storm Drain System Maintenance;
  - v. Street Cleaning and Maintenance;
  - vi. Parking Facilities Maintenance;
  - vii. Detention Basin Maintenance;
  - viii. Emergency Procedures;
  - ix. Non-emergency Fire Fighting Flows;
  - x. Training; and
  - xi. Effectiveness Assessment.

## **11. Illicit Discharge Program**

- a. The objectives of the Illicit Discharge Program are to:
- i. Provide adequate legal authority to control and/or prohibit pollutants from being discharged to the municipal storm drain system;
  - ii. Proactively detect illicit discharges and illegal connections through a variety of mechanisms including, but not limited to, public reporting, dry weather monitoring, and field crew inspections;
  - iii. Upon identification of an illegal connection, investigate and eliminate the connection through a variety of mechanisms including, but not limited to, permitting or plugging the connection;

- iv. Upon identification of an illicit discharge, investigate the discharge and conduct any necessary follow up actions to mitigate the impacts of the discharge;
  - v. Maintain a database for recording the information related to illicit discharges and illegal connections and, to the extent possible, use mapping to assist in evaluating the data; and
  - vi. Conduct an assessment as described in the SQIP to determine the effectiveness of the Program Element and identify any necessary modifications.
- b. Each Permittee shall update and continue to implement an Illicit Discharge Program component of the SQIP to actively seek and eliminate illicit discharges and connections. At a minimum, the Illicit Discharge Detection and Elimination Component shall address the objectives listed above and include the following control measures:
  - i. Detection of Illicit Discharges and Illegal Connections;
  - ii. Illegal Connection Identification and Elimination;
  - iii. Investigation/Inspection and Follow-up Procedures;
  - iv. Enforcement of Local Codes and Ordinances;
  - v. Public Reporting of Illicit Discharges and Connections – Public Hotline;
  - vi. Training; and
  - vii. Effectiveness Assessment.

**12. Public Outreach and Public Education (Collectively Public Outreach Program):**

- a. Each Permittee shall implement 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. To accomplish these goals, the following objectives shall be addressed:
  - i. Encourage the public to actively participate in the implementation of the storm water program as well as the various outreach events;

- ii. Promote the use of the 24-hour public education and illicit discharge reporting hotline;
  - iii. Implement a public outreach strategy for the overall program that includes developing and distributing materials, conducting a mixed media campaign, participating in community outreach events, and conducting public opinion surveys to gauge the level of awareness and behavior change within a community and/or target audience;
  - iv. Coordinate with local school districts to deliver storm water education messages to schoolchildren;
  - v. Implement a business outreach program; and
  - vi. Conduct an assessment as described in the SQIP to determine the effectiveness of the Program Element and identify any necessary modifications.
- b. Each Permittee shall update and continue to implement the Public Outreach Component of its SQIP to educate the public and encourage their participation in the implementation of the SQIP. At a minimum, the Public Outreach Program shall address the objectives listed above and include the following control measures:
- i. Public Participation;
  - ii. Hotline;
  - iii. Public Outreach Implementation;
  - iv. Public School Education;
  - v. Business Outreach; and
  - vi. Effectiveness Assessment.
- c. Each Permittee shall incorporate a mechanism for public participation in the implementation of the SQIP (i.e., programs that engage the public in cleaning up creeks, removal of litter in river embankments, etc.).

### **PLANNING AND NEW DEVELOPMENT PROGRAM**

13. The objectives of the Planning and New Development Element are as follows:

- a. Provide a framework and a process to incorporate watershed protection/storm water quality management principles into the Permittees' General Plan

- process, environmental review process, and development permit approval process;
- b. Develop a program that covers initial project planning through design, construction and completion, including requirements for long-term maintenance of post-construction storm water controls;
  - c. Incorporate water quality and watershed protection principles into the Permittee's policies and into the planning procedures early in the development process;
  - d. Ensure storm water quality components have been addressed during the entitlement and CEQA process and verified as completed during the development plan process;
  - e. Ensure that selected post-construction storm water controls will remain effective upon project completion by requiring appropriate maintenance provisions for all priority development projects;
  - f. Ensure that storm water quality controls are properly selected and required during the development plan review process to minimize storm water quality impacts to the MEP;
  - g. Ensure that appropriate selected post-construction storm water controls are chosen on the basis of project- and site-specific conditions and land use characteristics, as well as receiving water impacts;
  - h. Provide regular internal training on applicable components of the SQIP; and
  - i. Conduct an assessment as described in the SQIP to determine the effectiveness of the Program Element and identify any necessary modifications.
14. Each Permittee shall ensure the Planning and New Development Program of its SQIP includes requirements to minimize the short and long-term impacts on receiving water quality from new development and redevelopment. At a minimum, the Planning and New Development Program shall address the objectives listed above, as well as the following:
- a. Incorporation of Water Quality Protection Principles into Permittee Procedures and Policies;

- b. New/Revised Development Standards: Each Permittee shall continue to implement existing development standards as identified in the Permittees Development Standards Plan (a.k.a. *The Stormwater Quality Design Manual for Sacramento and South Placer Regions*) approved by Regional Water Board in May 2005. The plan identifies measures to reduce pollutant discharges from eight categories of new development and redevelopment (referred to as the Priority Development Project Categories);
  - c. Plan Review and Approval Process;
  - d. Maintenance Agreement and Transfer;
  - e. Training; and
  - f. Effectiveness Assessment.
15. **Water Quality Planning and Design Principles** - In order to reduce pollutants and runoff flows from new development and redevelopment to the MEP, each Permittee shall address the following concepts:
- a. Each Permittee shall incorporate water quality and watershed protection principles into planning procedures and policies or requirements to direct land-use decisions and require implementation of consistent water quality protection measures for priority development projects. These principles and policies shall be designed to protect natural water bodies and shall consider, at a minimum, the following:
    - i. Minimize the amount of impervious surfaces and directly connected impervious surfaces in areas of new development and redevelopment to maximize on-site infiltration of runoff (low impact development practices).
    - ii. Implement pollution prevention methods supplemented by pollutant source controls and treatment. Use strategies that control the sources of pollutants or constituents (i.e., the point where water initially meets the ground) to minimize the transport of urban runoff and pollutants offsite and into MS4s.
    - iii. Preserve and create or restore areas that provide important water quality benefits, such as riparian corridors, wetlands, and buffer zones (e.g., levees).
    - iv. Minimize disturbances of natural water bodies and natural drainage systems caused by development including roads, highways, and bridges.

- v. Require incorporation of structural and non-structural BMPs to mitigate the projected increases in pollutant loads from future development.
  - vi. Identify and avoid development in areas that are susceptible to erosion and sediment loss; and establish and implement development standards that protects areas from erosion and sediment loss.
  - vii. Coordinate with local traffic management programs to minimize pollutants associated with vehicles and increased traffic resulting from development.
  - viii. Implement source and/or treatment controls to protect downstream receiving water quality from increased pollutant loads in runoff flows from new development and significant redevelopment.
  - ix. Control the post-development peak storm water run-off discharge rates and velocities to prevent or reduce downstream erosion and to protect stream habitat (hydromodification concepts).
- b. **Low Impact Development Strategies:** Priority new development and redevelopment projects shall integrate Low Impact Development (LID) principles early in the project planning and design process. LID is a storm water management and land development strategy that emphasizes conservation and the use of existing natural site features integrated with engineered, small-scale hydrologic controls to more closely reflect predevelopment hydrologic functions in residential, commercial, and industrial settings. When developing the LID Program the Permittees shall consider and incorporate all appropriate and applicable LID components and measures that have been successfully and effectively implemented in other municipal areas. Other programs include, but are not limited to, USEPA's "Managing Wet Weather with Green Infrastructure, Action Strategy, 2008" and LID program elements specified in the permits or Storm Water Management Plans of other MS4s throughout the state.

*The Stormwater Quality Design Manual for Sacramento and South Placer Regions* currently promotes LID principles such as conservation and use of natural site features; site specific, lot scale source and treatment control measures that keep pollutants from contacting run-off and leaving the site; and run-off reduction control measures integrated into site design.

- i. Each Permittee shall amend, revise or adopt quantitative and qualitative development standards (including policies, codes, ordinances and/or regulations) to require implementation of LID strategies at priority new development and redevelopment projects **no later than six months** after approval of the HMP by the Regional Water Board.

c. **Hydromodification Management Plan (HMP)**

The Permittees shall submit a HMP Work Plan as part of their SQIPs for approval by the Regional Water Board. One year after Regional Board approval of the SQIP/HMP Work Plan, the HMP shall be submitted for approval. The Permittees shall amend their development standards to implement the HMP **no later than six months** after Regional Water Board approval of the HMP.

- i. The HMP shall require controls to manage the increases in the magnitude (e.g., flow control), frequency, volume and duration of runoff from development projects in order to protect receiving waters from increased potential for erosion and other adverse impacts with consideration towards maintaining (or reproducing) the pre-development hydrology. The HMP shall address, but not be limited to, the following:
  - (a) Requires incorporation of controls, including structural and non-structural BMPs, to mitigate the projected increases in flows;
  - (b) Controls post-development runoff rates and velocities from a site to avoid adverse impact on downstream erosion, flooding and stream habitat;
  - (c) Minimizes the quantity of storm water directed to impermeable surfaces and the MS4s (municipal storm drain);
  - (d) Maximizes the percentage of permeable surfaces to allow more percolation of storm water into the ground;
  - (e) Considers the full range of BMPs in the *Stormwater Quality Design Manual*; and
  - (f) Considers various assessment methodologies designed to evaluate the existing geomorphic condition of receiving waters, along with the expected susceptibility of these receiving waters to erosion/change as a result of hydromodification from land development and other land uses.
- ii. This requirement does not apply to new development and redevelopment projects where the project discharges storm water runoff into creeks or storm drains where the potential for erosion, or other impacts to beneficial uses, is minimal. The HMP shall describe the criteria used in determining the site-specific conditions applied to this



requirement. Such situations may include, but not limited to the following:

- (a) Discharges into creeks that are concrete-lined or significantly armored;
- (b) Underground storm drain systems discharging directly to the rivers;
- (c) Construction of infill projects in highly developed watersheds, where the potential for single-project and/or cumulative impacts is minimal; and
- (d) Projects that do not create an increase in impervious surfaces over pre-project conditions.

**16. General Plan Update**

- a. Each Permittee's General Plan or equivalent plan (e.g., Comprehensive, Master, or Community Plan) shall include water quality and watershed protection principles and policies applicable to land use decisions and require implementation of consistent water quality protection measures for development projects paying special attention to water quality protection from urban runoff and storm water pollution.
- b. Each Permittee shall include principles and policies if the following are present in a Permittee's jurisdiction;
  - i. Sensitive water resources (e.g 303d-listed water bodies) in, or immediately downstream of, their jurisdiction;
  - ii. Existing Total Maximum Daily Loads (TMDLs) or other such regulations pertaining to receiving waters within their jurisdiction;
  - iii. Major new development or significant redevelopment expected; and
  - iv. Major new infrastructure projects anticipated (e.g. roads, sewer, flood control, storm drains).
- c. Each Permittee shall provide the Regional Water Board with the draft amendment or revision when a listed General Plan element or the General Plan is noticed for comment in accordance with California Government Code § 65350 et seq.

- d. Each Permittee shall amend, revise, or update its General Plan to include watershed and storm water quality and quantity management considerations and policies when any of the following General Plan elements are updated or amended: (i) Land Use, (ii) Housing, (iii) Conservation, (iv) Open Space (v) Circulation and Infrastructure (i.e. transportation), (vi) Safety, and (vii) and Public Facilities.
- e. Each Permittee shall review and modify the development goals and policies, open space goals and policies including preservation or integration with natural features, and when defined the need for specific urban runoff and storm water pollution protection policies (i.e., low impact development policies, hydromodification management plans) if they are determined deficient. Each Permittee shall provide the Regional Water Board with the draft amendment or revision when a listed General Plan element or the General Plan is noticed for comment in accordance with California Government Code § 65350 *et seq.* The Permittees shall also provide the Regional Water Board a written summary identifying how the draft amendment or revision complies with this Order.

#### 17. Entitlement Process:

- a. Private Development: Each Permittee shall incorporate into its entitlement process standard procedures in order to consider potential storm water quality impacts early in the planning process of any new development and redevelopment project. The Permittees' shall clearly demonstrate the developer and Permittee considered storm water quality site issues before the facilities/projects are final designed. The Permittees must demonstrate involvement in the conceptual storm water quality design in either two different points in project planning and permitting process:
  - i. During Discretionary action<sup>19</sup> approval process (land use permit) of a proposed project, when the Permittee must exercise judgment or deliberation in order to approve or disapprove a development or significant redevelopment project, or
  - ii. During Ministerial action<sup>20</sup> approval process of issuing a grading, building, demolition, or similar "construction" permits in which only fixed standards or objective measures are applied.

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<sup>19</sup> A "discretionary action" under CEQA is defined as "an activity which requires the public agency to exercise judgment in deciding whether to approve or disapprove the particular activity, as distinguished from situations where the public agency merely has to determine whether there has been conformity with applicable ordinances or other laws." (California Public Resources Code § 21080(a); CEQA Guidelines § 15357)

<sup>20</sup> "Ministerial actions" under CEQA are those where little or no judgment or deliberation by a Permittee is required.

- b. Permittee Development: The process for planning and reviewing Permittee-owned new development and redevelopment projects differs from the private sector development process. However, Permittee-owned new development and redevelopment projects must consider potential storm water quality impacts early in the planning process. The Permittees shall develop an equivalent approach to ensure development process procedures consider storm water quality site issues before the facilities/projects are final designed.

**18. Maintenance Agreement and Transfer**

Each Permittee shall require that all developments subject to Development Standards and site specific plan requirements provide verification of maintenance provisions for Structural Treatment Control BMPs, including but not limited to legal agreements, covenants, California Environmental Quality Act (CEQA) mitigation requirements, and or conditional use permits. Verification at a minimum shall include:

- a. The developer's signed statement accepting responsibility for maintenance until the responsibility is legally transferred; or
- b. Written conditions in the sales or lease agreement, which requires the recipient to assume responsibility for maintenance; or
- c. Written text in project conditions, covenants and restrictions for residential properties assigning maintenance responsibilities to the Home Owners Association for maintenance of the Structural Treatment Control BMPs; or
- d. Any other legally enforceable agreement that assigns responsibility for the maintenance of post-construction Structural Treatment Control BMPs.

**19. Mitigation Funding**

The Permittees may propose a management framework, for endorsement by the Regional Water Board Executive Officer, to support regional or sub-regional solutions to storm water pollution, where any of the following situations occur:

- a. A waiver for impracticability is granted;
- b. Legislative funds become available;
- c. Off-site mitigation is required because of loss of environmental habitat; or an approved watershed management plan or a regional storm water mitigation plan exists that incorporates an equivalent or improved strategy for storm water mitigation.

20. **Waiver Program:** A Permittee may develop a waiver program that would require a developer to pay into an in-lieu fund or storm water mitigation fund instead of incorporating a structural treatment control measure into a development project. A waiver may be used for projects where accepted structural treatment control measures have been considered and rejected as infeasible. Infeasibility criteria may include items such as extreme space limitations in redevelopment projects or infill areas, unfavorable soil conditions for infiltration, potential groundwater contamination, or topographic and hydraulic head limitations. The storm water mitigation funds shall be used for regional or alternative solutions within the Sacramento River watershed. The Permittee shall obtain approval from the Executive Officer prior to implementation of a waiver program and shall notify the Regional Water Board annually of waivers granted in that year.

21. **California Environmental Quality Act (CEQA) Document Update**

Each Permittee shall incorporate into its CEQA process, procedures for considering potential storm water quality impacts and providing for appropriate mitigation when preparing and reviewing CEQA documents. The procedures shall require consideration of the following:

- a. Potential impact of project construction on storm water runoff;
- b. Potential impact of project post-construction activity on storm water runoff;
- c. Potential for discharge of storm water from areas for material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas or loading docks, or other outdoor work areas;
- d. Potential for discharge of storm water to impair the beneficial uses of the receiving waters or areas that provide water quality benefit;
- e. Potential for the discharge of storm water to cause significant harm on the biological integrity of the waterways and water bodies;
- f. Potential for significant changes in the flow velocity or volume of storm water runoff that can cause environmental harm; and
- g. Potential for significant increases in erosion of the project site or surrounding areas.

**22. Coordination, Enforcement and Tracking**

- a. Each Permittee shall provide for the review of proposed project plan and require measures to ensure that all applicable development will be in compliance with their storm water ordinances, local permits, and all other applicable ordinances and requirements.
- b. Each Permittee shall develop a process by which Development Standards will be implemented. The process shall identify at what point in the planning process development projects will be required to meet Development Standards. The process shall also include identification of the roles and responsibilities of various municipal departments in implementing the Development Standards, as well as any other measures necessary for the implementation of Development Standards.
- c. Each Permittee shall develop and implement (no later than one year after Regional Water Board approval of the SQIP) the following:
  - i. A GIS or other electronic system for tracking projects that have been issued a permit for the construction of post-construction treatment control BMPs. The electronic system, at a minimum, shall contain the following information:
    - a) Municipal Project ID.
    - b) State WDID No.
    - c) Project Acreage.
    - d) BMP Type and Description.
    - e) BMP Location.
    - f) Date of Acceptance.

**23. Infiltration and Groundwater Protection** – To protect groundwater quality, each Permittee shall consider the type of development and resulting storm water discharge and, if appropriate, apply restrictions to the use of structural BMPs which are designed to primarily function as infiltration devices (such as infiltration trenches and infiltration basins).

**24. Development Standards Outreach** – Each Permittee shall continue to implement outreach and training associated with the Planning and New Development Program Element.

**25. Targeted Employee Training**

Each Permittee shall periodically train its employees in targeted positions (whose jobs or activities are engaged in development planning) to ensure they can adequately implement the Planning and New Development Program requirements.

## 26. **Technical Guidance and Information for Developers**

The Permittees shall submit updated technical guidance consistent with the requirements of Provisions 15b and c of this Order, no later than 6 months following amendment of development standards. The updated technical guidance shall include and encourage low impact development/ hydromodification strategies for the development community in the Sacramento urbanized area. The strategies shall be based on the existing site design control measures identified in the existing Development Standards. Prior to approval of the Development Standards, the early implementation of measures likely to be included in the Development Standards shall be encouraged by the Permittees.

### **WATER QUALITY BASED PROGRAMS**

27. The Permittees shall continue to implement the Target Pollutant identification and prioritization processes described in the SQIP. These processes shall continue to include as key evaluation criteria, pollutants that cause or contribute to exceedances of water quality standards and known or probable impairment of beneficial uses. The Permittees shall develop and/or implement target pollutant control programs for pollutants that have been identified as top priorities. Target pollutant control programs shall be incorporated into each Permittee's SQIP and revised in accordance with the directives of this Order. At a minimum, these control programs shall include the following:

- a. **Pesticides:** To address pesticide impairment of urban streams, the Permittees shall continue to implement the Regional Water Board-approved Pesticide Plan that addresses their own use of pesticides including diazinon and chlorpyrifos, and to the extent authorized by law, the use of such pesticides by other sources within their jurisdictions. The goal of the Pesticide Plan is to reduce the discharge of pesticides from municipal storm water systems to urban creeks within the Sacramento urbanized area. The Permittees shall identify and promote, within the context of integrated pest management (IPM) programs, the use of pest management practices that minimize the risk of pesticide impacts on surface water quality resulting from urban runoff discharges.

IPM shall be integrated into the Permittee municipal operations and promoted to residents, businesses and public agencies through the public outreach program.

- i. For municipal operations, the Permittees shall implement the action items listed under the "Permittee Pest Control" section of the Pesticide Plan

- ii. For public outreach, the Permittees shall implement the action items listed in the "Public Education and Outreach" section of the Pesticide Plan.
- iii. The Permittees shall conduct the following studies of the local or regional sales and use of residential and commercial pest control products potentially found in storm water runoff:
  - a) A telephone survey of residential pesticide use
  - b) A review of structural and landscape pesticide use based on Pesticide Use Reports available from the DPR
  - c) A shelf survey of pesticides available to the public at retail settings

The studies may be based on the study design used for previous studies conducted by the Permittees, and shall be conducted by 1 August 2011 (or three years after the effective date of this Order, whichever is later). The survey may be conducted in conjunction with other municipalities in the Central Valley or San Francisco Bay Area as long as residences and retailers located with Sacramento urbanized area are adequately represented.

- iv. **No later than the end of year 4 of the Permit term**, the Permittees shall complete an assessment to determine if urban storm water is causing or contributing to an exceedance of water quality standards for diazinon and chlorpyrifos. If urban storm water is causing or contributing to an exceedance, then the Permittees shall determine the relative contribution of urban storm water runoff to diazinon and chlorpyrifos levels in waters within its jurisdiction that are identified as a toxic hot spot (per § 13394 of Porter-Cologne) or are on the CWA 303(d) list.
- v. The Permittees, either separately or through organizations such as CASQA, shall continue to support or participate in efforts to influence pesticide regulatory activities by state and federal agencies, especially DPR, the Structural Pest Control Board, and the USEPA Office of Pesticides, with respect to promoting adequate evaluation and regulation of pesticide uses that have significant potential to impact receiving waters through discharges of urban runoff.
- vi. The Permittees shall coordinate with the Pesticide Plan component of the SQIP, to the extent that pesticides in sediments are identified as causing or contributing to receiving water impacts. The Permittees shall incorporate a Sediment Monitoring program into the Pesticide Plan as part of the SQIP. The Sediment Monitoring

program shall include information as specified in the Monitoring and Reporting Program of this Order.

