California Regional Water Quality Control Board
San Francisco Bay Region
Municipal Regional Stormwater NPDES Permit

Revised Tentative Order R2-2009-XXXX
NPDES Permit No. CAS612008
February 11, 2009

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REVISED TENTATIVE ORDER R2-2009-XXXX
NPDES PERMIT NO. CAS612008

Issuing Waste Discharge Requirements and National Pollutant Discharge Elimination System (NPDES) Permit for the discharge of stormwater runoff from the municipal separate storm sewer systems (MS4s) of the following jurisdictions and entities, which are permitted under this San Francisco Bay Municipal Regional Stormwater Permit (MRP):

The cities of Alameda, Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Newark, Oakland, Piedmont, Pleasanton, San Leandro, and Union City, Alameda County, the Alameda County Flood Control and Water Conservation District, and Zone 7 of the Alameda County Flood Control and Water Conservation District, which have joined together to form the Alameda Countywide Clean Water Program (Alameda Permittees)

The cities of Clayton, Concord, El Cerrito, Hercules, Lafayette, Martinez, Orinda, Pinole, Pittsburg, Pleasant Hill, Richmond, San Pablo, San Ramon, and Walnut Creek, the towns of Danville and Moraga, Contra Costa County, the Contra Costa County Flood Control and Water Conservation District, which have joined together to form the Contra Costa Clean Water Program (Contra Costa Permittees)

The cities of Campbell, Cupertino, Los Altos, Milpitas, Monte Sereno, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga, and Sunnyvale, the towns of Los Altos Hills and Los Gatos, the Santa Clara Valley Water District, and Santa Clara County, which have joined together to form the Santa Clara Valley Urban Runoff Pollution Prevention Program (Santa Clara Permittees)

The cities of Belmont, Brisbane, Burlingame, Daly City, East Palo Alto, Foster City, Half Moon Bay, Menlo Park, Millbrae, Pacifica, Redwood City, San Bruno, San Carlos, San Mateo, and South San Francisco, the towns of Atherton, Colma, Hillsborough, Portola Valley, and Woodside, the San Mateo County Flood Control District, and San Mateo County, which have joined together to form the San Mateo Countywide Water Pollution Prevention Program (San Mateo Permittees)

The Fairfield-Suisun Sewer District and the cities of Fairfield and Suisun City, which have joined together to form the Fairfield-Suisun Urban Runoff Management Program (Fairfield-Suisun Permittees)

The City of Vallejo and the Vallejo Sanitation and Flood Control District (Vallejo Permittees)

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The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter referred to as the Water Board) finds that:

FINDINGS

Incorporation of Fact Sheet

1. The Fact Sheet for the San Francisco Bay Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit (Appendix I) includes cited regulatory and legal references and additional explanatory information in support of the requirements of this Permit.

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Existing Permits

2. **Alameda County—**The cities of Alameda, Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Newark, Oakland, Piedmont, Pleasanton, San Leandro, and Union City, Alameda County (Unincorporated area), the Alameda County Flood Control and Water Conservation District, and Zone 7 of the Alameda County Flood Control and Water Conservation District have joined together to form the Alameda Countywide Clean Water Program (hereinafter collectively referred to as the Alameda Permittees) and have submitted a permit application (Report of Waste Discharge), dated July 26, 2007, for reissuance of their waste discharge requirements under the NPDES permit to discharge stormwater runoff from storm drains and watercourses within the Alameda Permittees' jurisdictions. The Alameda Permittees are currently subject to NPDES Permit No. CAS0029831 issued by Order No. R2-2003-0021 on February 19, 2003, and amended by Order No. R2-2007-0025 on March 14, 2007, to the Alameda Permittees to discharge stormwater runoff from storm drains and watercourses within their jurisdictions.

3. **Contra Costa County—**The cities of Clayton, Concord, El Cerrito, Hercules, Lafayette, Martinez, Orinda, Pinole, Pittsburg, Pleasant Hill, Richmond, San Pablo, San Ramon, and Walnut Creek, the towns of Danville and Moraga, Contra Costa County, and the Contra Costa County Flood Control and Water Conservation District have joined together to form the Contra Costa Clean Water Program (hereinafter collectively referred to as the Contra Costa Permittees) and have submitted a permit application (Report of Waste Discharge), dated September 30, 2003, for reissuance of their waste discharge requirements under the NPDES permit to discharge stormwater runoff from storm drains and watercourses within the Contra Costa Permittees' jurisdictions. The Contra Costa Permittees are currently subject to NPDES Permit No. CAS0029912 issued by Order No. 99-058 on July 21, 1999, amended by Order No. R2-2003-0022 on February 9, 2003, amended by Order Nos. R2-2004-059 and R2-2004-0061 on July 21, 2004, and amended by Order No. R2-2006-0050 on July 12, 2006, to the Contra Costa Permittees to discharge stormwater runoff from storm drains and watercourses within their jurisdictions.

4. **San Mateo County—**The cities of Belmont, Brisbane, Burlingame, Daly City, East Palo Alto, Foster City, Half Moon Bay, Menlo Park, Millbrae, Pacifica, Redwood City, San Bruno, San Carlos, San Mateo, and South San Francisco, the towns of Atherton, Colma, Hillsborough, Portola Valley, and Woodside, the San Mateo County Flood Control District and San Mateo County have joined together to form the San Mateo Countywide Water Pollution Prevention Program (hereinafter collectively referred to as the San Mateo Permittees) and have submitted a permit application (Report of Waste Discharge), dated January 23, 2004, for reissuance of their

waste discharge requirements under the NPDES permit to discharge stormwater runoff from storm drains and watercourses within the San Mateo Permittees' jurisdictions. The San Mateo Permittees are currently subject to NPDES Permit No. CAS0029921 issued by Order No. 99-059 on July 21, 1999, amended by Order No. R2-2003-0023 on February 19, 2003, amended by Order Nos. R2-2004-0060 and R2-2004-0062 on July 21, 2004, and amended by Order R2-2007-0027 on March 14, 2007, to the San Mateo Permittees to discharge stormwater runoff from storm drains and watercourses within their jurisdictions.

5. **Santa Clara County—**The cities of Campbell, Cupertino, Los Altos, Milpitas, Monte Sereno, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga, and Sunnyvale, the towns of Los Altos Hills and Los Gatos, the Santa Clara Valley Water District, and the County of Santa Clara have joined together to form the Santa Clara Valley Urban Runoff Pollution Prevention Program (hereinafter collectively referred to as the Santa Clara Permittees) and have submitted a permit application (Report of Waste Discharge), dated February 25, 2005, for reissuance of their waste discharge requirements under the NPDES permit to discharge stormwater runoff from storm drains and watercourses within the Santa Clara Permittees' jurisdictions. The Santa Clara Permittees are currently subject to NPDES Permit No. CAS029718 issued by Order No. 01-024 on April 21, 2001, amended by Order No. 01-119 on October 17, 2001, and Order No. R2-2005-0035 on July 20, 2005, to the Santa Clara Permittees to discharge stormwater runoff from storm drains and watercourses within their jurisdictions.

6. **Fairfield-Suisun—**The cities of Fairfield and Suisun City and the Fairfield-Suisun Sewer District have joined together to form the Fairfield-Suisun Urban Runoff Management Program (hereinafter referred to as the Fairfield-Suisun Permittees) and have submitted a permit application (Report of Waste Discharge), dated October 17, 2007, for reissuance of their waste discharge requirements under the NPDES permit to discharge stormwater runoff from storm drains and watercourses within the Fairfield-Suisun Permittees' jurisdictions. The Fairfield-Suisun Permittees are currently subject to NPDES Permit No. CAS0612005 issued by Order No. R2-2003-0034 on April 16, 2003, and amended by Order R2-2007-0026 on March 14, 2007, to the Fairfield-Suisun Permittees to discharge stormwater runoff from storm drains and watercourses within their jurisdictions.

7. **Vallejo—**The City of Vallejo and the Vallejo Sanitary District (hereinafter referred to as the Vallejo Permittees) are currently subject to NPDES Permit No. CAS612006 issued by United States Environmental Protection Agency (USEPA) on April 27, 1999, and that became effective on May 30, 1999 for the discharge of stormwater runoff from storm drains and watercourses within the Vallejo Permittees' jurisdictions.

8. The Alameda, Contra Costa, San Mateo, Santa Clara, Fairfield-Suisun, and Vallejo Permittees are hereinafter referred to in this Order as Permittees.

Applicable Federal, State and Regional Regulations

9. Section 402(p) of the federal Clean Water Act (CWA), as amended by the Water Quality Act of 1987, requires NPDES permits for stormwater discharges from municipal separate storm sewer systems (MS4s), stormwater discharges associated with industrial activity (including construction activities), and designated stormwater discharges, which are considered significant contributors of pollutants to waters of the United States. On November 16, 1990, USEPA published regulations (40 CFR Part 122), which prescribe permit application requirements for MS4s pursuant to CWA 402(p). On May 17, 1996, USEPA published an Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems,

which provided guidance on permit application requirements for regulated MS4s. The Permittees have submitted timely reapplications for MS4 NPDES permit coverage consistent with USEPA's Interpretive Policy and which have been deemed complete.

10. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Water Board and approved by the State Water Resources Control Board (State Board), Office of Administrative Law and the USEPA, where required.

11. The Water Board finds stormwater discharges from urban and developing areas in the San Francisco Bay Region to be significant sources of certain pollutants that cause or may be causing or threatening to cause or contribute to water quality impairment in waters of the Region. Furthermore, as delineated in the CWA section 303(d) list, the Water Board has found that there is a reasonable potential that municipal stormwater discharges cause or may cause or contribute to an excursion above water quality standards for the following pollutants: mercury, PCBs, furans, dieldrin, chlordane, DDT, and selenium in San Francisco Bay segments; pesticide associated toxicity in all urban creeks; and trash and low dissolved oxygen in Lake Merritt, in Alameda County. In accordance with CWA section 303(d), the Water Board is required to establish TMDLs for these pollutants to these waters to gradually eliminate impairment and attain water quality standards. Therefore, certain early pollutant control actions and further pollutant impact assessments by the Permittees are warranted and required pursuant to this Order.

12. The San Francisco Estuary Project, established pursuant to CWA Section 320, culminated in June 1993 with completion of its Comprehensive Conservation and Management Plan (CCMP) for the preservation, restoration, and enhancement of the San Francisco Bay-Delta Estuary. The 2007 update of the CCMP includes new and revised actions, while retaining many of the original plan's actions. The CCMP includes recommended actions in the areas of aquatic resources, wildlife, wetlands, water use, pollution prevention and reduction, dredging and waterway modification, land use, public involvement and education, and research and monitoring. Recommended actions which may, in part, be addressed through implementation of this Permit include, but are not limited to, the following:

    (1) ACTION AR-9.1 (New 2007)
    Improve understanding of sources, types, and impacts of marine debris in the Estuary.

    (5) ACTION AR-9.2 (New 2007)
    Expand existing marine debris prevention and cleanup programs and develop new initiatives to reduce discharge of debris to waterways.

    (10) ACTION PO-1.2 (Revised 2007)
    Recommend institutional and financial changes needed to place more focus on pollution prevention.

    (12) ACTION PO-1.6 (Revised 2007)
    Implement a comprehensive strategy to reduce pesticides coming into the Estuary.

    (13) ACTION PO-1.7.1 (New 2007)
    Develop product stewardship program for new commercial products to minimize future pollutant releases.

(14) ACTION PO-1.8 (New 2007)
Develop and implement programs to prevent pollution of the Estuary by other harmful pollutants like trash, bacteria, sediments, and nutrients.

(15) ACTION PO-2.1 (Revised 2007)
Pursue a mass emissions strategy to reduce pollutant discharges into the Estuary from point and nonpoint sources and to address the accumulation of pollutants in estuarine organisms and sediments.

(16) ACTION PO-2.4 (Revised 2007)
Improve the management and control of urban runoff from public and private sources.

(18) ACTION PO-3.3 (New 2007)
Accomplish large-scale improvements to Bay-Delta area infrastructure and implement pollution prevention strategies to prevent pollution threats to public health and wildlife.

(19) ACTION PO-4.1 (New 2007)
Increase regulatory incentives for municipalities, through urban runoff and other programs, to invest in projects that restore or enhance stream and wetland functions.

(20) ACTION LU-1.1 (Revised 2007)
Local land use jurisdiction's General Plans should incorporate watershed protection goals for wetlands and stream environments and to reduce pollutants in runoff.

(21) ACTION LU-1.1.1 (New 2007): Provide assistance to local agencies to ensure that applicable nonpoint source control elements are incorporated into local government and business practices.

(22) ACTION LU-1.5 (LU-3.2 in 1993 CCMP; Revised 2007)
Provide incentives and promote the use of building, planning, and maintenance guidelines for site planning and implementation of best management practices (BMPs) as related to stormwater and encourage local jurisdictions to adopt these guidelines as local ordinances.

(23) ACTION LU-1.6 (New 2007)
Continue and enhance training and certification for planners, public works departments, consultants, and builders on sustainable design and building practices with the goal of preventing or minimizing alteration of watershed functions (e.g., flood water conveyance, groundwater infiltration, stream channel and floodplain maintenance), and preventing construction-related erosion and post-construction pollution.

(24) ACTION LU-2.7 (New 2007)
Adopt and implement policies and plans that protect and restore water quality, flood water storage, and other natural functions of stream and wetland systems.

(25) ACTION LU-3.1 (New 2007)
Promote, encourage, and support collaborative partnerships with broad stakeholder representation, such as watershed councils, in order to develop diverse community-based approaches to long-term stewardship.

(26) ACTION LU-4.1 (Revised 2007)
Educate the public about how human actions impact the Estuary and its watersheds.

(28) ACTION PI-2.5 (Revised 2007)
Assist in the development of long-term educational programs designed to prevent pollution to the Estuary's ecosystem and provide assistance to other programs as needed.

13. Under section 13389 of the California Water Code, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA).

Nature of Discharges and Sources of Pollutants

14. Stormwater runoff is generated from various land uses in all the hydrologic sub basins in the Basin and discharges into watercourses, which in turn flow into Central, Lower and South San Francisco Bay.

15. The quality and quantity of runoff discharges vary considerably and are affected by hydrology, geology, land use, season, and sequence and duration of hydrologic events. Pollutants of concern in these discharges are certain heavy metals; excessive sediment production from erosion due to anthropogenic activities; petroleum hydrocarbons from sources such as used motor oil; microbial pathogens of domestic sewage origin from illicit discharges; certain pesticides associated with acute aquatic toxicity; excessive nutrient loads, which can cause or contribute to the depletion of dissolved oxygen and/or toxic concentrations of dissolved ammonia; trash, which impairs beneficial uses including, but not limited to, support for aquatic life; and other pollutants which can cause aquatic toxicity in the receiving waters.

16. Certain pollutants present in stormwater and/or urban runoff can be derived from extraneous sources over which the Permittees have limited or no direct jurisdiction. Examples of such pollutants and their respective sources are polycyclic aromatic hydrocarbons (PAHs), which are products of internal combustion engine operation and other sources; heavy metals, such as copper from vehicle brake pad wear and zinc from vehicle tire wear; dioxins as products of combustion; polybrominated diphenyl ethers that are incorporated in many household products as flame retardants; mercury resulting from atmospheric deposition; and naturally occurring minerals from local geology. All these pollutants, and others, can be deposited on paved surfaces, rooftops, and other impervious surfaces as fine airborne particles—thus yielding stormwater runoff pollution that is unrelated to the activity associated with a given project site.

17. The Water Board will notify interested agencies and interested persons of the availability of reports, plans, and schedules, including Annual Reports, and will provide interested persons with an opportunity for a public hearing and/or an opportunity to submit their written views and recommendations. The Water Board will consider all comments and may modify the reports, plans, or schedules or may modify this Order in accordance with applicable law. All submittals required by this Order conditioned with acceptance by the Water Board will be subject to these notification, comment, and public hearing procedures.

18. This Order supersedes and rescinds Order Nos. 99-058, 99-059, 01-024, R2-2003-0021, R2-2003-0034, and supersedes NPDES Permit Nos. CAS0029831, CAS0029912, CAS0029921, CAS029718, CAS0612005, and CAS612006.

    This Order serves as a NPDES permit, pursuant to CWA section 402, or amendments thereto, and shall become effective July 1, 2009, provided the Regional Administrator, USEPA, Region 9, has no objections.

IT IS HEREBY ORDERED that the Permittees, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder and the provisions of the Clean Water Act as amended and regulations and guidelines adopted hereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

A.1. The Permittees shall, within their respective jurisdictions, effectively prohibit the discharge of non-stormwater (materials other than stormwater) into, storm drain systems and watercourses. NPDES-permitted discharges are exempt from this prohibition. Provision C.14 describes a tiered categorization of non-stormwater discharges based on potential for pollutant content that may be discharged upon adequate assurance that the discharge contains no pollutants of concern at concentrations that will impact beneficial uses or cause exceedances of water quality standards.

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A.2. It shall be prohibited to discharge rubbish, refuse, bark, sawdust, or other solid wastes into surface waters or at any place where they would contact or where they would be eventually transported to surface waters, including flood plain areas.

B. RECEIVING WATER LIMITATIONS

B.1. The discharge shall not cause the following conditions to create a condition of nuisance or to adversely affect beneficial uses of waters of the State:

- **a.** Floating, suspended, or deposited macroscopic particulate matter, or foam;
- **b.** Bottom deposits or aquatic growths;
- **c.** Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
- **d.** Visible, floating, suspended, or deposited oil or other products of petroleum origin; and
- **e.** Substances present in concentrations or quantities that would cause deleterious effects on aquatic biota, wildlife, or waterfowl, or that render any of these unfit for human consumption.

B.2. The discharge shall not cause or contribute to a violation of any applicable water quality standard for receiving waters. If applicable water quality objectives are adopted and approved by the State Board after the date of the adoption of this Order, the Water Board may revise and modify this Order as appropriate.

C. PROVISIONS

C.1. Compliance with Discharge Prohibitions and Receiving Water Limitations

The Permittees shall comply with Discharge Prohibitions A.1 and A.2 and Receiving Water Limitations B.1 and B.2 through the timely implementation of control measures and other actions as specified in Provisions C.2 through C.15.

If exceedance(s) of water quality standards or water quality objectives (collectively, WQSs) persist in receiving waters, Permittees shall comply with the following procedure:

C.1.a. Upon a determination by either the Permittee(s) or the Water Board that discharges are causing or contributing to an exceedance of an applicable WQS, except for exceedances of WQS for pesticides, trash, mercury, polychlorinated biphenols, copper, polybrominated diphenyl ethers, and selenium (which are to be addressed pursuant to Provisions C.8 through C.13 of this Order), the Permittee(s) shall notify, within no more than 30 days, and thereafter, submit a report to the Water Board that describes BMPs that are currently being implemented and the current level of implementation and additional BMPs that will be implemented, and/or an increased level of implementation, to prevent or reduce discharge of pollutants that are causing or contributing to the exceedance of WQSs. The report may be submitted in conjunction with the Annual Report, unless the Water Board directs an earlier submittal, and shall constitute a request to the Water Board for amendment of this NPDES Permit. The report and application for amendment shall include an implementation schedule. The Water Board may require modifications to the report and application for amendment; and

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C.1.b. Submit any modifications to the report required by the Water Board within 30 days of notification.

As long as Permittees have complied with the procedures set forth above, they do not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the Water Board to develop additional control measures and BMPs and reinitiate the Permit amendment process.

C.2. Municipal Operations

The purpose of this provision is to ensure development and implementation of appropriate best management practices (BMPs) by all Permittees to control and reduce non-stormwater discharges and polluted stormwater to storm drains and watercourses during operation, inspection, and routine repair and maintenance activities of municipal facilities and infrastructure.

C.2.a. Street and Road Repair and Maintenance

i. Task Description – Asphalt/Concrete Removal, Cutting, Installation and Repair Permittees shall develop and implement appropriate BMPs at street and road repair and/or maintenance sites to control debris and waste materials during road and parking lot installation, repaving or repair maintenance activities, as described in the California Stormwater Quality Association's Handbook for Municipal Operations.

ii. Implementation Levels

(1) Permittees shall require proper management of concrete slurry and wastewater, asphalt, pavement cutting, and other street and road maintenance materials and wastewater to avoid discharge to storm drains from such work sites. Permittees shall coordinate with sanitary sewer agencies to determine if disposal to the sanitary sewer system is available for the wastewater generated from these activities provided that appropriate approvals and pretreatment standards are met.

(2) Permittees shall require sweeping and/or vacuuming to remove debris, concrete, or sediment residues from such work sites upon completion of work. Permittees shall require clean up of all construction remains, spills and leaks using dry methods (e.g., absorbent materials, rags, pads, and vacuum), as described in the Bay Area Stormwater Management Agency Association's (BASMAA's) Blueprint for a Clean Bay.

iii. Reporting – Permittees shall report on implementation of and compliance with these BMPs in the Annual Report

C.2.b. Sidewalk/Plaza Maintenance and Pavement Washing

i. Task Description – Permittees shall implement, and require to be implemented, BMPs for pavement washing, mobile cleaning, pressure wash operations in such locations as parking lots and garages, trash areas, gas station fueling areas, and sidewalk and plaza cleaning, which prohibit the discharge of polluted wash water and non-stormwater to storm drains. Permittees shall implement the BMPs included in BASMAA's Mobile Surface Cleaner Program. Permittees shall coordinate with sanitary sewer agencies to determine if disposal to the sanitary sewer is available for the wastewater generated from these activities provided that appropriate approvals and pretreatment standards are met.

ii. Reporting – Permittees shall report on implementation of and compliance with these BMPs in the Annual Report.

C.2.c. Bridge and Structure Maintenance and Graffiti Removal

i. Task Description

(1) Permittees shall implement appropriate BMPs to prevent polluted stormwater and non-stormwater discharge from bridges and structural maintenance activities directly over water or into storm drains.

(2) Permittees shall implement BMPs for graffiti removal that prevent non-stormwater and wash water discharge into storm drains.

ii. Implementation Levels

(1) Permittees shall prevent all debris, including structural materials and coating debris, such as paint chips, or other debris and pollutants generated in bridge and structure maintenance or graffiti removal from entering storm drains or water courses.

(2) Permittees shall protect nearby storm drain inlets before removing graffiti from walls, signs, sidewalks or other structures. Permittees shall prevent any discharge of debris, cleaning compound waste, paint waste or wash water due to graffiti removal from entering storm drains or watercourses.

(3) Permittees shall determine the proper disposal method for wastes generated from these activities. Permittees shall train their employees and/or specify in contracts about these proper capture and disposal methods for the wastes generated.

iii. Reporting – Permittees shall report on implementation of and compliance with these BMPs in the Annual Report.

C.2.d. Stormwater Pump Stations

The objective of this sub-provision is to prevent the discharge of water with low dissolved oxygen (DO) from pump stations to receiving waters, and to explore the use of pump stations for trash capture and removal from waters to protect beneficial uses of receiving waters.

i. Task Description – Operation and Maintenance of Stormwater Pump Stations – Permittees shall develop and implement measures to operate, inspect, and maintain these facilities to eliminate non-stormwater discharges containing pollutants, and to reduce pollutant loads in the stormwater discharges to comply with water quality standards.

ii. Implementation Levels – Permittees shall comply with the following implementation measures to reduce polluted water discharges from Permittee-owned or operated pump stations:

(1) Establish an inventory of pump stations within each Permittee's jurisdiction, including locations, key characteristics, and inspection frequencies, by November 1, 2009.

(2) Inspect and collect DO data from all pump stations twice a year during the dry season between the months of July and October in 2010. In

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subsequent years, inspect and collect DO data from pump stations previously identified as potentially problematic per step (3) below.

(3) If DO levels are at or below an action level of 3 milligrams per liter (3 mg/L), apply corrective actions. Verify corrective actions are effective by increasing DO monitoring interval to weekly until two weekly samples are above 3 mg/L.

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(4) Inspect potentially problematic pump stations identified in step (3) above as soon as feasible after 1/2-inch within 24 hour and larger storm events. Such post-storm inspection and monitoring shall focus on trash and discharge impacts, including presence of odor, color, turbidity, debris, trash, and floating hydrocarbons. Remove debris and trash and replace oil absorbent booms, as needed.

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iii. Reporting – Permittees shall report information resulting from C.2.d.ii.(1)-(4), including DO monitoring data and subsequent corrective actions taken to address the 3 mg/L action level, in the Annual Report, and maintain records of inspection and maintenance activities and volume or mass of waste materials removed from pump stations.

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C.2.e. Rural Public Works Construction and Maintenance

i. Task Description – Rural Road and Public Works Construction and Maintenance - For the purpose of this provision, rural means any watershed or portion thereof that is developed with large lot home-sites, such as one acre or larger, or with primarily agricultural, grazing or open space uses. Permittees shall implement and require contractors to implement BMPs for erosion and sedimentation control measures during and post-construction for maintenance activities on rural roads, particularly in or adjacent to stream channels or wetlands. Permittees shall notify Water Board, the California Department of Fish and Game and the U.S. Army Corps of Engineers, where applicable, and obtain appropriate agency permits for rural public works activities before work in or near creeks and wetlands.

ii. Implementation Level

(1) Permittees shall develop, where they do not already exist, and implement BMPs for erosion and sediment control measures during construction, and maintenance activities on rural roads including appropriate training and technical assistance resources for rural public works activities by April 1, 2010. Also, Permittees shall require post-construction treatment measures to treat runoff from the new impervious surface area where new impervious surface over 10,000 square feet is created as part of a rural public works or road project, consistent with Provision C.3 requirements of this Order.

(2) Permittees shall develop and implement appropriate management practices for the following activities, which minimize impacts on streams and wetlands in the course of rural road and public works maintenance and construction activities:

(a) Road design, construction, maintenance, and repairs in rural areas that prevent and control road-related erosion and sediment transport;

(b) Identification and prioritization of rural road maintenance on the basis of soil erosion potential, slope steepness, and stream habitat resources;

(c) Road and culvert construction designs that do not impact creek functions. New or replaced culverts shall not create a migratory fish passage barrier, where migratory fish are present, or lead to stream instability;

(d) Development and implementation of an inspection program to maintain roads' structural integrity and prevent impacts on water quality.

(e) Maintenance of rural roads adjacent to streams and riparian habitat to reduce erosion, replace damaging shotgun culverts, re-grade roads to slope outward where consistent with road engineering safety standards, and install water bars; and

(f) Construction plans for replacement of existing culverts or design of new culverts or bridge crossings shall include measures to reduce erosion, provide fish passage and maintain natural stream geomorphology in a stable manner.

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(3) Permittees shall develop or incorporate existing training and guidance on permitting requirements for rural public works activities so as to stress the importance of proper planning and construction to avoid water quality impacts.

(4) Permittees shall provide training incorporating these to rural public works maintenance staff at least twice within the Permit term.

iii. Reporting – Permittees shall report on implementation of and compliance with BMPs for the rural public works construction and maintenance activities in the Annual Report, including reporting on increased maintenance in priority areas.

C.2.f. Corporation Yard BMP Implementation

i. Task Description – Corporation Yard Maintenance

(1) Permittees shall prepare, implement, and maintain a site specific Stormwater Pollution Prevention Plan (SWPPP) for corporation yards, including municipal vehicle maintenance, heavy equipment and maintenance vehicle parking areas, and material storage facilities to comply with water quality standards. Each SWPPP shall incorporate appropriate BMPs such as those described in the Caltrans Storm Water Quality Handbook Maintenance Staff Guide, May 2003, and its addenda.

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(2) The requirements in this provision shall apply only to facilities that are not already covered under the State Board's Industrial Stormwater NPDES General Permit.

ii. Implementation Level

(1) Implement BMPs to minimize pollutant discharges in stormwater and prohibit polluted non-stormwater discharges, such as wash waters and street sweeper, vactor, and other related equipment cleaning wash water. Pollution control actions shall include, but not be limited to, good housekeeping practices, material and waste storage control, and vehicle leak and spill control.

(2) Routinely inspect corporation yards to ensure that no polluted non-stormwater discharges are entering the storm drain system and, during storms, polluted stormwater discharges are prevented to the maximum extent practicable. At a minimum, an inspection shall occur before the start of the rainy season.

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(3) Unless treated to reduce pollutant content to levels that do not threaten water quality standards, plumb all vehicle and equipment wash areas to the sanitary sewer after coordination with the local sanitary sewer agency and equip with a pretreatment device (if necessary) in accordance with the requirements of the local sanitary sewer agency.

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(4) Use dry cleanup methods when cleaning debris and spills from corporation yards. If wet cleaning methods must be used (e.g., pressure washing), Permittees shall ensure that wash-water is collected and disposed in the sanitary sewer in accordance with the requirements of the local sanitary sewer agency. Any private companies hired by the Permittee to perform cleaning activities on Permittee-owned property shall follow the same requirements.

(5) Outdoor storage areas containing waste pollutants shall be covered and/or bermed to prevent pollution of stormwater runoff or run-on to storm drain inlets.

iii. Reporting – Permittees shall report on implementation of SWPPPs, the results of inspections, and any follow-up actions in the Annual Report.

C.3. New Development and Redevelopment

The goal of Provision C.3. is for Permittees to use their planning authority to include appropriate source control, site design, and stormwater treatment measures to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. This goal is to be accomplished primarily through the implementation of low impact development (LID) techniques.

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C.3.a. New Development and Redevelopment Performance Standard Implementation

i. Task Description – At a minimum each Permittee shall:

(1) Have adequate legal authority to implement all requirements of Provision C.3.;

(2) Have adequate development review and permitting procedures to impose conditions of approval or other enforceable mechanisms to implement the requirements of Provision C.3. For projects discharging directly to 303(d) listed waterbodies, conditions of approval must require that post-project runoff not exceed pre-project levels for such pollutants that are listed;

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(3) Evaluate potential water quality effects and identify appropriate mitigation measures when conducting environmental reviews, such as under CEQA;

(4) Provide training adequate to implement the requirements of Provision C.3. for staff, including interdepartmental training;

(5) Provide outreach adequate to implement the requirements of Provision C.3., including providing education materials to municipal staff, developers, contractors, construction site operators, and owner/builders, early in the planning process and as appropriate;

(6) For all new development and redevelopment projects that are subject to the Permittees' planning, building, development, or other comparable review, but not regulated by Provision C.3., encourage the inclusion of adequate site design measures that may include minimizing land disturbance and impervious surfaces (especially parking lots); clustering of structures and pavement; directing roof runoff to vegetated areas; use of micro-detention, including distributed landscape based detention; preservation of open space; protection and/or restoration of riparian areas and wetlands as project amenities;

(7) For all new development and redevelopment projects that are subject to the Permittees' planning, building, development, or other comparable review, but not regulated by Provision C.3., encourage the inclusion of adequate source control measures to limit pollutant generation, discharge, and runoff. These source control measures should include:

- Storm drain stenciling.
- Landscaping that minimizes irrigation and runoff, promotes surface infiltration where possible, and minimizes the use of pesticides and fertilizers.

- Appropriate covers, drains, and storage precautions for outdoor material storage areas, loading docks, repair/maintenance bays, and fueling areas.
- Covered trash, food waste and compactor enclosures.
- Plumbing of the following discharges to the sanitary sewer, subject to the local sanitary sewer agency's authority and standards:
  - Discharges from indoor floor mat/equipment/hood filter wash racks or covered outdoor wash racks for restaurants.
  - Dumpster drips from covered trash and food compactor enclosures.
  - Discharges from outdoor covered wash areas for vehicles, equipment, and accessories.
  - Swimming pool water, if discharge to onsite vegetated areas is not a feasible option.
  - Fire sprinkler test water if discharge to onsite vegetated areas is not a feasible option.

(8) Revise, as necessary, General Plans to integrate water quality and watershed protection with water supply, flood control, habitat protection, groundwater recharge, and other sustainable development principles and policies.

ii. Implementation Level –The elements of this task should already be fully implemented because they are required in the Permittees' existing stormwater permits.

Due Dates for Full Implementation – As soon as possible but no later than July 1, 2010.

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iii. Reporting – Provide a brief summary of the method(s) of implementation of Provisions C.3.a.i.(1)–(8) in the 2011 Annual Report.

C.3.b. Regulated Projects

i. Task Description – Permittees shall require all projects fitting the category descriptions listed in Provision C.3.b.ii. below (hereinafter called Regulated Projects) to implement Low Impact Development (LID) management techniques (per Provision C.3.c) and design and install stormwater treatment systems that will reduce the discharge of pollutants in stormwater runoff from Regulated Projects to the maximum extent practicable. Permittees shall require Regulated Projects to install stormwater treatment systems (sized in accordance with Provision C.3.d.) onsite or at a joint stormwater treatment facility,[1] unless the Provision C.3.e. alternate compliance option is evoked. For adjacent Regulated Projects that will discharge runoff to a joint stormwater treatment facility, the treatment facility must be completed by the end of construction of the first Regulated Project that will be discharging runoff to the joint stormwater treatment facility. Regulated Projects, as they are defined in this Provision, do

[1] **Joint stormwater treatment facility** – Stormwater treatment facility built to treat the combined runoff from two or more Regulated Projects located adjacent to each other,

not include detached single-family home projects that are not part of a larger plan of development.

ii. Regulated Projects are defined in the following categories:

(1) **Special Land Use Categories**

(a) **New Development or redevelopment projects** that fall into one of the categories listed below and that create and/or replace 10,000 square feet or more of impervious surface (collectively over the entire project site). This category includes development projects of the following four types on public or private land, which fall under the planning and building authority of the Permittees:

(i) Auto service facilities, described by the following Standard Industrial Classification (SIC) Codes: 5013, 5014, 5541, 7532-7534, and 7536-7539;

(ii) Retail gasoline outlets;

(iii) Restaurants (SIC Code 5812); or

(iv) Uncovered parking lots that are stand-alone or part of any other development project. This category includes the top uncovered portion of parking structures unless drainage from the uncovered portion is connected to the sanitary sewer along with the covered portions of the parking structure.

(b) For redevelopment projects in the categories specified in C.3.b.ii.(1)(a)(i)-(iv), specific exclusions to this category are:

(i) Interior remodels;

(ii) Routine maintenance or repair such as:

- roof or exterior wall surface replacement,
- pavement resurfacing within the existing footprint.

(c) Where a redevelopment project in the categories specified in C.3.b.ii.(1)(a)(i)-(iv) results in an alteration of **more than 50 percent** of the impervious surface of a previously existing development that was not subject to Provision C.3, the entire project, consisting of all existing, new, and/or replaced impervious surfaces, must be included in the treatment system design (i.e., stormwater treatment systems must be designed and sized to treat stormwater runoff from the entire redevelopment project).

(d) Where a redevelopment project in the categories specified in C.3.b.ii.(1)(a)(i)-(iv) results in an alteration of **less than 50 percent** of the impervious surface of a previously existing development that was not subject to Provision C.3, only the new and/or replaced impervious surface of the project must be included in the treatment system design (i.e., stormwater treatment systems must be designed and sized to treat stormwater runoff from the new and/or replaced impervious surface of the project).

Effective Date – Immediate except July 1, 2010, for Vallejo Permittees.

Beginning July 1, 2011, all references to 10,000 square feet in Provision C.3.b.i.(1) change to 5,000 square feet. For development projects in this category that have received final, major, staff-level discretionary review and approval[2] for adherence to applicable California land use and planning laws and regulations, before July 1, 2011, the lower 5000 square feet impervious surface threshold (for classification as a Regulated Project) shall not apply. Final, major, staff-level discretionary review and approvals are decisions by a public agency's or governmental body's staff that require the exercise of judgment or deliberation to approve or disapprove a particular development project, as distinguished from a determination that a development project has a complete application. For public projects for which funding has been committed and construction is scheduled to begin by July 1, 2012, the lower 5000 square feet of impervious surface threshold (for classification as a Regulated Project) shall not apply.

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(2) **Other Development Projects**

New development projects that create 10,000 square feet or more of impervious surface (collectively over the entire project site) including commercial, industrial, residential housing subdivisions (i.e., detached single-family home subdivisions, multi-family attached subdivisions (town homes), condominiums, and apartments), mixed-use, and public projects. This category includes development projects on public or private land, which fall under the planning and building authority of the Permittees.

Effective Date – Immediate except July 1, 2010, for Vallejo Permittees.

(3) **Other Redevelopment Projects**

Redevelopment projects that create and/or replace 10,000 square feet or more of impervious surface (collectively over the entire project site) including commercial, industrial, residential housing subdivisions (i.e., detached single-family home subdivisions, multi-family attached subdivisions (town homes), condominiums, and apartments), mixed-use, and public projects. Redevelopment is any land-disturbing activity that results in the creation, addition, or replacement of exterior impervious surface area on a site on which some past development has occurred. This category includes redevelopment projects on public or private land, which fall under the planning and building authority of the Permittees.

Specific exclusions to this category are:

- Interior remodels.
- Routine maintenance or repair such as:

[2] **Final, major, staff-level discretionary review** and approval include technical and/or engineering review and approval and may be referred to under different names depending on the Permittee and type of project, including the following: design, development permit, discretionary permit, parcel map, tentative map, and tract map review and approval.

- roof or exterior wall surface replacement.
- pavement resurfacing within the existing footprint.

(a) Where a redevelopment project results in an alteration of **more than 50 percent** of the impervious surface of a previously existing development that was not subject to Provision C.3, the entire project, consisting of all existing, new, and/or replaced impervious surfaces, must be included in the treatment system design (i.e., stormwater treatment systems must be designed and sized to treat stormwater runoff from the entire redevelopment project).

(b) Where a redevelopment results in an alteration **of less than 50 percent** of the impervious surface of a previously existing development that was not subject to Provision C.3, only the new and/or replaced impervious surface of the project must be included in the treatment system design (i.e., stormwater treatment systems must be designed and sized to treat stormwater runoff from the new and/or replaced impervious surface of the project).

Effective Date – Immediate except July 1, 2010, for Vallejo Permittees.

(4) **New Road Projects**

Any of the following that create 10,000 square feet or more of newly constructed contiguous impervious surface and that fall under the building and planning authority of the Permittees:

(a) Construction of new streets or roads, including sidewalks and bicycle lanes built as part of the new streets or roads;

(b) Widening of existing streets or roads with additional traffic lanes or sidewalks; and

(c) Construction of impervious trails that are greater than 10 feet wide or are creek-side (within 50 feet of the top of bank).

Specific exclusions to this category are:

- Sidewalks added to existing streets or roads and built to direct stormwater runoff to adjacent vegetated areas.Bike lanes
- Impervious trails built to direct stormwater runoff to adjacent vegetated areas, or other non-erodible permeable areas, preferably away from creeks or towards the outboard side of levees.
- Sidewalks or trails constructed with permeable surfaces.[3]
- Caltrans road projects.

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Effective Date – Immediate except July 1, 2010, for Vallejo Permittees. For new road projects for which funding has been committed and construction is scheduled to begin by July 1, 2012, the 10,000 square foot of impervious surface threshold shall not apply.

iii. Green Streets Pilot Projects

[3] **Permeable surfaces** include pervious concrete, porous asphalt, unit pavers, and granular materials.

Permittees shall cumulatively endeavor to secure funding for 10 pilot green streets projects that incorporate LID techniques for site design and treatment in accordance with Provision C.3.c. Upon receipt of such funding, Permittees shall construct the 10 pilot green streets projects in such a manner that they:

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(1) Are representative of the various types of streets: arterial, collector, and local; or parking lots; and

(2) Contain the following key elements:

(a) Stormwater storage for landscaping reuse or stormwater treatment and/or infiltration for groundwater replenishment through the use of natural feature systems;

(b) Creation of attractive streetscapes that enhance neighborhood livability by enhancing the pedestrian environment and introducing park-like elements into neighborhoods;

(c) Service as an urban greenway segment that connects neighborhoods, parks, recreation facilities, schools, mainstreets, and wildlife habitats;

(d) Parking management that includes maximum parking space requirements as opposed to minimum parking space requirements, parking requirement credits for subsidized transit or shuttle service, parking structures, shared parking, car sharing, or on-street diagonal parking; and

(e) Meets broader community goals by providing pedestrian and, where appropriate, bicycle access.

Permittees shall conduct appropriate monitoring of these projects to document the water quality benefits achieved. Permittees may utilize Redevelopment Projects for purposes of the green street pilot projects.

Due Date – All pilot green streets projects shall be completed by July 1, 2014.

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iv. Implementation Level – All elements of Provision C.3.b.i.-iii. shall be fully implemented by the effective dates set forth in this Permit, and a database or equivalent tabular format shall be developed and maintained that contains all the information listed under Reporting (Provision C.3.b.v.). Where appropriate documentation exists, Permittees may count for purposes of implementation green street projects constructed within their jurisdictions since Febuary 1, 2003.

Due Dates for Full Implementation – See specific Effective Dates listed under Provisions C.3.b.ii.& iii. .The database or equivalent tabular format required by Provision C.3.b.iv. shall be developed by July 1, 2010. (For Vallejo Permittees: July 1, 2011)

v. Reporting

(1) **Annual Reporting – C.3.b.ii. Regulated Projects**

For each Regulated Project approved during the fiscal year reporting period, the following information shall be reported electronically in the fiscal year Annual Report, in tabular form (as set forth in the attached Provision C.3.b. Sample Reporting Table):

(a) Project Name, Number, Location (cross streets), and Street Address;

(b) Name of Developer, Phase No. (if project is being constructed in phases, each phase should have a separate entry), Project Type (e.g., commercial, industrial, multiunit residential, mixed-use, public), and description;

(c) Project watershed;

(d) Total project site area and total area of land disturbed;

(e) Total new impervious surface area and/or total replaced impervious surface area;

(f) If redevelopment project, total pre-project impervious surface area and total post-project impervious surface area;

(g) Status of Project (e.g., application date, application deemed complete date, project approval date);

(h) Source control measures;

(i) Site design measures;

(j) All post-construction stormwater treatment systems installed onsite and/or at a joint stormwater treatment facility; if alternate compliance refer to field (m);

(k) Operation & maintenance responsibility mechanism for the life of the project.

(l) Hydraulic Sizing Criteria used;

(m) Alternative compliance measures for Regulated Project (if applicable)

(i) If alternative compliance will be provided by Equivalent Offsite Treatment (see Provision C.3.e.i.(2)(a)), include information required in Provision C.3.b.v.(a) – (i), (k), and (l) for the offsite project; and

(ii) If alternative compliance will be provided at a Regional Project (see Provision C.3.e.i.(2)(b)), provide information required in Provision C.3.b.v.(a), (c) – (i), (k), and (l) for the Regional Project. Additionally, provide a summary of the Regional Project's goals, duration, estimated completion date, total estimated cost of the Regional Project, and estimated monetary contribution (see Equivalent Funds in Provision C.3.e.i.(2)) from the Regulated Project to the Regional Project.

(n) Hydromodification (HM) Controls (see Provision C.3.g.) – If not required, state why not. If required, state control method used; and

(2) **Pilot Green Streets Project Reporting - Provision C.3.b.iii.**

On an annual basis, the Permittees shall report on the status of the pilot green streets projects. For each completed project, Permittees shall report the capital costs, operation and maintenance costs, and legal and procedural arrangements in place to address operation and maintenance and its associated costs.

C.3.c. Low Impact Development (LID)

Task Description

i. Permittees shall, at a minimum, implement the following LID requirements:

(1) **Source Control Requirements**

Require all Regulated Projects to implement source control measures that at a minimum, shall include the following:

(a) Minimization of stormwater pollutants of concern in urban runoff through measures that may include plumbing of the following discharges to the sanitary sewer, subject to the local sanitary sewer agency's authority and standards:

- Discharges from indoor floor mat/equipment/hood filter wash racks or covered outdoor wash racks for restaurants;
- Dumpster drips from covered trash, food waste and compactor enclosures;
- Discharges from covered outdoor wash areas for vehicles, equipment, and accessories;
- Swimming pool water if discharge to onsite vegetated areas is not a feasible option; and
- Fire sprinkler test water if discharge to onsite vegetated areas is not a feasible option;

(b) Properly designed covers, drains, and storage precautions for outdoor material storage areas, loading docks, repair/maintenance bays, and fueling areas;

(c) Properly designed trash storage areas;

(d) Landscaping that minimizes irrigation and runoff, promotes surface infiltration, and minimizes the use of pesticides and fertilizers;

(e) Efficient irrigation systems; and

(f) Storm drain system stenciling or signage.

(2) **Site Design and Stormwater Treatment Requirements**

Require each Regulated Project to implement the following design elements:

(a) Conserve natural areas, to the extent feasible, including existing trees, other vegetation, and soils;

(b) Minimize impervious surface;

(c) Minimize disturbances to natural drainages;

(d) Implement one or more of the following site design measures:

- Direct roof runoff into cisterns or rain barrels for reuse.
- Direct roof runoff into vegetated areas.
- Direct runoff from sidewalks, walkways, and/or patios into vegetated areas.
- Direct runoff from driveways and/or uncovered parking lots into vegetated areas.
- Construct sidewalks, walkways, and/or patios with permeable surfaces.[3]

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- Construct driveways, bike lanes, and/or uncovered parking lots with permeable surfaces.[3]

(e) After completion of the site design measures specified in Provision C.3.c.i.(2)(d), treat as much of the remaining stormwater runoff as practicable (this includes any runoff leaving the site design measures and runoff from any remaining impervious areas not addressed by site design measures) with systems that store for landscaping reuse and/or that infiltrate for purposes of augmenting groundwater supplies;

(f) Treat as much of the remaining runoff (after completion of Provisions C.3.c.i.(2)(d) and(e)) as practicable with natural feature systems (e.g., bioretention, vegetated swales, tree wells, planter boxes, and green roofs);

(g) Treat as much of the remaining runoff (after completion of Provisions C.3.c.i.(2)(d)-(f)) as practicable with conventional systems (e.g., extended detention basins);

(h) For the remaining runoff (after completion of Provisions C.3.c.i.(2)(d)-(g)), install vault-based treatment systems that are designed to reliably remove particle-bound and soluble pollutants;

(i) Properly design and construct vegetated areas to effectively receive and infiltrate or treat stormwater runoff from impervious areas, taking into consideration the vegetated/pervious areas' soil conditions, slope stability, and potential impacts on adjacent structures;

(3) Ensure that all stormwater treatment systems installed for Regulated Projects shall be constructed to meet the requirements of Provision C.3.d.

(4) Notify the Water Board Executive Officer prior to granting final discretionary approval to any Regulated Project that proposes to install vault-based treatment systems to provide primary treatment for more than 20% of the total Provision C.3.d specified runoff[4] from the site. These notifications shall include justification for the use off vault-based systems.

(a)

ii. Implementation Level – All elements of the tasks described in Provision C.3.c.i. shall be fully implemented.

Due Date for Full Implementation – July 1, 2010

For development projects that have received final, major, staff-level discretionary review and approval[2] for adherence to applicable local, state, and federal codes and regulation before July 1, 2010, the requirements of Provision C.3.c.i. shall not apply. Final, major, staff-level discretionary review and approval are decisions by a public agency's or governmental body's staff that require the exercise of judgment or deliberation to approve or disapprove a particular development project, as distinguished from a determination that a development project has a complete application. For public projects for which

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<#>Site constraints that prevent all Provision C.3.d. specified runoff from being treated with landscape-based treatment measures onsite; and ¶
<#>The infeasibility of providing Equivalent Offsite Treatment[7] (as allowed under Provision C.3.e.) for the stormwater runoff proposed to be treated by the vault-based systems.¶
<#>Obtain approval from the Water Board Executive Officer prior to granting final discretionary approval to any Regulated Project that proposes to install vault-based treatment systems to provide primary treatment for more than 50% of the total Provision C.3.d. specified runoff[4] from the site. To obtain approval, the Permittee or Regulated Project shall submit documentation of:¶
<#>Site constraints that prevent all Provision C.3.d. specified runoff from being treated with landscape-based treatment measures onsite; and ¶
The infeasibility of providing Equivalent Offsite Treatment[7] (as allowed under Provision C.3.e.) for the stormwater runoff proposed to be treated by the vault-based systems.

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[4] **Total Provision C.3.d. specified runoff** - the total amount of Provision C.3.d specified runoff from the Regulated Project if Provisions C.3.c.i.(2)(d)-(h) were not implemented.

funding has been committed and construction is scheduled to begin by July 1, 2011, the requirements of Provision C.3.c.i. shall not apply.

iii. Reporting – Report the method(s) of implementation of Provisions C.3.c.i. above in the 2011 Annual Report. For specific tasks listed above that are reported using the reporting tables required for Provision C.3.b.v., a reference to those tables will suffice.

C.3.d. Numeric Sizing Criteria for Stormwater Treatment Systems

i. Task Description – Permittees shall require that stormwater treatment systems constructed for Regulated Projects meet at least one of the following hydraulic sizing design criteria:

(1) **Volume Hydraulic Design Basis** – Treatment systems whose primary mode of action depends on volume capacity shall be designed to treat stormwater runoff equal to:

(a) The maximized stormwater capture volume for the area, on the basis of historical rainfall records, determined using the formula and volume capture coefficients set forth in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998), pages 175–178 (e.g., approximately the 85th percentile 24-hour storm runoff event); or

(b) The volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with the methodology set forth in Section 5 of the California Stormwater Quality Association's Stormwater Best Management Practice Handbook, New Development and Redevelopment (2003), using local rainfall data.

(2) **Flow Hydraulic Design Basis** – Treatment systems whose primary mode of action depends on flow capacity shall be sized to treat:

(a) 10 percent of the 50-year peak flowrate;

(b) The flow of runoff produced by a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the applicable area, based on historical records of hourly rainfall depths; or

(c) The flow of runoff resulting from a rain event equal to at least 0.2 inches per hour intensity.

(3) **Combination Flow and Volume Design Basis** – Treatment systems that use a combination of flow and volume capacity shall be sized to treat at least 80 percent of the total runoff over the life of the project, using local rainfall data.

ii. Implementation Level – Permittees shall immediately require the controls in this task.

Due Date for Full Implementation – Immediate except July 1, 2010, for Vallejo Permittees.

iii. Reporting – Permittees shall use the reporting tables required in Provision C.3.b.v.

iv. Limitations on Use of Infiltration Devices in Stormwater Treatment Systems

(1) For Regulated Projects, each Permittee shall review planned land use and proposed treatment design to verify that installed stormwater treatment systems with no under-drain, and that function primarily as infiltration devices, should not cause or contribute to the degradation of groundwater quality at project sites. An infiltration device is any structure that is deeper than wide and designed to infiltrate stormwater into the subsurface and, as designed, bypass the natural groundwater protection afforded by surface soil. Infiltration devices include dry wells, injection wells, and infiltration trenches (includes french drains).

(2) For any Regulated Project that includes plans to install stormwater treatment systems which function primarily as infiltration devices, the Permittee shall require that:

(a) Appropriate pollution prevention and source control measures are implemented to protect groundwater at the project site, including the inclusion of a minimum of two feet of suitable soil to achieve a maximum 5 inches/hour infiltration rate for the infiltration system;

(b) Adequate maintenance is provided to maximize pollutant removal capabilities;

(c) The vertical distance from the base of any infiltration device to the seasonal high groundwater mark is at least 10 feet. (Note that some locations within the Permittees' jurisdictions are characterized by highly porous soils and/or high groundwater tables. In these areas, a greater vertical distance from the base of the infiltration device to the seasonal high groundwater mark may be appropriate and treatment system approvals should be subject to a higher level of analysis that considers the potential for pollutants (such as from onsite chemical use), the level of pretreatment to be achieved, and other similar factors in the overall analysis of groundwater safety);

(d) Unless stormwater is first treated by a method other than infiltration, infiltration devices are not approved as treatment measures for runoff from areas of industrial or light industrial activity; areas subject to high vehicular traffic (i.e., 25,000 or greater average daily traffic on a main roadway or 15,000 or more average daily traffic on any intersecting roadway); automotive repair shops; car washes; fleet storage areas (e.g., bus, truck); nurseries; and other land uses that pose a high threat to water quality;

(e) Infiltration devices are not placed in the vicinity of known contamination sites unless it has been demonstrated that increased infiltration will not increase leaching of contaminants from soil, alter groundwater flow conditions affecting contaminant migration in groundwater, or adversely affect remedial activities; and

(f) Infiltration devices are located a minimum of 100 feet horizontally away from any known water supply wells, septic systems, and underground storage tanks with hazardous materials. (Note that some

locations within the Permittees' jurisdictions are characterized by highly porous soils and/or high groundwater tables. In these areas, a greater horizontal distance from the infiltration device to known water supply wells, septic systems, or underground storage tanks with hazardous materials may be appropriate and treatment system approvals should be subject to a higher level of analysis that considers the potential for pollutants (such as from onsite chemical use), the level of pretreatment to be achieved, and other similar factors in the overall analysis of groundwater safety).

C.3.e. Alternative Compliance with Provisions C.3.b.

Task Description – Each Permittee may allow any Regulated Project to provide alternative compliance with Provisions C.3.b.and C.3.d., which require that Regulated Projects install hydraulically sized stormwater treatment system(s) onsite or at a joint stormwater treatment facility as further specified below.

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– An infill site development project (hereinafter called a Regulated Infill Project) or¶
– A redevelopment project (hereinafter called a Regulated Redevelopment Project),

For purposes of this section, the following definitions shall apply: An infill site development project (hereinafter called a Regulated Infill Project) is a site in an urbanized area where the immediately adjacent parcels are developed with one or more qualified urban uses[5] or at least 75% of the perimeter of the site adjoins parcels that are developed with qualified urban uses and the remaining 25% of the site adjoins parcels that have previously been developed for qualified urban uses and no parcel within the site has been created within the past 10 years. A redevelopment project (hereinafter called a Regulated Redevelopment Project) shall be as previously defined in section c.3.b.