- b. **Mercury:** To address the mercury impairment of the Delta, Sacramento River, American River, and Lake Natoma, the Permittees shall continue to implement the mercury reduction strategy (Mercury Plan) that was submitted in 2004. Compliance with the Mercury Plan shall be assessed by data and information submitted in the Annual Reports.

In addition, the Permittees shall incorporate the following into their mercury reduction strategy.

- i. For public outreach and municipal operations, the Permittees' mercury control programs shall coordinate with the countywide universal waste (U-waste) management strategy, described in the "Sacramento Countywide U-Waste Collection Strategy Letter Report" (R3 Consulting Group Inc., 2007, pages 9 and 10), and describe in the Annual Reports specific coordination efforts related to mercury control (e.g., fluorescent lamp collections, public outreach, sustainable funding mechanisms, and U-waste tonnage tracking).
- ii. For public outreach, the Permittees shall evaluate and summarize the 2004 and 2007 public awareness/opinion survey data related to mercury (e.g., fluorescent lamps disposal). In the 2008/2009 Annual Report, provide recommendations for amending Permittees' mercury source control programs and amend the mercury source control programs in accordance with those recommendations.
- iii. As components of the Monitoring Program, the Permittees shall complete the following efforts, which are further described in the MRP:
  - a) Evaluate total mercury and methylmercury data collected under the previous Order and continue urban discharge monitoring to determine the amount of total mercury and methylmercury loading that urban lands within the Sacramento area contribute to individual impaired water bodies (the Delta, Sacramento River, American River, and Lake Natomas).
  - b) Estimate the amount of total mercury and sediment prevented from discharging to receiving waters by existing BMPs such as (but not limited to) street cleaning, detention basins, and erosion and sediment controls.



- c) Consider including monitoring in the design of future BMP studies to estimate the extent to which existing and new BMPs reduce total mercury and methylmercury discharges.

Based on the results of the above mercury-related evaluations and Permittee recommendations, the Executive Officer may require additional mercury monitoring, BMPs, and SQIP revisions.

- 28. In support of the Water Quality Based Programs, the Permittees shall develop and implement the storm water monitoring program as defined in the Monitoring and Reporting Program No. R5-2008-0142, which is part of this Order, and any revisions thereto adopted by the Regional Water Board.

29. **Program Effectiveness Assessment**

- a. The Permittees shall describe their approach to program effectiveness assessment in their SQIPs and report the results of the assessment in their Annual Reports. The assessment shall identify the direct and indirect measurements that the Permittees used to track the effectiveness of their programs as well as the outcome levels at which the assessment is occurring consistent with this Order. Direct and indirect measurements such as the following shall be included: conformance with established performance standards, quantitative monitoring to assess the effectiveness of representative control measures, measurements or estimates of pollutant load reductions or increases from identified sources where feasible, measurements of raised awareness of the public, and/or detailed accounting/documentation of SQIP accomplishments.
- b. The Permittees shall track the long-term progress of their SQIPs towards achieving improvements in receiving water quality.
- c. The Permittees shall use the information gained from the program effectiveness assessment to improve their SQIPs and identify new BMPs, or modification of existing BMPs. This information shall be reported within the Annual Reports consistent with this Order.
- d. Long Term Effectiveness Assessment (LTEA): Each Permittee shall collaborate with the other Permittees to develop the LTEA of the program, which shall build on the results of the Permittees' Annual Reports and the initial program effectiveness assessments. The LTEA shall be submitted to the Regional Water Board **no later than 180 days prior to the permit expiration date** and shall identify the storm water program long term effectiveness in achieving both programmatic goals (raising awareness, changing behavior) and environmental goals (reducing pollutant discharges, improving environmental conditions).

### ADDITIONAL REQUIREMENTS

30. Monitoring and Reporting Program: The Permittees shall comply with Monitoring and Reporting Program No. R5-2008-0142, which is part of this Order, and any revisions thereto approved by the Board. Because the Permittees operate facilities which discharge waste subject to this Order, the Monitoring and Reporting Program is necessary to ensure compliance with these waste discharge requirements.
31. This Order may be modified, or alternatively, revoked or reissued, prior to the expiration date as follows: a) to address significant changed conditions identified in the technical reports required by the Regional Water Board which were unknown at the time of the issuance of this Order; b) to incorporate applicable requirements of statewide water quality control plans adopted by the State Board or amendments to the Basin Plan approved by the State Board; or c) to comply with any applicable requirements, guidelines, or regulations issued or approved under Section 402(p) of the CWA, if the requirement, guideline, or regulation so issued or approved contains different conditions or additional requirements not provided for in this Order. The Order as modified or reissued under this paragraph shall also contain any other requirement of the CWA when applicable.
32. Each Permittee shall comply with all applicable items of the "Standard Provisions and Monitoring Requirements for Waste Discharge Requirements (NPDES)," dated February 2004 (Attachment D), which are part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provisions."
33. This Order expires on **11 September 2013**. The Permittees must file a Report of Waste Discharge (ROWD) in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of such date as application for re-issuance of waste discharge requirements. U.S. EPA 40 CFR Part 122 Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems states the fourth year annual report may be used as the ROWD reapplication package. The reapplication package must identify any proposed changes or improvement to the SQIPs, an assessment of the effectiveness of the program, and monitoring activities for the upcoming five year term of the permit, if those proposed changes have not already been submitted pursuant to 40 CFR 122.42 (c).

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **11 September 2008**.

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PAMELA C. CREEDON, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2008-0142

NPDES NO. CAS082597

MONITORING AND REPORTING PROGRAM

CITIES OF CITIRUS HEIGHT, ELK GROVE, FOLSOM, GALT, RANCHO CORDOVA,  
SACRAMENTO, AND COUNTY OF SACRAMENTO  
STORM WATER DISCHARGES FROM  
MUNICIPAL SEPARATE STORM SEWER SYSTEM  
SACRAMENTO COUNTY

**I. MONITORING AND REPORTING PROGRAM REQUIREMENTS**

This Monitoring Reporting Program (MRP) is issued pursuant to the California Water Code Section 13267 and 13383. This MRP is necessary to determine compliance with Order No. R5-2008-0142 and to determine the effectiveness of the storm water program.

The Permittees shall not implement any changes to this MRP unless and until the Regional Water Board or Executive Officer issues a revised MRP. Attachment A shows the individual Permittee municipal separate storm water system (MS4) limits known as the Sacramento urbanized area, which are covered under this Order. To save time and money, and avoid duplication of efforts, the Permittees shall coordinate their monitoring program with local, state, and federal agencies whenever possible.

- A. **Annual Monitoring Plan:** The Permittees shall submit by **1 May** of each year a proposed joint-Permittee Annual Monitoring Plan that includes clearly defined tasks, responsibilities, and schedules for implementation of monitoring activities for the next fiscal year. The Annual Monitoring Plan shall be deemed to be final and enforceable under this Order as of **1 July** of each year unless determined to be unacceptable by the Executive Officer. Each Permittee shall address any comments or conditions of acceptability received from the Executive Officer on the Permittees' Annual Monitoring Plan.
- B. **Annual Report:** The Permittees shall submit, in both electronic and paper formats and no later than **1 October** of each year, an Annual Report documenting the progress of the Permittees' implementation of the Storm Water Quality Improvement Plan (SQIP) and the requirements of this Order. The Annual Report shall discuss each Permittee's status of compliance with this Order and the SQIPs, including implementation dates for all time-specific deadlines should be included for each program area. If permit deadlines are

not met, the Permittees shall report the reasons why the requirement was not met and how the requirements will be met in the future, including projected implementation dates. It shall include a compilation of deliverables and milestones completed during the previous fiscal year, and a discussion of program effectiveness relative to performance standards defined in the SQIPs. In each Annual Report, the Permittees may propose pertinent updates, improvements, or revisions to the SQIPs, which shall be complied with under this Order unless disapproved by the Executive Officer or acted upon in accordance with this Order. A comparison of program implementation results to performance standards established in the SQIP and Order No. R5-2007-0173 shall be included for each program area. Specific requirements that must be addressed in the Annual Reports are listed below.

1. An Executive Summary discussing the effectiveness of the SQIP to reduce storm water pollution to the maximum extent practicable (MEP) and to achieve compliance with water quality standards in receiving waters;
2. Summary of activities conducted by the Permittees;
3. Identification of best management practices (BMPs) and a discussion of their effectiveness at reducing urban runoff pollutants and flow, where applicable; and
4. Summary of the monitoring data and an assessment of each component of the MRP. To comply with Provisions C.1 and C.2 of the Order No. R5-2008-0142 the Permittees shall compare receiving water data with applicable water quality standards. The lowest applicable standard from the Basin Plan, California Toxics Rule (CTR), and California Title 22 (Title 22), and constituent specific concentrations limits (e.g., mercury) shall be used for comparison. The Permittees shall additionally provide a summary of monitoring data for the discharges to assess the effectiveness of BMPs in reducing pollutants in the discharge and in assessing whether a discharge may have caused or contributed to an exceedance of water quality standards.

When the data indicate that discharges are causing or contributing to exceedances of applicable water quality standards or constituent specific concentrations limits, the Permittees shall prepare a Report of Water Quality Exceedance (RWQE), prepared pursuant to Receiving Water Limitations C.3 of this Order, and identify potential sources of the problems, and recommend future monitoring and BMP implementation measures to identify and address the sources.

Raw data shall be submitted in electronic format.

5. Effectiveness assessment for each program element, as defined in the SQIP, shall be conducted annually, shall be built upon each consecutive year, and shall identify any necessary modifications. The SQIP shall describe, in detail, the performance standards or goals to use to gauge the effectiveness of the storm water management program. The primary questions that must be assessed for each program element include the following:
  - a. Level 1 Outcome: Was the Program Element or BMP implemented in accordance with the Permit Provisions, SQIP Control Measures and Performance Standards?
  - b. Level 2 Outcome: Did the Program Element or BMP raise the target audience's awareness of an issue?
  - c. Level 3 Outcome: Did the Program Element or BMP change a target audience's behavior, resulting in the implementation of recommended BMPs?
  - d. Level 4 Outcome: Did the Program Element or BMP reduce the load of pollutants from the sources to the storm drain system?
  - e. Level 5 Outcome: Did the Program Element or BMP enhance or change the urban runoff and discharge quality?
  - f. Level 6 Outcome: Did the Program Element or BMP enhance or change receiving water quality?

Annually, the Permittees shall evaluate Water Quality Based Programs and shall include consideration of applicable physical, chemical and biological data water quality data. Such evaluation may include graphs, charts, statistics, modeling, and any other analyses in support of the Permittees' evaluation of the data and conclusions derived from that analysis. Documentation shall include quality assurance and control procedures (QA/QC).

6. Pursuant to 40 CFR 122.42(c)(7), the Permittees shall identify water quality improvements in, or degradation of, urban storm water;
7. For each monitoring component, photographs and maps of all monitoring station locations and descriptions of each location; and

8. Recommendations to improve the monitoring program, BMPs, Performance Standards, and the SQIP to address potential receiving water quality exceedances and potential pollutant sources, and to meet the MEP standard.
  9. Provide operating data from all pump stations as an appendix in electronic format as necessary and estimate discharge volumes unless other technically defensible means to estimate urban runoff discharge volumes can be substituted. Historically, the Permittees have estimated runoff volumes based on rainfall-runoff volume empirical relationships.
  10. In addition to the requirements listed above, the final Annual Report of this Order's permit term shall include:
    - a. An estimate of total pollutant loads attributable to urban runoff for target pollutants at each discharge monitoring station;
    - b. An evaluation of the long-term trends in MS4 discharges and receiving water quality. Several factors need to be considered when evaluating trends, such as changes in sample collection methods, data quality differences, and changes in analytical methods.
    - c. An evaluation of significant correlations of target pollutants with other constituents, such as total suspended solids (TSS).
  11. The SQIP shall include separate sections for specific program elements, as well as separate sections for Plans required by the Order (i.e., Sediment Monitoring, Mercury Plan).
- C. **Notification of Water Quality Exceedances (NWQE):** The Permittees shall notify the Regional Water Board, in writing, of any exceedance in receiving waters of applicable water quality standards within **90 days** of the monitoring event from which the exceedance was detected. The Permittees shall notify the Regional Water Board electronically within **48 hours** of receiving Water Column Toxicity monitoring data in receiving waters that indicates 50% mortality.
- D. **Certification:** All work plans and reports submitted to the Regional Water Board shall be signed and certified pursuant to federal regulations at 40 CFR 122.41 (k). Each report shall contain the following completed declaration:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system

designed to assure that qualified personnel properly gather and evaluate the information submitted.

Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility, of a fine and imprisonment for knowing violations."

Executed on the \_\_\_\_ day of, 200\_\_\_\_, at \_\_\_\_\_.

(Signature)\_\_\_\_\_ (Title)\_\_\_\_\_.

The Permittees shall mail the original of each annual report to:

CALIFORNIA REGIONAL WATER QUALITY  
CONTROL BOARD – CENTRAL VALLEY REGION  
11020 SUN CENTER DRIVE, #200  
RANCHO CORDOVA, CA 95670

A copy of the annual report shall also be mailed to:

REGIONAL ADMINISTRATOR  
ENVIRONMENTAL PROTECTION AGENCY  
REGION 9  
75 Hawthorne Street  
San Francisco, CA 94105

## **II. MONITORING PROGRAM**

The primary objectives of the Monitoring Program are:

- Assessing compliance with this Order;
- Measuring and improving the effectiveness of the SQIPs;
- Assessing the chemical, physical, and biological impacts on receiving waters resulting from urban runoff;
- Characterization of urban runoff;
- Identifying sources of pollutants; and
- Assessing the overall health and evaluating long-term trends in receiving water quality.

Ultimately, the results of the monitoring requirements should be used to refine the SQIP to reduce pollutant loadings, and to protect and enhance the beneficial uses of the receiving waters in the Sacramento Urbanized Area.

The monitoring program shall address:

- Baseline Monitoring
  - Receiving Water Monitoring, including river and urban tributaries
  - Urban Discharge Monitoring
  - Water Column Toxicity Monitoring
- Sediment and Bioassessment Monitoring
- Water Quality Based Programs
  - Pesticide Monitoring
  - Mercury Monitoring
- Special Studies
  - Detention Basin Effectiveness Evaluation Monitoring
  - Pilot Watershed – New Development BMP Effectiveness Evaluation
  - Proprietary Treatment BMP Effectiveness Evaluation

The Permittees shall implement the Monitoring Program as follows:

**A. Sampling Protocol**

1. Sampling events should be coordinated with monitoring activities such as receiving water monitoring (river and urban tributary), and urban discharge.
2. The Permittees shall collect flow data at the time of sampling for all monitoring stations sampled. Receiving water or urban discharge flow may be estimated using U.S. EPA methods<sup>1</sup> at sites where flow measurement devices are not in place.
3. All sample collection and analyses shall follow standard USEPA protocol.
4. To meet a monitoring requirement, the Permittees may support (financially or otherwise) another agency or monitoring program that will conduct the monitoring.

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<sup>1</sup> NPDES Storm Water Sampling Guidance Document, U.S. EPA 833-B-92-001, July 1992



## B. Receiving Water Monitoring

The new receiving water monitoring requirements described herein will require the Permittees to establish new monitoring stations, develop new operating procedures, and train personnel as described in the SQIP.

The proposed locations of receiving water monitoring stations for rivers and urban tributaries shall be presented in the revised SQIP and presented in the Annual Reports. If additional monitoring stations are needed, they shall be established under the direction of Regional Water Board staff. A description of any additional stations shall be attached to this MRP. Receiving water monitoring may be postponed if a given monitoring station cannot be safely accessed.

Each year (annually), samples shall be collected **during three storm events<sup>2</sup>** and **one monitoring event during the dry season.<sup>3</sup>** The Permittees shall target monitoring the first rain event of the year forecasted for at least 0.25 inch in a twenty-four hour period that is preceded by at least 30 days of dry weather. The second and third rain events to be monitored shall be selected by the Permittees to fill data gaps for different types of rain events in the region. These rain event selection criteria shall be included in the sampling and analysis plans.

Receiving water monitoring for Rivers and Urban Tributaries shall be consistent with the attached Table B list of constituents of concern, except for pyrethroid pesticides in water.

1. **River Monitoring:** Monitoring of river receiving water stations shall be conducted at: American River at Nimbus, American River at Discovery Park, Sacramento River at Veteran's Bridge, and Sacramento River at Freeport Bridge, as shown on Attachment B. Monitoring shall be conducted in a manner that best measures the maximum anticipated water quality impacts from MS4 discharges. However, because of safety reasons, samples will be collected during daylight hours, only when conditions are safe for boat operations.

Samples collected at the American River at Nimbus location shall be collected as grab samples. All other river samples shall be cross-sectional depth-composite samples, unless a particular parameter analysis requires grab samples, or if flow and safety conditions warrant the collection of grab samples.

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<sup>2</sup> Storm Event means any rain event greater than 0.25 inch in 24 hours except where specifically stated otherwise.

<sup>3</sup> Dry weather day means a day with a rain event too small to generate runoff (typically 0.1 inches or less) shall be considered a dry weather day.

## 2. Urban Tributary Monitoring:

- a. Monitoring of urban tributary receiving waters shall be conducted at: Arcade Creek, Willow Creek and Laguna Creek, as shown on Attachment B.
  - i. If a given tributary is dry or has only standing water during a scheduled sampling event, then sampling is not required; however, Permittees shall attempt to sample tributaries at times when water flows are more likely, such as the early part of the dry season.
  - ii. Tributary receiving water samples shall be either grab, time-composited, or flow-composited and collected at mid-depth and mid-stream.
  - iii. Samples shall be taken just upstream of the tributary's confluence with the main stem of creeks or rivers.
  - iv. Sample collection can be limited to daylight hours, when conditions are safe.
- b. Report of Water Quality Exceedance (RWQE) preparation during the previous permit term included development of a work plan to address the cause and nature of dissolved oxygen (DO), pH, and temperature exceedances in several urban tributaries. Multiple steps in the work plan have been completed.<sup>4 5 6</sup> The Permittees shall continue to implement the work plan elements and begin Phase II upon adoption of this Order. Much of the work shall be performed in Morrison Creek, other creeks may be identified. The work plan and any updates to the plan shall be included in the SQIP.

## C. Urban Discharge Monitoring

The Permittees shall monitor urban discharges from the following monitoring stations: Sump 111, Strong Ranch Slough, and the North Natomas Development, as shown on Attachment B, for those constituents listed in Table B. The change from monitoring at the long term Sump 104 site to the

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<sup>4</sup> Larry Walker Associates, September 20, 2006. Memorandum from Brian Laurenson, *Assessment Strategy for Dissolved Oxygen, Temperature and pH in Sacramento Urban Tributaries*.

<sup>5</sup> Larry Walker Associates, November 13, 2006. Memorandum from Brian Laurenson. *Urban Tributary Dissolved Oxygen, pH and Temperature Investigation Sampling and Analysis Plan – Phase 1*.

<sup>6</sup> Larry Walker Associates, May 2007. Memorandum from Iain Clark. *Phase 1 Investigation Results – Willow Creek and Morrison Creek pH, Dissolved Oxygen, and Temperature*.

North Natomas Development site will be evaluated to determine effects on long term effectiveness evaluations. Following this evaluation and the finalization of the new location, if an alternate location is identified to replace Sump 104, the Permittees may request such a change through modification of the SQIP.

Sampling of pyrethroids in water as listed in Table B shall be conducted if required by Regional Water Board staff after evaluating the results and recommendations from the sampling of Permittee discharges currently being conducted by Dr. Donald Weston through Statewide Ambient Monitoring Program (SWAMP).

In coordination with Receiving Water Monitoring, in two of every three years, samples shall be collected **during three storm events** and **one dry season monitoring event**. The Permittees shall target for monitoring the first storm event of the year preceded by at least 30 days of dry weather.<sup>7</sup> The second and third storm events to be monitored shall be selected by the Permittees to fill data gaps for different types of storm events in the region.

Samples shall be flow-weighted composites collected for the duration of the storm, with a maximum composite period of 24 hours. Because of the inherent difficulty in fully capturing an entire storm event, the Permittees shall report the portion of the storm event "captured" or during which samples were collected.

#### D. **Water Column Toxicity**

The Permittees shall conduct short-term toxicity analyses to evaluate the extent and causes of toxicity in receiving waters, and to provide information to support identification of practices that eliminate sources of toxicity or remove them to the MEP.

The Permittees shall conduct toxicity testing at each receiving water monitoring station during two of the five fiscal years (July 1 of the current year to June 30 of the following year) of the Order; this testing shall not be done in consecutive years. Toxicity testing includes (1) analysis of samples from two storm events (including the first storm of the year) and one during the dry season from each receiving water monitoring station; and (2) analysis of at least the following two freshwater test species for each storm event: Fathead minnow (*Pimephales promelas*) and water flea (*Ceriodaphnia dubia*). The testing shall be conducted in accordance with U.S. EPA's method 821-R-02-

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<sup>7</sup> A day with a rain event too small to generate runoff (typically 0.1 inches or less) shall be considered a dry weather day.

013 (U.S. EPA 2002, 4th Edition). A modification<sup>8</sup> to this method is allowed for *Pimephales promelas* to address previously observed pathogen interference. A minimum sample volume of 5 gallons for each test species shall be provided with a sample storage (holding time) not to exceed 36 hours.

If 100% mortality to *Pimephales promelas* or *Ceriodaphnia dubia* is detected within 24 hours of test initiation, then a dilution series shall be initiated (0.5x steps) ranging from the undiluted sample (or the highest concentration that can be tested within the limitations of the test methods or sample type) to less than or equal to 6.25 percent of the sample. Further, if statistically significant toxicity is detected and a greater than or equal to 50% increase in *Pimephales promelas* or *Ceriodaphnia dubia* mortality compared to the laboratory control is observed, then TIEs shall be conducted on the initial sample that caused toxicity.

1. Toxicity Identification Evaluations (TIE)

The Permittees shall begin a Phase I TIE immediately on all samples that cause statistically significant toxicity and greater than or equal to 50% increase in *Pimephales promelas* or *Ceriodaphnia dubia* mortality compared to the laboratory control. If mortality of both test species exceeds the 50% trigger, then TIEs shall be conducted using both species. TIEs are required until the cause of toxicity is determined. TIE shall be conducted by qualified personnel.

2. Toxicity Reduction Evaluations (TRE)

- a. A TRE shall be conducted whenever a toxicant is successfully identified through the TIE process. The TRE shall include all reasonable steps to identify the source(s) of toxicity and discuss appropriate BMPs to eliminate the causes of toxicity. Once the source of toxicity and appropriate BMPs are identified, the Permittees shall submit the TRE Corrective Action Plan as part of the Annual Report to the Executive Officer for approval. At a minimum, the TRE shall include a discussion of the following items:
  - i. A description of the investigation and evaluation techniques that would be used to identify potential causes and sources of toxicity;

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<sup>8</sup> Geis, Stephen W., et al., *Modifications to the Fathead Minnow (Pimephales promelas) chronic Test Method to Remove Mortality Due to Pathogenic Organisms*. Environmental Toxicology and Chemistry. Vo.. 22 No. 10. Pg. 2400-2404. April 2003.

- ii. The potential sources of pollutant(s) causing toxicity;
  - iii. A list of Permittees having jurisdiction over sources of pollutant(s) causing toxicity;
  - iv. Recommended BMPs to reduce the pollutant(s) causing toxicity;
  - v. Proposed changes to the SQIP to reduce the pollutant(s) causing toxicity; and
  - vi. Suggested follow-up monitoring to demonstrate BMP effectiveness in reducing the pollutant causing toxicity.
- b. The Permittee's do not need to prepare a TRE if the identified pollutant is already being addressed in the Permittee's Target Pollutant Program. If this is the case, the toxicity found shall be noted and addressed through on-going implementation of that pollutant control strategy.
  - c. If TRE implementation for a specific pollutant coincides with Total Maximum Daily Load (TMDL) implementation for that pollutant, the efforts may be coordinated.
  - d. Upon approval by the Executive Officer, the Permittees(s) having jurisdiction over sources causing or contributing to toxicity shall implement the recommended BMPs and take all reasonable steps necessary to eliminate toxicity.
  - e. The Permittees shall develop a maximum of two TREs per year. If applicable, the Permittees may use the same TRE for the same toxic pollutant or pollutant class in different watersheds or basins. The TRE process shall be coordinated with TMDL development and implementation to avoid overlap.

The Permittees shall include a monitoring plan, which shall include a sampling and analysis plan and an implementation schedule in the SQIP for approval by the Executive Officer. Subsequent information (e.g., all data (electronic format), assessment of the data, conclusions, proposed BMPs to be implemented, and assessment of program effectiveness) shall be included in the Annual Reports as required in this MRP Order.

#### E. Sediment Monitoring

1. Sediment toxicity resulting from pyrethroid pesticides was recently identified in a study<sup>9</sup> performed through Statewide Ambient Monitoring Program (SWAMP) monitoring in the Sacramento area (Roseville, CA) urban tributaries. The Permittees will conduct pyrethroid sediment sampling as part of the urban tributary monitoring and as part of any bioassessment sampling. Sampling of sediment shall be consistent with SWAMP Quality Assurance Management Plan (QAMP) protocols. Specifically, **one wet season<sup>10</sup> and one dry season** sample will be collected annually at least five years at each of the three urban tributaries. Reporting limits in sediment will conform to Table B. Sediment toxicity sampling is not required under this Order. These requirements may change based on an evaluation of data performed by the Permittees.
2. The Permittees shall review and amend the Pesticide Plan component of the SQIP, if pesticides in sediments are identified as causing or contributing to receiving water impacts.

The Pesticide Plan shall address the following elements:

- a. Identification, development, implementation and assessment of BMPs to address controllable discharges of sediment-bound contaminants that may be linked to sediment toxicity to the MEP;
- b. Development and adoption of policies, procedures, and/or ordinances to implement BMPs;
- c. A time schedule for implementation and assessment.

#### F. Bioassessment Monitoring

The purpose of this requirement is to fully evaluate biological data collected under the previous MRP in order to assess the biological integrity of receiving waters, detect biological responses to pollution, and identify probable causes of impairment not detected by chemical and physical water quality analysis.

Further bioassessment monitoring activities will not be required under this Order until the evaluation with recommendations is complete, and the monitoring effort is adapted in consultation with SWAMP's bioassessment

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<sup>9</sup> Weston, D. P., Holmes, R. W., et.al. Aquatic Toxicity Due to Residential Use of Pyrethroid Insecticides. Environmental Science and Technology. 2005, 39, 9778-9784.

<sup>10</sup> Wet Season means the calendar period beginning October 1 through April 15.

workgroup. If applicable, an updated bioassessment monitoring plan shall be included in the SQIP.

1. The following results and information shall be included in the 2008-09 Annual Report:
  - a. All physical, chemical and biological data collected in the assessment;
  - b. Photographs and GPS locations of all stations;
  - c. Documentation of quality assurance and control procedures;
  - d. Analysis that shall include calculation of the metrics used in the CSBP;
  - e. Comparison of mean biological and habitat assessment metric values between stations and year-to-year trends;
  - f. Electronic data formatted to the DFG Aquatic Bioassessment Laboratory for inclusion in the Statewide Access Bioassessment Database; and
  - g. Copies of all QA/QC documents from laboratories.
2. The Permittees shall participate in and coordinate with the SWAMP to identify the most appropriate locations for future bioassessment stations within the Sacramento urbanized area and determine coordinated needs for the initial development of an Index of Biological Integrity for the region.

#### G. **Water Quality-Based Programs**

The following minimum requirements shall apply to the specified programs:

1. **Additional Pesticide Monitoring.** Additional pesticide monitoring shall be developed to comply with the Basin Plan amendments or TMDLs developed during the Permit term and will be proposed in the Permittees Annual Work Plans submitted to the Regional Water Board.
2. **Additional Total Mercury and Methylmercury Analyses.** Previous monitoring included the analysis of total mercury and methylmercury at a variety of urban tributaries and urban discharge stations during a range of weather conditions and storm events. The Permittees shall fully evaluate total mercury and methylmercury data collected under the previous MRP in order to determine average annual methylmercury and total mercury concentrations and loads discharged to the CWA 303(d) Listed mercury-impaired waterways by urban lands in the Sacramento Urbanized Area during a range of wet and dry years.

The following results and information shall be included in the **2008/2009 Annual Report**:

- a. A summary of all total mercury, methylmercury and TSS water column data collected at urban tributaries and urban discharge stations by previous MRPs.
- b. GPS locations of all tributary and urban discharge stations;
- c. Documentation of sample collection and analytical methods;
- d. Documentation of quality assurance and control procedures;
- e. Evaluation of whether the (1) available concentration data represents a range of storm conditions and normal, above- and below-average wet and dry years (as determined by the DWR Water Year Hydrologic Classification Indices<sup>11</sup> for the Sacramento River Basin or other comparable methods); and (2) sampling locations represent runoff from urban lands throughout the Sacramento Urbanized Area that contribute discharge to each of the mercury-impaired waterways (Delta, Sacramento River, American River, and Lake Natoma).
- f. Evaluation of available data and methods to estimate dry- and wet-weather discharge volume (flow) from urban lands in the Sacramento Urbanized Area (e.g., LWA, 1996;<sup>12</sup> Ruby, 2005<sup>13</sup>) that will be needed to calculate the annual average total mercury and methylmercury loads in urban runoff contributed to each of the mercury-impaired waterways. Evaluation shall include the identification of a preferred method for estimating runoff volume, calculation of annual average discharge volumes contributed by urban lands within the Sacramento Urbanized Area to each of the mercury-impaired waterways using the preferred and alternative methods, and identification of any needs for additional data to better estimate annual runoff volumes.

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<sup>11</sup> DWR. 2006. Chronological Reconstructed Sacramento and San Joaquin Valley Water Year Hydrologic Classification Indices. DWR California Cooperative Snow Surveys. Sacramento, CA. Available at: <http://cdec.water.ca.gov/cgi-progs/iodir/WSIHIST>.

<sup>12</sup> LWA. 1996. Sacramento NPDES Stormwater Discharge Characterization Program 1996 DCP Update Report. Prepared by Larry Walker Associates (LWA) for the County of Sacramento, the City of Sacramento, the City of Folsom, and the City of Galt. September 1996.

<sup>13</sup> Ruby, A. 2005. Sacramento Urban Runoff Discharge Characterization 2005. Prepared for: The Sacramento Stormwater Quality Partnership. Prepared by: Armand Ruby, Armand Ruby Consulting, in association with Larry Walker Associates Inc. August 2005.



- g. Evaluation of different methods to estimate total mercury and methylmercury loads contributed to each of the mercury-impaired waterways by Sacramento Urbanized Area urban runoff (e.g., Ruby, 2005; Laurenson, 2007<sup>14</sup>; Wood et al., 2008<sup>15</sup>) and identification of a preferred method.
- h. Identification of data gaps and recommendations for additional monitoring or weather-specific sampling events necessary to fully characterize annual average total mercury and methylmercury concentrations and loads in runoff from established urban areas and new urban developments that contribute discharge to each of the mercury-impaired waterways. Recommendations may include a monitoring time schedule (e.g., when the monitoring will begin and its frequency) and will be developed in coordination with TMDL development and implementation for the Delta, Sacramento River, American River, and Lake Natoma.
- i. Estimates of the amount of total mercury and sediment prevented from discharging to receiving waters by existing BMPs in the Sacramento Urbanized Area such as, but not limited to, street cleaning, detention basins, and erosion and sediment controls.
- j. Recommendations for including total mercury and methylmercury monitoring in the design of future BMP studies to estimate the extent to which existing and new BMPs reduce total mercury and reduce and/or increase methylmercury discharges.

The baseline monitoring described in Section II.B of this MRP includes total mercury and methylmercury for three urban tributaries: Arcade Creek, Willow Creek and Laguna Creek. In addition, the monitoring described in Section II.C includes total mercury and methylmercury for three urban discharge stations: Sump 111, Strong Ranch Slough, and North Natomas Development Sump. Section III.A of this MRP also requires monitoring of methylmercury and total mercury in water in a special study to assess the pollutant removal performance of representative detention basins.

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<sup>14</sup> Laurenson, B.M. 2007. Report of Waste Discharge – Discharge and Receiving Water Characterization. Memorandum and summary statistics prepared by Brian M. Laurenson, P.E. (Larry Walker Associates) for Delia McGrath (City of Sacramento) and Janet Parris (Sacramento County).

<sup>15</sup> Wood, M.L., C.G. Foe, J. Cooke, S.J. Louie, and D.H. Bosworth. 2008. Sacramento – San Joaquin Delta Estuary TMDL for Methylmercury – Draft Report for Public Review. Central Valley Regional Water Quality Control Board staff report, February 2008.

Total mercury and methylmercury monitoring activities may be modified pending the Permittees' evaluation in the 2008/09 Annual Report. Any changes to the Monitoring Program will be made in consultation with Regional Water Board MS4 and Mercury TMDL staff, and in coordination with the final Delta TMDL and TMDL development efforts for the American River, Sacramento River, and Lake Natomas. The Executive Officer may require SQIP revisions based on the results of the above mercury-related evaluations and Permittee and Regional Water Board staff recommendations.

### III. SPECIAL STUDIES

#### A. Wet Detention Basin Monitoring

1. The Permittees shall complete the Water Quality Detention Basin Effectiveness study initiated in the last permit term to assess the pollutant removal performance of a representative wet water quality detention basin.
2. As described in Table B, the Permittees shall conduct monitoring for the following constituents in the water column at the inlet and outlet: pyrethroids, total mercury, and methylmercury, total suspended solids (TSS), turbidity, and bacteria. All samples will be analyzed using the methods and minimum levels as described in Table B. Other constituents that shall be sampled include: bacteria, total dissolved solids (TDS), and organophosphate pesticides (chlorpyrifos and diazinon), as described in Table B.
3. The study shall be designed to perform inflow and outflow monitoring to measure removal effectiveness, which is representative of typical conditions within the Sacramento urban watershed. Monitoring shall be designed to evaluate the effectiveness of the detention basin in removing pollutants of concern.
4. For a minimum of three years (annually), inlet and outlet samples shall be collected during **three storm events** and **one dry season event** for a total of nine storm events and three dry events. The study may be completed sooner if more storm events can be sampled in a given year.
5. Monitoring summaries will be reported in each Annual Report.
6. The monitoring results shall be evaluated and submitted with the FY 2010/2011 Annual Report. The report shall include an evaluation of basin effectiveness in removing pollutants of concern, including methylmercury. The report shall include a recommendation for collecting

inlet and outlet grab samples at two other detention basins. The two additional detention basins shall be located in watersheds outside the North Natomas area. The results will be submitted to the Regional Water Board in the final Annual Report of the permit term.

7. If the detention basins are found to be ineffective, the Study shall be updated to include recommendations on how to manage or design detention basins differently (i.e., redesign new basins, reconfigure existing basins, periodic dredging).
8. An addendum to the 2010/2011 Wet Detention Basin Effectiveness Report, including the results of the additional detention basin monitoring, shall be submitted in the final Annual Report of the permit term.

**B. Sampling Schedule**

The monitoring program shall implement the sampling schedule shown in Table A;

MONITORING AND REPORTING PROGRAM ORDER NO. R5-2008-0142  
MUNICIPAL SEPARATE STORM SEWER SYSTEM  
SACRAMENTO COUNTY AND ASSOCIATED CITIES

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**TABLE A. SAMPLING SCHEDULE**

<b>MRP Section Reference</b>	<b>Type</b>	<b>Sites</b>	<b>No. Sites</b>	<b>Permit Years Monitored</b>	<b>Total Events Over 5 Year Permit Term at Each Site</b>	<b>Constituent List [1]</b>	<b>Management Goals Addressed [2]</b>	<b>Notes</b>
II.B.1.	River	Sacramento River (2) and American River (2)	4	Years 1 through 5	15 Wet, 5 Dry	Table B. No pyrethroids in water column, pending evaluation.	A, F	3 Wet, 1 Dry per year  Sites located upstream and downstream of Sacramento urban area.
II.B.2.	Urban Tributary	Arcade Creek, Willow Creek, and Laguna Creek	3	Years 1 through 5	15 Wet, 5 Dry	Table B. No pyrethroids in water column, pending evaluation. Sediment monitoring described in MRP section II.E.	A, F	3 Wet, 1 Dry per year  The long term Laguna Creek urban tributary monitoring site will be within an existing developed area of the watershed.
II.C.	Urban Discharge Monitoring	Sump 111, Strong Ranch Slough, North Natomas	3	Years 1, 2, 4, & 5	12 Wet, 4 Dry	Table B. No pyrethroids in water column, pending evaluation.	C, D, E, G	3 Wet, 1 Dry per year  North Natomas site replaces Sump 104 pending data review and site selection. Monitoring in two of every three years.

MONITORING AND REPORTING PROGRAM ORDER NO. R5-2008-0142  
MUNICIPAL SEPARATE STORM SEWER SYSTEM  
SACRAMENTO COUNTY AND ASSOCIATED CITIES

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**TABLE A. SAMPLING SCHEDULE**

<b>MRP Section Reference</b>	<b>Type</b>	<b>Sites</b>	<b>No. Sites</b>	<b>Permit Years Monitored</b>	<b>Total Events Over 5 Year Permit Term at Each Site</b>	<b>Constituent List [1]</b>	<b>Management Goals Addressed [2]</b>	<b>Notes</b>
II.D.	Water Column Toxicity	Sacramento River (2), American River (2), Arcade Creek, Willow Creek, and Laguna Creek	7	Years 2 and 4	4 Wet, 2 Dry	Fathead and Ceriodaphnia	A, E, F, G	2 Wet, 1 Dry per year  Targeted TIE triggered based on 50% mortality.
II.E.	Sediment	Urban Tributary Monitoring Sites	3	Years 1 through 5	5 Wet, 5 Dry	Pyrethroids	A, E, F, G	1 Wet, 1 Dry per year  Wet event to be performed directly following a wet weather urban tributary event, and no later than April
II.F.	Bioassessment	Arcade Creek, Willow Creek, and Laguna Creek	3	None Required. See Notes.	None Required. See Notes.	None Required. See Notes.	A, C, F, G	May be added at Permittee's discretion.
III.A.	Wet Detention Basin	North Natomas	2	Years 1, 2, & 3	9 Wet, 3 Dry	Water column monitoring includes total mercury, methylmercury, TSS, bacteria, turbidity, TDS, OP pesticides, and pyrethroids.	B, C, D, E, F, G	3 Wet, 1 Dry per year  Monitoring initiated in 2007/08. Water column monitoring at inlet and outlet. Additional sampling of two more basins post 2010/2011 report.
III.B.	Pilot Watershed	Laguna Creek New Development BMP Effectiveness Evaluation	1	After year 2	None Required. See Notes.	None Required. See Notes.	B, D, E, G	Monitoring frequency, constituents, and sites to be determined during development of monitoring work plan in 2008/09.

MONITORING AND REPORTING PROGRAM ORDER NO. R5-2008-0142  
MUNICIPAL SEPARATE STORM SEWER SYSTEM  
SACRAMENTO COUNTY AND ASSOCIATED CITIES

-20-

Notes:

[1] "Table B" refers to the MRP constituent list that includes, among other constituents, total mercury, methyl mercury, and TSS.

[2] Management Goals

- A. What is the existing condition of receiving water quality and is it protective of beneficial uses?
- B. What is the quality of urban discharge in new developed areas?
- C. What is the trend of urban discharge quality?
- D. What is the relative urban runoff contribution to receiving water quality?
- E. What are the sources to urban runoff that affect receiving water quality?
- F. Are conditions in receiving waters getting better or worse?
- G. How can changes in urban water quality affect receiving water quality?

**C. Pilot Watershed – New Development BMP Effectiveness Evaluation**

1. The Permittees shall prepare and implement a work plan over the permit term for monitoring a receiving water site within the Upper Laguna Creek Collaborative project area. The work plan shall be submitted as part of the revised SQIP.

The objective of the study shall include the following:

- a. Monitor the reduction of pollutants of concern in storm water including, but not limited to, pathogen indicators, nutrients, heavy metals (including total mercury and methylmercury), and pesticides from a minimum of one BMP (e.g., low impact development) to determine BMP effectiveness;
- b. Evaluate the requirements for and installation and maintenance cost of each BMP; and
- c. Develop recommendations for appropriate BMPs for the reduction of pollutants of concern in storm water in the Sacramento urbanized area.

**D. Proprietary Treatment BMP Effectiveness Evaluation**

The Permittees shall continue to research the effectiveness and applicability of proprietary structural treatment BMPs for use in the Sacramento urbanized area. This study will include the review of manufacturer's field test data to verify their claims of product performance. This study shall be conducted a minimum of once per permit term.

**IV. Standard Monitoring Provisions**

All monitoring activities shall meet the following requirements:

**A. Monitoring and Records [40 CFR 122.41(j)(1)]**

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

**B. Monitoring and Records [40 CFR 122.41(j)(2)] [California Water Code §13383(a)]**

The Permittees shall retain records of all monitoring information, including all calibration and maintenance of monitoring instrumentation, copies of all

reports required by this Order, and records of all data used to complete the Report of Waste Discharge and application for this Order, for a period of at least five (5) years from the date of the sample, measurement, report, or application. This period may be extended by request of the Regional Water Board or U.S. EPA at any time and shall be extended during the course of any unresolved litigation regarding this discharge.