Deleted: An infill site

Deleted: The two different types of Regulated Infill or Redevelopment Projects and the corresponding alternative compliance methods available to them are described below (also see flowchart in Attachment A):

(1) Exemption from Installing Hydraulically Sized Stormwater Treatment Systems: Regulated Infill or Regulated Redevelopment Projects may provide alternative compliance with Provision C.3.d. by Maximizing Site Design Treatment Controls[6] to provide as much onsite stormwater treatment as possible are listed below:

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(a) Projects that meet USEPA's Brownfield Sites definition found in Public Law 107-118 (H.R. 2869) – "Small Business Liability Relief and Brownfields Revitalization Act" signed into law January 11, 2002, and that receive subsidy or similar benefits under a program designed to redevelop such sites;

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[5] **Qualified urban uses** - commercial, public institutional, transit or transportation passenger facility use, retail use, residential development with at least a density of 18 development units per acre, or any combination thereof.

[6] **Maximizing Site Design Treatment Controls** is defined as including a minimum of one of the following specific site design and/or treatment measures:
- Direct roof runoff into cisterns or rain barrels for reuse.
- Direct roof runoff to vegetated areas.
- Direct runoff from sidewalks, walkways, and/or patios into vegetated areas.
- Direct runoff from driveways and/or uncovered parking lots into vegetated areas.
- Construct sidewalks, walkways, and/or patios with permeable surfaces.
- Construct bicycle lanes, driveways, and/or uncovered parking lots with permeable surfaces.
- Install landscaped-based stormwater treatment measures (non-hydraulically-sized) such as swales, tree wells or bioretention gardens.

(b) Low-income housing as defined under Government Code section 65589.5(h)(3), but limited to the actual low-income portion or low-income impervious area percentage of the project;

(c) Senior citizen housing development, as defined under California Civil Code section 51.11(b)(4); or

(d) Transit-Oriented Development projects. A Transit-Oriented Development is any development project that will be located within ½ mile of a transit station and will meet one of the criteria listed below. A transit station is defined as a rail or light-rail station, ferry terminal, bus hub, or bus transfer station. A bus hub or bus transfer station is required to have an intersection of three or more bus routes that are in service 16 hours a day, with a minimum route frequency of 15 minutes during the peak hours of 7 am to 10 am (inclusive) and 3 pm to 7 pm (inclusive).

(i) A housing or mixed-use development project with a minimum density of 30 residential units per acre and that provides:

- No more than one parking space per residential unit, and
- Visitor parking that does not exceed 10% of the total number of residential parking spaces; or

(ii) A commercial development project with a minimum floor area ratio (FAR) of three and that provides:

- For restaurants, no more than 3 parking spaces per 1000 square feet.
- For offices, no more than 1.25 parking spaces per 1000 square feet.
- For retail, no more than 2.0 parking spaces for 1000 square feet.

Sharing of parking between uses within these maximums is allowed. Carshare, bicycle, and blue zone parking spaces are not subject to these maximums.

(2) All other RegulatedProjects may provide alternative compliance by satisfying one or more of the following requirements after minimizing the new and/or replaced impervious surface onsite:

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(a) Installing, operating and maintaining Equivalent Offsite Treatment[7] at an offsite project in the same watershed;

(b) Contributing Equivalent Funds[8] to a Regional Project[9]

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[7] **Equivalent Offsite Treatment**—Hydraulically-sized treatment (in accordance with Provision C.3.d.), using landscape-based treatment measures, and associated operation and maintenance of:

1. An equal area of new and/or replaced impervious surface of similar land uses as that created by the Regulated Project;
2. An equivalent amount of pollutant loading as that created by the Regulated Project; or
3. An equivalent quantity of runoff from similar land uses as that created by the Regulated Project.

[8] **Equivalent Funds**—Monetary amount necessary to provide both:

1. Hydraulically-sized treatment (in accordance with Provision C.3.d.) of:
   a. An equal area of new and/or replaced impervious surface of similar land uses as that created by the Regulated Project;

For the alternatives described in Provision C.3.e.i.(2)(a)-(b) above, offsite projects must be constructed by the end of construction of the Regulated Project. If more time is needed to construct the offsite project, justification shall be provided to and approval obtained from the Executive Officer. Regional Projects must be completed within 3 years after the end of construction of the Regulated Project. However, the timeline for completion of the Regional Project may be extended, up to 5 years after the completion of the Regulated Project, with prior Executive Officer approval. Executive Officer approval will be granted contingent upon a demonstration of good faith efforts to implement the Regional Project, such as having funds encumbered and applying for the appropriate regulatory permits.

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Deleted: for each additional year, up to three years, after the construction of the Regulated Infill or Redevelopment Project, the offsite project must provide an additional 10% of the calculated Equivalent Offsite Treatment[7]

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ii. Effective Date – July 1, 2010 except July 1, 2011, for Vallejo Permittees.

iii. Implementation Level

(1) For Permittees with Alternative Compliance Policies previously approved by the Executive Officer, these Programs/Policies shall be either rescinded or modified to be consistent with Provision C.3.e. of this Permit by July 1, 2010.

(2) For Permittees without Alternative Compliance Policies previously approved by the Executive Officer, Provision C.3.e is optional. However, any Alternative Compliance Policy implemented by the Permittees shall be consistent with Provision C.3.e.

(3) For all offsite projects and Regional Projects installed in accordance with Provision C.3.e.i.(2)(a) and (b), the Permittees shall meet the Operation & Maintenance (O&M) requirements of Provision C.3.h.

iv. Reporting – Any Permittee implementing Provision C.3.e. shall submit the ordinance/legal authority and procedural changes made, if any, to implement Provision C.3.e. with the first Annual Report after implementation. Annual reporting thereafter shall be done in conjunction with reporting requirements under Provision C.3.b.v.

C.3.f. Alternative Certification of Stormwater Treatment Systems

i. Task Description – In lieu of reviewing a Regulated Project's adherence to Provision C.3.d., a Permittee may elect to have a third party conduct detailed review and certify the Regulated Project's adherence to Provision C.3.d. The third party reviewer must be a Civil Engineer or a Licensed Architect or Landscape Architect registered in the State of California, or staff of another Permittee subject to the requirements of this Permit.

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b. An equivalent amount of pollutant loading as that created by the Regulated Project; or
c. An equivalent quantity of runoff from similar land uses as that created by the Regulated Project; and,
2. A proportional share of the operation and maintenance costs of the Regional Project.

[9] **Regional Project**—A regional or municipal stormwater treatment facility that discharges into the same watershed that the Regulated Project does.

ii. Implementation Level – Any Permittee accepting third-party reviews must make a reasonable effort to ensure that the third party has no conflict of interest with regard to the Regulated Project in question. That is, any consultant or contractor (or his/her employees) hired to design and/or construct a stormwater treatment system for a Regulated Project shall not also be the certifying third party. The Permittee must verify that the third party certifying any Regulated Project has current training on stormwater treatment system design (within 3 years of the certification signature date) for water quality and understands the groundwater protection principles applicable to Regulated Project sites.

Training conducted by an organization with stormwater treatment system design expertise (such as a college or university, the American Society of Civil Engineers, American Society of Landscape Architects, American Public Works Association, California Water Environment Association (CWEA), BASMAA, National Association of Flood & Stormwater Management Agencies, California Stormwater Quality Association (CASQA), or the equivalent, may be considered qualifying training.

iii. Reporting – Projects reviewed by third parties shall be noted in reporting tables for Provision C.3.b.

C.3.g. Hydromodification Management

i. Hydromodification Management (HM) Projects are Regulated Projects that create and/or replace one acre or more of impervious surface and are not specifically excluded within the requirements of Attachments B–F. A project that does not increase impervious surface area over the pre-project condition is not an HM Project. All HM Projects shall meet the Hydromodification Management Standard of Provision C.3.g.ii.

ii. HM Standard

Stormwater discharges from HM Projects shall not cause an increase in the erosion potential of the receiving stream over the pre-project (existing) condition. Increases in runoff flow and volume shall be managed so that post-project runoff shall not exceed estimated pre-project rates and durations, where such increased flow and/or volume is likely to cause increased potential for erosion of creek beds and banks, silt pollutant generation, or other adverse impacts on beneficial uses due to increased erosive force. The demonstration that post-project stormwater runoff does not exceed estimated pre-project runoff rates and durations shall include the following:

(1) **Range of Flows to Control:** For Alameda, Contra Costa, San Mateo, and Santa Clara Permittees, HM controls shall be designed such that post-project stormwater discharge rates and durations match pre-project discharge rates and durations from 10 % of the pre-project 2-year peak flow[10] up to the pre-project 10-year peak flow. For Fairfield-Suisun

[10] Where referred to in this Order, the 2-year peak flow is determined using a flood frequency analysis based on USGS Bulletin 17 B to obtain the peak flow statistically expected to occur at a 2-year recurrence interval. In this analysis, the appropriate record of hourly rainfall data (e.g., 35-50 years of data) is run through a continuous simulation hydrologic model, the annual peak flows are identified, rank ordered, and the 2-year peak flow is

Permittees, HM controls shall be designed such that post-project stormwater discharge rates and durations shall match from 20 percent of the 2-year peak flow up to the pre-project 10-year peak flow. Contra Costa Permittees, when using the two pre-sized and pre-designed Integrated Management Practices (IMPs), the "Flow Through Planter" and the "Swale" per Attachment C of this Order, are not required to meet the low-flow criterion of 10% of the 2-year peak flow. These two IMPs are designed to control to the specified low flows. After the Contra Costa Permittees conduct the required monitoring, the design of these IMPs will be reviewed.

(2) **Goodness of Fit Criteria:** The post-project flow duration curve shall not deviate above the pre-project flow duration curve by more than 10 percent over more than 10 percent of the length of the curve corresponding to the range of flows to control.

(3) **Precipitation Data:** Precipitation data used in the modeling of HM controls shall, at a minimum, be 30 years of hourly rainfall data representative of the area being modeled. Where a longer rainfall record is available, the longer record shall be used.

(4) **Calculating Post-Project Runoff:** Retention and detention basins shall be considered impervious surfaces for purposes of calculating post-project runoff.

Deleted: Pre- and post-project runoff shall be calculated and compared for the entire site, without separating or excluding areas that may be considered self-retaining.

(5) **Existing HM Control Requirements:** The Water Board has adopted HM control requirements for all Permittees (except for the Vallejo Permittees), and these adopted requirements are attached to this Order as listed below. Permittees shall comply with all requirements in their own Permittee specific Attachment, unless otherwise specified by this Order. In all cases, the HM Standard shall be achieved.

- Attachment B for Alameda Permittees
- Attachment C for Contra Costa Permittees
- Attachment D for Fairfield-Suisun Permittees
- Attachment E for San Mateo Permittees
- Attachment F for Santa Clara Permittees

iii. Types of HM Controls

Projects shall meet the HM Standard using any of the following HM controls or a combination thereof.

(1) **Onsite HM controls** are flow duration control structures and hydrologic source controls that collectively result in the HM Standard being met at the point(s) where stormwater runoff discharges from the project site.

estimated. Such models include USEPA's Hydrologic Simulation Program—Fortran (HSPF), U.S. Army Corps of Engineers' Hydrologic Engineering Center-Hydrologic Modeling System (HEC-HMS), and USEPA's Storm Water Management Model (SWMM).

(2) **Regional HM controls** are flow duration control structures that collect stormwater runoff discharge from multiple projects (each of which shall incorporate hydrologic source control measures as well) and are designed such that the HM Standard is met for all the projects at the point where the regional HM control discharges.

(3) **In-stream measures** shall be an option only where the stream, which receives runoff from the project, is already impacted by erosive flows and shows evidence of excessive sediment, erosion, deposition, or is a hardened channel.

In-stream measures involve modifying the receiving stream channel slope and geometry so that the stream can convey the new flow regime without increasing the potential for erosion and aggradation. In-stream measures are intended to improve long-term channel stability and prevent erosion by reducing the erosive forces imposed on the channel boundary.
In-stream measures, or a combination of in-stream and onsite controls, shall be designed to achieve the HM Standard from the point where the project(s) discharge(s) to the stream to the mouth of the stream or to achieve an equivalent degree of flow control mitigation (based on amount of impervious surface mitigated) as part of an in-stream project located in the same watershed. Designing in-stream controls requires a hydrologic and geomorphic evaluation (including a longitudinal profile) of the stream system downstream and upstream of the project. As with all in-stream activities, other regulatory permits must be obtained by the project proponent.[11]

iv. Reporting

For each HM Project approved during the reporting period, the following information shall be reported electronically in tabular form. This information shall be added to the required reporting information specified in Provision C.3.b.v.

(1) Device(s) or method(s) used to meet the HM Standard, such as detention basin(s), biodetention unit(s), regional detention basin, or in-stream control.

(2) Method used by the project proponent to design and size the device or method used to meet the HM Standard.

(3) Other information as required in Permittees' existing HM requirements, as shown in Attachments B–F.

v. Vallejo Permittees shall complete the following tasks in lieu of complying with Provisions C.3.g.i.-iv.

[11] In-stream control projects require a Stream Alteration Agreement from the California Department of Fish & Game, a CWA section 404 permit from the U.S. Army Corps of Engineers, and a section 401 certification from the Water Board. Early discussions with these agencies on the acceptability of an in-stream modification are necessary to avoid project delays or redesign.

(1) Develop a Hydrograph Modification Management Plan (HMP) for meeting the requirements of Provisions C.3.g.i.–iv. The Vallejo Permittees' HMP shall be subject to approval by the Water Board.

(2) Vallejo Permittees shall include the following in their HMP:

(a) A map of the City of Vallejo delineating areas where the HM Standard applies. The HM Standard shall apply in all areas except where a project:

- discharges stormwater runoff into creeks or storm drains that are concrete-lined or significantly hardened (e.g., with rip-rap, sackrete) downstream to their outfall in San Francisco Bay;
- discharges to an underground storm drain discharging to the Bay; or
- is located in a highly developed watershed.[12]

However, plans to restore a creek reach may reintroduce the applicability of HM controls, and would need to be addressed in the HMP;

(b) A thorough technical description of the methods project proponents may use to meet the HM Standard. Vallejo Permittees shall use the same methodologies, or similar methodologies, to those already in use in the Bay Area to meet the HM Standard. Contra Costa sizing charts may be used on projects up to ten acres after any necessary modifications are made to the sizes to control runoff rates and durations from ten percent of the pre-project 2-year peak flow to the pre-project 10-year peak flow, and adjustments are made for local rainfall and soil types;

(c) A description of any land use planning measures the City of Vallejo will take (e.g., stream buffers and stream restoration activities, including restoration-in-advance of floodplains, revegetation, and use of less-impacting facilities at points of discharge) to allow expected changes in stream channel cross sections, stream vegetation, and discharge rates, velocities, and/or durations without adverse impacts on stream beneficial uses;

(d) A description of how the Vallejo Permittees will incorporate these requirements into their local approval processes, and a schedule for doing so; and

(e) Guidance for City of Vallejo project proponents explaining how to meet the HM Standard.

(3) Vallejo Permittees shall complete the HMP according to the schedule below. All required documents shall be submitted acceptable to the Executive Officer, except the HMP, which shall be submitted to the Water Board for approval. Vallejo Permittees shall report on the status of HMP development and implementation in each Annual Report and shall also

[12] Within the context of Provision C.3.g., "highly developed watersheds" refers to catchments or subcatchments that are 65% impervious or more.

provide a summary of projects incorporating measures to address Provision C.3.g. and the measures used.

- By November 30, 2010, submit a detailed workplan and schedule for completion of the information required in Provision C.3.g.vi.(2).
- By July 1, 2011, submit the map required in Provision C.3.g.v.(2)(a).
- By November 30, 2011, submit a draft HMP.
- By July 1, 2012, provide responses to Water Board comments on the draft HMP so that the final HMP is submitted for Water Board approval by July 1, 2013.
- Upon adoption by the Water Board, implement the HMP, which shall include the requirements of this measure. Before approval of the HMP by the Water Board, Vallejo Permittees shall encourage early implementation of measures likely to be included in the HMP.

C.3.h. Operation and Maintenance of Stormwater Treatment Systems

i. Task Description – Each Permittee shall implement an Operation and Maintenance (O&M) Verification Program.

ii. Implementation Level – At a minimum, the O&M Verification Program shall include the following elements:

(1) Conditions of approval or other legally enforceable agreements or mechanisms for all Regulated Projects that, at a minimum, require at least one of the following from all project proponents and their successors in control of the Project or successors in fee title:

(a) The project proponent's signed statement accepting responsibility for the operation and maintenance of the installed onsite, joint, and/or offsite stormwater treatment system(s) and HM control(s) (if any) until such responsibility is legally transferred to another entity;

(b) Written conditions in the sales or lease agreements or deed for the project that requires the buyer or lessee to assume responsibility for the O&M of the onsite, joint, and/or offsite installed stormwater treatment system(s) and HM control(s) (if any) until such responsibility is legally transferred to another entity;

(c) Written text in project deeds, or conditions, covenants and restrictions (CCRs) for multi-unit residential projects that require the homeowners association or, if there is no association, each individual owner to assume responsibility for the operation and maintenance of the installed onsite, joint, and/or offsite stormwater treatment system(s) and HM control(s) (if any) until such responsibility is legally transferred to another entity; or

(d) Any other legally enforceable agreement or mechanism, such as recordation in the property deed, that assigns the operation and maintenance responsibility for the installed onsite, joint, and/or offsite treatment system(s) and HM control(s) (if any) to the project owner(s) or the Permittee.

(2) Coordination with the appropriate mosquito and vector control agency with jurisdiction to establish a protocol for notification of installed stormwater treatment systems and HM controls.

(3) Conditions of approval or other legally enforceable agreements or mechanisms for all Regulated Projects that require the granting of site access to all representatives of the Permittee, local mosquito and vector control agency staff, and Water Board staff, for the sole purpose of performing O&M inspections of the installed stormwater treatment system(s) and HM control(s) (if any).

(4) A written plan and implementation of the plan that describes operation and maintenance (including inspection) of all Regional Projects[9] and regional HM controls that are Permittee-owned and/or operated.

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(5) A database or equivalent tabular format of all Regulated Projects (public and private) that have installed onsite, joint, and/or offsite stormwater treatment systems. This database or equivalent tabular format shall include the following information for each Regulated Project:

(a) Name and address of the Regulated Project;

(b) Specific description of the location (or a map showing the location) of the installed stormwater treatment system(s) and HM control(s) (if any);

(c) Date(s) that the treatment system(s) and HM controls (if any) is/are installed;

(d) Description of the type and size of the treatment system(s) and HM control(s) (if any) installed;

(e) Responsible operator(s) of each treatment system and HM control (if any);

(f) Dates and findings of inspections (routine and follow-up) of the treatment system(s) and HM control(s) (if any) by the Permittee; and

(g) Any problems and corrective or enforcement actions taken.

(6) A prioritized plan for inspecting all installed stormwater treatment systems and HM controls. At a minimum, this prioritized plan must specify the following for each fiscal year:

(a) Inspection by the Permittee of all newly installed stormwater treatment systems and HM controls within 45 days of installation to ensure approved plans have been followed;

(b) Inspection by the Permittee of at least 20 percent of the total number (at the end of the preceding fiscal year) of installed stormwater treatment systems and HM controls;

(c) Inspection by the Permittee of at least 20 percent of the total number (at the end of the preceding fiscal year) of installed vault-based systems.

(d) Inspection by the Permittee of all installed stormwater treatment systems subject to Provision C.3., at least once every 5 years.

iii. Maintenance Approvals: Permittees shall require that onsite, joint, and offsite stormwater treatment systems and HM controls installed by Regulated Projects are properly operated and maintained for the life of the projects. In cases where the responsible party for a stormwater treatment system or HM control has worked diligently and in good faith with the appropriate state and federal agencies to obtain approvals necessary to complete maintenance activities for the treatment system or HM control, but these approvals are not granted, the Permittees shall be deemed to be in compliance with this Provision. Permittees shall ensure that constructed wetlands installed by Regulated Projects and used for urban runoff treatment shall abide by the Water Board's Resolution No. 94-102: Policy on the Use of Constructed Wetlands for Urban Runoff Pollution Control and the operation and maintenance requirements contained therein.

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Due Date for Full Implementation: Immediate except July 1, 2010, for Vallejo Permittees.

iv. Reporting

(1) For each Regulated Project inspected during the reporting period (fiscal year) the following information shall be reported to the Water Board electronically in tabular form as part of the Annual Report (as set forth in the Provision C.3.h. Sample Reporting Table attached):

- Name of facility/site inspected.
- Location (street address) of facility/site inspected.
- Name of responsible operator for installed stormwater treatment systems and HM controls.
- For each inspection:
  - Date of inspection.
  - Type of inspection (e.g., initial, annual, follow-up, spot).
  - Type(s) of stormwater treatment systems inspected (e.g., swale, bioretention unit, tree well, etc.) and an indication of whether the treatment system is an onsite, joint, or offsite system.
  - Type of HM controls inspected.
  - Inspection findings or results (e.g., proper installation, proper operation and maintenance, system not operating properly because of plugging, bypass of stormwater because of improper installation, maintenance required immediately, etc.).
  - Enforcement action(s) taken, if any (e.g., verbal warning, notice of violation, administrative citation, administrative order).

(2) On an annual basis, before the wet season, provide a list of newly installed (installed within the reporting period) stormwater treatment systems and HM controls to the local mosquito and vector control agency and the Water Board. This list shall include the facility locations and a description of the stormwater treatment measures and HM controls installed.

(3) Each Permittee shall report the following information in the annual report each year:

(a) A discussion of the inspection findings for the year and any common problems encountered with various types of treatment systems and/or HM controls. This discussion should include a general comparison to the inspection findings from the previous year.

(b) A discussion of the effectiveness of the Permittee's O&M Program and any proposed changes to improve the O&M Program (e.g., changes in prioritization plan or frequency of O&M inspections, other changes to improve effectiveness of program).

C.3.i. Required Site Design Measures for Small Projects and Detached Single-Family Home Projects

i. Task Description – Permittees shall require all development projects, which create and/or replace > 2500 ft^2 to < 10,000 ft^2 of impervious surface, and detached single-family home projects,[13] which create and/or replace 2,500 square feet or more of impervious surface, to install one or more of the following site design measures:

- Direct roof runoff into cisterns or rain barrels for reuse.
- Direct roof runoff into vegetated areas.
- Direct runoff from sidewalks, walkways, and/or patios into vegetated areas.
- Direct runoff from driveways and/or uncovered parking lots into vegetated areas.
- Construct sidewalks, walkways, and/or patios with permeable surfaces.[3]
- Construct bike lanes, driveways, and/or uncovered parking lots with permeable surfaces.[3]

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This provision applies to all development projects that require approvals and/or permits issued under the Permittee's' planning, building, or other comparable authority.

ii. Implementation Level – All elements of this task shall be fully implemented by July 1, 2012.

iii. Reporting – On an annual basis, discuss the implementation of the requirements of Provision C.3.i., including Ordinance revisions, permit conditions, development of standard specifications and/or guidance materials, and staff training.

iv. Task Description – Permittees shall develop standard specifications for lot-scale site design and treatment measures (e.g., for roof runoff and paved areas) as a resource for single-family homes and small development projects.

v. Implementation Level – This task may be fulfilled by Permittees cooperating on a countywide or regional basis.

[13] **Detached single-family home project** – The building of one single new house or the addition and/or replacement of impervious surface to one single existing house, which is not part of a larger plan of development.

Due Date for Full Implementation – July 1, 2012.

vi. **Reporting** – A report containing the standard specifications for lot-scale treatment BMPs shall be submitted by July 1, 2012.

C.4. Industrial and Commercial Site Controls

Each Permittee shall implement an industrial and commercial site control program at all sites which could reasonably be considered to cause or contribute to pollution of stormwater runoff, with inspections and effective follow-up and enforcement to abate actual or potential pollution sources consistent with each Permittee's respective Enforcement Response Plan (ERP), to prevent discharge of pollutants and impacts on beneficial uses of receiving waters. Inspections shall confirm implementation of appropriate and effective BMPs and other pollutant controls by industrial and commercial site operators.

C.4.a. Legal Authority for Effective Site Management

i. **Task Description** – Permittees shall have sufficient legal enforcement authority to obtain effective stormwater pollutant control on industrial sites. Permittees shall have the ability to inspect and require effective stormwater pollutant control and to escalate progressively stricter enforcement to achieve expedient compliance and pollutant abatement at commercial and industrial sites within their jurisdiction.

ii. **Implementation Level**

(1) Permittees shall have the legal authority to oversee, inspect, and require expedient compliance and pollution abatement at all industrial and commercial sites which may be reasonably considered to cause or contribute to pollution of stormwater runoff conveyed in municipal separate storm sewer systems. Permittees shall have the legal authority to require implementation of appropriate BMPs at industrial and commercial to address pollutant sources associated with outdoor process and manufacturing areas, outdoor material storage areas, outdoor waste storage and disposal areas, outdoor vehicle and equipment storage and maintenance areas, outdoor parking areas and access roads, outdoor wash areas, outdoor drainage from indoor areas, rooftop equipment, and contaminated and erodible surface areas, and other sources determined by the Permittees or Water Board Executive Officer to have a reasonable potential to contribute to pollution of stormwater runoff.

(2) Permittees shall notify the discharger of any actual or potential pollutant sources and violations and require problem correction within a reasonably short and expedient time frame commensurate with the threat to water quality. Permittees shall require timely correction of problems involving rapid temporary repair, and may allow longer time periods for implementation of more permanent solutions, if these require significant capital expenditure or construction. Violations shall be corrected as soon as possible, preferably prior to the next rain event or within 10 business

days after the violations are noted. If more than 10 business days are required for correction, a rationale shall be given in the tabulated sheets.

C.4.b. Industrial and Commercial Business Inspection Plan (Inspection Plan)

i. Task Description – For Permittees with industrial and commercial areas, they shall develop and implement an inspection plan that will serve as a prioritized inspection workplan. This inspection plan will allow inspection staff to categorize the commercial and industrial sites within the Permittee's jurisdiction that discharge to municipal separate storm sewers by pollutant threat and inspection frequency, change inspection frequency based on site performance, and add and remove sites as businesses open and close.

The Inspection Plan shall contain the following information:

(1) Total number and a list of industrial and commercial facilities requiring inspection, within each Permittee's jurisdiction, to be determined on the basis of a prioritization criteria designed to assign a more frequent inspection schedule to the highest priority facilities per Section C.4.b.ii. below.

(2) A description of the process for prioritizing inspections and frequency of inspections. If any geographical areas are to be targeted for inspections due to high potential for stormwater pollution, these areas should be indicated in the Inspection Plan. A mechanism to include newly opened businesses that warrant inspection shall be included.

ii. Implementation Level – Each Permittee shall annually update and maintain a list of industrial and commercial facilities in the Inspection Plan to inspect that could reasonably be considered to cause or contribute to pollution of stormwater runoff converyed by municipal separate storm sewers. The following are some of the functional aspects of businesses and types of businesses that shall be included in the Inspection Plans:

(1) Sites that include the following types of functions that may produce pollutants when exposed to stormwater include, but are not limited to:

(a) Outdoor process and manufacturing areas

(b) Outdoor material storage areas

(c) Outdoor waste storage and disposal areas

(d) Outdoor vehicle and equipment storage and maintenance areas

(e) Outdoor wash areas

(f) Outdoor drainage from indoor areas

(g) Rooftop equipment

(h) Other sources determined by the Permittee or Water Board to have a reasonable potential to contribute to pollution of stormwater runoff

(2) The following types of Industrial and Commercial businesses that have a reasonable likelihood to be sources of pollutants to stormwater and non-stormwater discharges:

(a) Industrial facilities, as defined at 40 CFR 122.26(b)(14), including those subject to the State General NPDES Permit for Stormwater Discharges Associated with Industrial Activity (hereinafter the Industrial General Permit);

(b) Vehicle Salvage yards;

(c) Metal and other recycled materials collection facilities, waste transfer facilities;

(d) Vehicle mechanical repair, maintenance, fueling, or cleaning;

(e) Building trades central facilities or yards, corporation yards;

(f) Nurseries and greenhouses;

(g) Building material retailers and storage;

(h) Plastic manufacturers; and

(i) Other facilities designated by the Permittee or Water Board to have a reasonable potential to contribute to pollution of stormwater runoff.

(3) **Prioritization of Facilities**

Facilities of the types described in Provision 4.b.ii.(2) above and identified by the Permittees as having the reasonable potential to contribute to pollution of stormwater runoff shall be prioritized on the basis of the potential for water quality impact using criteria such as pollutant sources on site, pollutants of concern, proximity to a waterbody, violation history of the facility, and other relevant factors.

(4) **Types/Contents of Inspections**

Each Permittee with industrial and commercial areas within its jurisdiction shall conduct inspections to determine compliance with its ordinances and this Permit. Inspections shall include but not be limited to the following:

(a) Prevention of stormwater runoff pollution or illicit discharge by implementing appropriate BMPs;

(b) Visual observations for evidence of unauthorized discharges, illicit connections, and potential discharge of pollutants to stormwater;

(c) Noncompliance with Permittee ordinances and other local requirements; and

(d) Verification of coverage under the Industrial General Permit, if applicable.

(5) **Inspection Frequency** – Permittees shall establish appropriate inspection frequencies for facilities based on Provision 4.b.ii (3) priority, potential for contributing pollution to stormwater runoff, and commensurate with the threat to water quality.

(6) **Record Keeping** – For each facility identified in Provision 4.b.ii, the Permittee shall maintain a database or equivalent of the following information at a minimum:

(a) Name and address of the business and local business operator;

(b) A brief description of business activity including SIC code;

(c) Inspection priority and inspection frequency; and

(d) If coverage under the Industrial General Permit is required.

iii. Reporting – The Permittees shall include the following in the Annual Report:

(1) The list of facilities identified in Provision 4.b.ii in the 2010 Annual Report and revisions or updates in subsequent annual reports; and

(2) The list of facilities scheduled for inspection during the current fiscal year.

C.4.c. Enforcement Response Plan (ERP)

i. Task Description – Permittees shall develop and implement an ERP that will serve as a reference document for inspection staff to take consistent actions to achieve timely and effective compliance from all public and private construction site operators.

ii. Implementation Level – The ERP shall contain the following:

(1) **Required enforcement actions** – including timeframes for corrections of problems – for various field violation scenarios. The ERP will provide guidance on appropriate use of the various enforcement tools, such as verbal and written notices of violation, citations, cleanup requirements, administrative and criminal penalties.

(2) **Timely Correction of Violations** – All violations must be corrected in a timely manner with the goal of correcting them as soon as possible, preferably before the next rain event but no longer than 10 business days after the violations are discovered. If more than 10 business days are required for compliance, a rationale shall be recorded in the electronic database or equivalent tabular system.

A description of the Permittee's procedures for follow-up inspections and enforcement actions or referral to another agency, including appropriate time periods for each level of corrective action.

(3) **Referral and Coordination with Water Board** – Each Permittee shall enforce its stormwater ordinances as necessary to achieve compliance at sites with observed violations. For cases in which Permittee enforcement tools are inadequate to remedy the noncompliance, the Permittee shall refer the case to the Water Board, district attorney or other relevant agencies for additional enforcement.

(4) **Recordkeeping** – Permittees shall maintain adequate records to demonstrate compliance and appropriate follow-up enforcement responses for facilities inspected.

Permittees shall supplement the electronic database or equivalent tabular system established pursuant to Provision c.4.b.ii(6) to provide the following informatio:

(a) Inspection Date

(b) Compliance Status

(c) Type of Enforcement (if applicable)

(d) Type of Problematic Activity or Pollutant Source

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Examples: Outdoor process/manufacturing areas, Outdoor material storage areas, Outdoor waste storage/disposal areas, outdoor vehicle and equipment storage/maintenance areas, Outdoor parking areas and access roads, Outdoor wash areas, Rooftop equipment, Outdoor drainage from indoor areas

(e) Specific Problems

(f) Problem Resolution

(g) Additional Comments

The electronic database or equivalent tabular system shall be made readily available to the Executive Officer and during inspections and audits by the Water Board staff or its representatives.

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iii. Reporting – Permittees shall supplement the information provided in each Annual Report pursuant to Section c.4.b.iii with the following information:

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(1) Number of inspections conducted, Number of violations issued (excluding verbal warnings), Percentage of sites inspected in violation, and number and percent of violations resolved in a timely manner;

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(2) Frequency and Types/categories of violations observed, Frequency and type of enforcement conducted;

(3) Summary of types of violations noted by business category; and

(4) Facilities that are required to have coverage under the Industrial General Permit, but have not filed for coverage.

C.4.d. Staff Training

i. Task Description

Permittees shall provide focused training for inspectors annually. Trainings may be Program-wide, Regionwide, or Permittee-specific.

ii. Implementation Level

At a minimum, train inspectors, within the 5-year term of this Permit, in the following topics:

(1) Urban runoff pollution prevention;

(2) Inspection procedures;

(3) Illicit Discharge Detection, Elimination and follow-up; and

(4) Implementation of typical BMPs at Industrial and Commercial Facilities.

Permittees, either countywide or regionally, if they have not already done so, are encouraged to create or adopt guidance for inspectors or reference existing inspector guidance including the California Association of Stormwater Quality Agencies (CASQA) Industrial BMP Handbook.

iii. Reporting

The Permittees shall include the following information in the Annual Report:

(1) Dates of trainings;

(2) Training topics that have been covered; and

(3) Percentage of Permittee inspectors attending training.

C.5. Illicit Discharge Detection and Elimination

The purpose of this provision is to implement the illicit discharge prohibition and to ensure illicit discharges are detected and controlled that are not otherwise controlled under provision C4, Industrial and Commercial Site Controls and C6, Construction Site Controls. Permittees shall develop and implement an illicit discharge program that includes an active surveillance component and a centralized complaint collection and follow-up component to target illicit discharge and non-stormwater sources. Permittees shall maintain a complaint tracking and follow-up data system as their primary accountability reporting for this provision.

C.5.a. Legal Authority

i. Task Description – Permittees shall have the legal authority to prohibit and control illicit discharges and escalate stricter enforcement to achieve expedient compliance.

ii. Implementation Level

(1) Permittees shall have adequate legal authority to address stormwater and non-stormwater pollution conveyed to municipal separate storm sewers associated with, but not limited to the following:

(a) Sewage;

(b) Discharges of wash water resulting from the cleaning of exterior surfaces and pavement, or the equipment and other facilities of any commercial business, or any other public or private facility;

(c) Discharges of runoff from material storage areas, including containing chemicals, fuels, or other potentially polluting or hazardous materials;

(d) Discharges of pool or fountain water containing chlorine, biocides, or other chemicals; discharges of pool or fountain filter backwash water;

(e) Discharges of sediment, pet waste, vegetation clippings, or other landscape or construction-related wastes; and

(f) Discharges of food-related wastes (e.g., grease, fish processing, and restaurant kitchen mat and trash bin wash water, etc.).

(2) Permittees shall have adequate legal authority to prohibit, discover through inspection and surveillance, and eliminate illicit connections and discharges to municipal storm drains.

(3) Permittees shall have adequate legal authority to control the discharge of spills, dumping, or disposal of materials other than storm water to municipal storm drains.

C.5.b. Enforcement Response Plan (ERP)

i. Task Description – Permittees shall develop and implement an ERP that will serve as guidance for inspection staff to take consistent actions to achieve timely and effective abatement of illicit discharges.

ii. Implementation Level – The ERP shall contain the following:

(1) Recommended responses and enforcement actions – including timeframes for corrections of problems – for various types and degree of violations. The ERP shall provide guidelines on when to employ the range of regulatory responses from warnings, citations and cleanup and cost recovery, to administrative or criminal penalties.

(2) Timely Correction of Violations: All violations must be corrected in a timely manner with the goal of correcting them before the next rain event but no longer than 10 business days after the violations are discovered. If more than 10 business days are required for compliance, a rationale shall be recorded in the electronic database or equivalent tabular system. Immediate correction can be temporary and short-term if a long-term, permanent correction will involve significant resources and construction time. An example would be replumbing of a wash area to the sanitary sewer, which would involve an immediate short-term, temporary fix followed by permanent replumbing.

(3) If corrective actions are not implemented promptly or if there are repeat violations, Permittees shall escalate responses as needed to achieve compliance, including referral to other agencies were necessary.

C.5.c. Spill and Dumping Response, Complaint Response, and Frequency of Inspections

i. Task Description – Permittees shall have a central contact point, including a phone number for complaints and spill reporting, and publicize this number to both internal Permittee staff and the public. If 911 is selected, also maintain and publicize a staffed, non-emergency phone number with voicemail, which is checked daily.

Permittees shall develop a spill/dumping response flow chart and phone tree or contact list for internal use that shows the various responsible agencies and their contacts, who would be involved in illicit discharge incident response that goes beyond the Permittees immediate capabilities. The list shall be maintained and updated as changes occur.

Permittees shall conduct reactive inspections in response to complaints and follow-up inspections as needed to ensure that corrective measures have been implemented to achieve and maintain compliance.

ii. Implementation Level – Permittees will have the phone number and contact information available and integrated into training and outreach both to Permittee staff and the public by July 1, 2010.

iii. Reporting – Submit the complaint and spill response phone number and spill contact list with the 2010 Annual Report and update annually if changes occur.

C.5.d. Control of Mobile Sources

i. Task Description – The purpose of this section is to establish oversight and control of pollutants associated with mobile business sources.

ii. Implementation Level – Each Permittee shall develop and implement a program to reduce the discharge of pollutants from mobile businesses.

(1) The program shall include the following:

(a) Development and implementation of minimum standards and BMPs to be required for each of the various types of mobile businesses such as automobile washing, power washing, steam cleaning, and carpet cleaning. This guidance can be developed via county-wide or regional collaboration.

(b) Addressmobile businesses in the ERP developed under Provision c.5.b.

(c) Outreach to mobile businesses operating within the Permittee's jurisdiction with minimum standards and BMP requirements and local ordinances through an outreach and education strategy.

(d) Inspection of mobile businesses as needed.

(2) Permittees should cooperate regionally in developing and implementing their programs for mobile businesses, including sharing of mobile business inventories, BMP requirements, enforcement action information, and education.

iii. Reporting – Permittees shall report on implementation of minimum standards and BMPs for mobile business and their enforcement strategy in the course of each Annual Report.

C.5.e. Collection System Screening - Municipal Separate Storm Sewer System (MS4) Map Availability

i. Task Description – Permittees shall perform routine surveys for illicit discharges and illegal dumping in above ground check points in the collection system including elements that are typically inspected for other maintenance purposes, such as end of pipes, creeks, flood conveyances, storm drain inlets and catch basins, in coordination with public works/flood control maintenance surveys, video inspections of storm drains, and during other routine Permittee maintenance and inspection activities when Permittee staff are working in or near the MS4 system.

ii. Implementation Level – Permittees shall develop and implement a screening program as informed by the USEPA/Center for Watershed Protection publication, "Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessment." Permittees shall implement the screening program by conducting a survey of strategic collection system check points (one screening point per square mile of Permittee urban and suburban jurisdiction area, less open space) including some key major outfalls draining industrial areas as defined in 40 CFR 122.26 (b)(5) once each year in dry weather conditions meaning no significant rainfall within the past 3 weeks. Routine surveys that occur on an ongoing basis during regular conveyance system inspections may be credited toward this requirement. Make existing maps (such as those produced by the Oakland Museum) of the MS4 publicly available, either electronically or in hard copy by July 1, 2010. The public

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availability shall be through a publicized single point of contact that is convenient for the public, such as a staffed counter or web accessible maps. The MS4 map availability shall be publicized through Permittee directories and web pages.

iii. Reporting – Permittees shall provide a summary of their collection screening program, a summary of problems found during collection system screening, and any changes to the screening program in each Annual Report.

C.5.f. Tracking and Case Follow-up

i. Task Description – All incidents or discharges reported to the complaint/spill system that might pose a threat to water quality shall be logged to track follow-up and response through problem resolution. The data collected shall be sufficient to demonstrate escalating responses for repeated problems, and inter/intra-agency coordination, where appropriate.

ii. Implementation Level – Create and maintain a water quality spill and discharge complaint tracking and follow-up in an electronic database or equivalent tabular system by April 1, 2010.

The spill and discharge complaint tracking system shall contain the following information where complaints have been verified to pose significant threats to water quality:

(1) Complaint information:
- (a) Date and time of complaint
- (b) Type of pollutant
- (c) Problem Status (potential or actual discharge.)

(2) Investigation information:
- (a) Date and time started
- (b) Type of pollutant
- (c) Entered storm drain and/or receiving water
- (d) Date abated
- (e) Type of enforcement (if applicable)

(3) Response time (days)
- (a) Call to investigation
- (b) Investigation to abatement
- (c) Call to abatement

The electronic database or equivalent tabular system shall be made available to Water Board staff as needed for review of enforcement response through problem resolution.

iii. Reporting – Permittees shall provide the following information in the Annual Report:

(1) Number of discharges reported;

(2) Number of discharges reaching storm drains and/or receiving waters;

(3) Number and percentage of discharges resolved in a timely manner; and

(4) Summary of major types of discharges and complaints.

C.6. Construction Site Control

The purpose of this section is to require Permittees to implement a construction site inspection and control program, with follow-up and enforcement consistent with each Permittee's respective Enforcement Response Plan (ERP), to help prevent construction site discharges of pollutants and impacts on beneficial uses of receiving waters. Inspections shall serve the purpose of helping the Water Board confirm implementation of appropriate and effective erosion and other construction pollutant controls by construction site operators/developers; and reporting shall serve the purpose of helping to demonstrate the effectiveness of this inspection and problem solution activity by the Permittees.

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C.6.a. Legal Authority for Effective Site Management

i. Task Description – Permittees shall have the ability to require effective stormwater pollutant controls, and escalate progressively stricter enforcement to achieve expedient compliance and clean up at all public and private construction sites.

ii. Implementation Level

(1) Permittees shall have the legal authority to require at all construction sites year round effective erosion control, run-on and runoff control, sediment control, active treatment systems (as appropriate), good site management, and non storm water management through all phases of site grading, building, and finishing of lots.

(2) Permittees shall have the legal authority to oversee, inspect, and require expedient compliance and clean up at all construction sites year round.

iii. Reporting – Permittees shall certify adequacy of their respective legal authority in the 2010 Annual Report.

C.6.b. Enforcement Response Plan (ERP)

i. Task Description – Permittees shall develop and implement an ERP that will serve as a reference document for inspection staff to take consistent actions to achieve timely and effective compliance from all public and private construction site owners/operators.

ii. Implementation Level

(1) The ERP shall include required enforcement actions – including timeframes for corrections of problems – for various field violation scenarios. All violations must be corrected in a timely manner with the goal of correcting them before the next rain event but no longer than 10 business days after the violations are discovered. If more than 10 business days are required for compliance, a rationale shall be recorded in the electronic database or equivalent tabular system.

(2) If site owners/operators do not implement appropriate corrective actions in a timely manner, or if violations repeat, Permittees shall take progressively stricter responses to achieve compliance. The ERP shall

include the structure for progressively stricter responses and various violation scenarios that evoke progressively stricter responses.

(3) The ERP shall be developed and implemented by April 1, 2010.

C.6.c. Best Management Practices Categories

i. Task Description – Permittees shall require all construction sites to have seasonally appropriate effective Best Management Practices (BMPs) in the following six categories:

- Erosion Control
- Run-on and Run-off Control
- Sediment Control
- Active Treatment Systems (as necessary)
- Good Site Management
- Non Stormwater Management.

Theses BMP categories are listed in State General NPDES Permit for Stormwater Discharges Associated with Construction Activities, (hereinafter the Construction General Permit).

ii. Implementation Level

The BMPs targeting specific pollutants within the six categories listed in C.6.c.i.shall be site specific. Site specific BMPs targeting specific pollutants from the six categories listed in C.6.c.i. can be a combination of BMPs from:

- California BMP Handbook, Construction, January 2003.
- Caltrans Stormwater Quality Handbooks, Construction Site Best Management Practices Manual, March 2003, and addenda.
- California Regional Water Quality Control Board, San Francisco Bay Region, Erosion and Sediment Control Field Manual, 2002.
- New BMPs available since the release of these Handbooks.

C.6.d. Plan Approval Process

i. Task Description – Permittees shall review erosion control plans for consistency with local requirements, appropriateness and adequacy of proposed BMPs for each site before issuance of grading permits for projects. Permittees shall also verify that sites disturbing one acre or more of land have filed a Notice of Intent to obtain coverage under the State's Construction General Permit.

ii. Implementation Level – Before approval and issuance of local grading permits, each Permittee shall perform the following:

(1) Review the site operator's/developer's erosion/pollution control plan or Stormwater Pollution Prevention Plan (SWPPP) to verify compliance with the Permittee's grading ordinance and other local requirements. Also review the site operator's/developer's erosion/pollution control plan or SWPPP to verify that seasonally appropriate and effective BMPs for the six categories listed in C.6.c.i. are planned;

(2) For sites disturbing one acre or more of soil, verify that the site operators/developers have filed a Notice of Intent for permit coverage under the Construction General Permit; and

(3) Provide construction stormwater management educational materials to site operators/developers, as appropriate.

C.6.e. Inspections

i. Task Description – Permittees shall conduct inspections to determine compliance with local ordinances (grading and stormwater) and determine the effectiveness of the BMPs in the six categories listed in C.6.c.i.; and Permittees shall require timely corrections of all actual and potential problems observed.

ii. Implementation Level

(1) **Wet Season Notification**
By September 1st of each year, each Permittee shall remind all sites disturbing one acre or more of soil to prepare for the upcoming wet season.

(2) **Frequency of Inspections**
Inspections shall be conducted monthly during the wet season[14] at the following sites:

(a) All construction sites disturbing one or more acre of land; and

(b) **High Priority Sites** – Other sites determined by the Permittee or for which the Water Board has designated as significant threats to water quality. In evaluating threat to water quality, the Permittee shall consider the following factors:

(i) Soil erosion potential or soil type;

(ii) Site slope;

(iii) Project size and type;

(iv) Sensitivity or receiving waterbodies;

(v) Proximity to receiving waterbodies;

(vi) Non-stormwater discharges; and

(vii) Any other relevant factors as determined by the local agency or specified to the Permittee by the Water Board.

(3) **Contents of Inspections**
Inspections shall focus on the adequacy and effectiveness of the site specific BMPs implemented for the six categories listed in C.6.c.i. Permittees shall require timely corrections of all actual and potential problems observed. Inspections of construction sites shall include, but are not limited to, the following:

(a) Assessment of compliance with Permittee's ordinances and permits related to urban runoff, including the implementation and

[14] For the purpose of inspections, the wet season is defined as October through April, but sites need to implement seasonally appropriate BMPs in the six categories listed in C.6.c.i throughout the year.

maintenance of the verified erosion/pollution control plan or SWPPP (from C.6.d.ii.(1));

(b) Assessment of the adequacy and effectiveness of the site specific BMPs implemented for the six categories listed in C.6.c.i.;

(c) Visual observations for:

- actual discharges of sediment and/or construction related materials into stormdrains and/or waterbodies.
- evidence of sediment and/or construction related materials discharges into stormdrains and/or waterbodies.
- illicit connections.
- potential illicit connections.

(d) Education on stormwater pollution prevention, as needed.

(4) **Tracking**

All inspections must be recorded on a written or electronic inspection form. Inspectors shall follow the ERP if a violation is noted and shall require timely corrections of all actual and potential problems observed. All violations must be corrected in a timely manner with the goal of correcting them before the next rain event but no longer than 10 business days after the violations are discovered. If more than 10 business days are required for compliance, a rationale shall be recorded on the inspection form.

Permittees shall track in an electronic database or tabular format all inspections. This electronic database or tabular format shall be made readily available to the Executive Officer and during inspections and audits by the Water Board staff or its representatives. This electronic database or tabular format shall record the following information for each site inspection:

(a) Site name;

(b) Inspection date;

(c) Weather during inspection;

(d) Enforcement Response Level (Use ERP);

(e) Problem(s) observed;

(f) Resolution of Problemst; and

(g) Comments, which shall include all Rationales for Longer Compliance Time.

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Deleted: , all escalation in enforcement discussions, and any other information that may be relevant to that site inspection

iii. Reporting

(1) In each Annual Report, each Permittee shall summarize the following information:

(a) Total number of active sites disturbing less than one acre of soil requiring inspection;

(b) Total number of active sites disturbing 1 acre or more of soil;

(c) Total number of inspections conducted;

(d) Number and percentage[15] of violations in each of the six categories listed in C.6.c.i.;

(e) Number and percentage[16] of each type of enforcement action taken as listed in each Permittee's ERP;

(f) Number and percentage[17] of violations fully corrected prior to the next rain event but no longer than 10 business days after the violations are discovered or otherwise considered corrected in a timely, though longer period; and

(g) Number and percentage[18] of violations not fully corrected 30 days after the violations are discovered.

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<#>Number of sites with discharges, actual and those inferred through evidence, of sediment or other construction related materials;¶

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(2) In each Annual Report, each Permittee shall evaluate its respective electronic database or tabular format and the summaries produced in C.6.e.iii.(3) above. This evaluation shall include findings on the program's strength, comparison to previous years' results, as well as areas that need more focused education for site owners, operators, and developers the following year.

(3) The Executive Officer may require that the information recorded and tracked by C.6.e.ii.(3) be submitted electronically or in a tabular format. Permittees shall submit the information within 10-working days of the Executive Officer's requirement. Submittal of the information in tabular form for the reporting year is not required in each Annual Report but encouraged.

C.6.f. Staff Training

i. Task Description – Permittees shall provide training or access to training for staff conducting construction stormwater inspections.

ii. Implementation Level – Permittees shall provide training at least every other year to municipal staff responsible for conducting construction site stormwater inspections.. Training topics will include information on correct uses of specific BMPs, proper installation and maintenance of BMPs, Permit requirements, local requirements, and ERP.

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[15] Percentage shall be calculated as number of violations in each category divided by total number of violations in all six categories.

[16] Percentage shall be calculated as number of each type of enforcement action divided by the total number of enforcement actions.

[17] Percentage shall be calculated as follows: number of violations fully corrected prior to the goal of the next rain event but no later than10 business days after the violations are discovered divided by the total number of violations for the reporting year.

[18] Percentage shall be calculated as follows: number of violations not fully corrected 30 days after the violations are discovered divided by the total number of violations for the reporting year.

iii. Reporting – Permittees shall include in each Annual Report information on training topics covered, dates of training, and the percentage of Permittees' inspectors attending each training. If no training in that year, so state.

C.7. Public Information and Outreach

Each Permittee shall increase the knowledge of the target audiences regarding the impacts of stormwater pollution on receiving water and potential solutions to mitigate the problems caused; change the waste disposal and runoff pollution generation behavior of target audiences by encouraging implementation of appropriate solutions; and involve various citizens in mitigating the impacts of stormwater pollution.

C.7.a. Storm Drain Inlet Marking

i. Task Description – Permittees shall mark and maintain at least 80 percent of municipally-maintained storm drain inlets with an appropriate stormwater pollution prevention message, such as "No dumping, drains to Bay" or equivalent. At least 80% of municipally-maintained storm drain inlet markings shall be inspected and maintained at least once per 5-year permit term. For newly approved, privately maintained streets, Permittees shall require inlet marking by the project developer upon construction and maintenance of markings through the development maintenance entity. Markings shall be verified prior to acceptance of the project.

ii. Implementation Level

(1) Inspect and maintain markings of at least 80 percent of municipality maintained inlets to ensure they are legibly labeled with a no dumping message or equivalent once per permit term.

(2) Verify that newly developed streets are marked prior to acceptance of the project.

iii. Reporting

(1) In the 2013 Annual Report, each Permittee shall report prior years' annual percentages of municipality maintained inlet markings inspected and maintained as legible with a no dumping message or equivalent.

(2) In the 2013 Annual Report, each Permittee shall report prior years' annual number of projects accepted after inlet markings were verified.

C.7.b. Advertising Campaigns

i. Task Description – Permittees shall participate in or contribute to advertising campaigns on trash/litter in waterways and pesticides with the goal of significantly increasing overall awareness of stormwater runoff pollution prevention messages and behavior changes in target audience.

ii. Implementation Level

(1) Target a broad audience with two separate advertising campaigns, one focused on reducing trash/litter in waterways and one focused on reducing impact of urban pesticides. The advertising campaigns may be coordinated regionally or county-wide.

(2) Permittees shall conduct a pre-campaign survey and a post-campaign survey to identify and quantify the audiences' knowledge, trends, and

attitudes and/or practices; and to measure the overall population awareness of the messages and behavior changes achieved by the two advertising campaigns. These surveys may be done regionally or county-wide.

iii. Reporting

(1) In the Annual Report following the pre-campaign survey, each Permittee (or the Countywide Program, if the survey was done county-wide or regionally) shall provide a report of the survey completed, which at minimum shall include the following:

- A summary of how the survey was implemented.
- A copy of the survey.
- A copy of the survey results.
- An analysis of the survey results.
- A discussion of the outreach strategies based on the survey results.
- A discussion of the planned or future advertising campaigns to influence awareness and behavior changes regarding trash/litter and pesticides.

(2) In the Annual Report following the post campaign survey, each Permittee (or the Countywide Program, if survey was done county-wide or regionally) shall provide a report of the survey completed, which at minimum shall include the information required in the pre-campaign report (C.7.b.iii.(1)) and the following:

- A discussion of the campaigns.
- A discussion of the measurable changes in awareness and behavior achieved.
- An update of outreach strategies based on the survey results.

C.7.c. Media Relations – Use of Free Media

i. Task Description – Permittees shall participate in or contribute to a media relations campaign. Maximize use of free media/media coverage with the objective of significantly increasing overall awareness of stormwater pollution prevention messages and associated behavior change in target audiences, and to achieve public goals.

ii. Implementation Level – Conduct a minimum of six pitches (e.g., press releases, public service announcements, and/or other means) per year at the county-wide program and/or regional level.

iii. Reporting – In each Annual Report, each Permittees shall include the details of each media pitch, such as the medium, date, and content of the pitch.