C. Monitoring and Records [40 CFR 122.41(j)(3)]. Records of monitoring information shall include:

1. Date, location, and time of sampling or measurements;
2. Individual(s) who performed the sampling or measurements;
3. Date analyses were performed;
4. Individual(s) who performed the analyses;
5. The analytical techniques or methods used; and
6. Results of such analyses.

D. Monitoring and Records [40 CFR 122.41(j)(4)]

All sampling, sample preservation, and analyses must be conducted according to test procedures approved under 40 CFR Part 136, unless otherwise specified in this Order.

E. Monitoring and Records [40 CFR 122.41(j)(5)]

The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Order shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than two years, or both. If a conviction is for a violation committed after a first conviction under this paragraph, punishment shall be a fine of not more than \$20,000 per day of violation, or by imprisonment for not more than two years, or both.

F. All chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory certified for such analyses by an appropriate governmental regulatory agency.

G. For priority toxic pollutants that are identified in the CTR (65 Fed. Reg. 31682), the MLs published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California - 2000 (SIP) shall be used for all analyses, unless otherwise specified. Appendix 4 of the SIP is included in Table B. For pollutants not contained in Appendix 4 of the SIP, the test method and method detection limit (MDL) listed in Table B shall be used for all analyses, and the ML for these parameters shall be lower than or equal to the lowest applicable water quality criteria from the Basin Plan and/or the Inland Surface Waters Plan.



- H. The Monitoring Report shall specify the analytical method used, the MDL and the ML for each pollutant. For the purpose of reporting compliance with numerical limitations, performance goals, and receiving water limitations, analytical data shall be reported with one of the following methods, as appropriate:
1. An actual numerical value for sample results greater than or equal to the ML;
  2. "Not-detected (ND)" for sample results less than the laboratory's MDL with the MDL indicated for the analytical method used; or
  3. "Detected, but Not Quantified (DNQ)" if results are greater than or equal to the laboratory's MDL but less than the ML. The estimated chemical concentration of the sample shall also be reported. This is the concentration that results from the confirmed detection of the substance by the analytical method below the ML value.
  4. For priority toxic pollutants, if the Permittees can demonstrate that a particular ML is not attainable, in accordance with procedures set forth in 40 CFR 136, the lowest quantifiable concentration of the lowest calibration standard analyzed by a specific analytical procedure (assuming that all the method specified sample weights, volumes, and processing steps have been followed) may be used instead of the ML listed in Appendix 4 of the SIP. The Permittees must submit documentation from the laboratory to the Executive Officer for approval prior to raising the ML for any constituent.
- I. Monitoring Reports [40 CFR 122.41(l)(4)(ii)]
- If the Permittees monitor any pollutant more frequently than required by the permit using test procedures approved under this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Annual Report.
- J. Monitoring Reports [40 CFR 122.41(l)(4)(iii)]
- Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order.
- K. If no flow occurred during the reporting period, the Monitoring Report shall so state.

- L. The Executive Officer or the Regional Water Board, consistent with 40 CFR 122.41, may approve changes to the Monitoring Program, after providing the opportunity for public comment, either:
1. By petition of the Permittees, or by petition of interested parties, after the submittal of the Annual Report (such petition shall be filed not later than 60 days after the Annual Report submittal date), or
  2. As deemed necessary by the Executive Officer following notice to the Permittees.

Ordered by \_\_\_\_\_

PAMELA C. CREEDON, Executive Officer

\_\_\_\_\_  
11 September 2008

Date

Attachments: Table B – List of Constituents

Attachment A – Permit Area Map

Attachment B – Monitoring Locations Map

Attachment C – Definitions

Attachment D – Standard Provisions and Reporting Requirements  
(February 2004)

**TABLE B. LIST OF CONSTITUENTS AND ASSOCIATED MINIMUM LEVELS  
(MLs)<sup>16</sup>  
FOR THE STORM WATER AND URBAN DISCHARGE  
MONITORING PROGRAM**

CONSTITUENTS	MLs
<b>FIELD/LAB MEASUREMENTS</b>	
Date	mm/dd/yyyy
Sample Time	hr:min (regular time)
Weather	degrees F
Water Temperature	degrees C
pH	0 – 14
Dissolved Oxygen	Sensitivity to 5 mg/L
Turbidity	0.1 NTU
Electrical Conductivity (EC)	µmhos/cm
<b>BACTERIA</b>	
Fecal coliform	<20mpn/100ml
E. coli (fresh waters)	<20mpn/100ml
<b>GENERAL</b>	<b>mg/L</b>
Total Petroleum Hydrocarbons	5
Total Suspended Solids	2
Total Dissolved Solids	2
Total Organic Carbon	1
Dissolved Organic Carbon	1
Biochemical Oxygen Demand	2
Chemical Oxygen Demand	20-900
Total Kjeldahl Nitrogen	0.1
Alkalinity	2
Nitrate-Nitrite	0.1
Total Phosphorus	0.05
Total Hardness	2
Methylmercury	0.05 ng/L

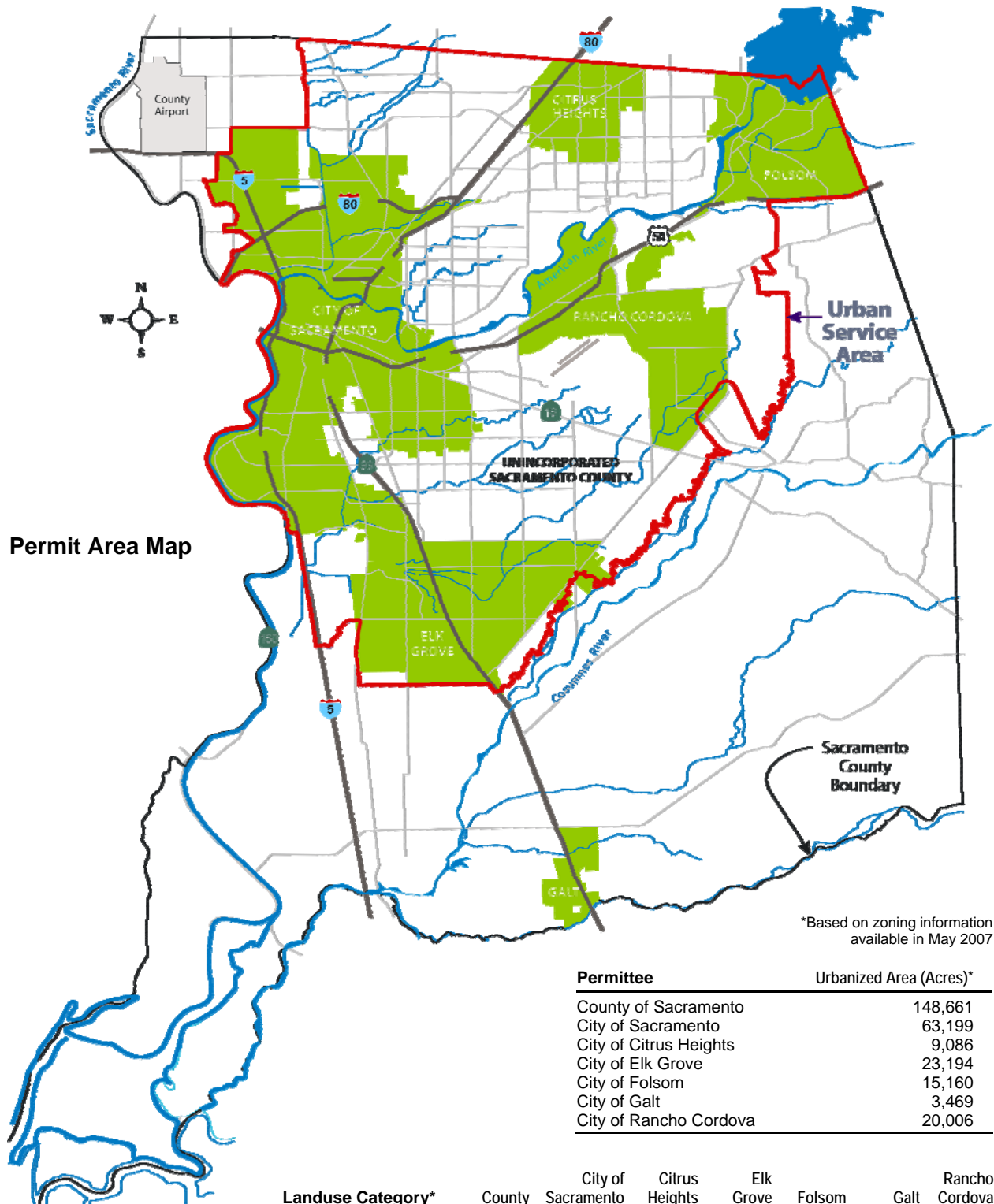
<sup>16</sup> For Priority Pollutants, the MLs represent the lowest value listed in Appendix 4 of SIP. Method Detection Limit (MDLs) must be lower than or equal to the ML value. If a particular ML is not attainable in accordance with procedures set for in 40 CFR 136, the lowest quantifiable concentration of the lowest calibration standard analyzed by a specific analytical procedure may be used instead.

CONSTITUENTS	MLs
<b>METALS</b>	<b>µg/L</b>
Copper, Dissolved	0.5
Copper, Total	0.5
Iron, Total	100
Lead, Dissolved	0.5
Lead, Total	0.5
Mercury, Total	0.5 ng/L
Zinc, Dissolved	1
Zinc, Total	1
<b>ORGANOPHOSPHATE PESTICIDES</b>	<b>µg/L</b>
Chlorpyrifos	0.01
Diazinon	0.05
Malathion	0.05
<b>SEMI- AND NON-VOLATILE ORGANICS</b>	<b>µ g/L</b>
Perylene	0.005
Benz[a]anthracene	0.005
Chrysene	0.005
Fluorene	0.005
Benzo[b]fluoranthene	0.005
Benzo[e]pyrene	0.005
Benzo[k]fluoranthene	0.005
Benzo[a]pyrene	0.005
Indeno[1,2,3-c,d]pyrene	0.005
Dibenz[a,h]anthracene	0.005
Benzo[g,h,i]perylene	0.005
Pyrene	0.005
Acenaphthylene	0.005
Acenaphthene	0.005
Naphthalene	0.005
2-Methylnaphthalene	0.005
1-Methylnaphthalene	0.005
2,6-Dimethylnaphthalene	0.005
2,3,5-Trimethylnaphthalene	0.005
Fluoranthene	0.005
Phenanthrene	0.005
Anthracene	0.005
1-Methylphenanthrene	0.005

CONSTITUENTS	MLs
<b>PYRETHROID PESTICIDES IN SEDIMENT</b>	<b>Target Reporting Limit (ng/g)<sup>2</sup></b>
Bifenthrin	2
Cyfluthrin	4
Cypermethrin	4
Deltamethrin/Tralomethrin	4
Esfenvalerate/Fenvalerate	2
Fenpropathrin	4
Lambda-cyhalothrin	4
Permethrin	8
The following analysis would only be required if monitoring results from the studies investigating the Pelagic Organism Decline in the Delta indicate these concentrations are present and of concern in Sacramento Permittee discharges	
<b>PYRETHROID PESTICIDES IN WATER<sup>3</sup></b>	<b>Target Reporting Limit ppb (ug/L)<sup>2</sup></b>
Bifenthrin	0.002
Cyfluthrin	0.004
Cypermethrin	0.004
Deltamethrin/Tralomethrin	0.004
Esfenvalerate/Fenvalerate	0.002
Fenpropathrin	0.004
Lambda-cyhalothrin	0.002
Permethrin	0.005

<sup>2</sup> Acceptable method should generally be able to meet the minimum level target, however, the method detection limit (MDL) reported should be equal to or less than the listed target.

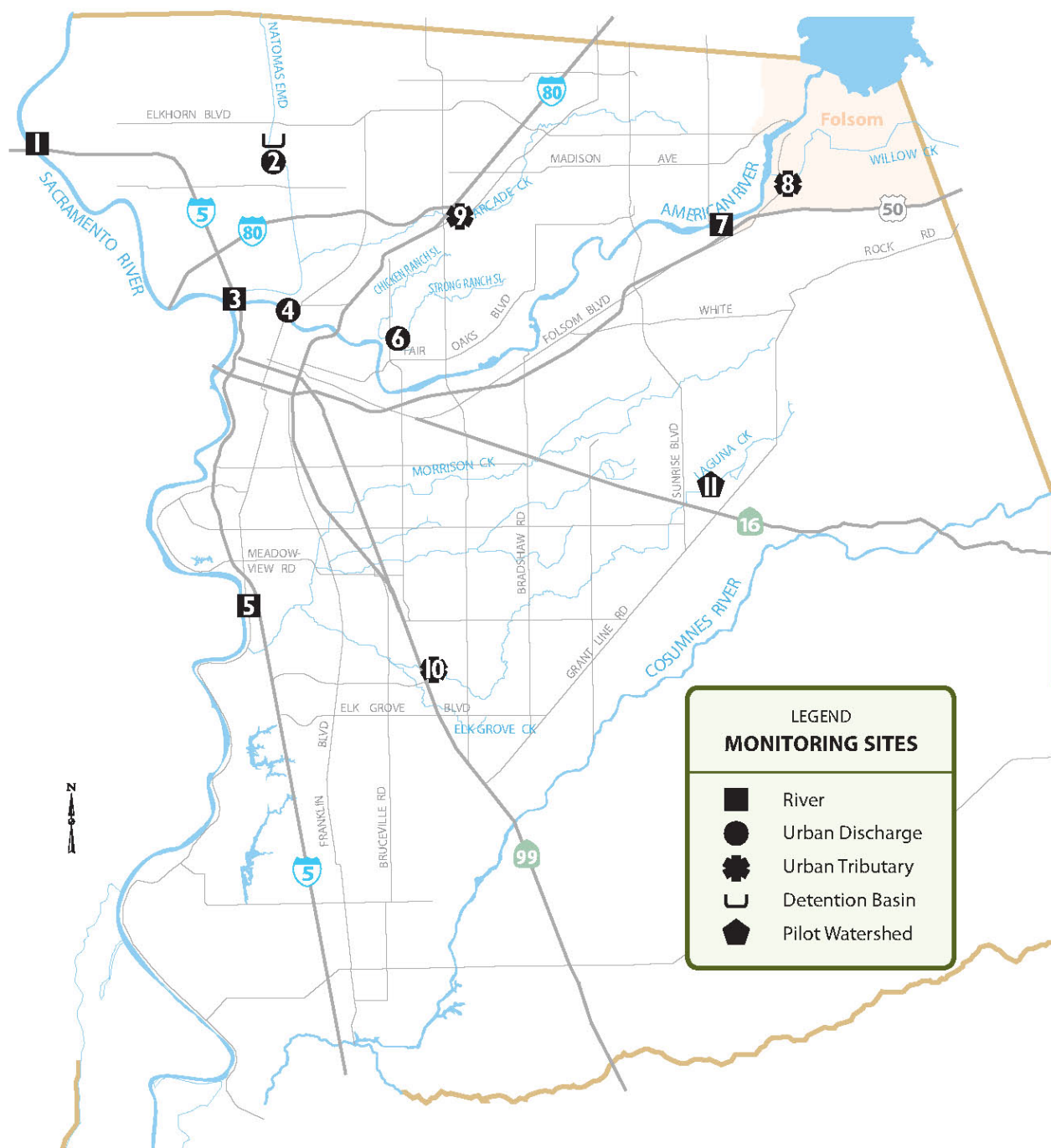
<sup>3</sup> Unfiltered, grab sample using glass jars



Landuse Category*	County	City of Sacramento	Citrus Heights	Elk Grove	Folsom	Galt	Rancho Cordova
Residential	33%	55%	63%	74%	46%	59%	53%
Commercial	4%	17%	8%	10%	8%	15%	14%
Industrial	10%	2%	OC	4%	5%	7%	6%
Institutional	OC	9%	6%	2%	10%	7%	6%
Major Roads/Freeways	OC	5%	15%	3%	OC	OC	OC
Parks and Open Space	10%	11%	2%	7%	22%	4%	21%
Agricultural	20%	0%	0%	0%	0%	8%	0%
Other/Miscellaneous	24%	1%	6%	0%	9%	0%	0%

OC = included in other land use categories

## SACRAMENTO STORMWATER QUALITY PARTNERSHIP 2008–2013 Proposed Monitoring Sites



### Monitoring Site Names

- |                                       |                                  |
|---------------------------------------|----------------------------------|
| 1 Sacramento River at Veterans Bridge | 7 American River at Nimbus Dam   |
| 2 North Natomas                       | 8 Willow Creek at Blue Ravine Rd |
| 3 American River at Discovery Park    | 9 Arcade Creek at Watt Ave       |
| 4 Sump 111                            | 10 Laguna Creek Lower Watershed  |
| 5 Sacramento River at Freeport Marina | 11 Laguna Creek Upper Watershed  |
| 6 Strong Ranch Slough                 |                                  |

DEFINITIONS  
ORDER NO. R5-2008-0142  
CITIES OF CITRUS HEIGHTS, ELK GROVE, FOLSOM, GALT, RANCHO CORDOVA,  
SACRAMENTO AND COUNTY OF SACRAMENTO  
MUNICIPAL SEPARATE STORM SEWER SYSTEM  
SACRAMENTO COUNTY

**Adverse Impact** means a detrimental effect upon water quality or beneficial uses caused by a discharge or loading of a pollutant or pollutants.

**Anti-degradation Policy** means the *Statement of Policy with Respect to Maintaining High Quality Water in California* (State Board Resolution No. 68-16), which protects surface and ground waters from degradation. In particular, this policy protects water bodies where existing quality is higher than that necessary for the protection of beneficial uses including the protection of fish and wildlife propagation and recreation on and in the water.

**Applicable Standards and Limitations** means all state, interstate, and federal standards and limitations to which a discharge or a related activity is subject under the Clean Water Act (CWA), including effluent limitations, water quality standards, standards of performance, toxic effluent standards or prohibitions, best management practices, and pretreatment standards under CWA Sections 301, 302, 303, 304, 306, 307, 308, 403 and 404.

**Authorized Discharge** means any discharge that is authorized pursuant to a National Pollutant Discharge Elimination System (NPDES) permit or meets the conditions set forth in this Order.

**Automotive Service Facilities** means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 5511, 7532-7534, or 7536-7539.

**Basin Plan** means the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins*. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin.

**Beneficial Uses** means the existing or potential uses of receiving waters in the permit area as designated by the Regional Board in the Basin Plan.

**Best Management Practices (BMPs)** means methods, measures, or practices designed and selected to reduce or eliminate the discharge of pollutants to surface waters from point and nonpoint source discharges including storm water. BMPs include structural and nonstructural controls, and operation and maintenance procedures, which can be applied before, during, and/or after pollution producing activities.

**Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technologies (BCT) or Best Practicable Treatment or Control (BPTC):** is a requirement of State Water Resources Control Board Resolution 68-16 - "Statement of Policy with Respect to Maintaining High Quality of Waters in California" (referred to as the



“Antidegradation Policy”). BPTC is the treatment or control of a discharge necessary to assure that, “(a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.” Pollution is defined in CWC Section 13050(I). In general, an exceedance of a water quality objective in the Basin Plan constitutes “pollution”.

**Commercial Development** means any development on private land that is not heavy industrial or residential. The category includes, but is not limited to hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities, mini-malls, business complexes, shopping malls, hotels, office buildings, public warehouses, and light industrial complexes.

**Commercial/Industrial Facility** means any facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services. This category of facilities includes, but is not limited to, any facility defined by the SIC Code. Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition.

**Construction** means clearing, grading, excavating, etc. that results in soil disturbance. Construction includes structure teardown. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility; emergency construction activities required to immediately protect public health and safety; interior remodeling with no outside exposure of construction material or construction waste to storm water; mechanical permit work; or sign permit work.

**Control** means to minimize, reduce, eliminate, or prohibit by technological, legal, contractual or other means, the discharge of pollutants from an activity or activities.

**Dechlorinated/Debrominated Swimming Pool Discharge** means swimming pool discharges which have no measurable chlorine or bromine and do not contain any detergents, wastes, or additional chemicals not typically found in swimming pool water. The term does not include swimming pool filter backwash.

**Development** means any construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single-family, multi-unit or planned unit development); industrial, commercial, retail and other non-residential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

**Director** means the Director of a municipality and Person(s) designated by and under the Director's instruction and supervision.

**Discharge** means when used without qualification the discharge of a pollutant.

**Discharging Directly** means outflow from a drainage conveyance system that is composed entirely or predominantly of flows from the subject, property, development, subdivision, or industrial facility, and not commingled with the flows from adjacent lands.

**Discharge of a Pollutant** means any addition of any pollutant or combination of pollutants to waters of the United States from any point source or, any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. The term discharge includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

**Disturbed Area** means an area that is altered as a result of clearing, grading, and/or excavation.

**Dry weather day** means a day with a rain event too small to generate runoff (typically 0.1 inches or less) shall be considered a dry weather day.

**Construction Activities Storm Water General Permit (GCP)** means the general NPDES permit adopted by the State Board which authorizes the discharge of storm water from construction activities under certain conditions.