C.7.d. Stormwater Point of Contact

i. Task Description – Permittees shall individually or collectively create and maintain a point of contact, e.g., phone number or website, to provide the public

with information on watershed characteristics and stormwater pollution prevention alternatives.

ii. Implementation Level – Maintain and publicize one point of contact for information on stormwater issues. Permittees may combine this function with the complaint/spill contact required in C.5.

iii. Reporting – In the 2010 Annual Report, each Permittees shall discuss how this point of contact is publicized and maintained. If any change occurs in this contact, report in subsequent annual report.

C.7.e. Public Outreach Events

i. Task Description – Participate in and/or host events such as fairs, shows, workshops, (e.g., community events, street fairs and farmers markets), to reach a broad spectrum of the community with both general and specific stormwater runoff pollution prevention messages. Pollution prevention messages shall include encouraging residents to (1) wash cars at commercial car washing facilities, (2) use minimal detergent when washing cars, and (3) divert the car washing runoff to landscaped area.

ii. Implementation Level – Each Permittee shall annually participate and/or host the number of events according to its population, as shown in the table below:

Table 7.1 Public Outreach Events[19]

Permittee Population	Number of Outreach Events
< 10,000	2
10,001– 40,000	3
40,001 – 100,000	4
100,001 – 175,000	5
175,001 – 250,000	6
> 250,000	8
Non-population-based Permittees[20]	6

Should a public outreach event contain significant citizen involvement elements, the Permittee may claim credit for both Public Outreach Events (C.7.e.) and Citizen Involvement Events (C.7.g.).

iii. Reporting – In each Annual Report, each Permittees shall list the events (name of event, event location, and event date) participated in and assess the effectiveness of efforts with appropriate measures (e.g., success at reaching a broad spectrum of the community, number of participants compared to previous

[19] Permittees may claim individual credits for all events in which their Countywide Program or BASMAA participates, supports, and/or hosts, which are publicized to reach the Permittees jurisdiction.

[20] Alameda County Flood Control and Water Conservation District, Contra Costa Flood Control and Water Conservation District, Fairfield-Suisun Sewer District, Santa Clara Valley Water District, Vallejo Sanitation and Flood Control District, and Zone 7 of the Alameda County Flood Control and Water Conservation District

years, post-event survey results, quantity/volume materials cleaned up and comparisons to previous efforts).

C.7.f. Watershed Stewardship Collaborative Efforts

i. Task Description – Permittees shall individually or collectively encourage and support watershed stewardship collaborative efforts of community groups such as the Contra Costa Watershed Forum, the Santa Clara Basin Watershed Management Initiative, and "friends of creek" groups. If no such organizations exist, encourage and support development of grassroots watershed groups or engagement of an existing group, such as a neighborhood association, in watershed stewardship activities. Coordinate with existing groups to further stewardship efforts.

ii. Implementation Level – Annually demonstrate effort.

iii. Reporting – In each Annual Report, each Permittee shall state the level of effort, describe the support given, state what efforts were undertaken and the results of these efforts, and provide an evaluation of the effectiveness of these efforts.

C.7.g. Citizen Involvement Events

i. Task Description – Permittees shall individually or collectively, support citizen involvement events, which provide the opportunity for citizens to directly participate in water quality and aquatic habitat improvement, such as creek/shore clean-ups, adopt-an-inlet/creek/beach programs, volunteer monitoring, service learning activities such as storm drain inlet marking, community riparian restoration activities, community grants, other participation and/or host volunteer activities.

ii. Implementation Level – Each Permittee annually shall sponsor and/or host the number of citizen involvement events according to its population, as shown in the table below:

Table 7.2 Community Involvement Events[21]

Permittee Population	Number of Involvement Events
< 10,000	1
10,001 – 40,000	1
40,001 – 100,000	2
100,001 – 175,000	3
175,001 – 250,000	4
> 250,000	5
Non-population-based Permittees	2

[21] Permittees can claim individual credit for all events sponsored or hosted by their Countywide Program or BASMAA, which are publicized to reach the Permittee's jurisdiction.

Should a citizen involvement event contain significant public outreach elements, the Permittee may claim credit for both Citizen Involvement Events (C.7.g.) and Public Outreach Events (C.7.e.).

iii. Reporting – In each Annual Report, each Permittees shall list the events (name of event, event location, and event date) participated in and assess the effectiveness of efforts with appropriate measures (e.g., success at reaching a broad spectrum of the community, number of participants compared to previous years, post-event survey results, number of inlets/creeks/shores/parks/and such adopted, quantity/volume materials cleaned up, data trends, and comparisons to previous efforts).

C.7.h. School-Age Children Outreach

i. Task Description – Permittees shall individually or collectively implement outreach activities designed to increase awareness of stormwater and/or watershed message(s) in school-age children (K through 12).

ii. Implementation Level – Implement annually and demonstrate effectiveness of efforts through assessment.

iii. Reporting – In each Annual Report, each Permittees shall state the level of effort, spectrum of children reached, and methods used, and provide an evaluation of the effectiveness of these efforts.

C.7.i. Outreach to Municipal Officials

i. Task Description – Permittees shall conduct outreach to municipal officials. One alternative means of accomplishing this is through the use of the Nonpoint Education for Municipal Officials program (NEMO) to significantly increase overall awareness of stormwater and/or watershed message(s) among regional municipal officials.

ii. Implementation Level – At least once per permit cycle, or more often.

iii. Reporting – Permittees shall summarize efforts in the 2013 Annual Report.

C.8. Water Quality Monitoring

C.8.a. Compliance Options

i. Regional Collaboration – All Permittees shall comply with the monitoring requirements in C.8, however, Permittees may choose to comply with any requirement of this Provision through a collaborative effort to conduct or cause to be conducted the required monitoring in their jurisdictions. Where all or a majority of the Permittees collaborate to conduct water quality monitoring, this shall be considered a regional monitoring collaborative.

Where an existing collaborative body has initiated plans, before the adoption of this Permit, to conduct monitoring that would fulfill a requirement(s) of this Provision, but the monitoring would not meet this Provision's due date(s) by a year or less, the Permittees may request the Executive Officer adjust the due date(s) to synchronize with such efforts.

The types, quantities, and quality of data required within Provision C.8. establish the minimum level-of-effort that a regional monitoring collaborative must achieve. Provided these data types, quantities, and quality are obtained, a regional monitoring collaborative may develop its own sampling design.

ii. Implementation Schedule – Monitoring conducted through a regional monitoring collaborative shall commence data collection by December 2010. All other Permittee monitoring efforts shall commence data collection by 2011.

iii. Permittee Responsibilities – A Permittee may comply with the requirements in Provision C.8. by performing the following:

(1) Contributing to its stormwater countywide program, as determined appropriate by the Permittee members, so that the stormwater countywide Program conducts monitoring on behalf of its members;

(2) Contributing to a regional collaborative effort;

(3) Fulfilling monitoring requirements within its own jurisdictional boundaries; or

(4) A combination of the previous options, so that all requirements are fulfilled.

iv. Third-party Monitoring – Permittees may choose to fulfill requirements of Provision C.8. using data collected by citizen monitors or other third-party organizations, provided the data are demonstrated to meet the data quality objectives described in Provision C.8.i. Where an existing third-party organization has initiated plans to conduct monitoring that would fulfill a requirement(s) of this Provision, but the monitoring would not meet this Provision's due date(s) by a year or less, the Permittees may request that the Executive Officer adjust the due date(s) to synchronize with such efforts.

C.8.b. San Francisco Estuary Receiving Water Monitoring

With limited exceptions, urban runoff from the Permittees' jurisdictions ultimately discharges to the San Francisco Estuary. Monitoring of the Estuary is intended to answer questions such as:

- Are chemical concentrations in the Estuary potentially at levels of concern and are associated impacts likely?

  What are the concentrations and masses of contaminants in the Estuary and its segments?

  What are the sources, pathways, loadings, and processes leading to contaminant-related impacts in the Estuary?

  Have the concentrations, masses, and associated impacts of contaminants in the Estuary increased or decreased?

  What are the projected concentrations, masses, and associated impacts of contaminants in the Estuary?

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<#>Do pollutant concentration distributions indicate particular areas of origin or regions of potential ecological concern? ¶
<#>What are the likely consequences of various management actions or risk reduction measures? ¶
<#>For pollutants of concern, what are the magnitudes and temporal variations of concentrations and loadings? ¶
How do loads change over time in relation to management activities?

Permittees shall participate in implementing an Estuary receiving water monitoring program, at a minimum equivalent to the San Francisco Estuary Regional Monitoring Program for Trace Substances (RMP), by contributing their fair-share financially on an annual basis.

C.8.c. Status Monitoring/Rotating Watersheds

i. Status Monitoring is intended to answer these questions: Are water quality objectives, both numeric and narrative, being met in local receiving waters, including creek and stream tributaries? Are conditions in local receiving waters supportive of or likely to be supportive of beneficial uses?

ii. **Parameters and Methods** – Permittees shall conduct Status Monitoring using the parameters, methods, occurrences, durations, and minimum number of sampling sites as described in Table 8.1. Spring sampling shall be conducted during April and May; dry weather sampling shall be conducted during June, July, August and September.

iii. **Frequency** – Permittees shall complete the Status Monitoring in Table 8.1 at the following frequencies:

- Alameda Permittees – annually
- Contra Costa Permittees – annually
- Fairfield-Suisun Permittees – twice during the Permit term
- San Mateo Permittees – annually
- Santa Clara Permittees – annually
- Vallejo Permittees – once during the Permit term

Table 8.1 Status Monitoring Elements

Status Monitoring Parameter	Sampling and/or Analytical Method[22]	Minimum Sampling Occurrence[23]	Duration of Sampling	Minimum # Sample Sites to Monitor/Yr[24] Santa Clara & Alameda Permittees/ Contra Costa & San Mateo Permittees/ Fairfield-Suisun & Vallejo Permittees	Result(s) that Trigger a Monitoring Project in Provision C.8.d.i.
Biological Assessment[25] (Includes Physical Habitat Assessment and General Water Quality Parameters[26])	SWAMP procedure[27,28]	1/yr (Spring Sampling)	Grab sample	Spring 20 / 10 / 4	BMI metrics that indicate substantially degraded community as per Attachment G, Table G-1
Chlorine (Free and Total)	USEPA Std. Method 4500 Cl F[30]	2/yr Spring & Dry Seasons	Grab sample	Spring 20 / 10 / 2 Dry 3 / 2 / 1	After immediate resampling, concentrations remain > 0.08 mg/L

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[22] Refers to field protocol, instrumentation and/or laboratory protocol.
[23] Refers to the number of sampling events at a specific site in a given year.
[24] The number of sampling sites shown is based on the relative population in each Regional Stormwater Countywide Program and is listed in this order: Santa Clara & Alameda Countywide / Contra Costa & San Mateo Countywide / Vallejo & Fairfield-Suisun Programs.
[25] The same general location must be used to collect benthic community, sediment chemistry, and sediment toxicity samples.
[26] Includes dissolved oxygen, temperature, conductivity, pH and stream depth.
[27] Ode, P.R. 2007. Standard Operating Procedures for Collecting Benthic Macroinvertebrate Samples and Associated Physical and Chemical Data for Ambient Bioassessments in California, California State Water Resources Control Board Surface Water Ambient Monitoring Program (SWAMP), as subsequently revised (http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/phab_sopr6.pdf). Permittees may coordinate with Regional Board staff to modify their sampling procedures if these referenced procedures change during the Permit term.
[28] Biological assessments shall include benthic macroinvertebrates. Bioassessment sampling method shall be multihabitat reach-wide. Macroinvertebrates shall be identified according to the Standard Taxonomic Effort Level I of the Southwestern Association of Freshwater Invertebrate Taxonomists, using a fixed-count of 500 organisms per sample. Physical Habitat (PHab) Assessment shall include the SWAMP basic method plus 1) depth and pebble count + CPOM, 2) cobble embeddedness, 3) discharge measurements, and 4) in-stream habitat. PHab Assessment form is at http://www.waterboards.ca.gov/swamp/docs/reports/fieldforms_fullversion071007.pdf. Permittees may coordinate with Regional Board staff to modify these sampling procedures if SWAMP procedures change during the Permit term.
[30] The method of analysis shall achieve a method detection limit at least as low as that achieved by the Amperometric Titration Method (4500-Cl from *Standard Methods for Examination of Water and Wastewater*, Edition 20).

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Deleted: For algae, include mass (ash-free dry weight), chlorophyll *a*, diatom and soft algae taxonomy, silicate, and reachwide algal percent cover.

Status Monitoring Parameter	Sampling and/or Analytical Method[22]	Minimum Sampling Occurrence[23]	Duration of Sampling	Minimum # Sample Sites to Monitor/Yr[24] Santa Clara & Alameda Permittees/ Contra Costa & San Mateo Permittees/ Fairfield-Suisun & Vallejo Permittees	Result(s) that Trigger a Monitoring Project in Provision C.8.d.i.
General Water Quality[31]	Multi-Parameter Probe	1/yr (During June-Sept.)	15-minute intervals for 1-2 weeks	3 / 2 / 1	20% of results in one waterbody exceed one or more applicable water quality standard
Temperature	Digital Temperature Logger	60-minute intervals	60-minute intervals April through Sept.	8 / 4 / 1	20% of results in one waterbody exceed applicable water quality standard
Toxicity & Diazinon and Chlorpyrifos– Water Column[33]	Applicable SWAMP Comparable Method	1/yr (During Dry Season)	Grab or composite sample	3 / 2 / 1	If toxicity results < 50% of control results, repeat sample. If 2nd sample yields < 50% of control results, proceed to C.8.d.i.
Toxicity– Bedded Sediment, Fine-grained[34]	Applicable SWAMP Comparable Method	1/yr	Grab sample	6/4 / 1 At fine-grained depositional area at bottom of watershed	See Attachment G, Table G-1

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[31] Includes dissolved oxygen, temperature, conductivity, pH and stream depth.
[33] *US EPA three species toxicity tests: Selenastrum* growth and *Ceriodaphnia* and *Pimephales* with lethal and sublethal endpoints.
[34] Bedded sediments should be fine-grain from depositional areas. Grain size and TOC must be reported. Analytes shall include all of those reported in MacDonald (including copper, nickel, mercury, PCBs, DDT, chlordane, dieldrin) and pyrethroid pesticides. Coordinate with TMDL Provision requirements as applicable. MacDonald, D.D., G.G. Ingersoll, and T.A. Berger. 2000. Development and Evaluation of Consensus-based Sediment Quality Guidelines for Freshwater Ecosystems. *Archives of Environ. Contamination and Toxicology* 39(1):20–31

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	Status Monitoring Parameter	**Sampling and/or Analytical Method**[22]	**Minimum Sampling Occurrence**[23]	**Duration of Sampling**	**Minimum # Sample Sites to Monitor/Yr**[24] Santa Clara & Alameda Permittees/ Contra Costa & San Mateo Permittees/ Fairfield-Suisun & Vallejo Permittees	**Result(s) that Trigger a Monitoring Project in Provision C.8.d.i.**
	Pollutants – Bedded Sediment,[35] fine-grained	Applicable SWAMP Comparable Method Inc. grain size	1/yr	Grab sample	6/4 / 1 At fine-grained depositional area at bottom of watershed	See Attachment G, Table G-1
	Stream Survey (stream walk & mapping)[37]	USA[38] or equivalent	1 waterbody/yr	N/A	9 / 6 / 3 stream miles/year	N/A

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[35] Bedded sediments should be fine-grain from depositional areas. Grain size and TOC must be reported. Analytes shall include all of those reported in MacDonald (including copper, nickel, mercury, PCBs, DDT, chlordane, dieldrin) and pyrethroid pesticides. Coordinate with TMDL Provision requirements as applicable.

[37] The Stream Survey need not be repeated on a waterbody if a Stream Survey was completed on that waterbody within the previous four years.

[38] Center for Watershed Protection, Manual 10: *Unified Stream Assessment: A User's Manual*, February 2005.

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iv. Locations – For each sampling year (per C.8.c.iii.), Permittees shall select at least one waterbody to sample from the applicable list below. Locations shall be selected so that sampling is sufficient to characterize reaches of the waterbody(s). For example, Permittees required to collect a larger number of samples should sample two or more waterbodies, so that each sampling effort represents a reasonable reach length and/or type. Samples shall be collected in reaches that receive urban stormwater discharges, except in possible infrequent instances where non-urban-impacted stream samples are needed for comparison[39]. Waterbody selection shall be based on factors such as watershed area, land use, likelihood of urban runoff impacts, and existing monitoring data.

Table 8.2 Status Monitoring Locations – Waterbodies

SCVURPPP	ACCWP	CCCWP	SMCWPPP	FSUMRP	VALLEJO
Coyote Creek and tributaries	Arroyo Valle (below Livermore or lower)	Kirker Creek	San Pedro Creek and tributaries	Laurel Creek	Chabot Creek
Guadalupe River and tributaries	Arroyo Mocho	Mt. Diablo Creek	Pilarcitos Creek	Ledgewood Creek	Austin Creek & tributaries
San Tomas Creek and tributaries	Tassajara Creek	Walnut Creek and tributaries	Colma Creek		
Calabazas Creek	Alamo Creek	Rodeo Creek	San Bruno Creek and tributaries		
Permanente Creek and tributaries	Arroyo de la Laguna	Pinole Creek	Millbrae Creek and tributaries		
Stevens Creek and tributaries	Alameda Creek (at Fremont or below)	San Pablo Creek	Mills Creek and tributaries		
Matadero Creek and tributaries	San Lorenzo Creek & tribs	Alhambra Creek	Easton Creek and tributaries		
Adobe Creek	San Leandro Creek & tribs	Wildcat Creek	Sanchez Creek and tributaries		
Lower Penitencia Creek and tributaries	Oakland, Berkeley, or Albany Creeks		Burlingame Creek and tributaries		
Barron Creek			San Mateo Creek (below dam only)		
			Borel Creek & tributaries		
			Laurel Creek & tribs		
			Belmont Creek & tribs		
			Pulgas Creek & tribs		
			Cordilleras & tributaries		
			Redwood Creek & tribs		
			Atherton Creek & tribs		
			San Francisquito Creek and tributaries		

[39] Sampling efforts shall focus on stream reaches with urban stormwater system discharges. Sampling upstream of urban outfalls is not precluded where needed to meet sampling plan objectives.

v. Status Monitoring Results – When Status Monitoring produces results such as those described in the final column of Table 8.1, Permittees shall conduct Monitoring Project(s) as described in C.8.d.i.

vi.

C.8.d. Monitoring Projects – Permittees shall conduct the Monitoring Projects listed below.

i. Stressor/Source Identification – When Monitoring results trigger a follow-up action as indicated in Table 8.1, Permittees shall take the following actions. If the trigger stressor or source is reasonably ascertainable based on existing data, the Permittee may proceed directly to step 2. The first follow-up action shall be initiated as soon as possible, and no later than the second fiscal year after the sampling event that triggered the Monitoring Project.

(1) Conduct a site specific study (or non-site specific if the problem is wide-spread) in a stepwise process to attempt to identify and isolate the cause(s) of the trigger stressor/source. This study should follow guidance for Toxicity Reduction Evaluations (TRE)[41] or Toxicity Identification Evaluations (TIE).[42] A TRE, as adapted for urban stormwater data, allows Permittees to use other sources of information (such as industrial facility stormwater monitoring reports) in attempting to determine the trigger cause, potentially eliminating the need for a TIE. If a TRE does not result in identification of the stressor/source, Permittees shall conduct a TIE.

(2) Identify and evaluate the effectiveness of options for controlling the cause(s) of the trigger stressor/source.

(3) Implement one or more controls.

(4) Evaluate the reduction of the cause(s) of trigger stressor/source.

(5) Stressor/Source Identification Project Cap: Permittees who conduct this monitoring through a regional collaborative shall be required to initiate no

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Long-Term Monitoring is intended to detect exceedances of water quality objectives in receiving waters, update and refine estimates of mass emissions from MS4s, help assess long-term trends in pollutant concentrations and toxicity in receiving waters and sediment, and evaluate if stormwater discharges are causing or contributing to toxic impacts on aquatic life.¶
¶
<#>Parameters and Methods – Permittees shall conduct sampling pursuant to Table 8.3. Samples, other than sediment samples, shall be wet weather flow-weighted composite samples, collected during storm events that produce rainfall of at least 0.10 inch. Sampled storms should be separated by 21 days of dry weather, but, at a minimum, sampled storms must have 72 hours of antecedent dry weather. Samples must include the first rise in the hydrograph. ¶
<#>Frequency – Permittees shall conduct Long-Term Monitoring every other year (biennially). Where possible, Long-Term Monitoring should be done in conjunction with Pollutants of Concern Monitoring and/or SWAMP monitoring.¶
Table 8.3. Long-Term Monitoring Elements¶
Long-Term Monitoring Parame ... [3]

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[41] USEPA. August 1999. *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*. EPA/833B-99/002. Office of Wastewater Management, Washington, D.C.

[42] Select TIE methods from the following references after conferring with SWAMP personnel: For sediment: (1) Ho KT, Burgess R., Mount D, Norberg-King T, Hockett, RS. 2007. *Sediment toxicity identification evaluation: interstitial and whole methods for freshwater and marine sediments*. USEPA, Atlantic Ecology Division/Mid-Continental Ecology Division, Office of Research and Development, Narragansett, RI, or (2) Anderson, BS, Hunt, JW, Phillips, BM, Tjeerdema, RS. 2007. *Navigating the TMDL Process: Sediment Toxicity*. Final Report- 02-WSM-2. Water Environment Research Federation. 181 pp. For water column: (1) USEPA. 1991. *Methods for aquatic toxicity identification evaluations. Phase I Toxicity Characterization Procedures.* EPA 600/6-91/003. Office of Research and Development, Washington, DC., (2) USEPA. 1993. *Methods for aquatic toxicity identification evaluations. Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity*. EPA 600/R-92/080. Office of Research and Development, Washington, DC., or (3) USEPA. 1996. *Marine Toxicity Identification Evaluation (TIE), Phase I Guidance Document*. EPA/600/R-95/054. Office of Research and Development, Washington, DC.

more than ten Stressor/Source Identification projects during the Permit term in total, and at least three must be toxicity follow-ups, unless monitoring results do not indicate the presence of toxicity. If conducted through a stormwater countywide program, the Santa Clara and Alameda Permittees each shall be required to initiate no more than four (but no more than two for toxicity); the Contra Costa and San Mateo Permittees each shall be required to initiate no more than three (one for toxicity); and the Fairfield-Suisun and Vallejo Permittees each shall be required to initiate no more than one Stressor/Source Identification project(s) during the Permit term.

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(6) As long as Permittees have complied with the procedures set forth above, they do not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed to do so by the Water Board.

ii. BMP Effectiveness Investigation – Investigate the effectiveness of one BMP for stormwater treatment or hydrograph modification control. Permittees who do this project through a regional collaborative are required to initiate no more than one BMP Effectiveness Investigation during the Permit term. If conducted through a stormwater countywide program, the Santa Clara, Alameda, Contra Costa, and San Mateo Permittees shall be required to initiate one BMP Effectiveness Investigation each, and the Fairfield-Suisun and Vallejo Permittees shall be exempt from this requirement. The BMP(s) used to fulfill requirements of C.3.b.iii., C.11.e. and C.12.e. may be used to fulfill this requirement, provided the BMP Effectiveness Investigation includes the range of pollutants generally found in urban runoff. The BMP Effectiveness Investigation will not trigger a Stressor/Source Identification Project. Data from this Monitoring Project need not be SWAMP-comparable.

iii. Geomorphic Project – This monitoring is intended to answer the questions: How and where can our creeks be restored or protected to cost-effectively reduce the impacts of pollutants, increased flow rates, and increased flow durations of urban runoff?

Permittees shall select a waterbody/reach, preferably one that contains significant fish and wildlife resources, and conduct one of the following projects within each county, except that only one such project must be completed within the collective Fairfield-Suisun and Vallejo Permittees' jurisdictions:

(1) Gather geomorphic data to support the efforts of a local watershed partnership[43] to improve creek conditions; or

(2) Inventory locations for potential retrofit projects in which decentralized, landscape-based stormwater retention units can be installed; or

(3) Conduct a geomorphic study which will help in development of regional curves which help estimate equilibrium channel conditions for different-

[43] A list of local watershed partnerships may be obtained from Water Board staff.

sized drainages. Select a waterbody/reach that is not undergoing changing land use. Collect and report the following data:

- Formally surveyed channel dimensions (profile), planform, and cross-sections. Cross-sections shall include the topmost floodplain terrace and be marked by a permanent, protruding (not flush with ground) monument.
- Contributing drainage area.
- Best available information on bankfull discharges and width and depth of channel formed by bankfull discharges.
- Best available information on average annual rainfall in the study area.

Permittees shall complete the selected geomorphic project so that project results are reported in the Integrated Monitoring Report (see Provision C.8.h.iii.).

iv. Nutrient Characterization Study—Within 4 years of the adoption of this Order, Permittees shall design a plan for conducting a nutrient characterization study for local creeks/rivers designed to answer the following management questions:

1. What are the ranges, variations and average concentrations of nutrients in Bay Area creeks /rivers during storm events and dry weather periods?

2. Are nutrient impacts to acquatic biological communities (algae and invertebrates) evident?

At a minimum, the nutrient characterization plan should include the following:

- A literature review of nutrient concentrations and associated impacts to biological communities;
- A summary of readily available data collected to-date in Bay Area creeks/rivers;
- A workplan for collection and analysis of additional water quality and biological community samples needed to answer the management questions presented above. At a minimum, the data collection workplan shall provide for the analysis of water samples during storm events and the dry season. Parameters should include dissolved organic carbon, ammonia, nitrite, nitrate, orthophosphate and periphyton bioassessments. Periphyton should also be analyzed for chlorophyll-a and ash-free dry weight.

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C.8.e. Pollutants of Concern Monitoring

This monitoring is intended to assess inputs of Pollutants of Concern to the Bay from local tributaries and urban runoff, assess progress toward wasteload allocations (WLAs) established under TMDLs and help resolve uncertainties associated with loading estimates for these pollutants. Permittees shall implement the following monitoring components, unless after conferring with the Regional SWAMP program and the Executive Officer, an alternate Pollutant of Concern Monitoring program is agreed upon.

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i. Loads Monitoring Locations – Permittees shall conduct Pollutant of Concern Monitoring at stations listed below collaboratively or, as applicable to their jurisdictions.

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(1) Castro Valley Creek S3 at USGS gauging station in Castro Valley

(2) Guadalupe River

(3) Zone 4 Line A at Chabot Road in Hayward

(4) Rheem Creek at Giant Road in Richmond

(5) Walnut Creek at a downstream location

(6) Calabazas Creek at Lakeside Drive in Sunnyvale, at border with Santa Clara

(7) San Mateo Creek at downstream location

(8) Laurel Creek at Laurie Meadows park, off Casanova Drive in City of San Mateo.

ii. Parameters and Frequencies – Permittees shall conduct Pollutant of Concern sampling pursuant to Table 8.5. In Table 8.5, Category 1 pollutants are those for which the Water Board has active water quality attainment strategies (WQAS), such as TMDL or site-specific objective projects. Category 2 pollutants are those for which WQAS are in development. The lower monitoring frequency for Category 2 pollutants is sufficient to develop preliminary loading estimates for these pollutants.

iii. Protocols – At a minimum, Pollutants of Concern sampling and analysis protocols shall be consistent with 40 CFR 122.21(g)(7)(ii).

iv. Methods – Methyl mercury samples shall be grab samples collected during storm events that produce rainfall of at least 0.10 inch, shall be frozen immediately upon collection, and shall be kept frozen during transport to the laboratory. All other samples shall be wet weather flow-weighted composite samples, collected during storm events that produce rainfall of at least 0.10 inch. Sampled storms should be separated by 21 days of dry weather, but, at a minimum, sampled storms must have 72 hours of antecedent dry weather. Samples must include the first rise in the hydrograph.

Table 8.5 Pollutants of Concern Loads Monitoring Elements

Category/Parameter	Sampling Years	Minimum Sampling Occurrence	Sampling Interval
Category 1 • Total and Dissolved Copper • Total Mercury[44] • Methyl Mercury • Total PCBs[45] • Suspended Sediments (SSC) • Total Organic Carbon	Annually	Average of 4 wet weather events per year For methyl mercury only: average of 2 wet & 2 dry weather events per year	Flow-weighted composite For methyl mercury only: grab samples collected during the first rise in the hydrograph of a storm event.
Category 2 • Total and Dissolved Selenium • Total PBDEs (Polybrominated Diphenyl Ethers) • Total PAHs (Poly-Aromatic Hydrocarbons) • Chlordane • DDTs (Dichloro-Diphenyl-Trichloroethane) • Dieldrin • Pyrethroids - bifenthrin, cyfluthrin, beta-cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, lambda-cyhalothrin, permethrin, and tralomethrin; carboryl; and fipronil •	Year 2 of Permit term and Year 4 of Permit term	2 times per year	Flow-weighted composite

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v. Sediment Delivery Estimate/Budget – The objective of this monitoring is to develop a strong estimate of the amount of sediment entering the Bay from local tributaries and urban drainages. By July 1, 2011, Permittees shall develop a design for a robust sediment delivery estimate/sediment budget in local tributaries and urban drainages. Permittees shall implement the study by July 1, 2012.

vi. Emerging Pollutants – Permittees shall develop a work plan and schedule for initial loading estimates and source analyses for emerging pollutants: endocrine-disrupting compounds, PFOS/PFAS (Perfluorooctane Sulfonates (PFOS), Perfluoroalkyl sulfonates (PFAS); these perfluorocompounds are related to Teflon products), and NP/NPEs (nonylphenols/nonylphenol esters —estrogen-like compounds). This work plan, which is to be implemented in the next Permit term, shall be submitted with the Integrated Monitoring Report (see Provision C.8.g.).

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[44] The monitoring type and frequency shown for mercury is not sufficient to determine progress toward achieving TMDL load allocations. Progress toward achieving load allocations will be accomplished by assessing loads avoided resulting from treatment, source control, and pollution prevention actions.

[45] The monitoring type and frequency shown for PCBs is not sufficient to determine progress toward achieving TMDL load allocations. Progress toward achieving load allocations will be accomplished by assessing loads avoided resulting from treatment, source control, and pollution prevention actions.

C.8.f. Citizen Monitoring and Participation

i. Permittees shall encourage Citizen Monitoring.

ii. In developing Monitoring Projects and evaluating Status & Trends data, Permittees shall make reasonable efforts to seek out citizen and stakeholder information and comment regarding waterbody function and quality.

iii. Permittees shall demonstrate annually that they have encouraged citizen and stakeholder observations and reporting of waterbody conditions. Permittees shall report on these outreach efforts in the annual Urban Creeks Monitoring Report.

C.8.g. Reporting

i. **Water Quality Standard Exceedence** – When data indicate that stormwater runoff or dry weather discharges are or may be causing or contributing to exceedance(s) of applicable water quality standards, including narrative standards, a discussion of possible pollutant sources shall be included in the Urban Creeks Monitoring Report. When receiving water data give rise to a determination of an exceedance of applicable water quality standards, the Permittees shall comply as specified in Provision C.1.

ii. **Status & Trends Electronic Reporting** – Beginning in 2010, Permittees shall submit an Electronic Status & Trends Data Report no later than September 30 of each year, reporting on all data consistent with Provision C.8.h received during the foregoing July 1–June 30 period. Electronic Status & Trends Data Reports shall be in a format compatible with the SWAMP database.[46] Water Quality Objective exceedances shall be be addressed as specified in subsection i above.

iii. **Urban Creeks Monitoring Report** – Permittees shall submit a comprehensive Urban Creeks Monitoring Report no later than March 15 of each year, reporting on all data collected during the foregoing July 1–June 30 period, with the initial report due March 15, 2011, unless the Permittees choose to monitor through a regional collaborative, in which case the due date is March 15, 2012. Each Urban Creeks Monitoring Report shall contain summaries of Status Monitoring, Monitoring Projects, and Pollutants of Concern Monitoring including, as appropriate, the following:

(1) Maps and descriptions of all monitoring locations;

(2) Data tables and graphical data summaries; Constituents that exceed applicable water quality standards shall be highlighted;

(3) For all data, a statement of the data quality;

(4) An analysis of the data, which shall include the following:

- Calculations of biological metrics and physical habitat endpoints.
- Comparison of biological metrics to:
  - Each other

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[46] See http://mpsl.mlml.calstate.edu/swdataformats.htm

- Any applicable, available reference site(s)
- Any applicable, available index of biotic integrity
- Physical habitat endpoints.

- Identification and analysis of any long-term trends in stormwater or receiving water quality.
- For Pollutants of Concern – methods, data, calculations, and load estimates, for each Pollutant of Concern Monitoring parameter.

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(5) A discussion of the data for each monitoring program component, which shall:

- Discuss monitoring data relative to prior conditions, beneficial uses and applicable water quality standards as described in the Basin Plan, the Ocean Plan, or the California Toxics Rule or other applicable water quality control plans.
- Develop hypotheses to investigate regarding pollutant sources, trends, and BMP effectiveness.
- Identify and prioritize water quality problems.
- Identify potential sources of water quality problems.
- Describe follow-up actions.
- Identify management actions needed to address water quality problems.

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iv. Monitoring Project Reports – Permittees shall report on the status of each ongoing Monitoring Project in each annual Urban Creeks Monitoring Report. In addition, Permittees shall submit stand-alone summary reports within six months of completing BMP Effectiveness and Geomorphic Projects; these reports shall include: a description of the project; map(s) of project locations; data tables and summaries; and discussion of results.

v. Integrated Monitoring Report – No later than March 15, 2014, Permittees shall prepare and submit an Integrated Monitoring Report through the regional collaborative monitoring effort on behalf of all participating Permittees, or on a countywide basis on behalf of participating Permittees, so that all monitoring conducted during the Permit term is reported.[47] This report shall be in lieu of the Annual Urban Creeks Monitoring Report due on March 15, 2014. The report shall include, but not be limited to, a comprehensive analysis of all data collected pursuant to Provision C.8., and may include other pertinent studies. The report shall include recommendations for future monitoring. This report will be deemed part of the next Report of Waste Discharge for the reissuance of this Permit.

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vi. Standard Report Content –All monitoring reports shall include the following:

[47] Permittees who do not participate in the Regional Monitoring Group or in a stormwater countywide program must submit an individual Integrated Receiving Water Impacts Report.

- The purpose of the monitoring and briefly describe the study design rationale.
- Quality Assurance/Quality Control summaries for sample collection and analytical methods, including a discussion of any limitations of the data.
- Brief descriptions of sampling protocols and analytical methods.
- Sample location description, including waterbody name and segment and latitude and longitude coordinates.
- Sample ID, collection date (and time if relevant), media (e.g., water, filtered water, bed sediment, tissue).
- Concentrations detected, measurement units, and detection limits.
- Assessment, analysis, and interpretation of the data for each monitoring program component.
- Pollutant load and concentration at each mass emissions station.
- A listing of volunteer and other non-Permittee entities whose data are included in the report.
- Assessment of compliance with applicable water quality standards.
- A signed certification statement.

vii. Data Accessibility – Permittees shall make electronic reports available through their Web sites or through a regional data center. Permittees shall notify stakeholders and members of the general public about the availability of electronic and paper monitoring reports through notices distributed through appropriate means, such as an electronic mailing list.

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C.8.h. Monitoring Protocols and Data Quality

Where applicable, monitoring data must be SWAMP comparable, in terms of methods and quality. Minimum data quality shall be consistent with the latest version of the SWAMP Quality Assurance Project Plan (QAPP) for applicable parameters, including data quality objectives, field and laboratory blanks, field duplicates, laboratory spikes, and clean techniques, using the most recent Standard Operating Procedures. A Regional Monitoring Collaborative may adapt the SWAMP QAPP for use in conducting monitoring in the San Francisco Bay Region, and may use such QAPP if acceptable to the Executive Officer.

C.9. Pesticides Toxicity Control

To prevent the impairment of urban streams by pesticide-related toxicity, Permittees shall implement a pesticide toxicity control program that addresses their own and others' use of pesticides within their jurisdictions that pose a threat to water quality and that have the potential to enter the municipal conveyance system. Pesticides of concern include: organophosphorous pesticides (chlorpyrifos, diazinon, and malathion); pyrethroids (bifenthrin, cyfluthrin, beta-cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, lambda-cyhalothrin, permethrin, and tralomethrin); carboryl; and fipronil. Permittees may coordinate with BASMAA, the Urban Pesticide Pollution Prevention Project, the Urban Pesticide Committee, and other agencies and organizations in carrying out these activities.

C.9.a. Adopt an Integrated Pest Management (IPM) Policy or Ordinance

i. Task Description – In their IPM policies or ordinances, Permittees shall include provisions to minimize reliance on pesticides that threaten water quality and to require the use of IPM in municipal operations and on municipal property.

ii. Implementation Level – If not already in place, Permittees shall adopt IPM policies or ordinances no later than July 1, 2010.

iii. Reporting – Permittees shall submit a copy of their IPM ordinance(s) or policy(s) in the 2010 Annual Report.

C.9.b. Implement IPM Policy or Ordinance

i. Task Description – Permittees shall establish written standard operating procedures for pesticide use that ensure implementation of the IPM policy or ordinance and require municipal employees and contractors to adhere to the IPM standard operating procedures.

ii. Reporting

(1) In the Annual Report, Permittees shall report on IPM implementation by showing trends in quantities and types of pesticide used, and suggest reasons for increases in use of pesticides that threaten water quality, specifically organophosphorous pesticides, pyrethroids, carboryl, and fipronil.

(2) Permittees shall maintain pesticide application standard operating procedures and submit them upon request.

C.9.c. Train Municipal Employees

i. Task Description – Permittees shall ensure that all municipal employees who, within the scope of their duties, apply or use pesticides that threaten water quality are trained in IPM practices and the Permittee's IPM policy.

ii. Reporting

(1) In the Annual Report, Permittees shall report the percentage of municipal employees who apply pesticides who have received training in IPM policy and IPM standard operating procedures within the last three years.

(2) Permittees shall submit training materials (e.g., course outline, date, attendees) upon request.

C.9.d. Require Contractors to Implement IPM

i. Task Description – Permittees shall hire IPM-certified contractors or include contract specifications requiring contractors to implement IPM no later than July 1, 2010.

ii. Reporting – In the Annual Report, Permittees shall submit documentation to confirm compliance, such as the Permittee's standard contract specification or copy of contractors' certification(s).

C.9.e. Track and Participate in Relevant Regulatory Processes (may be done jointly with other Permittees, such as through CASQA or BASMAA and/or the Urban Pesticide Pollution Prevention Project)

i. Task Description

(1) Permittees shall track USEPA pesticide evaluation and registration activities as they relate to surface water quality, and when necessary, encourage USEPA to coordinate implementation of the Federal Insecticide, Fungicide, and Rodenticide Act and the CWA and to accommodate water quality concerns within its pesticide registration process;

(2) Permittees shall track California Department of Pesticide Regulation (DPR) pesticide evaluation activities as they relate to surface water quality, and when necessary, encourage DPR to coordinate implementation of the California Food and Agriculture Code with California Water Code and to accommodate water quality concerns within its pesticide evaluation process;

(3) Permittees shall assemble and submit information (such as monitoring data) as needed to assist the California DPR and County Agricultural Commissioners in ensuring that pesticide applications comply with water quality standards; and

(4) As appropriate, Permittees shall submit comment letters on USEPA and California DPR re-registration, re-evaluation, and other actions relating to pesticides of concern for water quality.

ii. Reporting – In the Annual Report, Permittees who participate in a regional effort to comply with C.9.e. may reference a regional report that summarizes regional participation efforts, information submitted, and how regulatory actions were affected. All other Permittees shall list their specific participation efforts, information submitted, and how regulatory actions were affected.

C.9.f. Interface with County Agricultural Commissioners

i. Task Description – Permittees shall maintain regular communications with county agricultural commissioners (or other appropriate State and/or local agencies) to (1) get input and assistance on urban pest management practices and use of pesticides, (2) inform them of water quality issues related to pesticides, and (3) report violations of pesticide regulations (e.g., illegal handling) associated with stormwater management.

ii. Reporting – In the Annual Report, Permittees shall summarize improper pesticide usage reported to county agricultural commissioners and report follow-up actions to correct violations.

C.9.g. Evaluate Implementation of Source Control Actions Relating to Pesticides

i. Task Description – Permittees shall evaluate the effectiveness of the control measures implemented, evaluate attainment of pesticide concentration and toxicity targets for water and sediment from monitoring data (Provision C.8.), and identify improvements to existing control measures and/or additional control measures, if needed, to attain targets with an implementation time schedule.

ii. Reporting – In the 2013 Annual Report, Permittees shall report the evaluation results, and if needed, submit a plan to implement improved and/or new control measures.

C.9.h. Public Outreach (may be done jointly with other Permittees, such as through CASQA or BASMAA and/or the Urban Pesticide Pollution Prevention Project)

i. Point of Purchase Outreach: Permittees shall:

(1) Conduct outreach to consumers at the point of purchase;

(2) Provide targeted information on proper pesticide use and disposal, potential adverse impacts on water quality, and less toxic methods of pest prevention and control; and

(3) Participate in and provide resources for the "Our Water, Our World" program or a functionally equivalent pesticide use reduction outreach program.

ii. Reporting – In the Annual Report, Permittees who participate in a regional effort to comply with C.9.h.i. may reference a report that summarizes these actions. All other Permittees shall summarize activities completed and document any measurable awareness and behavior changes resulting from outreach.

iii. Pest Control Contracting Outreach: Permittees shall conduct outreach to residents who use or contract for structural or landscape pest control and shall:

(1) Provide targeted information on proper pesticide use and disposal, potential adverse impacts on water quality, and less toxic methods of pest prevention and control, including IPM;

(2) Incorporate IPM messages into general outreach;

(3) Provide information to residents about "Our Water, Our World" or functionally equivalent program;

(4) Provide information to residents about EcoWise IPM certification in Structural Pest Management, or functionally equivalent certification program, and provide resources for such a certification program if needed to augment grant funding; and

(5) Coordinate with household hazardous-waste programs to facilitate appropriate pesticide waste disposal, conduct education and outreach, and promote appropriate disposal.

iv. **Reporting –** In the 2013 Annual Report, Permittees who participate in a regional effort to comply with C.9.h.iii. may reference a report that summarizes these actions. All other Permittees shall document the effectiveness of their actions in the 2013 Annual Report. This documentation may include percentages of residents hiring certified IPM providers and the change in this percentage.

v. **Outreach to Pest Control Operators:** Permittees shall conduct outreach to pest control operators (PCOs) and landscapers; work with DPR, county agricultural commissioners, UC-IPM, BASMAA, the Urban Pesticide Committee, the EcoWise Certified Program (or functionally equivalent certification program), the Bio-integral Resource Center and others to promote IPM to PCOs and landscapers.

vi. **Reporting –** In each Annual Report, Permittees who participate in a regional effort to comply with C.9.h.iv. may reference a report that summarizes these actions. All other Permittees shall summarize how they reached PCOs and landscapers and reduced pesticide use.

C.10. Trash Reduction

C.10.a. Implement Enhanced Trash Control Actions, Including Full Trash Capture Device Installations – Demonstrate Improved Trash Assessments at Trash Hot Spots – Attain Trash Assessment Goal

i. Goal Statement: The purpose of this provision is to begin implementation of a wider set of trash management and trash capture tools in the Region, to prevent trash, litter and debris (trash) impacts to Regional waters and the Bay over the long term, and to demonstrate significant, tangible progress in cleaning up adverse trash impacts to creeks over the short term of the five year permit implementation cycle.

ii. Trash Hot Spot Selection – Permittees shall identify high trash impacted locations on State waters totaling at least one Trash Hot Spot (hot spot) per 30,000 population or per 100 acres of Retail/Wholesale Commercial Land Area, whichever is greater, within their jurisdictions based on ABAG 2005 data.[48] If the hot spot number by one of the two determination methods is more than twice that determined by the other method, double the smaller hot spot number shall be used. Otherwise, the larger hot spot number determined by the two methods shall be the hot spot assignment for each Permittee. Each Permittee shall select at least one trash hot spot and is required to select no more than twenty during the term of this Permit. For non-population-based Permittees, the number of hot spots to be assessed shall be as provided in Table 10-1. The hot spots should be the waters within the Permittees' jurisdiction that are the most impacted by trash via the various potential sources such as stormwater wash off from the upstream stormwater catchment and direct dumping and littering. The Permittees shall prioritize hot spots and catchments previously identified through past assessment efforts or maintenance experience as stream segments with high trash impact, transport or accumulation.

Trash Hot Spots shall be at least 100 yards of creek length or 200 yards of shoreline length, and shall be no more closely spaced than ¼ mile. Permittees shall choose the accessible aquatic sites that are most impacted by accumulation of trash within their jurisdictions, with the presumption that waters listed for trash on the existing 303(d) list are likely the highest priority. Selected hot spots will be proposed to the Water Board by February 1, 2010, with information from at least one assessment and photo documentation included with the submittal, and including map information. The photo documentation shall consist of four photos per hot spot, one taken from each end, upstream and downstream, toward the middle or center of the hot spot area, and two from center toward each end of the hot spot area. Proposed Hot spots must be assessed at least once, and the assessment scores and photos of the sites shall be included in the February 2010 Hot Spot Report. The Trash Hot Spots will be publicized on the Water Board web page to enable public review and comment for a minimum of 30 days.

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Deleted: Trash is directly washed into the storm drain system, including creeks, by stormwater runoff. Trash also impacts creeks and other waters through dumping and littering, and by other means such as wind transport. Trash is then washed into the Bay and the ocean, where it can cause impact for years on aquatic life through ingestion, entanglement, and by absorbing and then leaching organic chemical pollutants into receiving waters and aquatic organisms. While Permittees have completed some assessment of trash impacts in Santa Clara and San Mateo counties, and have implemented some trash capture devices, notably in Oakland, Sunnyvale and San Jose, greater efforts are needed to manage trash impacts.

Deleted: The actions required in this five-year permit term are unlikely to eliminate the impact of trash on beneficial uses or achieve the Basin Plan water quality standard for this pollutant after five years. These requirements represent a first phase of implementation and will require the Permittees to begin actions and develop expertise to achieve trash impact elimination through implementation of the long-term strategy that will be developed during this permit term. The approach of this provision affords Permittees flexibility to employ trash management actions in the most efficient manner, while including accountability through focusing on Trash Hot Spot clean-up to an interim standard or Trash Action Level (TAL). ¶
In addition, a requirement for Permittees to install and maintain Full Trash Capture Devices is included, at an initial pilot scale of deployment, to enable Permittees to learn the best devices and most efficient placement of these trash capture technologies for our Region. Trash capture devices shall be installed on catchment area equal to 30% of Retail/Wholesale Commercial Land as defined in Association of Bay Area Governments (ABAG) 2005 land use statistics.[48] This effort is required to both address areas in which other trash control measures are insufficient alone to control trash impacts to waters.¶

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Water Board staff will respond to the trash hot spot proposals within 60 days of the close of the public comment period either affirmatively with Executive Officer approval, or by requesting alternate hot spot locations based on public input. If neither Executive Officer approval nor a list of requested alternative hot spot locations is received by the Permittees 60 days after the submission of their Hot Spot Report, the hot spot selections are approved.

Table 10-1. Non-Population Based Permittee Trash Hot Spot Assignments

Non population based Permittee	Number of Trash Hot Spots	
Santa Clara Valley Water District	12	
Alameda County Flood Control	9	
Alameda Co. Zone 7	3	
Contra Costa County Flood Control	6	
San Mateo County Flood Control	4	
Vallejo Sanitation District	1	
Fairfield-Suisun Sanitary District	1	

iii. Trash Hot Spot Goal – The trash host spot goal (THSG) for this permit cycle, which does not represent full attainment of the Basin Plan trash prohibition or water quality objectives for trash, will be100 pieces of trash or less per 100 foot assessment reach.[49]

iv. Trash Capture Requirement

Permittees, except for those listed in Table 10-1, will install trash capture devices meeting the Los Angeles Regional Water Board definition of Full Trash Capture Devices, which are defined as any device or series of devices that trap all particles retained by a 5mm mesh screen and that has a hydraulic design treatment capacity of not less than the peak flow rate resulting from a one-year, one-hour storm in the storm drainage catchment area draining to the device(s).

[49] This THSG is consistent with the "Urban Optimal" level of the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) version of the Water Board developed Rapid Trash Assessment method (Urban RTA) Attachment 10.1.

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Deleted: High trash generation areas include, but are not limited to high vehicle and pedestrian traffic streets and highways, high use commercial areas including shopping malls, fast food restaurant areas, schools, major event locations, and sports venues, areas of intensive public access such as parks, trails, and road crossings, and direct illicit dumping areas and homeless encampments.

Deleted: The Permittees shall prioritize hot spots and catchments previously identified through past assessment efforts or maintenance experience as stream segments with high trash impact, transport or accumulation.

Deleted: Trash or litter is defined in California Government Code Section 68055.1(g), as follows: "Litter means all improperly discarded waste material, including, but not limited to, convenience food, beverage, and other product ... [4]

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Population-based Permittees shall install these capture devices to treat a catchment area draining a total of 30% of the ABAG 2005 Retail/Wholesale Commercial Land Use amount for their jurisdiction.[50] Permittees shall install trash capture devices by July 1, 2013. Non-Population-based Permittees shall address the hot spots they assess which do not meet the TAL with equivalently effective measures.

Permittees may collaborate to install full capture systems at strategic locations with cost-sharing as an alternative to comply with trash capture requirements. The resulting installations must fulfill the combined obligations of the participating Permittees, though the installations may be outside of their jurisdictions.

Previously Installed Capture Device Credit - Credit can be claimed for trash capture devices meeting the full capture definition installed and maintained by the Permittees after January 1, 2003.

v. **Small Permittees exempt from trash capture requirement.** If a population based Permittee has a population below 12,000, and if retail/wholesale commercial land area is also less than 40 acres, or if population alone is less than 2000, (Fact Sheet Attachment 10.1) no trash capture installation is required.

vi. **Booms or sea curtains** may be substituted for up to 25% of the area required to be addressed by Full Trash Capture Devices. Booms or sea curtains are not full trash capture devices, but are effective for removal of floating trash in high volume, particularly at the mouths of large conveyances emptying into lakes and ponds, and the downstream intersection of creeks with tidal influence where large amounts of floating trash is accessible. Booms shall be maintained at least weekly through removal of all captured trash. Booms or curtains shall also be inspected for necessary maintenance within 24 hours after any 0.1 inch storm event.

vii. **Trash Source Reduction** – Permittees shall make efforts to adopt or strengthen and increase implementation and enforcement of local laws and ordinances to impact on how solid waste, trash and litter are managed, reduced at the source and litter reduction enforced within their jurisdictions. Bans or controls on use of non-biodegradable packaging and bags and adoption and implementation of parking restriction ordinances to clear the curbs on street sweeping days are examples. Increased fines for littering and dumping, and increased enforcement can also be effective. Institution of taxes or fees on high litter generating businesses or activities to fund targeted control and clean-up efforts are also examples. Adoption and implementation of significant new, or implementation of major existing legal measures to reduce trash and litter at the source by 2012 Annual Report will reduce the Permittee's trash capture installation requirement by 20%. Significant litter reduction measures adopted and implemented since January 1, 2003 may also be counted for purposes of the above.

C.10.b. Trash Hot Spot Assessment

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[50] [http://quake.abag.ca.gov/mitigation/pickdbh2.html] Association of Bay Area Governments, 2005 ABAG Land Use Existing Land Use in 2005: Report and Data for Bay Area Counties

i. Assessment and Reporting

Permittees shall assess trash at their designated trash hot spots relative to the THSG at least once a year or twice during the term of the permit for each approved Trash Hot Spot during the dry season. Assessments may be limited to Urban RTA Parameter 1 (Level of Trash) and Parameter 2 (Actual Number of Trash Items Found) except that at least one assessment during year two (2010) and at least one assessment during year four (2012) must include all six Urban RTA Parameters. If a trash assessment scores less than 10 pieces of trash per 100 feet, two years in a row, assessment can be reduced to once every two years. The assessments shall be augmented by photo documentation as described in C.10.a.ii., which shall be reported with the assessments in the annual report.

Assessment of full trash capture device and boom/sea curtain effectiveness shall consist of documenting and reporting volume of trash removed from these devices on an annual basis, and any change in downstream Trash Hot Spot condition.

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C.10.c. Long-Term Plan for Trash Impact Abatement

The Permittees, acting individually or collectively, shall create a long-term trash management plan to further reduce trash impacts on beneficial uses within their jurisdictions to the maximum extent practicable, with the long term goal of supporting beneficial uses by 2029. This plan fshall be submitted with their 2014 Annual Reports.

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C.10.d. Reporting

i. Trash Hot Spot Selection Report – February 1, 2010

Permittees shall propose their required number of Trash Hot Spots in a brief report including at least one trash assessment and four photos for each hot spot, and map information as described in C.10.a.ii.

ii. 2010 Annual Report: Permittees shall report the results of assessments of Trash Hot Spots, including photos, and compare assessment results with the TAL. Permittees shall report all new and relevant local laws and ordinances adopted which impact on how solid waste, trash and litter are managed and litter reduction enforced. Permittees shall report adoption and implementation of all existing and relevant local laws and ordinances which impact on how solid waste, trash and litter are managed and litter reduction enforced. Such laws and ordinances include, but are not limited to, plastic shopping bag bans, polystyrene foam container bans, litter tax on high litter generation businesses, parking restrictions to clear the curb on street sweeping days, and displacement of creek-side homeless encampment.

iii. 2011 Annual Report: Permittees shall report the results of assessments of trash hot spots, including photos, and compare assessment results with the THSG.