**Industrial Activities Storm Water General Permit (IGP)** means the general NPDES permit adopted by the State Board which authorizes the discharge of storm water from certain industrial activities under certain conditions.

**Hydrology** is a scientific discipline concerned with the waters of the Earth, including their occurrence, distribution, and circulation via the hydrologic cycle and interactions with living things. It also deals with the chemical and physical properties of water in all its phases.

**Hydromodification** means the change in the natural watershed hydrologic processes and runoff characteristics (i.e., interception, infiltration, overland flow, interflow and groundwater flow) caused by urbanization or other land use changes that result in increased stream flows and sediment transport. In addition, alteration of stream and river channels, installation of dams and water impoundments, and excessive stream bank and shoreline erosion are also considered hydromodification, due to their disruption of natural watershed hydrologic processes.

**Illicit Connection** means any man-made conveyance that is connected to the storm drain system without a permit, excluding roof drains and other similar type connections. Examples include channels, pipelines, conduits, inlets, or outlets that are connected directly to the storm drain system.

**Illicit Discharge** means any discharge to the storm drain system that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations. The term “illicit discharge” includes all non storm-water discharges except discharges pursuant to an NPDES permit, discharges that are identified in **Discharge Prohibitions** of this Order, and discharges authorized by the Regional Board.

**Illicit Disposal** means any disposal, either intentionally or unintentionally, of materials or wastes that can pollute storm water.

**Infiltration** means the downward entry of water into the surface of the soil.

**Inspection** means entry and the conduct of an on-site review of a facility and its operations, at reasonable times, to determine compliance with specific municipal or other legal requirements. The steps involved in performing an inspection, include, but are not limited to:

- a. Pre-inspection documentation research.;
- b. Request for entry;
- c. Interview of facility personnel;
- d. Facility walk-through.
- e. Visual observation of the condition of facility premises;
- f. Examination and copying of records as required;
- g. Sample collection if necessary or required;
- h. Exit conference to discuss preliminary evaluation; and,
- i. Report preparation, and if appropriate, recommendations for coming into compliance.

In the case of restaurants, a Permittee may conduct an inspection from the curbside, provided that such curbside inspection provides the Permittee with adequate information to determine an operator’s compliance with BMPs that must be implemented per requirements of this Order and the SWMP.

**Medium Municipal Separate Storm Sewer System (MS4)** means all MS4s that serve a population less than 250,000 (1990 Census) as defined in 40 CFR 122.26 (b)(4).

**Local SWPPP** means the Storm Water Pollution Prevention Plan required by the local agency for a project that disturbs one or more acres of land.

**Low Impact Development (LID)** – A storm water management and land development strategy that emphasizes conservation and the use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely reflect pre-development hydrologic functions.

**Maximum Extent Practicable (MEP)** – The technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) that operators of MS4s must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve;

typically by treatment or by a combination of source control and treatment control BMPs. MEP generally emphasizes pollution prevention and source control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional line of defense). MEP considers economics and is generally, but not necessarily, less stringent than BAT. A definition for MEP is not provided either in the statute or in the regulations. Instead the definition of MEP is dynamic and will be defined by the following process over time: municipalities propose their definition of MEP by way of their storm water management programs (SWMP). The Permittees' total collective and individual activities conducted pursuant to the storm water management programs (SWMP) becomes their proposal for MEP as it applies both to their overall effort, as well as to specific activities (e.g., MEP for street sweeping, or MEP for MS4 maintenance).

In the absence of a proposal acceptable to the Regional Board, the Regional Board defines MEP. In a memo dated February 11, 1993, entitled *"Definition of Maximum Extent Practicable,"* Elizabeth Jennings, Senior Staff Counsel, SWRCB addressed the achievement of the MEP standard as follows:

*"To achieve the MEP standard, municipalities must employ whatever Best Management Practices (BMPs) are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive. In selecting BMPs to achieve the MEP standard, the following factors may be useful to consider:*

- a. Effectiveness: Will the BMPs address a pollutant (or pollutant source) of concern?*
- b. Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?*
- c. Public Acceptance: Does the BMP have public support?*
- d. Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?*
- e. Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc?*

*The final determination regarding whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the Regional or State Water Boards, and not by the municipal discharger. If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive, it is likely that MEP has not been met. On the other hand, if a municipal discharger 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 derived, it would have met the standard. Where a*

*choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP base solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be lightly rejected. In any case, the burden would be on the municipal discharger to show compliance with its permit. After selecting a menu of BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented."*

**Method Detection Limit (MDL)** means the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR 136, Appendix B.

**Minimum Level (ML)** means the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

**Municipal Separate Storm Sewer System (MS4)** means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, alleys, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) owned by a State, city, county, town or other public body, that is designed or used for collecting or conveying storm water, which is not a combined sewer, and which is not part of a publicly owned treatment works, and which discharges to Waters of the United States.

**National Pollutant Discharge Elimination System (NPDES)** means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA §307, 402, 318, and 405.

**Natural Drainage Systems** means unlined or unimproved (not engineered) creeks, streams, rivers or similar waterways.

**New Development** means land disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision.

**Non-Storm Water Discharge** means any discharge to a storm drain that is not composed entirely of storm water.

**Nuisance** means anything that meets all of the following requirements: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although

the extent of the annoyance or damage inflicted upon individuals may be unequal.; (3) occurs during, or as a result of, the treatment or disposal of wastes.

**Parking Lot** means land area or facility for the parking or storage of motor vehicles used for businesses, commerce, industry, or personal use, with a lot size of 5,000 square feet or more of surface area, or with 25 or more parking spaces.

**Performance Standard** means a narrative or measurable number specifying the minimum acceptable outcome for a pollution control practice.

**Permittees** means Co-Permittees and any agency named in this Order as being responsible for permit conditions within its jurisdiction. Permittees to this Order include the County of Sacramento, and the Cities of Citrus Heights, Elk Grove, Folsom, Galt, Rancho Cordova and Sacramento.

**Planning Priority Projects** means those projects that are required to incorporate appropriate storm water mitigation measures into the design plan for their respective project. These types of projects include:

- a. Ten or more unit homes including single family homes, multifamily homes, condominiums, and apartments;
- b. A 100,000 or more square feet of impervious surface area industrial/ commercial development (1 acre starting March 2003);
- c. Automotive service facilities (SIC 5013, 5014, 5541, 7532-7534, and 7536-7539);
- d. Retail gasoline outlets;
- e. Restaurants (SIC 5812);
- f. Parking lots 5,000 square feet or more of surface area or with 25 or more parking spaces;
- g. Redevelopment projects in subject categories that meet Redevelopment thresholds;
- h. Projects located in or directly adjacent to or discharging directly to an ESA, which meet thresholds; and
- i. Those projects that require the implementation of a site-specific plan to mitigate post-development storm water for new development not requiring a SUSMP but which may potentially have adverse impacts on post-development storm water quality, where the following project characteristics exist:
  - 1) Vehicle or equipment fueling areas;
  - 2) Vehicle or equipment maintenance areas, including washing and repair;
  - 3) Commercial or industrial waste handling or storage;
  - 4) Outdoor handling or storage of hazardous materials;
  - 5) Outdoor manufacturing areas;
  - 6) Outdoor food handling or processing;
  - 7) Outdoor animal care, confinement, or slaughter; or
  - 8) Outdoor horticulture activities.

**Pollutants** means those substances defined in CWA §502(6) (33.U.S.C. §1362(6)), and incorporated by reference into California Water Code §13373.

**Potable Water Distribution Systems Releases** means sources of flows from drinking water storage, supply and distribution systems including flows from system failures, pressure releases, system maintenance, distribution line testing, fire hydrant flow testing; and flushing and dewatering of pipes, reservoirs, vaults, and minor non-invasive well maintenance activities not involving chemical addition(s). It does not include wastewater discharges from activities that occur at wellheads, such as well construction, well development (i.e., aquifer pumping tests, well purging, etc.), or major well maintenance.

**Project** means all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA (Pub. Resources Code §21065).

**Receiving Waters** means all surface water bodies in the Central Valley Region that are identified in the Basin Plan.

**Receiving Water Limitations (RWLs)** - Waste discharge requirements issued by the Regional Board typically include both: (1) "Effluent Limitations" (or "Discharge Limitations") that specify the technology-based or water-quality-based effluent limitations; and (2) "Receiving Water Limitations" that specify the water quality objectives in the Basin Plan as well as any other limitations necessary to attain those objectives. In summary, the "Receiving Water Limitations" provision is the provision used to implement the requirement of CWA section 301(b)(1)(C) that NPDES permits must include any more stringent limitations necessary to meet water quality standards.

**Redevelopment** means land-disturbing activity that results in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of a routine maintenance activity; and land disturbing activities related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

**Regional Administrator** means the Regional Administrator of the Regional Office of the U.S. Environmental Protection Agency (EPA) or the authorized representative of the Regional Administrator.

**Restaurant** means a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC Code 5812).

**Retail Gasoline Outlet** means any facility engaged in selling gasoline and lubricating oils.

**Runoff** means any runoff including storm water and dry weather flows from a drainage area that reaches a receiving water body or subsurface. During dry weather it is typically comprised of base flow either contaminated with pollutants or uncontaminated, and nuisance flows.

**Screening** means using proactive methods to identify illicit connections through a continuously narrowing process. The methods may include: performing baseline monitoring of open channels, conducting special investigations using a prioritization approach, analyzing maintenance records for catch basin and storm drain cleaning and operation, and verifying all permitted connections into the storm drains. Special investigation techniques may include: dye testing, visual inspection, smoke testing, flow monitoring, infrared, aerial and thermal photography, and remote control camera operation.

**Sidewalk Rinsing** means pressure washing of paved pedestrian walkways with average water usage of 0.006 gallon per square foot, with no cleaning agents, and properly disposing of all debris collected.

**Significant Natural Area (SNA)** means an area defined by the California Department of Fish and Game (DFG), Significant Natural Areas Program, as an area that contains an important example of California's biological diversity. The most current SNA maps, reports, and descriptions can be downloaded from the DFG website at <ftp://maphost.dfg.ca.gov/outgoing/whdab/sna/>. These areas are identified using the following biological criteria only, irrespective of any administrative or jurisdictional considerations:

- a. Areas supporting extremely rare species or habitats;
- b. Areas supporting associations or concentrations of rare species or habitats; and
- c. Areas exhibiting the best examples of rare species and habitats in the state.

**Site** means the land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity.

**Source Control BMP** means any schedules of activities, prohibitions of practices, maintenance procedures, managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source of pollution.

**State Storm Water Pollution Prevention Plan (State SWPPP)** means a plan, as required by a State General Permit, identifying potential pollutant sources and describing the design, placement and implementation of BMPs, to effectively prevent non-stormwater Discharges and reduce Pollutants in Stormwater Discharges during activities covered by the General Permit.

**Storm Event** means any rain event greater than 0.25 inch in 24 hours except where specifically stated otherwise.

**Storm Water** means storm water runoff, snow melt runoff, and surface runoff and drainage.



**Storm Water Discharge Associated with Industrial Activity** means industrial discharge as defined in 40 CFR 122.26(b)(14)

**Storm Water Quality Improvement Plan (SQIP)** is the Permittees equivalent title for a Storm Water Management Plan. The SQIP means the Permittees program, which includes all elements and descriptions, collectively developed by the Permittees in accordance with provisions of the NPDES Permit, to comply with applicable federal and state law.

**Structural BMP** means any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution (e.g. canopy, structural enclosure). The category may include both Treatment Control BMPs and Source Control BMPs.

**SUSMP or Development Standards** means Standard Urban Stormwater Mitigation Plans. They are standards which the Permittees must develop and implement for new development and significant redevelopment projects to control the discharge of storm water pollutants in post-construction storm water.

**Total Maximum Daily Load (TMDL)** means the sum of the individual waste load allocations for point sources and load allocations for nonpoint sources and natural background.

**Toxicity Identification Evaluation (TIE)** means a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.

**Toxicity Reduction Evaluation (TRE)** means a study conducted in a step-wise process to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity.

**Treatment** means the application of engineered systems that use physical, chemical, or biological processes to remove pollutants. Such processes include, but are not limited to, filtration, gravity settling, media absorption, biodegradation, biological uptake, chemical oxidation and UV radiation.

**Treatment Control BMP** means any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media absorption or any other physical, biological, or chemical process.

**U.S. EPA Phase I Facilities** means facilities in specified industrial categories that are required to obtain an NPDES permit for storm water discharges, as required by 40 CFR 122.26(c). These categories include facilities subject to storm water effluent limitation guidelines, new source performance standards, or toxic pollutant effluent standards (40 CFR N); manufacturing facilities; oil and gas/mining facilities; hazardous waste treatment, storage, or disposal facilities; landfills, land application sites, and open dumps; recycling facilities; steam electric power generating facilities; transportation facilities sewage of wastewater treatment works; and light manufacturing facilities.

**Vehicle Maintenance/Material Storage Facilities/Corporation Yards** means any Permittee owned or operated facility or portion thereof that conducts industrial activity, operates equipment, handles materials, and provides services similar to Federal Phase I facilities; performs fleet vehicle service/maintenance on ten or more vehicles per day including repair, maintenance, washing, and fueling; performs maintenance and/or repair of heavy industrial machinery/equipment; and stores chemicals, raw materials, or waste materials in quantities that require a hazardous materials business plan or a Spill Prevention, Control, and Counter-measures (SPCC) plan.

**Water Quality Standards and Water Quality Objectives** means water quality criteria contained in the Basin Plan, the National Toxics Rule, the California Toxics Rule, and other state or federally approved surface water quality plans. Such plans are used by the Regional Board to regulate all discharges, including storm water discharges.

**Waters of the State** means any surface water or groundwater, including saline waters, within boundaries of the state.

**Waters of the United States** means:

- a. All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- b. All interstate waters, including interstate wetlands;
- c. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
  1. Which are or could be used by interstate or foreign travelers for recreational or other purposes;
  2. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  3. Which are used or could be used for industrial purposes by industries in interstate commerce;
- d. All impoundments of waters otherwise defined as waters of the United States under this definition;
- e. Tributaries of waters identified in paragraphs (a) through (d) of this definition;
- f. The territorial sea; and

- g. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraph (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.22(m), which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to man-made bodies of water, which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with U.S. EPA.

**Wet Season** means the calendar period beginning October 1 through April 15.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS  
FOR  
WASTE DISCHARGE REQUIREMENTS  
(National Pollutant Discharge Elimination System)

February 2004

A. **GENERAL PROVISIONS**

1. Any violation of this Order constitutes a violation of the Federal Clean Water Act (CWA) and the California Water Code (CWC) and, therefore, may result in enforcement action under either or both laws.
2. The Clean Water Act provides that any person who violates a portion of this Order implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act is subject to a civil penalty not to exceed \$25,000 per day for each violation. Any person who willfully or negligently violates this Order with regard to these sections of the CWA is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both.
3. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another; protect the Discharger from liability under federal, state, or local laws; or guarantee the Discharger a capacity right in the receiving waters.
4. The Discharger shall allow representatives of the Regional Water Quality Control Board (hereafter Board), the State Water Resources Control Board (hereafter State Board) and the United States Environmental Protection Agency (hereafter U.S. EPA), upon presentation of credentials, at reasonable hours, to:
  - a. enter premises where wastes are treated, stored, or discharged and facilities in which any required records are kept;
  - b. copy any records required to be kept under terms and conditions of this Order;
  - c. inspect facilities, monitoring equipment, practices, or operations regulated or required by this Order; and
  - d. sample, photograph or video tape any discharge, waste, waste unit or monitoring device.
5. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by the California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, California Code of Regulations (CCR), Division 3, Chapter 14.
6. The Discharger shall at all times properly operate and maintain all facilities, and systems of treatment and control including sludge use and disposal facilities (and related appurtenances) that are installed or used to achieve compliance with this Order.

Proper operation and maintenance includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by the Discharger only when necessary to achieve compliance with this Order.

7. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

- a. violation of any term or condition contained in this Order;
- b. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;
- c. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and
- d. a material change in the character, location, or volume of discharge.

The causes for modification include:

- a. New regulations. New regulations have been promulgated under Section 405(d) of the Clean Water Act, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.
- b. Land application plans. When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.
- c. Change in sludge use or disposal practice. Under 40 Code of Federal Regulations (CFR) 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

The Regional Board may review and revise this Order at any time upon application of any affected person or the Board's own motion.

- 8. The filing of a request by the Discharger for modification, revocation and reissuance, or termination of this Order, or notification of planned changes or anticipated noncompliance, does not stay any condition of this Order.

The Discharger shall furnish, within a reasonable time, any information the Board or U.S. EPA may request to determine compliance with this Order or whether cause exists for modifying or terminating this Order. The Discharger shall also furnish to the Board, upon request, copies of records required to be kept by this Order.

- 9. If a toxic effluent standard or prohibition (including any scheduled compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the CWA, or amendments thereto, for a toxic pollutant that is present in the discharge authorized herein, and such standard or prohibition is more stringent than any limitation upon such pollutant in this Order, the Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition.

The Discharger shall comply with effluent standards and prohibitions within the time provided in the regulations that establish those standards or prohibitions, **even if this Order has not yet been modified.**

- 10. If more stringent applicable water quality standards are approved, pursuant to Section 303 of the CWA, or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

11. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:
  - a. contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or
  - b. controls any pollutant limited in the Order.

The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA then applicable.

12. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.
13. By-pass (the intentional diversion of waste streams from any portion of a treatment facility or collection system, except those portions designed to meet variable effluent limits) is prohibited except under the following conditions:
  - a. (1) by-pass was unavoidable to prevent loss of life, personal injury, or severe property damage; (severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a by-pass; severe property damage does not mean economic loss caused by delays in production);  
**and**  
(2) there were no feasible alternatives to by-pass, such as the use of auxiliary treatment facilities or retention of untreated waste; this condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a by-pass that would otherwise occur during normal periods of equipment downtime or preventive maintenance;  
**or**  
(1) by-pass is required for essential maintenance to assure efficient operation;  
**and**  
(2) neither effluent nor receiving water limitations are exceeded;  
**and**  
(3) the Discharger notifies the Board ten days in advance.

The permittee shall submit notice of an unanticipated by-pass as required in paragraph B.1. below.

14. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, failure to

implement an appropriate pretreatment program, or careless or improper action. A Discharger that wishes to establish the affirmative defense of an upset in an action brought for noncompliance shall demonstrate, through properly signed, contemporaneous operating logs, or other evidence, that:

- a. an upset occurred due to identifiable cause(s);
- b. the permitted facility was being properly operated at the time of the upset;
- c. notice of the upset was submitted as required in paragraph B. 1.; and
- d. remedial measures were implemented as required under paragraph A. 17.

In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof.

15. This Order is not transferable to any person except after notice to the Board. The Board may modify or revoke and reissue the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA.
16. Except for data determined to be confidential under Section 13267 of the CWC, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Board and U.S. EPA. Effluent data are not confidential.
17. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.
18. The fact that it would have been necessary for the Discharger to halt or reduce the permitted activity in order to comply with this Order shall not be a defense for violating this Order.
19. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by U.S. EPA under Section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.
20. The discharge of any radiological, chemical or biological warfare agent or high-level, radiological waste is prohibited.
21. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.
22. Neither the treatment nor the discharge shall create a condition of nuisance or pollution as defined by the CWC, Section 13050.

## **B. GENERAL REPORTING REQUIREMENTS**

1. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, daily maximum effluent limitation, or receiving water limitation of this Order, the Discharger shall notify the Board by telephone (916) 464-3291 *[Note: Current phone numbers for all three Regional Board offices may be found on the internet at [http://www.swrcb.ca.gov/rwqcb5/contact\\_us.](http://www.swrcb.ca.gov/rwqcb5/contact_us.)]* within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Board waives

confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance, and shall describe the measures being taken to remedy the current noncompliance and prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal monitoring report.

2. Safeguard to electric power failure:
  - a. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.
  - b. Upon written request by the Board the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past five years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Board.
  - c. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Board not approve the existing safeguards, the Discharger shall, within ninety days of having been advised in writing by the Board that the existing safeguards are inadequate, provide to the Board and U.S. EPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Board, become a condition of this Order.
3. The Discharger, upon written request of the Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under B.2.

The technical report shall:

- a. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.
- b. Evaluate the effectiveness of present facilities and procedures and state when they became operational.
- c. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

The Board, after review of the technical report, may establish conditions, which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

4. The Discharger shall file with the Board a Report of Waste Discharge at least 180 days before making any material change in the character, location, or volume of the discharge. A **material change** includes, but is not limited to, the following:
  - a. Adding a major industrial waste discharge to a discharge of essentially domestic sewage, or adding a new process or product by an industrial facility resulting in a change in the character of



the waste.

- b. Significantly changing the disposal method or location, such as changing the disposal to another drainage area or water body.
  - c. Significantly changing the method of treatment.
  - d. Increasing the discharge flow beyond that specified in the Order.
5. A publicly owned treatment works (POTW) whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the Discharger shall notify the Board by **31 January**. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Board may extend the time for submitting the report.
6. A manufacturing, commercial, mining, or silvicultural discharger shall notify the Board as soon as it knows or has reason to believe:
- a. That any activity has occurred or will occur that would result in the discharge of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels":
    - (1) 100 micrograms per liter ( $\mu\text{g/l}$ );
    - (2) 200  $\mu\text{g/l}$  for acrolein and acrylonitrile; 500  $\mu\text{g/l}$  for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter ( $\text{mg/l}$ ) for antimony;
    - (3) five times the maximum concentration value reported for that pollutant in the Report of Waste Discharge; or
    - (4) the level established by the Board in accordance with 40 CFR 122.44(f).
  - b. That it expects to begin to use or manufacture, as an intermediate or final product or by-product, any toxic pollutant that was not reported in the Report of Waste Discharge.
7. A POTW shall provide adequate notice to the Board of:
- a. any new introduction of pollutants into the POTW from an indirect discharger that would be subject to Sections 301 or 306 of the CWA if it were directly discharging those pollutants, and
  - b. any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order, and
  - c. any planned physical alterations or additions to the permitted facility, or changes planned in the Discharger's sludge use or disposal practice, where such alterations, additions, or changes may justify the application of permit conditions that are different from or absent in the existing permit including notification of additional disposal sites not reported during the permit application

process, or not reported pursuant to an approved land application plan.

Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

8. The Discharger shall give advance notice to the Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order.
9. The Discharger shall submit technical reports as directed by the Executive Officer.
10. Any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two years per violation, or by both.

**C. PROVISIONS FOR MONITORING**

1. All analyses shall be performed in accordance with the latest edition of *Guidelines Establishing Test Procedures for Analysis of Pollutants*, promulgated by U.S. EPA (40 CFR 136) or other procedures approved by the Board.
2. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Board staff. The Quality Assurance-Quality Control Program must conform to U.S. EPA guidelines or to procedures approved by the Board.  
Unless otherwise specified, all metals shall be reported as Total Metals.  
Unless otherwise specified, bioassays shall be performed in the following manner:
  - a. Acute bioassays shall be performed in accordance with guidelines approved by the Board and the Department of Fish and Game or in accordance with methods described in U.S. EPA's manual for measuring acute toxicity of effluents (EPA-821-R-02-012 and subsequent amendments).
  - b. Short-term chronic bioassays shall be performed in accordance with U.S. EPA guidelines (EPA-821-R-02-013 and subsequent amendments).
3. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Board and U.S. EPA.
4. The Discharger shall conduct analysis on any sample provided by U.S. EPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to U.S. EPA's DMQA manager.
5. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.
6. All monitoring and analysis instruments and devices used by the Discharger to fulfill the prescribed

monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy.

7. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Order shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or be imprisoned for not more than two years per violation, or by both.
8. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board Executive Officer.
9. The records of monitoring information shall include:
  - a. the date, exact place, and time of sampling or measurements,
  - b. the individual who performed the sampling of measurements,
  - c. the date(s) analyses were performed,
  - d. the individual(s) who performed the analyses,
  - e. the laboratory which performed the analyses,
  - f. the analytical techniques or methods used, and
  - g. the results of such analyses.

**D. REPORTING REQUIREMENTS FOR MONITORING**

1. The Discharger shall file with the Board technical reports on self-monitoring performed according to the detailed specifications contained in the Monitoring and Reporting Program attached to this Order.
2. Monitoring reports shall be submitted on forms to be supplied by the Board to the extent that the information reported may be entered on the forms. Alternate forms may be approved for use by the Board.
3. The results of all monitoring required by this Order shall be reported to the Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.
4. The results of analyses performed in accordance with specified test procedures, taken more frequently than required at the locations specified in the Monitoring and Reporting Program, shall be reported to the Board and used in determining compliance.
5. Upon written request of the Board, the Discharger shall submit a summary monitoring report to the Board. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
6. All reports shall be signed by a person identified below:
  - a. **For a corporation:** by a principal executive officer of at least the level of senior vice-president.

- b. **For a partnership or sole proprietorship:** by a general partner or the proprietor, respectively.
- c. **For a municipality, state, federal or other public agency:** by either a principal executive officer or ranking elected or appointed official.
- d. A duly authorized representative of a person designated in 6a, 6b or 6c of this requirement if:
  - (1) the authorization is made in writing by a person described in 6a, 6b, or 6c of this provision,
  - (2) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position), and
  - (3) the written authorization is submitted to the Board.

Each person signing a report required by this Order or other information requested by the Board shall make the following certification:

*"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."*

The Discharger shall mail a copy of each monitoring report and any other reports required by this Order to:

Central Valley Regional Water Quality Control Board  
11020 Sun Center Drive, #200  
Rancho Cordova, CA 95670-6114

*Note: Current addresses for all three Regional Board offices may be found on the internet at [http://www.swrcb.ca.gov/rwqcb5/contact\\_us](http://www.swrcb.ca.gov/rwqcb5/contact_us).*

In addition, dischargers designated as a "major" discharger shall transmit a copy of all monitoring reports to U.S. EPA (see address in Provision G. 10).

#### E. DEFINITIONS:

1. The **daily discharge rate** is obtained from the following calculation for any calendar day:

$$\text{Daily discharge rate (lbs/day)} = \frac{8.34}{N} \sum_{i=1}^N Q_i C_i$$

In which N is the number of samples analyzed in a day.  $Q_i$  and  $C_i$  are the flow rate (mgd) and the

constituent concentration (mg/l), respectively, which are associated with each of the N grab samples that may be taken in a day. If a composite sample is taken,  $C_i$  is the concentration measured in the composite sample and  $Q_i$  is the average flow rate occurring during the period over which samples are composited.

2. The **monthly or weekly average discharge rate** is the total of daily discharge rates during a calendar month or week, divided by the number of days in the month or week that the facility was discharging.

Where less than daily sampling is required by this permit, the monthly or weekly average discharge rate shall be determined by the summation of all the daily discharge rates divided by the number of days during the month or week for which the rates are available.

For other than weekly or monthly periods, compliance shall be based upon the average of all rates available during the specified period.

3. The **monthly or weekly average concentration** is the arithmetic mean of measurements made during a calendar month or week, respectively.
4. The **daily maximum discharge rate** means the total discharge by weight during one day.
5. The **daily maximum concentration** is the greatest concentration found in grab or composite samples analyzed for one day.
6. A **grab sample** is an individual sample collected in less than 15 minutes.
7. Unless otherwise specified, a **composite sample** is a combination of individual samples collected over the specified sampling period:
  - a. at equal time intervals, with a maximum interval of one hour, and
  - b. at varying time intervals (average interval one hour or less) so that each sample represents an equal portion of the cumulative flow.

The duration of the sampling period shall be specified in the Monitoring and Reporting Program. The method of compositing shall be reported with the results.

8. **Sludge** means the solids, residues, and precipitates separated from, or created in, wastewater by the unit processes of a treatment system.
9. **Median** is the value below which half the samples (ranked progressively by increasing value) fall. It may be considered the middle value, or the average of the two middle values.
10. **Overflow** means the intentional or unintentional diversion of flow from the collection and transport systems, including pumping facilities.

**F. PRETREATMENT PROGRAM REQUIREMENTS** (Applies to dischargers required to establish pretreatment programs by this Order.)

The Discharger shall be responsible for the performance of all pretreatment requirements contained in 40 CFR Part 403 and shall be subject to enforcement actions, penalties, fines, and other remedies by the U.S. EPA, or other appropriate parties, as provided in the CWA, as amended (33 USC 1351, et. seq.)

The Discharger shall implement and enforce its Approved publicly owned treatment works (POTW) Pretreatment Program. The Discharger's Approved POTW Pretreatment Program is hereby made an enforceable condition of this permit. U.S. EPA may initiate enforcement action against an industrial user for noncompliance with applicable standards and requirements as provided in the Act.

The Discharger shall enforce the requirements promulgated under Sections 307(b), (c), and (d) and Section 402(b) of the CWA. The Discharger shall cause industrial users subject to Federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of a new industrial user, upon commencement of the discharge.

1. The Discharger shall perform the pretreatment functions as required in 40 CFR Part 403 including, but not limited to:
  - a. Implement the necessary legal authorities as provided in 40 CFR 403.8(f)(1).
  - b. Enforce the pretreatment requirements under 40 CFR 403.5 and 403.6.
  - c. Implement the programmatic functions as provided in 40 CFR 403.8(f)(2), in particular, the publishing of a list of significant violators.
  - d. Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3).

**G. ANNUAL PRETREATMENT REPORT REQUIREMENTS** (Applies to dischargers required to establish pretreatment programs by this Order.)

The Discharger shall submit annually a report to the Board, with copies to US U.S. EPA Region 9 and the State Board, describing the Discharger's pretreatment activities over the previous 12 months. In the event that the Discharger is not in compliance with any conditions or requirements of this Order, including noncompliance with pretreatment audit/compliance inspection requirements, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements.

An annual report shall be submitted by **28 February** or as otherwise specified in the Order and include at least the following items:

1. A summary of analytical results from representative, flow proportioned, 24-hour composite sampling of the POTW's influent and effluent for those pollutants U.S. EPA has identified under Section 307(a) of the CWA which are known or suspected to be discharged by industrial users.

The Discharger is not required to sample and analyze for asbestos until U.S. EPA promulgates an applicable analytical technique under 40 CFR 136. Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as the influent and effluent sampling and analysis. The sludge analyzed shall be a composite sample of a minimum of 12 discrete samples taken at equal time intervals over the 24-hour period. Wastewater and sludge sampling and analysis shall be performed at least annually. The discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants which may be causing or contributing to Interference, Pass-Through or adversely impacting sludge quality. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR 136 and amendments thereto.

2. A discussion of Upset, Interference, or Pass-Through incidents, if any, at the treatment plant which the Discharger knows or suspects were caused by industrial users of the POTW. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name

and address of the industrial user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent Pass-Through, Interference, or noncompliance with sludge disposal requirements.

3. The cumulative number of industrial users that the Discharger has notified regarding Baseline Monitoring Reports and the cumulative number of industrial user responses.
4. An updated list of the Discharger's industrial users including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Discharger shall provide a brief explanation for each deletion. The list shall identify the industrial users subject to federal categorical standards by specifying which set(s) of standards are applicable. The list shall indicate which categorical industries, or specific pollutants from each industry, are subject to local limitations that are more stringent than the federal categorical standards. The Discharger shall also list the noncategorical industrial users that are subject only to local discharge limitations. The Discharger shall characterize the compliance status through the year of record of each industrial user by employing the following descriptions:
  - a. complied with baseline monitoring report requirements (where applicable);
  - b. consistently achieved compliance;
  - c. inconsistently achieved compliance;
  - d. significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);
  - e. complied with schedule to achieve compliance (include the date final compliance is required);
  - f. did not achieve compliance and not on a compliance schedule; and
  - g. compliance status unknown.

A report describing the compliance status of each industrial user characterized by the descriptions in items c. through g. above shall be submitted for each calendar quarter **within 21 days of the end of the quarter**. The report shall identify the specific compliance status of each such industrial user and shall also identify the compliance status of the POTW with regards to audit/pretreatment compliance inspection requirements. If none of the aforementioned conditions exist, at a minimum, a letter indicating that all industries are in compliance and no violations or changes to the pretreatment program have occurred during the quarter must be submitted. The information required in the fourth quarter report shall be included as part of the annual report. This quarterly reporting requirement shall commence upon issuance of this Order.

5. A summary of the inspection and sampling activities conducted by the Discharger during the past year to gather information and data regarding the industrial users. The summary shall include:
  - a. the names and addresses of the industrial users subjected to surveillance and an explanation of whether they were inspected, sampled, or both and the frequency of these activities at each user; and
  - b. the conclusions or results from the inspection or sampling of each industrial user.
6. A summary of the compliance and enforcement activities during the past year. The summary shall

include the names and addresses of the industrial users affected by the following actions:

- a. Warning letters or notices of violation regarding the industrial users' apparent noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the apparent violation concerned the federal categorical standards or local discharge limitations.
  - b. Administrative orders regarding the industrial users noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
  - c. Civil actions regarding the industrial users' noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
  - d. Criminal actions regarding the industrial users noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
  - e. Assessment of monetary penalties. For each industrial user identify the amount of the penalties.
  - f. Restriction of flow to the POTW.
  - g. Disconnection from discharge to the POTW.
7. A description of any significant changes in operating the pretreatment program which differ from the information in the Discharger's approved Pretreatment Program including, but not limited to, changes concerning: the program's administrative structure, local industrial discharge limitations, monitoring program or monitoring frequencies, legal authority or enforcement policy, funding mechanisms, resource requirements, or staffing levels.
  8. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases.

Duplicate signed copies of these reports shall be submitted to the Board and the

State Water Resources Control Board  
Division of Water Quality  
P.O. Box 100  
Sacramento, CA 95812-0100

and the

Regional Administrator  
U.S. Environmental Protection Agency W-5  
75 Hawthorne Street  
San Francisco, CA 94105



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2008-0142

NPDES NO. CAS082597

FACT SHEET

CITIES OF CITRUS HEIGHTS, ELK GROVE, FOLSOM, GALT, RANCHO CORDOVA  
SACRAMENTO AND COUNTY OF SACRAMENTO  
STORM WATER DISCHARGES FROM  
MUNICIPAL SEPARATE STORM SEWER SYSTEM  
SACRAMENTO COUNTY

**I. PURPOSE**

The Regional Water Quality Control Board, Central Valley Region (Regional Water Board) will be considering adoption of a renewal of the County of Sacramento and the cities of Citrus Heights, Elk Grove, Folsom, Galt, Rancho Cordova and Sacramento Municipal Separate Storm Sewer System NPDES Permit (hereinafter referred to as Permit). The purpose of this Fact Sheet is to give the Permittees and interested parties an overview of the 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 permittees' storm water management plans (referred to as Storm Water Quality Improvement Plans (SQIPs) by the Permittees). The SQIPs will be adopted by the Regional Water Board and are considered an integral and enforceable component of the proposed Permit.

The proposed Permit specifies requirements necessary for the Permittees to reduce the discharge of pollutants in urban runoff to the maximum extent practicable (MEP). However, since compliance with the MEP standard is an iterative process, the Permittees' 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 iterative process of continual assessment, revision, and improvement of storm water management program implementation is expected to achieve compliance with water quality standards.

## 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 Sacramento area, as well as other potential sources 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 Natural Resources Defense Council (NRDC) 1999 report, *Stormwater Strategies, Community Responses to Runoff Pollution*<sup>1</sup> 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 the United States Geological Survey (USGS)<sup>2</sup> confirm the link between urbanization and water quality impairments in urban watersheds due to contaminated storm water runoff. Furthermore, the water quality impacts of urbanization and urban storm water discharges have been

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<sup>1</sup> *Clean Water & Oceans: Water Pollution: In Depth Report Stormwater Strategies, Community Responses to Runoff Pollution*. Natural Resources Defense Council (NRDC), 1999.

<sup>2</sup> *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

summarized by several other U.S. EPA reports.<sup>3</sup> Urbanization causes changes in hydrology and increases pollutant loads, which adversely impact water quality and impairs the beneficial uses of receiving waters.

Increases in population density and imperviousness 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;
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 groundwater recharge.

In order to reduce pollutants and runoff flows from new development and redevelopment to the MEP, each 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 No. 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 ensures the most appropriate controls are implemented in the

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<sup>3</sup> *Storm Water Phase II Report to Congress* (U.S. EPA 1995); *Report to Congress on the Phase II Storm Water Regulations* (U.S. EPA 1999); *Coastal Zone Management Measures Guidance* (U.S. EPA 1992)

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 Sacramento MS4 National Pollutant Discharge Elimination System (NPDES) permit include:

1. **Enhanced Aesthetic Value:** Storm water 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 increase 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 in the 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 shell fish 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 load of solids deposited by storm water runoff can lead to rapid sedimentation of reservoirs and the loss of needed water storage capacity.<sup>4</sup>
11. **Improved Habitat Benefits:** Storm water can have significant impacts to habitat and aquatic life. Stormwater controls can minimize impacts to creek corridors and the wildlife dependent on them.

### 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 U.S. EPA 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

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<sup>4</sup>*Report to Congress on Phase II Storm Water Regulations.* U.S. EPA, Office of Water. EPA-833-R-99-001, Oct. 1999.

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.

#### **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 SQIP through a selection of BMPs [see 40 Code of Federal Regulations (CFR) 122.44(k)] as the mechanism to 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). These federal regulations described in detail the permit application requirements for MS4s operators. The information in the Report of Waste Discharge<sup>5</sup> was utilized to develop the permit conditions and determine the Permittees' 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

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<sup>5</sup> County of Sacramento and the Cities of Sacramento, Citrus Heights, Elk Grove, Folsom, Galt, and Rancho Cordova, *Report of Waste Discharge*, June 2007.

the application, in studies, and as directed by monitoring and reporting programs, the Regional 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 pesticide and metals, toxicity, pH, temperature, dissolved oxygen, pathogen and chlorine from illicit discharges.

No numeric effluent limitations are proposed at this time. In accordance with 40 CFR 122.44(k), the U.S. EPA has required a series of increasingly more effective BMPs<sup>6</sup>, in the form of a comprehensive SQIP and performance standards, in lieu of numeric limitations.<sup>7</sup>

The State Water Resources Control Board (SWRCB) convened a Storm Water Panel (Blue Ribbon Panel) of experts to address the issue of numeric effluent limits.<sup>8</sup> The study, finalized in June 2006, also concluded that it is not feasible at this time to set enforceable numeric effluent limits for storm water and non-storm water discharges from MS4s.

#### **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. EPA 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 (SWMP) to be developed and implemented, the program elements were 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 Section 402(p)(6), which addresses permit application requirements.

The SQIP 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

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<sup>6</sup> *Interpretative Policy Memorandum on Reapplication Requirements* of MS4s issued by U.S. EPA (61 Fed. Reg. 41697), August 9, 1996

<sup>7</sup> *Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits* (61 Fed. Reg. 43761), September 1, 1996

<sup>8</sup> Recommendations of the Blue Ribbon Panel were finalized as *The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities*, dated 19 June 2006.

of the MS4 permit. In addition, the California Superior Court ruled, *“Because the Storm 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

The State Water Resources Control Board adopted Resolution 68-16 (“Statement of Policy with Respect to Maintaining High Quality of Waters in California”) (Antidegradation Policy), which requires the Regional Water Board to assure maintenance of the high quality of waters of the State unless the Regional Water Board makes certain findings. Under this policy, water quality degradation may be allowed if the following conditions are met: 1) any change in water quality must be consistent with maximum benefit to the people of the State; 2) will not unreasonably affect present and anticipated beneficial uses; 3) will not result in water quality less than prescribed in the Basin Plan; and 4) the discharge is required to meet waste discharge requirements that result in the best practicable treatment or control necessary to assure that pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the state will be maintained. The communities covered by this Permit have continued to develop since adoption of the previous permit. The increase in 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.

An antidegradation analysis was submitted in September 2007.<sup>9</sup> The water quality impacts presented in the analysis shows that storm water runoff emanating from new urban development projected to occur in the Sacramento Urbanized Area during the next five years will generally produce minor changes in loadings and concentrations of the ten pollutants evaluated. The pollutants evaluated include: diazinon, dissolved copper, *E. coli*, biological oxygen demand (BOD), total dissolved solids (TDS), total mercury, total nitrogen, total organic carbon (TOC), chrysene and total suspended solids (TSS). Constituents selected for evaluation include those identified by the Permittees as Target Pollutants in the Report of Waste Discharge,<sup>10</sup> constituents for which the Regional Water Board is developing TMDLs, and/or

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<sup>9</sup> Sacramento Stormwater Quality Partnership, *Antidegradation Analysis – Storm Water Management Program*, September 2007, Larry Walker and Associates.

<sup>10</sup> County of Sacramento and the Cities of Sacramento, Citrus Heights, Elk Grove, Folsom, Galt, and Rancho Cordova, *Report of Waste Discharge*, June 2007.



constituents considered particularly relevant to the water quality of the Sacramento-San Joaquin Delta.

Section 5.0 of the Antidegradation Analysis<sup>11</sup> provides an assessment of the Storm Water Management Program. The program elements include new development standards that were developed and implemented during the last permit term. This Permit requires the revision of the development standards and associated technical design guidance (a.k.a. *Stormwater Quality Design Manual*,<sup>12</sup> requiring new development and significant redevelopment priority projects to incorporate appropriate source control measures, runoff reduction control measures, and/or treatment control measures. Site design and site-specific source controls are generally the most effective means to control urban runoff pollution because they keep pollutants from contacting runoff and minimize the need for treatment. Runoff reduction measures disconnect impervious surfaces from the storm drain system and promote infiltration when site conditions allow; such measures can reduce the treatment volume or flow required. Treatment controls are intended to remove pollutants from site runoff before reaching the storm drain system or receiving water.