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Permittees shall report steps toward establishing pilot full trash capture device installation locations, design and funding. Permittees shall report adoption of all

new and relevant local laws and ordinances which impact on how solid waste, trash and litter are managed and litter reduction enforced.

iv. 2012 Annual Report: Permittees shall report the results of assessments of Trash Hot Spots, including photos, and compare assessment results with the THSG. Report whether the THSG has been achieved at the trash hot spots. If THSG has not been achieved, the Permitte shall either report on additional actions aimed at further reducing trash at each Trash Hot Spot not meeting the THSG or present justification for redirecting resources to other locations.

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Permittees shall report on design, locations and funding for full trash capture device installation.

Permittees shall report the adoption of all new and relevant local laws and ordinances which impact on how solid waste, trash and litter are managed, reduced and litter reduction enforced.

v. 2013 Annual Report: Permittees shall report the results of assessments of trash hot spots, including photos, and compare assessment results with the THSG.

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Permittees shall report compliance with the full trash capture device installation requirement and begin documentation of annual volume of collected trash. Permittees shall report adoption of all new and relevant local laws and ordinances that effect the manner in which solid waste, trash and litter are managed and litter reduction enforced. Permittees shall report the effectiveness of those legal measures targeted at reducing trash and litter at the source.

vi. 2014 Annual Report: The Long-Term Plan for Trash Abatement (C.10.d.) shall be submitted with this Annual Report.

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C.11. Mercury and PCB Controls

Permittees shall implement the following control programs for mercury and PCBs. The Permittees shall perform the control measures and provide reporting on those control measures according to the provisions below. The purpose of this provision is to implement the urban runoff requirements of the mercury and PCB TMDLs and reduce mercury and PCB loads to make substantial progress toward achieving the urban runoff load allocations. Permittees may comply with any requirement of this provision through a collaborative effort.

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C.11.a. Mercury Collection and Recycling Implemented throughout the Region

i. **Task Description** – Permittees shall promote, facilitate, and/or participate in collection and recycling of mercury containing devices and equipment at the consumer level (e.g., thermometers, thermostats, switches, bulbs).

ii. **Reporting** – Permittees shall report on these efforts in Annual Reports, including an estimate of the mass of mercury collected.

C.11.b. Monitor Methylmercury

i. **Task Description** – Permittees shall monitor methymercury in runoff discharges. The objective of the monitoring is to investigate a representative set of drainages and obtain seasonal information and to assess the magnitude and spatial/temporal patterns of methylmercury concentrations.

ii. **Implementation Level** – Permittees shall analyze aqueous grab samples already being collected for total mercury analysis for methylmercury as specified in Provision C.8.e.

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iii. **Reporting** – Permittees shall report monitoring results annually beginning with the 2010 Annual Report.

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C.11.c. Implement Project throughout Region to Incorporate PCBs and PCB-Containing Equipment Identification into Existing Industrial Inspections

i. **Task Description** – Permittees shall develop training materials and train municipal industrial building inspectors to identify, in the course of their existing inspections, PCBs or PCB-containing equipment. Permittees shall incorporate such PCB identification into industrial inspection programs.

ii. **Implementation Level** – Where inspectors identify during inspections PCBs or PCB-containing equipment, Permittees shall document incident in inspection report and refer to appropriate regulatory agencies (e.g. county health departments, Department of Toxic Substances Control, California Department of Health Services, and the Water Board) as necessary.

iii. **Reporting** – Permittees shall report the results of training and inspection for PCB identification in the 2011, and following Annual Reports.

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C.11.d. Conduct Pilot Projects to Evaluate Managing PCB-Containing Materials and Wastes during Building Demolition and Renovation (e.g., Window Replacement) Activities

i.

Task Description – Through participation in the Proposition 50-funded "Taking Action for Clean Water" project, including the stakeholder/advisory committee process that will develop and refine project methods during the course of the project, Permittees shall evaluate potential presence of PCBs at construction sites, current material handling and disposal regulations/programs (e.g., municipal ordinances, RCRA, TSCA), current level of implementation.[51] Permittees shall also conduct further evaluation and develop, select and pilot test BMPs to reduce or prevent discharges of PCBs during demolition/remodeling as further specified in section ii below.

ii. Implementation Level –

(1) Based on the outcome of their Proposition 50 evaluation under Provision 11.d.i above, Permittees shall work with the Water Board to identify whether there is a need, in order to address subsections (3) and (4) below, to develop a plan to further evaluate PCBs at construction sites that involve demolition activities (including research on when, where, and which materials potentially contained PCBs).

(2) If further evaluation is necessary and feasible,

Permittees shall implement evaluation plans covering a minimum of 4 sites throughout the combined Permittees' jurisdiction areas or, if a regional approach is not pursued, at 1 site per Countywide Program area.

(3) Permittees shall develop/select BMPs to reduce or prevent discharges of PCBs during demolition/remodeling. The BMPs will focus on methods to identify, handle, contain, transport and dispose of PCB-containing building materials.

(4)

Permittees shall develop model ordinances or policies, train and deploy inspectors, and pilot test BMPs at 4 sites throughout the combined Permittees' jurisdiction areas or, if a regional approach is not pursued, at 1 site per Countywide Program area.

iii. Reporting –

(1) In the 2010 Annual Report, Permittees shall submit the results of the evaluation (per Provision C.11.d.i.) of current regulations, level of

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[51] This will be subject to the timely reinstatement of the Proposition 50-funded "Taking Action for Cleanwater" project.

implementation, and regulatory gaps as well as set forth anyir further evaluation plan (per Provision C.11.d.ii.).

(2) In the 2011 Annual Report, Permittees shall submit a status report on implementation of their further evaluation plan along with whatever sampling results are available.

(3) In the 2012 Annual Report, Permittees shall submit a list of appropriate BMPs, BMP training program, and model ordinances and policies to prevent PCB discharges from building demolition and improvement activities.

(4) In the 2013 Annual Report, Permittees shall submit the results of pilot program effectiveness evaluation.

C.11.e. Pilot Projects To Investigate and Abate PCB and Mercury Sources in Drainages, Including Private Property, Public Rights-Of-Way, and Stormwater Conveyances with Accumulated Sediment.

i. Task Description – Permittees shall investigate and abate PCBs and mercury sources in or to their storm drain systems in conjunction with the Water Board and other appropriate regulatory agencies with investigation and cleanup authorities. The purpose of this task is to implement and evaluate the benefit of a suite of abatement measures at four pilot project locations within the Permittees' collective jurisdicitions or, if a regional approach is not pursued, at one location per Countywide program. Permittees shall document the knowledge and experience gained through pilot implementation, and this documentation will provide a basis for determining PCB and mercury requirements in subsequent permit terms. Permittees shall also quantify and report the amount of PCB and mercury loads abated resulting from implementation of these measures.

ii. Implementation Level –

(1) Reducing loads of PCBs is the main pilot location selection factor for this Provision, and mercury load reductions is a secondary criterion. Accordingly, Permittees shall conduct reconnaissance in pilot project drainage areas selected based primarily on suspected PCB sources. Permittees shall test sediments in storm drains and conveyances in the pilot drainage areas to characterize the extent and magnitude of PCB and mercury concentrations. They shall evaluate resulting monitoring data and determine if a PCB and/or mercury sediment abatement program in storm drains would reduce loading significantly.

Permittees, working collaboratively, shall identify4 drainage areas that contain high levels of PCBs and conduct pilot projects to investigate and abate these high PCB concentrations; if a regional approach is not pursued, one drainage area shall be identified and pilot project conducted per Countywide program. To identify the pilot project locations, Permittees should interview municipal staff and review municipal databases, data collected or compiled through grant-funded efforts, other

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agency files, and other available information to identify potential PCB source areas and areas where PCB-contaminated sediment accumulates, including within stormwater conveyances. Permittees shall qualitatively rank and map potential PCB source areas within each pilot drainage. Investigation of mercury shall be included in these efforts unless not appropriate. When contamination is located at a pilot project located on private property, Permittees must either exercise direct authority to require cleanup or notify appropriate authorities to exercise their oversight.

(2) Permittees shall conduct reconnaissance surveys of the identified pilot drainages and gather information concerning past or current use of PCBs to further identify potential source areas and determine whether runoff from such locations is likely to convey soils/sediments with PCBs to municipal stormwater conveyances.

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(3) Permittees shall validate existence of elevated PCB concentrations in pilot project locations through surface soil/sediment sampling and analysis where visual inspections and/or other information suggest potential source areas within each drainage.

Where data confirm significantly elevated PCB concentrations in surface soils/sediments within the subject pilot drainage, Permittees shall provide available information on current site conditions and owner/operators and other potentially responsible parties to Water Board and other appropriate regulatory agencies to facilitate their issuance of orders for further investigation and remediation of subject sites.

(4) Permittees shall identify areas within pilot drainages for expedited attention on the basis of loading potential including factors such as PCB concentration, mass of sediment, and mobilization potential and/or human health protection thresholds, such as California Human Health Screening Levels.

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(5) Permittees shall conduct an abatement program and/or implement appropriate BMPs in portions of pilot drainages under their jurisdiction in conjunction with the Water Board and other appropriate agencies.

iii. Reporting

(1) Permittees shall report on the identified pilot drainage areas [Provision C.11.e.ii (1)] and results of the surveys [Provision C.11.e.ii.(2)] in the 2010 Annual Report.

(2) Permittees shall report sampling and chemical analysis results at pilot locations [Provision C.11.e.ii.(3)] in the 2011 and 2012 Annual Reports.

(3) Permittees shall report on proposed abatement opportunities and activities [Provision C.11.e.ii.(4) and (5)], responsible parties, funding, agency oversight, and schedules in the 2013 Annual Report.

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(4) Permittees shall report results of abatement program effectiveness and estimates of loads reduced (see C.11.i) in the 2014 Annual Report.

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C.11.f. Pilot Projects to Evaluate and Enhance Municipal Sediment Removal and Management Practices

i. Task Description – Permittees shall jointly evaluate ways to enhance mercury and PCB load reduction benefits of operation and maintenance activities that remove or manage sediment. The purpose of this task is to implement these management practices at the pilot scale in four drainages during this permit term within the Permittees' collective jurisdicitions or, if a regional approach is not pursued, at one location per Countywide program. The knowledge and experience gained through pilot implementation will be used to determine the implementation scope of enhanced sediment removal and management practices in subsequent permit terms. Permittees shall also quantify and report the amount of mercury and PCB loads removed or avoided resulting from implementation of these measures.

ii. Implementation Level – Reducing loads of PCBs is also the main pilot location selection factor for this Provision, and mercury load reductions is a secondary criterion. For the drainages selected, Permittees shall jointly evaluate ways to enhance existing municipal street sweeping; such ways may include curb clearing parking restrictions, inlet cleaning, catch basin cleaning, stream and stormwater conveyance system maintenance, and pump station cleaning via increased effort and/or retrofits for the control of sediment. This evaluation shall also include consideration of street flushing and capture, collection, or routing to the sanitary sewer as a potential enhanced management practice in coordination and consultation with local sanitary sewer agency.

Beginning July 1, 2012, Permittees shall implement the most potentially effective measures(s) based on the evaluation of Provision C.11.f.ii. in all drainages for which PCB pilot projects are being conducted pursuant to C.11.f.i.

iii. Reporting

(1) Permittees shall present the results of the evaluation in the 2011 Annual Report.

(2) In the 2014 Annual Report, Permittees shall report the effectiveness of enhanced practices pilot implementation, report estimates of loads reduced, and present a plan and schedule for possible expanded implementation for subsequent permit terms.

C.11.g. Conduct Pilot Projects to Evaluate On-Site Stormwater Treatment via Retrofit

i. Task Description – Permittees shall evaluate and quantify the removal of PCBs and mercury by on-site treatment systems via retrofit of such systems into existing storm drain systems. The purpose of this task is to implement on-site treatment projects at the pilot scale in four locations during this permit term. Permittees shall document the knowledge and experience gained through pilot implementation, and this documentation will provide a basis for determining the implementation scope of on-site treatment retrofits in subsequent permit terms.

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<#>**Implementation Level** – Reducing loads of PCBs is the main pilot location selection factor for this Provision, and mercury load reductions is a secondary criterion. Accordingly, for PCBs pilot project locations selected as part of Provision C.12.c, Permittees shall conduct reconnaissance in the pilot project drainage areas. Permittees shall test sediments in storm drains and conveyances to characterize the extent and magnitude of mercury concentrations. They shall evaluate monitoring data and determine if a mercury sediment abatement program would reduce mercury loading significantly. If so determined, the Permittees shall cause abatement activities to be conducted at those sites under Permittee jurisdiction with identified remedial activities. When contamination is located on private property, Permittees must ensure that cleanup occurs either by exercising direct authority to require cleanup or by notifying appropriate authorities to ensure that oversight is established. Permittees are responsible for contaminants l ... [8]

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Permittees shall also quantify and report the amount of PCB and mercury loads removed or avoided resulting from implementation of these measures.

ii. Implementation Level – Permittees, working collaboratively, shall identify at least 4 locations throughout the Permittees' jurisdictions that present opportunities to install or evaluate on-site treatment systems (e.g., detention basins, bioretention units, sand filters, infiltration basins, treatment wetlands)and conduct pilot projects to assess effectiveness of such on-site treatment systems in removing PCBs and mercury. If a regional approach is not pursued, every county (San Mateo, Contra Costa, Alameda, Santa Clara, and Solano) should have at least one location. This effort shall identify potential locations draining a variety of land uses; evaluate technical feasibility; and discuss economical feasibility. The pilot locations may be the same as those chosen for C.11.e or f, but consideration should be given to areas of elevated PCB or mercury concentrations. (Reducing loads of PCBs is the main pilot location selection factor for this Provision, and mercury load reductions is a secondary criterion.)

iii. Reporting –

(1) In the 2011 Annual Report, Permittees shall report on candidate locations and types of treatment options to be evaluated at each pilot location.

(2) In the 2014 Annual Report, Permittees shall report status, results, PCB and mercury removal effectiveness, and lessons learned from the pilot studies and present a plan and schedule for possible expanded implementation for subsequent permit terms.

C.11.h. Diversion of Dry Weather and First Flush Flows to Publicly Owned Treatment Works (POTWs) ******

i. Task Description – Permittees shall cooperate with Bay Area wastewater treatment agencies to evaluate thefeasibility of reducing loads of PCBs and mercury from diversion of dry weather and first flush stormwater flows to sanitary sewers. Permittees shall document the knowledge and experience gained through diversion pilot projects, and this documentation will provide a basis for determining the feasibility and scope of implementing potential dry weather diversion projects in subsequent permit terms. Based on the feasibility assessment and pilot projects, Permittees shall also evaluate the effectiveness and costs and benefits of diversion as a BMP and estimate amount of PCB and mercury loads that may be removed or avoided resulting from future implementation of such measures.

ii. Implementation Level – Permittees shall implement pilot projects to evaluate the diversion of dry weather and first flush flows to POTWs as a potential future means of limiting the discharge of PCBs and mercury to receiving waters. Permittees are strongly encouraged to tie this effort to the pump station characterization work performed for Provisions C.2 addressing dissolved oxygen depletion and trash impacts. The objectives of this provision are: to

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implement up to four pilot projects for dry weather diversion from stormwater pump stations to POTWs; evaluate the reduced loads of mercury and PCBs resulting from the diversion; and gather information to assess the potentialfor including additional diversion projects in future permits. Collectively, Permittees shall select 4 stormwater pump stations and 4 alternates by evaluating drainage characteristics and the feasibility of diverting flows to the sanitary sewer; however, if a regional approach is not pursued, one location and one alternate location per Countywide program (San Mateo, Contra Costa, Alameda, Santa Clara, and Solano) shall be selected.

(1) Permittees should work with the local POTW on a watershed, county, or regional level to evaluate feasibility and to establish cost sharing agreements. The feasibility evaluation shall include, but not be limited to, costs, benefits, and impacts on the stormwater and wastewater agencies and the receiving waters relevant to the diversion and treatment of the dry weather and first flush flows.

(2) Permittees shall select pump stations and alternates for pilot diversion studies as specified above. To the extent duplication of the effort with the pump statition pilot projects required by Provisions C.2 can be avoided, the pilot and alternate locations should be located in industrially-dominated catchments where elevated PCB concentrations are documented.

(3) Permittees shall then implement flow diversion to the sanitary sewer at the pilot pump stations as specified above and shall monitor, measure, and report on DO, trash, PCB and mercury so as to enable forecasts of potential load reductions.

iii. Reporting

(1) Permittees shall summarize the results of the feasibility evaluation in the 2011 Annual Report, including:

- Selection criteria leading to the identification of the candidate and alternate pump stations for pilot studies.
- Time schedules for conducting the pilot studies.
- A proposed method for distributing credit for PCB and mercury load reductions to participating wastewater and stormwater agencies.

(2) Permittees shall report annually on the status of the pilot studies in each subsequent annual report.

(3) The 2014 Annual Report shall include:

- Evaluation of pilot program effectiveness.
- Estimate of potential PCB and mercury loads reduced.
- Updated guidance to help determine the feasibility of future diversion projects as a BMP.

C.11.i. Monitor Stormwater PCBs and Mercury Pollutant Loads and Loads Reduced

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i. Task Description – Permittees shall evaluate the results of the monitoring program set forth in Provision 8.e to estimate PCB and mercury loads and loads reduced through source control, treatment and other management measures.

ii. Implementation Level for Mercury – Permittees shall demonstrate progress toward (a) the interim loading milestones, or (b) attainment of the Program area allocations, by using the following methods:

(1) Quantify through estimates the annual average mercury load reduced by implementing pollution prevention, source control and treatment control efforts required by the provisions of this permit or other relevant efforts; or

(2) Quantify the mercury load as a rolling 5-year annual average using data on flow and water column mercury concentrations; or

(3) Quantitatively demonstrate that the mercury concentration of suspended sediment that best represents sediment discharged with urban runoff is below the target of 0.2 mg/kg dry weight.

iii. Implementation Level for PCBs – Permittees shall estimate PCBs loads and loads reduced through the source control, treatment and other management measures implemented as part of the pilot studies required by this Provision.

iii. Reporting

(1) Permittees shall report in the 2011 Annual Report methods used to assess progress toward meeting WLA goals and a full description of the measurement and estimation methodology and rationale for the approaches.

(2) Permittees shall report in the 2014 Annual Report results of chosen monitoring/measurement approach concerning loads assessment and estimation of loads reduced.

C.11.j. Fate and Transport Study of Mercury in Urban Runoff

i. Task Description – Permittees shall conduct or cause to be conducted studies aimed at better understanding the fate, transport, and biological uptake of mercury discharged in urban runoff to San Francisco Bay and tidal areas.

ii. Implementation Level – The specific information needs include understanding the in-Bay transport of mercury discharged in urban runoff, the influence of urban runoff on the patterns of food web mercury accumulation, and the identification of drainages where urban runoff mercury is particularly important in food web accumulation.

iii. Reporting – Permittees shall submit in the 2010 Annual Report a work plan describing the specific manner in which these information needs will be accomplished and describing the studies to be performed with a schedule. Permittees shall report on status of the studies in the 2010, 2011, and 2012 Annual Reports. In the 2014 Annual Report Permittees shall report the findings

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and results of the studies completed, planned, or in progress as well as implications of studies on potential control measures to be investigated, piloted or implemented in future Permit cycles.

C.11.k. Development of a Risk Reduction Program Implemented Throughout the Region.

i. **Task Description** – Permittees shall develop and implement or participate with Bay Area wastewater agencies in effective programs aimed at reducing PCB and mercury-related risks to Bay Area subsistence fishers and their families.

ii. **Implementation Level** – The risk reduction activities shall include investigating ways to reduce actual and potential exposure of people and communities most likely to be affected by PCBs and mercury in San Francisco Bay-caught fish, such as subsistence fishers and their families. Such strategies should include developing effective public education and outreach programs. The risk reduction activities may be performed cooperatively with other NPDES dischargers and/or by a third party if the Permittees wish to provide funding for this purpose. This requirement may be satisfied by a combination of related efforts through the Regional Monitoring Program or other similar collaborative efforts.

iii. **Reporting** – Permittees shall submit in the 2010 Annual Report the specific manner in which these risk reduction activities will be accomplished and describe theproposed schedule. Permittees shall report on the status of the risk reduction efforts in the 2011, and 2012 Annual Reports. Permittees shall report the findings and results in the 2014 Annual Report.

C.11.l. Develop Allocation Sharing Scheme with Caltrans.

i. **Task Description** – The wasteload allocations for urban stormwater developed through the San Francisco Bay PCB and mercury TMDLs implicitly include California Department of Transportation (Caltrans) roadway and non-roadway facilities within the geographic boundaries of urban runoff management agencies. Consistent with the TMDLs, Permittees are required to develop an equitable PCB and mercury allocation-sharing scheme in consultation with Caltrans to address these Caltrans facilities in the program area, and report the details to the Water Board.

ii. **Reporting** – Permittees shall report on the status of the efforts to develop this allocation sharing scheme in the 2010, 2011, and 2012 Annual Reports. Permittees shall submit in the 2013 Annual Report the manner in which the urban runoff mercury TMDL allocation will be shared between Permittees and Caltrans.

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Deleted: <#>**Polychlorinated Biphenols (PCBs) Controls**¶
Permittees shall implement the following control programs for PCBs. Permittees shall perform the control measures and provide reporting on those control measures according to the provisions below. The purpose of these provisions is to implement the urban runoff requirements of the PCBs TMDL and reduce PCBs loads to make substantial progress toward achieving the urban runoff PCBs load allocation. Permittees may comply with any requirement of this Provision through a collaborative effort.¶
<#>**Implement Project throughout Region to Incorporate PCBs and PCB-Containing Equipment Identification into Existing Industrial Inspections**¶
<#>**Task Description** – Permittees shall develop training materials and train municipal industrial building inspectors to identify, in the course of their existing inspections, PCBs or PCB-containing equipment. Permittees shall incorporate such PCB identification into industrial inspection programs.¶
<#>**Implementation Level** – Where inspectors identify during inspections PCBs or PCB-containing equipment, Permittees shall document incident in inspection report and refer to appropriate regulatory agencies (e.g. county health departments, Department of Toxic Substances Control, California Department of Health Services, and the Water Board) as necessary.¶
<#>**Reporting** – Permittees shall report the results of training and inspection for PCB identification in the 2010, and following Annual Reports.¶
<#>Conduct Pilot Projects to Evaluate Managing PCB-Containing Materials and Wastes during Building Demolition and Renovation (e.g., Window Replacement) Activities¶
<#>**Task Description** – Permittees shall evaluate potential presence of PCBs at construction sites, current material handling and disposal regulations/programs (e.g., municipal ordinances, RCRA, TSCA) and current level of implementation.¶
<#>Implementation Level – ¶
<#>Permittees shall develop a sampling and analysis plan to evaluate PCBs at construction sites that involve demolition activities (including research on when, where, and which materials potentially contained PCBs).¶
<#>Permittees shall implement a sampling and analysis plan at a minimum of 10 sites distributed throughout the combined Permittees' jurisdiction areas.¶
<#>Permittees shall develop/select BMPs to reduce or prevent discharges of PCBs during demolition/remodeling. The BMPs will focus on methods to identify, handle, contain, transport and dispose of ... [10]

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C.12. Copper Controls

The control program for copper is detailed below. Permittees shall implement the control measures and accomplish the reporting on those control measures according to the provisions below. The purpose of these provisions is to implement the control measures identified in the Basin Plan amendment necessary to support the copper site-specific objectives in San Francisco Bay. Permittees may comply with any requirement of C.13 Provisions through a collaborative effort.

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C.12.a. Manage Waste Generated from Cleaning and Treating of Copper Architectural Features, Including Copper Roofs, during Construction and Post-Construction.

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i. Task Description – Permittees shall ensure that local legal authority is established to prohibit the discharge of wastewater to storm drains generated from the installation, cleaning, treating, and washing of the surface of copper architectural features, including copper roofs to storm drains.

ii. Implementation Level

(1) Permittees shall develop BMPs on how to manage the waste during and post-construction.

(2) Permittees shall require use of appropriate BMPs when issuing building permits.

(3) Permittees shall educate installers and operators on appropriate BMPs.

(4) Permittees shall enforce against noncompliance.

iii. Reporting

(1) Permittees shall certify adequate legal authority in the 2010 Annual Report or otherwise provide justification for schedule not to exceed one year to comply.

(2) Permittees shall report annually, starting with 2011 Annual Report, on training, permitting and enforcement activities.

(3) In the 2013 Annual Report, Permittees shall evaluate the effectiveness of these measures, including BMP implementation and propose any additional measures to address this source.

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C.12.b. Manage Discharges from Pools, Spas, and Fountains that Contain Copper-Based Chemicals

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i. Task Description –Permittees shall have legal authority to prohibit discharges to municipal storm drains from pools, spas, and fountains that contain copper-based chemicals.

ii. Implementation Level – Permittees shall either: 1) require installation of a sanitary sewer discharge connection for pools, spas, and fountains, including connection for filter backwash, with a proper permit from the POTWs; or 2) require diversion of discharge for use in landscaping or irrigation.

iii. Reporting – Permittees shall certify adequate legal authority in the 2010 Annual Report or otherwise provide justification for schedule not to exceed one year to comply.

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C.12.c. Vehicle Brake Pads

i. Task Description – Permittees shall engage in efforts to reduce the copper discharged from automobile brake pads to surface waters via urban runoff.

ii. Implementation Level – Permittees shall participate in the Brake Pad Partnership (BPP) process to develop California legislation phasing out copper from certain automobile brake pads sold in California.

iii. Reporting – Permittees shall report on legislation development and implementation status in Annual Reports during the permit term. In the 2013 Annual Report, Permittees shall assess status of copper water quality issues associated with automobile brake pads and recommend brake pad-related actions for inclusion in subsequent permits if needed.

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C.12.d. Industrial Sources

i. Task Description – Permittees shall oversee that industrial facilities do not discharge elevated levels of copper to municipal storm drains through industrial facility inspections, such that proper BMPs are in place.

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ii. Implementation Level –

(1) As part of industrial site controls required by Provision C.4, Permittees shall identify facilities likely to use copper or have sources of copper (e.g., plating facilities, metal finishers, auto dismantlers) and include them in their inspection program plans.

(2) Permittees shall educate industrial inspectors on industrial facilities likely to use copper or have sources of copper and proper BMPs for them.

(3) As part of the industrial inspection, inspectors shall ensure that proper BMPs are in place at such facilities to minimize discharge of copper to storm drains, including consideration of roof runoff that might accumulate copper deposits from ventilation systems on-site.

iii. Reporting

Permittees shall highlight copper reduction results in the industrial inspection component in the C.13 portion of each Annual Report beginning September of 2010.