The Water Quality Impacts Assessment Methodology, found in Section 6.3 of the antidegradation analysis, includes a rainfall-runoff mass balance model. Land use projections and the best available agricultural runoff data were used to estimate the change in loadings from 2007 and 2012 urbanized areas. These load changes were then used along with available receiving water data to assess changes in receiving water concentrations and compliance with known water quality objectives. The model shows that the estimated pollutant loading attributable to new urban development show both increases and decreases depending on the constituent. The constituent-by-constituent evaluation of modeled impacts due to new urban development is presented in Section 6.3.5. The analysis reports that the estimated pollutant reductions for existing and new urban development range from 5% to 10%, with the exception of reductions assumed for diazinon. Diazinon has been phased out of urban use and its use in agriculture has greatly decreased, but a conservative estimate of 75% rather than 100% pollutant reduction was chosen to account for stockpiling and continued allowable use of products containing the pesticide. The percent reductions shown in Table 6-7<sup>13</sup> reflect a very conservative estimate for pollutant reduction due to implementation of Stormwater Quality Improvement Plan best management practices. Additionally, implementation of best management practices (primarily, extended detention basins) for new urban development, along with elements

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<sup>11</sup> *Antidegradation Analysis*, pages 5-1 to 5-11.

<sup>12</sup> Sacramento Stormwater Quality Partnership and City of Roseville, *Stormwater Quality Design Manual for the Sacramento and South Placer Regions*, May 2007.

<sup>13</sup> *Antidegradation Analysis*, pages 6-8.

of low impact development, such as onsite infiltration, and hydromodification concepts, are expected to further reduce pollutant concentrations and flows attributable to new urban development runoff. Specific elements of the Permittee's Stormwater Quality Improvement Plan are discussed in Section 5, and outlined in Appendix A of the analysis.

Based on the antidegradation analysis: 1) some degradation for a limited number of constituents is consistent with the maximum benefit to the people of the state; 2) the activity is necessary to accommodate important economic or social development in the area; 3) resulting water quality is adequate to fully protect and maintain existing beneficial uses; and 4) the discharge will not cause measurable changes in the receiving waters that cause the receiving waters to fall below applicable water quality objectives.

The analysis included an examination of: 1) existing applicable water quality standards; 2) ambient conditions in receiving waters compared to standards; 3) incremental changes in constituent loading, both concentration and mass; 4) treatability and levels of treatment or controls to be used and whether increased treatment is proposed to offset any increased volume or mass of discharge; 5) reduction of the discharge of pollutants from the urban areas to the maximum extent practicable (MEP); 6) comparison of the proposed increased volume or mass of pollutants relative to the volume or mass of pollutants that existed when the current permit was adopted; 7) an assessment of the significance of changes in ambient water quality compared to historic conditions, and 8) an analysis of alternatives to the discharge and treatment or control methods that would reduce water quality impacts.

The discharge from continued urban development will result in some minimal degradation of waters of the state and navigable waters of the United States, but in this case, such degradation is consistent with the maximum benefit to the people of the state. Limited degradation that does not cause exceedance of water quality objectives is warranted to allow for the economic benefit stemming from local growth. There is also a need in the Sacramento area to accommodate growth. The Regional Water Board does not have the jurisdiction to control growth in the County of Sacramento and associated Cities, but is required to assure that the receiving waters are adequately protected as a result of urban discharges. The proposed Permit allows storm water utility service necessary to accommodate housing and economic expansion in the area, and is considered to be a benefit to the people of the State. Compliance with these requirements will result in the reduction of discharge pollutants from the urban areas to the MEP.

The Regional Water Board is required to protect beneficial uses of receiving waters that involve freshwater aquatic life (e.g., WARM, COLD, SPWN, MIGR). The Basin Plan's toxicity narrative objective, reflected in Receiving

Water Limitation C.1 of the Order states in L: "Toxic pollutants to be present in the water column, sediments, or biota in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health." This receiving water limitation is designed to provide protection of the beneficial uses of the receiving water. Therefore, the numeric receiving water limit for chlorine has been removed from the order since the objective is covered by the narrative toxicity objective.

#### **IV. BACKGROUND – SACRAMENTO AREAWIDE NPDES MS4 PERMIT PROGRAM**

##### **A. Sacramento Areawide NPDES MS4 Permit History**

In June 1990, the Regional Board issued the first NPDES permit for the Sacramento area-wide MS4 program (Program). The permit was issued to Permittees from the County of Sacramento and the cities of Sacramento, Folsom and Galt. The County of Sacramento and the City of Sacramento have populations greater than 250,000 and are considered large municipalities in accordance with Appendices H and F, respectively, of Part 122 of Title 40 of the Federal Code of Regulations (40 CFR 122). The Cities of Folsom and Galt are urbanized areas with populations of less than 100,000 and would ordinarily not be covered under the Phase I program. However, because of their proximity to the urbanized areas of the County and the location of their storm sewer system discharges relative to discharges from the County's system, these cities were designated in 1990 as part of the large MS4 (40 CFR 122.26(b)(7)(iii)).

In 1996, the Regional Board renewed the Sacramento area-wide MS4 permit for a second five-year term. On 3 November 2000, the Permittees (now including the newly incorporated Cities of Citrus Heights and Elk Grove within the Sacramento Urbanized Area) submitted Reports of Waste Discharge to the Regional Water Board to request renewal of their MS4 permit.

In December 2002, the Regional Water Board adopted the third Sacramento area-wide MS4 permit. The City of Rancho Cordova incorporated in 2003 and was therefore added to the Permit by the Regional Water Board in 2004.

The Permittees' SQIPs<sup>14,15</sup> submitted with the Report of Waste Discharge in June 2007 describe the 18-year history and evolution of the Sacramento program, including a summary of accomplishments and findings.

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<sup>14</sup> County of Sacramento and the Cities of Citrus Heights, Elk Grove, Folsom, Galt, and Rancho Cordova, *Storm Water Quality Improvement Plan (SQIP)*, Draft June 2007.

<sup>15</sup> City of Sacramento, *Stormwater Quality Improvement Plan (SQIP)*, Draft June 2007.

## **B. Storm Drain System**

The Permittees have jurisdiction over and/or maintenance responsibility for their respective MS4s that they own and operate in Sacramento County. The storm water discharges consist of storm water generated from various land uses in all the hydrologic sub-basins, which discharge into urban creeks and in turn flow into the primary rivers of Sacramento County. All discharges from the Sacramento Urbanized Area ultimately make their way to the Sacramento River. The tributary rivers which receive storm water from one or more Permittees include the American, Cosumnes and Mokelumne Rivers. The quality and quantity of these storm water discharges varies considerably, owing to the effects of land use, season, geology, and sequence and duration of hydrologic events.

## **C. Total Maximum Daily Loads (TMDLs)**

Total Maximum Daily Loads (TMDLs) are one of the Regional Board's highest priorities. The Regional Water Board considers storm water discharges from the Sacramento Urbanized Area 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. To implement adopted TMDLs, this proposed Permit implements control programs developed to attain waste load allocations.

The Permittees submitted to the Regional Water Board a Pesticide Plan (in 2004) to fulfill the need for a pesticide toxicity control plan as required by the urban creeks pesticide TMDL. The Pesticide Plan was subsequently approved by the Regional 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 Regional 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 Regional 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 Morrison Creek in the City of Sacramento

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.

The Delta, Sacramento River, American River, and Lake Natoma are on the Clean Water Act Section 303(d) List as mercury impaired because of elevated levels of methylmercury in fish. In addition, the State Board has designated the Delta as a toxic hot spot under the Bay Protection and Toxic Hot Spot Cleanup Program.

To address mercury impairment of the Delta, Sacramento and American Rivers, and Lake Natoma, this Permit requires the Permittees to:

- Continue to implement the Mercury Plan.
- Coordinate the Permittees’ mercury control programs with the above-mentioned countywide U-waste management strategy.
- Evaluate the total mercury and methylmercury data collected under the previous Permit and continue urban discharge monitoring to determine the extent to which urban lands within the Sacramento area contribute methylmercury and total mercury to the individual impaired water bodies (Delta, Sacramento River, American River, and Lake Natoma).
- Estimate the amount of total mercury and sediment prevented from discharging to receiving waters by existing BMPs in the Sacramento Urbanized Area such as, but not limited to, street cleaning, detention basins, and erosion and sediment controls.

- Consider including total mercury and methylmercury monitoring in the design of future BMP studies to estimate the extent to which existing and new BMPs reduce total mercury and reduce and/or increase methylmercury discharges.

The Monitoring and Reporting Program portion of this proposed Order specifies monitoring and assessment requirements that must be implemented to gather information for future mercury control programs. Once the Delta mercury control program is approved, there may be additional monitoring requirements to identify the sources of the methylmercury and total mercury in urban runoff to the Delta, lower American River, and the other mercury-impaired water bodies.

Finding No. 87 of the proposed Order states: "CWA Section 303(d) and 40 CFR 130.7 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 Regional Water Board is currently in the process of developing TMDLs for listed water bodies within the Region. Prior to TMDL's being adopted and approved, Permittees must implement actions to address their contribution to the water quality impairments. Once the Regional 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.3.d. of the proposed Order requires the Permittees revise their SQIP 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 PROGRAM ELEMENTS**

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 the June 2007 Report of Waste Discharge, the County of Sacramento in association with the cities of Citrus Heights, Elk Grove, Folsom, Galt and Rancho Cordova submitted a SQIP, and the City of Sacramento submitted a separate

SQIP. These SQIPs describe the framework for management of storm water discharges during the term of this permit. The draft SQIPs provide 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 SQIPs also include 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 Permittees' SQIPs 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 SQIP that is well understood and broadly supported by regional stakeholders. The SQIPs are an integral and enforceable component of the proposed Permit.

The SQIPs include the following major program components:

- i. Program Management
- ii. Construction Element
- iii. Commercial/Industrial Element
- iv. Municipal Operations Element
- v. Illicit Discharge Element
- vi. Public Outreach Element (including watershed stewardship)
- vii. Planning and New Development Element
- viii. Monitoring Program
- ix. Water Quality Based Program (Target Pollutant Program)
- x. Watershed Stewardship
- xi. Training
- xii. Program Effectiveness Assessment

Some of the components and the corresponding Order requirements 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 Permit requires that each Permittee agency demonstrates that they have adequate funding to comply with the requirements of this Permit. Most agencies have established stormwater utilities, which are fees assessed on a property to the property owner based on an estimate of storm water runoff generated for the site, to fund these activities. The City of Folsom is the only Permittee agency that receives their program funding from the General Fund.

Financing the increasing requirements of the MS4 program offers a considerable challenge for municipalities. Proposition 218 significantly limits a municipality's ability to increase funding by requiring storm water utility fees and fee increases to go before the voters for approval<sup>16</sup>. There has been limited success in California in recent years in achieving approval of new stormwater utility fees.

The Permit requires each agency to have the legal authority necessary to implement their program. Each Permittee agency has an adopted stormwater ordinance in place, which defines allowable discharges within the municipality and provides the necessary authority to conduct enforcement against those who discharge illegally. In addition, each municipality has the legal authority to require the use and maintenance of construction BMP's through their grading ordinances.

The Permit also requires that the Permittees demonstrate that they have the necessary agreements in place to coordinate joint program activities. The Permittees have executed a memorandum of understanding (MOU) which defined a partnership and each agency's role in the joint program. This Permit requires that the Permittees update the MOU.

For compliance reporting, the Permit requires submission of an Annual Work Plan by 1 May of each year. The Annual Work Plan describes the Permittees' proposed activities for the upcoming year beginning 1 July of the current year and ending 30 June the following year. The Permit also requires submission of an Annual Report by 1 October of each year. The Annual Report documents the status of the Permittees' activities conducted during the previous fiscal year in conformance with the approved SQIPs, including the results of the Program Effectiveness Assessment. The Annual Report includes a compilation of deliverables and milestones completed during the previous 12-month period, as described in the SQIP and Annual Work Plan.

## **B. Construction Program Element**

### **Legal Authority and Discussion**

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

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<sup>16</sup> Cal. Const. Art. XIID, 6.c.; *Howard Jarvis Taxpayers Association v. City of Salinas* (2002) 98. Cal.App. 4<sup>th</sup> 1351.



### **Status of the Sacramento Program**

Since the initiation of the program in 1990, the Permittees have completed the following work:

- Established the legal authority to prohibit non-stormwater discharges and enforce those prohibitions through the adoption of local land grading and erosion control and stormwater ordinances
- Established and continued implementation of inspections, reporting procedures and enforcement to achieve compliance on construction sites.
- Conducted employee training with regard to review, inspection and enforcement
- Provided outreach and guidance to the development community through workshops and brochures on local and State requirements
- Established and maintained tracking databases and maps to assist with investigations and identification of problem areas

### **Discussion of the Requirements in This Permit**

This Permit requires the continuation of the Permittees' 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. Commercial/Industrial Program Element**

### **Legal Authority and Discussion**

Federal regulations [40 CFR 122.26(d)(2)(iv)(C)] require the following, "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;*

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 but are not (non-filers). The Phase I regulations requiring industries to obtain permit coverage for storm water discharges is largely based on the Standard Industrial Classification Code. This has been shown to be incomplete in identifying industries (which 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 an industrial/commercial inspection and enforcement program to control the contribution of pollutants to the MS4 from all 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 Manual<sup>10</sup> (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.<sup>17</sup>

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 storm water discharge to the MS4. Further, to satisfy its permit conditions, a municipality may need to impose additional requirements on discharges from

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<sup>17</sup> *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

permitted industrial facilities, as well as discharges from industrial facilities and construction sites *not* required to obtain permits.

In the same Guidance Manual<sup>18</sup> (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:

- 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 Permittees are ultimately responsible for the quality of storm water discharges from the MS4, the Permittees 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 if they do not provide sufficient legal authority to implement the above components as required by the regulations.

### **Status of the Sacramento Program**

Since 1990, the Permittees have completed the following work as part of the Industrial/Commercial Program:

- Developed and revised Stormwater Ordinances to prohibit non-stormwater discharges to the MS4, prevent prohibited conditions, require appropriate BMPs for pollutant generating activities, and authorize a structured inspection program for industrial and commercial facilities
- Significant industries were identified based upon their potential to discharge pollutants to the MS4. Mobile categories are subject to focused outreach efforts while stationary facilities are included in a program of regular compliance inspections

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<sup>18</sup> *Id.*

- Established agreement with Sacramento County Environmental Management Department (EMD) to conduct routine inspections of targeted industries on behalf of MS4 Permittees. EMD was provided authority to enforce local stormwater ordinances within 7 jurisdictions in Sacramento County and to recover costs from the regulated community to fund the program.
- Launched the Clean Water Business Partner program, an incentive program to encourage businesses to protect stormwater quality

### **Discussion of Requirements in This Permit**

This Permit requires the continuation of the Permittees' inspection, response and enforcement activities at priority commercial/industrial facilities and coordination with the Regional 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 regulations<sup>19</sup>, and suggested partnership between local and State authorities, this Permit requires Permittees 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.

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<sup>20,21</sup>, and in order to best use limited resources at the State and local levels, the Permit includes improvements requiring the Permittees 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 Regional Board in implementing the general permit for industrial activities.

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<sup>19</sup> 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

<sup>20</sup> 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.

<sup>21</sup> 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

This approach is consistent with the nationwide approach used by the U.S. EPA in issuing *second term* MS4 permits<sup>22</sup>. 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 Program Element**

##### **Legal Authority and Discussion**

Federal regulations [40 CFR 122.26(d)(2)(iv)(A)(1,3,4,5, and 6)] require that each Permittee must develop a program to reduce the discharge of pollutants from the MS4 to the maximum extent practicable for all urban land uses and activities, including municipal areas and activities.

Permittees regularly provide services to communities that result in the enhancement of the lives of the residents. Some of these services include: sewage system operations; drinking water distribution; flood control and prevention activities; public construction activities; road maintenance; landscaping; recreational facility management; and parking facility management. Other activities are required to support these community services, such as fleet maintenance and operation of corporation yards and material storage facilities.

Each Permittee is required to update and continue to implement a Municipal Operations Program Element in its SQIP 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.

##### **Status of the Sacramento Stormwater Program**

Since 1990, the Permittees have completed the following work as part of the Municipal Operations Element:

- Complied with the State General Construction Permit for applicable municipal construction projects;
- Conducted audits of existing municipal facilities having the potential to discharge pollutants into urban runoff, and developed applicable mitigation procedures and/or best management practices (BMPs) to reduce pollutant discharges to the MEP at these sites;
- Conducted prioritized storm drain/facility maintenance activities based

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<sup>22</sup> MS4 NPDES Permits issued to Palm Beach County, Broward County, Sarasota County, Florida, Tulsa, Oklahoma, Denver, Colorado.

- upon accumulation of debris, customer complaints, and seasonal concerns;
- Implemented cleaning and maintenance programs for prioritized streets and parking lots;
- Ensured that most (for some Permittees, all) storm drain inlets were marked with the “No Dumping-Drains to Creek/River” message with either durable curb markers, stenciling, or permanent concrete stamps; and
- Trained affected staff at least annually on the impacts of stormwater pollution, associated prevention activities, and illicit connection and discharge identification and reporting procedures.

### **Discussion of the Requirements in This Permit**

This Permit requires the continuation of the Permittees’ 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 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 Program Element**

### **Legal Authority and Discussion**

Federal regulations [40 CFR 122.26(d)(2)(iv)(B)] state that a proposed management program shall include 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. It states further that a Permittee must include in its proposed management program a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal storm sewer system.

During dry weather, much of the discharge to storm drain systems consists of wastes and wastewater from non-storm water sources that could include illicit discharges or connections, or both. Illicit discharges may occur either through direct connections, such as deliberate or mistaken piping, or through indirect connections, such as dumping, spillage, subsurface infiltration, and washdown.

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

### **Status of the Sacramento Program**

Since the initiation of the program in 1990, the Permittees have completed the following work:

- Established the legal authority to prohibit illegal discharges and enforce those prohibitions through the adoption of local Stormwater Ordinances
- Established and have been implementing illicit discharge response and reporting procedures to investigate, identify and abate illicit discharges
- Conducted employee training with regard to illicit discharges and enforcement
- Continued implementation of solid, recycling and household hazardous waste collection programs
- Conducted illicit discharge field screening activities which resulted in few if any discharges to eliminate.
- Established and maintained tracking databases and maps to assist with investigations and identification of problem areas

### **Discussion of Requirements in this Permit**

This Permit requires the continuation of the Permittees' 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 Outreach Public Education 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 include, "A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewer system associated with the application of pesticides, 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 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 Permittees need 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.

### **Status of the Sacramento Program**

The Permittees have made significant progress in developing and implementing programs to educate the public about the impacts of stormwater pollution. In addition, the Permittees encourage the public to participate in stewardship activities to enhance and protect the quality of Sacramento's waterways.

The following highlights the major accomplishments of the regional public outreach program since 1990:

- Developed a 24-hour public reporting hotline for stormwater-related issues
- Developed and implemented a regional media campaign, including Cable TV commercials, billboards and other media. Due in large part to this campaign, the permittees far exceeded the 2002-07 stormwater permit term requirements for the number of impressions
- Promoted the Sacramento Stormwater Quality Partnership's website to the general public
- Promoted citizen participation in watershed stewardship (e.g., volunteer storm drain stenciling, creek cleanups)
- Developed and distributed several educational materials for school children, residents, and businesses
- Developed the Clean Water Business Partner program, an incentive program to encourage businesses to protect stormwater quality
- Developed educational materials for the multicultural community
- Supported several educational programs targeting school children
- Participated in various community outreach events
- Coordinated with other agencies/organizations to develop and implement effective outreach
- Conducted public opinion surveys to gauge the level of awareness and behavior changes within the community or target audience

### **Discussion of Requirements in This Permit**



This Permit requires continuation of the Permittees' educational storm water and urban runoff outreach programs. The ongoing program is consistent with the U.S. EPA recommendations that materials and activities should be relevant to local situations and issues, and incorporate a variety of strategies to ensure maximum coverage.<sup>23</sup> To help address local situations and sources of specific pollutants, the Public Outreach Program requires specific programs for targeted communities. The effective Permittee coordination efforts of the Sacramento program are also consistent with the U.S. EPA's findings which encourage partnerships and cooperation.<sup>24</sup> This coordination helps ensure that the Permittees are implementing 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.<sup>25</sup> In compliance with past Permits, the Permittees have been implementing a business outreach program to educate management and employees at prioritized businesses about storm water regulations.<sup>26</sup> Also, the Permittees have been supporting and working with the Business Environmental Resource Center for years. Consistent with the EPA findings, working with this kind of non-regulatory confidential business assistance program encourages 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 Permittees are required to implement 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.

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

#### **G. Water Quality Impaired Water Bodies**

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<sup>23</sup> Phase II Fact Sheet 2.3

<sup>24</sup> *Id.*

<sup>25</sup> Phase II Fact Sheet 2.3

<sup>26</sup> Order No. R5-2002-0181

Clean Water Act Section 303(d) and 40 CFR 130.7 require states to identify water quality-impaired water bodies and pollutants of concern, and develop 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 Regional Board is currently in the process of developing TMDLs for listed water bodies within the Region. Once the Regional Board and U.S. EPA approve TMDLs, the Permittees' discharge of storm water into an impaired water body will be subject to load allocations and implementation plans established under the TMDLs. Certain assessments by the Permittees to address 303(d) listed water bodies and constituents are warranted and required by this Permit.

#### H. **Planning and New Development Program**

##### **Legal Authority and Discussion**

Federal regulations (40 CFR 122.26) require that pollutants in 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.<sup>27</sup> 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.<sup>28</sup> It is equally important that treatment BMPs once implemented be routinely maintained.

This Permit requires permittees 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. 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 permittees 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

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<sup>27</sup> *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.

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

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.

The U.S. EPA, based on the NURP, supports the first half-inch of rainfall as generating first flush runoff.<sup>29</sup> First flush runoff is associated with the highest pollutant concentrations, and 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 sizing of water quality BMPs.

On 5 October 2000, the State Water Board adopted Order WQ 2000-11<sup>30</sup> 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 Sacramento Permit must be consistent with applicable portions of the State Water Board's decision and include SUSMPs, referred to in the Sacramento program as Development Standards. More detailed information is available at the LA Regional Water Board's website:

[www.swrcb.ca.gov/rwqcb4/html/programs/stormwater/la\\_ms4\\_final.html](http://www.swrcb.ca.gov/rwqcb4/html/programs/stormwater/la_ms4_final.html)

Treatment control BMP requirements on new development and redevelopment offer the most cost-effective strategy to reduce pollutant loads to surface waters. Retrofit of existing development will be expensive and may be considered on a targeted basis. Studies on the economic impacts of watershed protection indicate that storm water quality management has a positive or at least neutral economic effect while greatly improving the quality of surface waters.<sup>31</sup>

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<sup>29</sup> *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.

<sup>30</sup> *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.

<sup>31</sup> *The Economics of Watershed Protection*, T. Schueler (1999), Center for Watershed Protection, Endicott, MD. The article summarizes nationwide studies to support the statement that watershed planning and storm water management provides positive economic benefits.

## **Status of the Sacramento Program**

Since the inception of the Program in the early 1990s, the Permittees have made significant progress in controlling urban runoff pollution from new development. Among its major accomplishments, the Permittees:

- In the mid 1990s, began requiring development projects to incorporate source controls and to treat runoff using criteria such as the City and County of Sacramento's SATO methodology for sizing detention basins through the entitlement and environmental review process.
- Prepared and submitted a Development Standards Plan (DSP) on December 1, 2003.
- Adopted revised development standards in May of 2006, and began applying them to new and redevelopment projects within one year of approval of DSP by the Regional Board.
- Developed stormwater quality design standards (*Guidance Manual for On-site Stormwater Quality Control Measures, January 2000*), including methods for selecting, sizing and configuring source and treatment control measures. These standards were in place from 2000 until the new design manual was published in May 2007.
- Conducted a unique study related to the use of multi-functional drainage corridors as an alternative to conventional water quality detention basins. This study culminated in the application of new design techniques to create a vegetated water quality/flood control drainage corridor in Elk Grove that also provides habitat, recreation and community amenities.
- Partnered with Cities of Sacramento, Folsom, Rancho Cordova, Citrus Heights, Elk Grove, Galt, and Roseville to create the *Stormwater Quality Design Manual for the Sacramento and South Placer Regions*, published in May 2007. This two-year process entailed outreach to the development community and meetings with a newly formed stormwater committee of the local Building Industry Association. The manual includes selection and design criteria for source control, runoff reduction and treatment control measures.
- Amended the California Environmental Quality Act (CEQA) review process to provide additional water quality protection language in July of 2003.
- Some permittees added water quality and watershed protection principles to their General Plans during the update process.
- Conducted a study to investigate the pollutant removal performance of various proprietary structural control measures. The goal of the study

was to determine which devices are acceptable for use in the Sacramento area based on field data submitted by manufacturers. The study was updated periodically as new data became available from vendors. The results of the study were published on the Partnership's web site and referenced in the design manuals.

- Conducted several local control measure effectiveness studies and published results each year in Partnership Annual Monitoring Reports. The following studies were conducted: Inlet/In-line Control Measure Study (Fossil Filter catch basin insert and Teichert stormwater interceptor); Detention Basin Study (Brown Road); Landscape Control Measure Study (Vegetated Swale); and extensive literature review and Study Work Plan. See various annual reports for more detailed lists of accomplishments.

### **Discussion of Requirements in This Permit**

This component of the Permit requires each Permittee to update and continue to implement the Planning and New Development Element of its SQIP 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 Permittees' Development Standards during the entitlement and CEQA process and the development plan review process.

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

### **Status of the Sacramento Program**

Since the initiation of the program in 1990, the Permittees have completed the following work:

- Established the legal authority to prohibit non-stormwater discharges and enforce those prohibitions through the adoption of local land grading and erosion control and stormwater ordinances
- Established and continued implementation of inspections, reporting procedures and enforcement to achieve compliance on construction sites.
- Conducted employee training with regard to review, inspection and enforcement
- Provided outreach and guidance to the development community through workshops and brochures on local and State requirements

- Established and maintained tracking databases and maps to assist with investigations and identification of problem areas

The Permittees are also required to revise applicable ordinances/standards/specifications following amendment of Development Standards.

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 PROGRAM**

### **Legal Authority**

Federal regulations (40 CFR 122.26(d)) 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; (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; (3) estimated reductions in loadings of pollutants from discharges of municipal storm sewer constituents from municipal storm sewer systems expected as the result of SQIP implementation; and (4) the Permittees 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 SQIP, they are being incorporated into this Permit.

### **Discussion of Requirements in this Permit**

#### **A. Urban Discharge Monitoring**

Urban runoff monitoring began in 1989/90 to characterize the quality of urban runoff in the Sacramento Urbanized Area. Early urban runoff monitoring was conducted at various sites; since 1994/95, long-term urban runoff monitoring has continued at three sites – Sump 104, Sump 111 and Strong Ranch Slough. These sites characterize areas developed prior to the inception of the Permittees stormwater quality management program. The proposed Permit omits the Sump 104 monitoring requirement and requires a new sampling location in the North Natomas Development area. The basis for this change is the need to better characterize the overall Sacramento Urban Area, including areas that have been developed since the inception of the Permittees management program. The goals of this monitoring are to (1) act as a performance standard to monitor long-term trends in urban storm water

quality, (2) provide data for estimating pollutant loads discharged to receiving waters, and (3) provide periodic water quality data on non-storm water discharges from municipal separate storm sewer systems.

Prior to the previous Permit adoption, the Permittees evaluated urban runoff sampling frequency and concluded that sampling every year was not necessary in order to characterize urban runoff quality and long term trends.<sup>32</sup> The Permittees will evaluate the effect of replacing Sump 104 monitoring with monitoring in a newly developed area (e.g., North Natomas) on the long term effectiveness evaluation.

## **B. Receiving Water Monitoring**

The receiving water monitoring component of the Monitoring and Reporting Program (MRP) includes river monitoring stations on the American and Sacramento Rivers, and urban tributary monitoring stations on three Arcade Creek, Willow Creek, and Laguna Creek. The Laguna Creek monitoring location will replace the downstream Morrison Creek monitoring station that was used in the previous Permit. The basis for this change is the need to better characterize the overall Sacramento Urban Area, including areas that have been developed since the inception of the Permittees management program. The Laguna Creek watershed is also of interest because of its rapid development, and the potential to characterize any changes caused by development.

The American and Sacramento Rivers have two monitoring stations each. These stations are located downstream of major urban discharges on the American River and on the Sacramento River there is an upstream station and a downstream station in an effort to monitor worst-case water quality conditions for compliance with receiving water limits. Receiving water monitoring for rivers and urban tributaries is required to analyze for constituents listed in Table B, except for pyrethroids/pyrethrins pesticides in water.

In the previous Permit term, the Permittees monitored additional urban tributary locations on Chicken Ranch Slough, Elder Creek, Elk Grove Creek, and Morrison Creek as part of the "Additional Pesticide Monitoring" requirement. From the data collected, the Permittees concluded that the sites were statistically similar to at least one of the primary receiving water sites, and further monitoring of diazinon and chlorpyrifos was not necessary.<sup>33</sup>

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<sup>32</sup> Sacramento Stormwater Quality Partnership, *Discharge Monitoring Frequency Evaluations*. November 23, 1998. Prepared by Larry Walker Associates.

<sup>33</sup> Sacramento Stormwater Quality Partnership, *Report of Waste Discharge: Evaluation of Additional Pesticide Monitoring Data - 2007 Update*. June 2007. Prepared by Larry Walker Associates.

Based on the outcome of the Permittees analysis of total mercury and total methyl mercury concentrations and loads in the 2008/09 annual report, additional sampling at these urban tributaries will be evaluated and reported to the Regional Water Board.

Report of Water Quality Exceedance (RWQE) preparation during the previous permit term included development of a work plan to address the cause and nature of dissolved oxygen (DO), pH, and temperature exceedances in several urban tributaries. Multiple steps in the work plan have been completed.<sup>34 35 36</sup> The Permittees are required to continue to implement the work plan elements and begin Phase II upon adoption of this Permit. Much of the work shall be performed in Morrison Creek, other creeks may be identified.

### C. 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.<sup>37</sup> These MLs must be incorporated into all water quality monitoring programs to detect priority toxic pollutants. The MLs are the only established criteria that take into consideration recent improvements in chemical analytical methods. If they are not used in the storm water program, concentrations of concern for 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.<sup>38</sup> Numeric criteria for toxic pollutants are necessary to evaluate the adequacy of existing and potential control measures to protect aquatic ecosystems and human health.<sup>39</sup> Also, using MLs will provide quantifiable data that is necessary to better assess water quality and to develop Waste Load Allocations (WLA) and Load Allocations (LA) for TMDLs. Furthermore, non-detects cannot be used to accurately determine mass loadings. The criteria established in the CTR are

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<sup>34</sup> Sacramento Stormwater Quality Partnership, September 20, 2006. Memorandum from Brian Laurenson, Larry Walker and Associates, *Assessment Strategy for Dissolved Oxygen, Temperature and pH in Sacramento Urban Tributaries*.

<sup>35</sup> Sacramento Stormwater Quality Partnership, November 13, 2006. Memorandum from Brian Laurenson, Larry Walker and Associates. *Urban Tributary Dissolved Oxygen, pH and Temperature Investigation Sampling and Analysis Plan – Phase 1*.

<sup>36</sup> Sacramento Stormwater Quality Partnership, May 2007. Memorandum from Ian Clark, Larry Walker and Associates. *Phase 1 Investigation Results – Willow Creek and Morrison Creek pH, Dissolved Oxygen, and Temperature*.

<sup>37</sup> SIP

<sup>38</sup> 65 Fed. Reg. 31683

<sup>39</sup> *Id.*



legally applicable in the State of California for inland surface waters, enclosed bays and estuaries for all purposes and programs under the CWA.<sup>40</sup> Section 402(p)(3)(B)(iii) gives U.S. EPA and states the authority to incorporate appropriate water quality-based effluent limitations in NPDES permits for discharges from MS4s.<sup>41</sup>

#### **D. Water Column Toxicity Monitoring**

Water column toxicity testing is used to determine if samples can support specific species of aquatic life compared to control samples of laboratory water. Water column toxicity can be used as an indicator of a receiving water's condition along with other important indicators (benthic bioassessment, habitat assessment, sediment, and water column quality). In properly designed studies, water column toxicity results can be used as indicators of the impact of urban runoff on receiving waters. The Center for Watershed Protection rated toxicity testing as a "very useful" indicator for assessing municipal storm water programs.<sup>42 43</sup> 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.

Overall, the toxicity monitoring program will assist, along with other elements of the monitoring program, in evaluating the impact of storm water on the overall quality of aquatic systems and the general health of receiving waters. When significant aquatic life toxicity is observed, water column toxicity data can be used to further identify the cause of toxicity. Water column quality monitoring alone does not necessarily reveal the impacts of storm water on aquatic life or beneficial uses of water bodies. Therefore, toxicity monitoring is a necessary component of a storm water monitoring program.

#### **E. Water Quality Based Programs**

In the last Permit period the Permittees performed additional pesticide monitoring to compare diazinon and chlorpyrifos concentrations in several additional urban tributaries to three "primary" urban tributaries. The Permittees determined that the three primary sites adequately characterized diazinon and chlorpyrifos urban tributary concentrations for the additional downstream (of urbanized areas) sites. The MRP with this Permit includes an

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<sup>40</sup> 65 Fed. Reg. 31682

<sup>41</sup> 65 Fed. Reg. 31703

<sup>42</sup> Center for Watershed Protection, *Environmental Indicators to Assess Stormwater Control Programs and Practices*. 1996.

<sup>43</sup> Ibid.

assessment of total mercury and methylmercury to be submitted to the Regional Water Board as part of the 2008/09 Annual Report. The recommendations of that report will evaluate the need for monitoring at additional urban tributary monitoring sites.

**Mercury:**

Urban runoff from the Sacramento Area contributes total (inorganic) mercury and methylmercury to these mercury-impaired water bodies. Methylmercury and total mercury monitoring has taken place at three pump outfalls and three urban creeks – Strong Ranch Slough, Sump 104, Sump 111, Arcade Creek, Morrison Creek, and Willow Creek – which averaged 0.48, 0.24, 0.26, 0.9, 0.5, 0.5 ng/L methylmercury, respectively, and 59, 15, 23, 51, 27, and 53 ng/L total mercury, respectively (Laurenson, 2007<sup>44</sup>). The Sacramento River at Freeport has an average methylmercury concentration of 0.11 ng/L, and an average total mercury concentration of 8.3 ng/L (Wood et al., 2008<sup>45</sup>). Urban runoff from the Sacramento Area contributes about 1% of all Delta methylmercury inputs and about 3% of average Sacramento River methylmercury loads (Wood et al., 2008). Sacramento Area urban runoff methylmercury loadings directly to the lower American River and Lake Natomas have not been calculated but are a high priority to determine as part of their TMDL development effort. The lower American River watershed downstream of Lake Natoma falls entirely within Sacramento County and about 75% of the watershed has been urbanized.

A Delta mercury control program will be in effect after the Central Valley Water Board adopts Basin Plan amendments to establish a Delta mercury control program during this fourth term of the Phase I permit. The goal of the mercury control program is to reduce methylmercury exposure to humans and wildlife in the Delta. Development of mercury control programs for the Sacramento River, American River, and Lake Natoma will begin once a mercury control program for the Delta has been adopted.

The Permittees identified mercury as a top ranked target pollutant in 2002. The Permittees submitted to the Regional Water Board a Mercury Plan in 2004 that outlined the Permittees' strategy to reduce mercury in Sacramento area urban runoff. The Mercury Plan also included background information on mercury pollution in local waters, a summary of key regulations, and a description of related mercury control efforts and studies. Adequate progress was made on all Mercury Plan commitments during the third permit term.

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<sup>44</sup> Laurenson, B.M. 2007. *Report of Waste Discharge – Discharge and Receiving Water Characterization. Memorandum and summary statistics* prepared by Brian M. Laurenson, P.E. (Larry Walker Associates) for Delia McGrath (City of Sacramento) and Janet Parris (Sacramento County).

<sup>45</sup> Wood, M.L., C.G. Foe, J. Cooke, S.J. Louie, and D.H. Bosworth. 2008. *Sacramento – San Joaquin Delta Estuary TMDL for Methylmercury – Draft Report for Public Review*. Central Valley Regional Water Quality Control Board staff report, February 2008.

Mercury Product Use Survey (Mercury Survey) results were summarized in a 2005 technical memorandum that indicated that the largest volume of readily breakable mercury-containing products are lamps, with fluorescent lamps constituting the most numerous type of lamp. According to the 2005 memorandum, the Mercury Survey either documented or initiated conformance with the Universal Waste Rule (UWR), which prohibits disposal of mercury-containing products as solid waste and specifies acceptable handling and recycling/disposal requirements. The memorandum concluded that establishing procedures in conformance with the UWR addresses the previous Permit's requirement to develop and adopt policies, procedures, and/or ordinances to establish or improve proper handling and disposal of mercury-containing products.

Fluorescent lamp recycling options were evaluated in the "Sacramento Countywide U-Waste Collection Strategy Letter Report" by R3 Consulting Group Inc. (R3), which was engaged by the Sacramento County (County) Department of Waste Management and Recycling to assist with the development of a Countywide universal waste (U-waste) management strategy. The strategy is intended to specifically address the collection and management of household batteries (rechargeable and alkaline) and fluorescent and other mercury-containing lamps.

One of the goals of the urban discharge monitoring is to act as a performance standard to monitor long-term trends in urban storm water quality and evaluate BMP effectiveness in removing pollutants. This Permit requires that an evaluation of the long-term trends in MS4 discharges and receiving water quality be included in the final Annual Report for this permit term. Several factors need to be considered when evaluating trends, such as changes in sample collection methods, data quality differences, and changes in analytical methods.

A number of factors could affect the trend analysis for total mercury alone. Prior to October 1996, USEPA methods 7470 and 245.1 were used to analyze urban discharge samples for total mercury. Unlike USEPA method 1631, the analytical method used since 1996, these methods do not incorporate "clean hands" methods and have much higher detection limits and potential for high total mercury values due to un-identified cross-contamination. In addition, prior to October 1996, a combination of sampling methods – grab, three-sample composites, and partial storm/time composite samples – were used, while only grab sampling was used after 1996. Also, early 1990's data include multiple samples per storm, which, if all are included in the analysis, could result in a high bias in average and median total mercury concentrations for earlier periods.

## F. Bioassessment

Monitoring and Reporting Program Order No. R5-2002-0181 required the Permittees to perform bioassessment at selected sites upstream and downstream of major discharge points from 2003 through 2007. The purpose of the bioassessment requirement was to assess the biological integrity of receiving waters, detect biological responses to pollution, identify probable causes of impairment not detected by chemical and physical water quality analysis, and provide a more holistic approach to evaluating processes of the waterways for designing effective BMPs. Four years of collected data, two years at each site every other year, have been fully evaluated and provide a limited assessment of overall biological response. Additional time is needed in order to fully evaluate biological information collected to date, so that future monitoring can be adapted to continue assessment of biological integrity of receiving water, while linking more directly with the statewide Surface Water Ambient Monitoring Program's (SWAMP's), long term goal of utilizing bioassessment to develop biocriteria for a variety of eco-regions and land-use dominated areas in California. Further bioassessment monitoring activities will not be required under this proposed Permit. If it is required in the future, the monitoring effort will be adapted in consultation with the SWAMP's bioassessment workgroup.

## G. Sediment Monitoring

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).<sup>46</sup> Nearly all creek sediments sampled caused toxicity to the resident aquatic amphipod *Hyalella 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).<sup>47</sup> 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

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<sup>46</sup> 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.

<sup>47</sup> 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.

in urban and residential areas. Monitoring of sediment quality 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.

## **VII. BMP Effectiveness Study**

The BMP Effectiveness Study is an integral part of the storm water monitoring program. It is necessary to document the effectiveness of treatment control BMPs so that each Permittee can make informed decisions on the use of BMPs.

### **Wet Detention Basin Monitoring**

The Permittees shall complete the Water Quality Detention Basin Effectiveness study initiated in the last permit term to assess the pollutant removal performance of a representative wet water quality detention basin. The study shall be designed to perform inflow and outflow monitoring to measure removal effectiveness, which is representative of typical conditions within the Sacramento urban watershed. The report shall include a recommendation for collecting inlet and outlet grab samples at two other detention basins. The two additional detention basins shall be located in watersheds outside the North Natomas area. The results will be submitted to the Regional Water Board in the 2012/2013 Annual Report.

If the detention basins are found to be ineffective, the study shall be updated to include recommendations on how to manage or design detention basins differently (i.e., redesign new basins, reconfigure existing basins, periodic dredging).

## **VIII. Program Effectiveness Assessment**

The proposed Permit requires the Permittees to provide an analysis of the effectiveness of their SQIP in their Annual Reports. The assessment will identify the direct and indirect measurements that the Permittees used to track the effectiveness of their programs as well as the outcome levels at which the assessment is occurring consistent with the proposed Permit. Direct and indirect measurements shall include, but not limited to, conformance with established Performance Standards, quantitative monitoring to assess the effectiveness of Program Elements, measurements or estimates of pollutant load reductions or increases from identified sources, raising awareness of the public, and/or detailed accounting/ documentation of SQIP accomplishments.

- a. The Permittees will be required to track the long-term progress of their SQIP towards achieving improvements in receiving water quality.
- b. The Permittees will be required to use the information gained from the program effectiveness assessment to improve their SQIPs and identify new

BMPs, or modification of existing BMPs. This information shall be reported within the Annual Reports consistent with this Permit.

Long Term Effectiveness Assessment (LTEA): Prior to the expiration of the Permit, the Permittees will collaborate to conduct a LTEA which will build on the results of the Annual Reports and the initial program effectiveness assessments. The LTEA will identify how the Permittees will conduct a more comprehensive effectiveness assessment of the storm water program as part of the SQIP. The assessment will evaluate the storm water program in terms of achieving both programmatic goals (raising awareness, changing behavior) and environmental goals (reducing pollutant discharges, improving environmental conditions).