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<#>**Task Description** – Permittees shall conduct or cause to be conducted technical studies to investigate possible copper sediment toxicity and technical studies to investigate sub-lethal effects on salmonids.¶
Implementation Level – Technical uncertainties regarding copper effects in the Bay are described in the Basin Plan's implementation program for copper site-specific objectives. These uncertainties include toxicity to Bay benthic organisms possibly caused by high copper concentrations as well as possible impacts to the olfactory system of salmonids. Permittees shall ensure that these studies are supported and conducted. Similar requirements are included in NPDES permits for wastewater discharges. Permittees shall submit in the 2010 Annual Report the specific manner in which these information needs will be accomplished and describe the studies to be performed with a schedule. Permittees shall report the findings and results of the studies completed, planned, or in progress in the 2012 Annual Report

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C.13. Polybrominated Diphenyl Ethers (PBDE), Legacy Pesticides and Selenium

The purpose of this provision is to gather concentration and loading information on a number of pollutants of concern (e.g., PBDEs, DDT, dieldrin, chlordane, selenium) for which TMDLs may be required, are planned, or are in the early stages of development. Permittees may comply with any requirement of C.13 Provisions through a collaborative effort.

C.13.a. Study Program for PBDEs, Legacy Pesticides, and Selenium.

i. Task Description – To determine if urban runoff is a conveyance mechanism associated with the possible impairment of San Francisco Bay for PBDEs, legacy pesticides (such as DDT, dieldrin, and chlordane), and selenium, Permittees shall work with the other municipal stormwater management agencies in the Bay Area to implement a plan (PBDEs/Legacy Pesticides/Selenium Plans) to identify, assess, and manage controllable sources of PBDEs, legacy pesticides, and selenium found in urban runoff, if any. The Water Board recognizes that these three pollutants are distinct in terms of origin and transport, but they have been grouped into a single permit provision because the requirements are identical. The Water Board anticipates that some of the control measures that are developed for PCBs consistent with aforementioned efforts warrant consideration for the control of PBDEs and possibly legacy pesticides.

ii. Implementation Level – The PBDEs/Legacy Pesticides/Selenium Study Plan shalladdress the following:

Characterize the representative distribution of PBDEs, legacy pesticides, and selenium in the urban areas to determine:

(1) If PBDEs, legacy pesticides, and selenium are present in urban runoff;

(2) If PBDEs, legacy pesticides, or selenium are distributed relatively uniformly in urban areas; and

(3) Whether storm drains or other surface drainage pathways are sources of PBDEs, legacy pesticides, or selenium in themselves, or whether there are specific locations within urban watersheds where prior or current uses result in land sources contributing to discharges of PBDEs, legacy pesticides, or selenium to San Francisco Bay via urban runoff conveyance systems.

iii. Report on progress in 2010 and 2011 Annual Reports. Submit in the 2013 Annual Report a report with the results of the characterization of PBDEs, legacy pesticides, and selenium in urban areasn.

iv. Provide information to facilitate potential calculation of PBDEs, legacy pesticides, and selenium loads to San Francisco Bay from urban runoff conveyance systems.

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v. Submit in the 2014 Annual Report informationto facilitate the potential computation of such loads to San Francisco Bay of PBDEs, legacy pesticides, and selenium from urban runoff conveyance systems throughout the Bay.

vi. Identify control measures and/or management practices to eliminate or reduce discharges of PBDEs, legacy pesticides, or selenium conveyed by urban runoff conveyance systems.

vii. Submit in the 2014 Annual Report a report identifying such control measures/management practices.

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C.14. Exempted and Conditionally Exempted Discharges

The objective of this provision is to exempt unpolluted non-stormwater discharges from Discharge Prohibition A.1. and to conditionally exempt non-stormwater discharges that are potential sources of pollutants. For conditionally exempt non-stormwater discharges, the objective is to identify appropriate BMPs, monitor the non-stormwater discharges where necessary, and ensure implementation of effective control measures to eliminate adverse impacts to waters of the State consistent with the discharge prohibitions of the Order.

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C.14.a. Exempted Non-Stormwater Discharges (Exempted Discharges):

i. **Discharge Type** – In carrying out Discharge Prohibition A.1. of this Permit, the following unpolluted discharges are exempted from prohibition of non-stormwater discharges:

(1) Flows from riparian habitats or wetlands;

(2) Diverted stream flows;

(3) Flows from natural springs;

(4) Rising ground waters;

(5) Uncontaminated and unpolluted groundwater infiltration; and

(6) NPDES permitted discharges (individual or general permits).

ii. **Implementation Level** – The non-stormwater discharges list in Provision C.14.a.i above are exempted unless they are identified by the Permittees or the Executive Officer as sources of pollutants to receiving waters. If any of the above categories of discharges, or sources of such discharges, are identified as sources of pollutants to receiving waters, such categories or sources shall be addressed as conditionally exempted discharges in accordance with Provision C.14.b below.

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C.14.b. Conditionally Exempted Non-Stormwater Discharges:

The following non-stormwater discharges are also exempt from Discharge Prohibition A.1. if they are either identified by the Permittees or the Executive Officer as not being sources of pollutants to receiving waters, or if appropriate control measures to eliminate adverse impacts of such sources are developed and implemented in accordance with existing non-stormwater discharge programs previously established by the Permittees and approved by the Executive Officer. Where non-stormater discharge programs have not previously been established by a Permittee and approved by the Executive Officer, Permittees may allow conditionally exempt non-stormwater discharges to enter their storm drain systems in accordance with the tasks and implementation levels of each category of Provision C.145.b.i.-vii. below.

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i. **Discharge Type** – Pumped Groundwater, Foundation Drains, Water from Crawl Space Pumps and Footing Drains:

(1) **Required BMPs/Control Measures**

(a) These discharge types shall, if necessary, be treated before discharge to remove pollutants, including, but not limited to, total suspended solids (TSS) or silt to allowable discharge levels. Appropriate BMPs to render pumped groundwater free of pollutants and therefore exempted from prohibition may include the following: filtration, settling, coagulant application with no residual coagulant discharge, minor odor or color removal with activated carbon, small scale peroxide addition or other minor treatment.

(b) So that they can be subject to general NPDES permitting under Order No. R2-2007-0033, NPDES No. CAG912004 requirements, Permittees shall report proposed approvals of new discharges of uncontaminated groundwater at flows 10,000 gallons/day or more to the Water Board before being discharged to storm drains.

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(c) Where a Permittee determines that a proposed discharge of the types covered in this section that are less 10,000 gallons/day constitute a significant source of pollutants to receiving waters, they shall require that the discharge meet water quality standards consistent with the existing effluent limitations in the Water Board's NPDES General Permits, such as NPDES No. CAG912002 and CAG912003 for Discharge or Reuse of Extracted and Treated Groundwater Resulting from the Cleanup of Groundwater Polluted by fuel and VOCs, respectively, and CAG912004 for discharges of low-level, incidental, and potentially contaminated groundwater.

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(d) For the discharges that the Permittees impose requirements on pursuant to subsection c above, they shall also require:

(i) that water samples from these discharge types be analyzed for the relevant pollutant parameters using approved USEPA Methods (e.g., (a) USEPA Method 160.2 for total suspended solids; (b) USEPA Method 8015 Modified for total petroleum hydrocarbons; (c) USEPA Method 8260B and 8270C or equivalent for volatile and semi-volatile organic compounds; and (d) USEPA Method 3005 for metals.

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(ii) the discharges be monitored on the first two consecutive days of dewatering, and once a month thereafter at a minimum, and more frequently if necessary. If a discharge of this type is established as unpolluted, except for turbidity, no monitoring is required unless new indications of pollution are observed.

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(iii) that turbidity of discharged water be maintained below 50 NTUs for discharges to dry creeks or storm drains. If receiving water is above 50 NTU, the discharge will not exceed background turbidity by more than 10 percent.

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(iv) that the pH of discharged water be maintained within the range of 6.5 to 8.5.

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(e) Discharges from dewatering activities shall be encouraged to discharge to a landscape area, bioretention unit, or sanitary sewer if allowed by the local sanitary sewer agency.

(f) Discharges of unpolluted or treated water from any dewatering activities shall be properly controlled and maintained to prevent erosion at the discharge point and at a rate that avoids scouring of banks and excess sedimentation in the receiving waterbody.

(g) If Permittees determine that a discharger or a project proponent is unable to comply with the above criteria, the discharger shall be directed to obtain approval or permits directly from the Water Board.

(2) **Reporting** – Permittees shall require that records concerning the requirements in subsection (d) above be maintained and made available to the Water Board upon request.

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ii. Discharge Type – Air Conditioning Condensate

(1) **Required BMPs/Control Measures –**

(a) Where feasible, Permittees shall encourage through public education and outreach that discharges of air conditioning condensate be directed to the ground/landscape.

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(b)

Deleted: Discharges from new commercial and industrial air conditioning units shall be directed to landscaped areas or sanitary sewer if allowed by the local sanitary sewer agency.

(c) For new large commercial and industrial air conditioning units they approve, Permittees shall require that condensate be directed to landscape areas or as wastewater to the sanitary sewer if allowed by the local sanitary sewer agency. Direct discharges of such condensate to storm drains shall otherwise be prohibited unless determined not to have an impact on receiving waters or if adequate treatment measures are in place to meet applicable water quality standards.

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iii. Discharge Types: Planned,[52] Unplanned,[53] and Emergency Discharges of the Potable Water System

(1) **Planned Discharge** – Permittees conduct, or permit activities ancillary to routine operation and maintenance activities in the potable water distribution system, such as disinfecting water mains, testing fire hydrants, storage tank maintenance, cleaning and lining pipe sections, routine distribution system flushing, reservoir dewatering, and main dewatering activities.

(a) **Required BMPs[54]** – Permittees, either when they conduct these activities, or when they permit potable water dischargers to work in the public right-of-way, shall require implementation of appropriate BMPs for dechlorination, erosion, and sediment control measures for all planned potable water discharges.

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[52] Planned Discharges typically result from required routine operation and maintenance activities that can be scheduled in advance. Planned discharges are easier to control than unplanned discharges, and the BMPs are significantly easier to plan and implement.

[53] Unplanned discharges are the result of accidents or incidents that cannot be scheduled or planned for in advance.

[54] Reference for BMPs, monitoring methods: *Guidelines for the Development of Your BMP Manual for Drinking Water System Releases.* Developed by the California-Nevada Sections of the American Water Works Association (CA-NV AWWA), Environmental Compliance Committee (ECC) 2005.

(b) Notification Requirements

(i) Permittees shall notify or require potable water dischargers to notify the Water Board staff at least one week in advance for planned discharges with a flowrate of 250,000 gallons per day or more of potable water or a total volume of 500,000 gallons or more of potable water. Permittees are encouraged to notify or require potable water dischargers to notify other interested parties, who may be impacted by such a discharge, such as flood control agencies, downstream jurisdictions, and even non-governmental organizations such as creek groups, before discharge. The notification shall include the following information, but not be limited to, (1) project name; (2) type of discharges; (3) receiving waterbody(ies); (4) date of discharge; (5) time of discharge (in military time); (6) estimated volume (gallons); and (7) estimated flow rate (gallons per day); and (8) plans concerning the monitoring of the discharges and/or receiving water. If receiving water monitoring is infeasible or is not practicable, justification shall be provided.

(c) Monitoring and Reporting Requirements

For the discharges subject to notification requirements under subsection (b):

(i) Permittees shall monitor or require monitoring of Planned Discharges for pH, chlorine residual, and the turbidity (NTU) of the discharges at the point of the discharge or effluent, and where feasible, at the point where the discharge enters the receiving water to confirm effectiveness of the employed BMPs.

(ii) The following discharge benchmarks shall be used to evaluate the effectiveness of BMPs for all Planned Discharges:

- Chlorine residual 0.08 mg/L detection limit using the field test (Standard Methods 4500-Cl F and F) or equivalent
- pH ranges between 6.5 and 8.5.
- Turbidity of 100 NTU post-BMPs. Increase in turbidity above background level as follows:

Receiving Water Background	Incremental Increase
< 50 units (NTU)	5 units, maximum
50–100 units	10 units, maximum
> 100 units maximum	10% of background

(iii)

Permittees shall report or require reporting of the above monitoring to the Water Board in the month following the planned discharge event. Reporting content shall include, but not be limited to, the following parameters: (1) project name; (2) type of discharges; (3) receiving waterbody(ies); (4) date of discharge; (5) duration of discharge; (6) estimated volume (gallons); (7) estimated flow rate (gallons per day);

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Deleted: <#>Permittees shall report monthly or require that potable water dischargers report monthly via electronic summary reports in tabular form and annual self-audit summary reports for all Potable Water Planned Discharges.¶ Reporting content shall include, but not be limited to, the following parameters: (1) project name; (2) type of discharges; (3) receiving waterbody(ies); (4) date of discharge; (5) duration of discharge (in military time); (6) estimated volume (gallons); (7) estimated flow rate (gallons per day); (8) chlorine residual (mg/L); (9) pH; (10) turbidity (NTU) for receiving water where feasible and point of discharge, and (11) description of implemented BMPs or corrective actions.

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(8) chlorine residual (mg/L); (9) pH; (10) turbidity (NTU) for receiving water where feasible, and (11) description of implemented BMPs or corrective actions.

(2) **Unplanned Discharge** – Permittees shall address non-routine water line breaks, leaks, overflows, fire hydrant shearing, and emergency flushing involving 50,000 gallons or more as follows:

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(a) **Required BMPs** – Permittees shall implement or require implementation of appropriate BMPs for dechlorination, erosion, and sediment control measures upon containing the discharge and attaining safety of site.

(b) **Administrative BMPs** – In some instances, Permittees shall implement or require implementation of Administrative BMPs, such as source control measures, managerial practices, operations and maintenance procedures, or other measures to reduce or prevent potential pollutants from being discharged during unplanned potable water system discharges upon containing the discharge and attaining safety of the site.

(c) Notification Requirements

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(i) Permittees shall report or require reporting to the State Office of Emergency Services and Water Board staff, by telephone or email as soon as possible, but always in less than, 24 hours after becoming aware of (1) any aquatic impacts (e.g., fish kill) as a result of the unplanned discharges, or (2) when the discharge might endanger or compromise public health and safety.

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(ii) Permittees shall report or require reporting to Water Board staff, by telephone or email as soon as possible, but not later than, 24 hours after becoming aware of any unplanned discharge, when the total chlorine residual is greater than 0.08 mg/L and the total volume is approximately 50,000 gallons or more.

(iii) The Permittee shall document or require that the potable water discharger documents complaint responses and reports such discharges and corrective actions to Water Board staff and other interested parties within 5 working days after the 24-hour telephone or email report.

(d) Monitoring and Reporting Requirements

Deleted: <#>The Permittee shall require that the potable water discharger submit monthly reports of all unplanned discharges electronically in tabular form and shall submit an annual self-audit summary report.¶
<#>Reporting format shall be as described in Provision C.15.b.iii.(1)(b)(iii) of the Planned Discharges above and time of discharge discovery, notification, and inspector and responding crew arrival time.¶

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(i) Permittees shall monitor or require monitoring to assess impacts on water quality associated with the Unplanned Discharges and confirm effectiveness of the BMPs employed. At a minimum, water samples shall be analyzed for pH, chlorine residual, and visually assessed for turbidity immediately downstream of the implemented BMPs to demonstrate their effectiveness. After the implementation of appropriate BMPs, the discharge pH levels outside the discharge ranges (i.e., below 6.5 and above 8.5), chlorine residual above 0.08 mg/l, or moderate and high turbidity shall trigger BMP improvement.

Deleted: Pre and post-BMP turbidity in NTU shall be measured at least 10% of the unplanned discharges to verify the effectiveness of the BMPs employed.

(ii)

Permittee shall report or require reporting of the above monitoring to the Water Board in the month following the unplanned discharge event. Reporting content shall include, but not be limited to, the following parameters: (1) project name; (2) type of discharges; (3) receiving waterbody(ies); (4) date of discharge; (5) duration of discharge; (6) estimated volume (gallons); (7) estimated flow rate (gallons per day); (8) chlorine residual (mg/L); (9) pH; (10) turbidity (NTU) for receiving water where feasible, and (11) description of implemented BMPs or corrective actions.

(3) **Emergency Discharge** – Firefighting, unauthorized hydrant openings, natural or man-made disasters (e.g., earthquakes, floods, wildfires, accidents, terrorist actions).

Required BMPs

(a) Permittees shall implement or require implementation of feasible BMPs for significant emergency discharges if they do not interfere with immediate emergency response operations or impact public health and safety.

(b) During emergency fire fighting situations, priority of efforts shall be directed toward life, property, and the environment (in descending order). Fire fighting personnel shall control the pollution threat from their activities to the extent that time and resources allow. Efforts may include, but are not limited to, the plugging of the storm drain collection system for temporary storage and the proper disposal of water according to the jurisdictional requirements.

(c) **Notification and Reporting Requirements** – Reporting requirements will be determined by Water Board staff on a case-by-case basis, such as fire incidents at chemical plants.

iv. Discharge Type – Swimming Pool, Hot Tub, Spa, and Fountain Water Discharges

(1) **Required BMPs and Implementation Levels** are as follows:

(a) Where they have not yet done so, Permittees shall prohibit filter backwash discharges to their storm drainsand direct that filter backwash from operations of pools and spas instead be properly disposed of to the sanitary sewer or landscaping.

(b) Discharges from swimming pools, hot tubs, spas and fountains shall be allowed to storm drain collection systems only if there are no other feasible disposal alternatives (e.g., disposal to sanitary sewer or landscaped areas) and levels of chlorine residual and copper algaecide do not adversely impact receiving waters, consistent with water quality standards.

(c) Permittees shall require that new or rebuilt swimming pools, hot tubs, spas and fountains approved by their jurisdiction have a connection to the sanitary sewer to facilitate draining events. Permittees shall

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coordinate with local sanitary sewer agencies to determine the standards and requirements to enable the installation of a sanitary sewer discharge location to allow draining events for pools, spas, and fountains to occur with the proper permits from the local sanitary sewer agency.

(d) Permittees shall continue and, where necessary, improve their public outreach and educational efforts concerning implementation of the foregoing requirements.

(2) **Reporting** – Permittees shall keep records of their authorizations of major discharges to their storm drain facilities of dechlorinated pool, spa and fountain water, including any additional BMPs employed; such records shall be available for inspection to the Water Board.

v. Discharge Type – Irrigation Water, Landscape Irrigation, Lawn or Garden Watering and Residential Carwashing

(1) **Required BMPs** – Permittees shall promote measures that minimize runoff and pollutant loading from these types of discharges via the following:

(a) Promoting conservation programs that minimize discharges from lawn watering and landscape irrigation practices;

(b) Promoting outreach messages regarding the use of less toxic options for pest control and landscape management;

(c) Promoting the use of drought tolerant, native vegetation to minimize landscape irrigation demands;

(d) Promoting outreach messages that encourage appropriate applications of water needed for irrigation and other watering practices, including residential car washing; and,

(e) Implementing notice and Illicit Discharge correction response, including enforcement response, as necessary, for ongoing, large-volume landscape irrigation runoff to the MS4.

(2) **Reporting** – Permittees shall provide implementation summaries in annual reports in conjunction with Provision C.7 and Provision C.5 reporting.

vi. Additional Discharge Types – Where they have not already done so, Permittees shall identify and describe additional types and categories of discharges not yet listed in Provisions C.14.b that they propose to conditionally exempt from Prohibition A.1. in periodic submissions to the Executive Officer. For each such category, Permittees shall identify and describe, as necessary and appropriate to the category, either documentation that the discharges are not sources of pollutants to receiving waters or circumstances in which they are not found to be sources of pollutants to receiving waters. Otherwise, Permittees shall describe control measures to eliminate adverse impacts of such sources, procedures and performance standards for their implementation, procedures for notifying the Water Board of these discharges, and procedures for monitoring and record management.

Deleted: <#>Permittees shall prohibit discharge of water that contains chlorine residual, copper algaecide, filter backwash or other pollutants to storm drain collection systems or to waterbodies.¶

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vii. Permit Authorization for Exempted Non-Stormwater Discharges

(1) Discharges of non-stormwater from sources owned or operated by the Permittees are authorized and permitted by this Permit, if they are in accordance with the conditions of this provision.

(2) The Water Board may require Dischargers of non-stormwater, other than the Permittees, to apply for and obtain coverage under an NPDES permit and/or to comply with the control measures pursuant to Provision C.14.b. Non-stormwater discharges that are in compliance with such control measures may be accepted by the Permittee and are not subject to Prohibition A.1.

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(3) The Permittees may propose, as part of their annual reports, consistent with the requirements of Provision C.14.b of this Permit, additional categories of non-stormwater discharges with BMPs, to be included in the exemption to discharge Prohibition A. Such proposals may be subject to approval by the Executive Officer as a minor modification of the permit.

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C.15. Annual Reports

Permittees shall submit Annual Reports electronically or in hard copy by September 30 of each year. The first Annual Report shall be submitted September 30, 2010, containing reporting from the 2009-2010 fiscal year. The annual reporting requirements are set forth in Provisions C.1 – C.15. in the Permittees shall collaborate with Water Board staff to develop an Annual Report Form for the acceptance by the Executive Officer, by April 1, 2010. The Annual Report Form, once approved by the Water Board, shall apply to all Permittees. The Annual Report Form may thereafter be changed annually by April 1 of each year for the following annual report, to more accurately reflect the reporting requirements of the Provisions C.1 – C.15, with the agreement of the Permittees and by the approval of the Executive Officer. Changes in the Annual Report Form are a minor modification of the permit and not a change in permit reporting requirements, which are set in the Provisions.

Permittees shall submit a report by September 30, 2009 that provides accounting of compliance with their permit requirements in effect July 1, 2008 to June 30, 2009. Permittees can use this report as an opportunity to demonstrate reporting formats they would propose for future Annual Reports.

Permittees shall certify in each Annual Report that they are in compliance with all parts of the permit and furthermore, Permittees shall retain for three years supporting documentation that is required in the Provisions, and as is necessary to support Annual Reporting. The Permittees shall make this supporting information available upon our request within a timely manner, unless otherwise agreed by the Executive Officer. If a Permittee is unable to certify compliance with a particular part of the permit requirements, they must submit a description of the reason for failure to comply, a description and schedule of tasks necessary to achieve compliance and an estimated date for achieving full compliance for the approval of the Executive Officer.

C.16. Modifications to this Order

This Order may be modified, or alternatively, revoked or reissued, before the expiration date as follows:

C.16.a. To address significant changed conditions identified in the technical or annual reports required by the Water Board, or through other means or communication, that were unknown at the time of the issuance of this Order;

C.16.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.16.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 requirements of the CWA then applicable.

C.17. Standard Provisions

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Each of the Permittees shall comply with all parts of the Standard Provisions contained in Attachment J of this Order.

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C.18. Expiration Date

This Order expires on July 1, 2014, 5 years from the date of adoption of this Order by the Water Board. The Permittees must file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of such date as application for reissuance of waste discharge requirements.

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C.19. Rescission of Old Orders

Order Nos. 99-058, 99-059, 01-024, R2-2003-0021, and R2-2003-0034 are hereby rescinded.

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C.20. Effective Date

The Effective Date of this Order and Permit shall be July 1, 2009, provided that the Regional Administrator of the Federal EPA, Region IX does not object.

I, Bruce H. Wolfe, 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, San Francisco Bay Region, on XX, 2009.

_____
Bruce H. Wolfe
Executive Officer

Appendix I: Municipal Regional Stormwater Permit Fact Sheet
Attachment A: Provision C.3.e. Flowchart (Alternative Compliance with Provision C.3.b.)
Attachment B: Provision C.3.g. Alameda Permittees' Hydromodification Requirements
Attachment C: Provision C.3.g. Contra Costa Permittees' Hydromodification Requirements
Attachment D: Provision C.3.g. Fairfield-Suisun Permittees' Hydromodification Requirements
Attachment E: Provision C.3.g. San Mateo Permittees' Hydromodification Requirements
Attachment F: Provision C.3.g. Santa Clara Permittees' Hydromodification Requirements
Attachment G: Provision C.8. Status & Trends Follow-up Analysis and Actions
Attachment H: Provision C.8. Standard Monitoring Provisions
Attachment I: Provision C.10. SCVURPPP Urban Rapid Trash Assessment Protocol
Attachment J: Standard NPDES Stormwater Permit Provisions
Attachment K: Provision C.3.b. Sample Reporting Table
Attachment L: Provision C.3.h. Sample Reporting Table

ACRONYMS & ABBREVIATIONS

ACCWP	Alameda Countywide Clean Water Program
BAHM	Bay Area Hydrology Model
Basin Plan	Water Quality Control Plan for the San Francisco Bay Basin
BASMAA	Bay Area Stormwater Management Agencies Association
BMPs	Best Management Practices
CASQA	California Stormwater Quality Association
CCC	California Coastal Commission
CCCWP	Contra Costa Clean Water Program
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CSBP	California Stream Bioassessment Procedures
CWA	Federal Clean Water Act
CWC	California Water Code
DCIA	Directly Connected Impervious Area
ERP	Enforcement Response Plan
FR	Federal Register
GIS	Geographic information System
HM	Hydromodification Management
HMP	Hydromodification Management Plan
IC/ID	Illicit Connections and Illicit Discharges
IPM	Integrated Pest Management
LID	Low Impact Development
MEP	Maximum Extent Practicable
MRP	Municipal Stormwater Regional Permit
MS4	Municipal Separate Storm Sewer System
MTC	Metropolitan Transportation Commission
NAFSMA	National Association of Flood & Stormwater Management Agencies
NOI	Notice of Intent

NPDES	National Pollutant Discharge Elimination System
NRDC	Natural Resources Defense Council
O&M	Operation and Maintenance
PBDE	Polybrominated Diphenyl Ether
POTW	Publicly Owned Treatment Works
RCRA	Resource Conservation and Recovery Act
RMP	Regional Monitoring Program
ROWD	Report of Waste Discharge
RTA	Rapid Trash Assessment
SARA	Superfund Amendments and Reauthorization Act
SCURTA	Santa Clara Urban Rapid Trash Assessment
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SFRWQCB	San Francisco Bay Regional Water Quality Control Board
SIC	Standard Industrial Classification
SMWPPP	San Mateo Countywide Water Pollution Prevention Program
SOP	Standard Operating Procedure
SWAMP	Surface Water Ambient Monitoring Program
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TIE	Toxicity Identification Evaluation
TMDLs	Total Maximum Daily Loads
TSCA	Toxic Substances Control Act
USEPA	Unites States Environmental Protection Agency
Water Board	San Francisco Bay Regional Water Quality Control Board
WLAs	Wasteload Allocations

GLOSSARY

Arterial Roads	Freeways, multilane highways, and other important roadways that supplement the Interstate System. Arterial roads connect, as directly as practicable, principal urbanized areas, cities, and industrial centers.
Beneficial Uses	The uses of water of the state protected against degradation, such as domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation and preservation of fish and wildlife, and other aquatic resources or preserves.
Collector Roads	Major and minor roads that connect local roads with arterial roads. Collector roads provide less mobility than arterial roads at lower speeds and for shorter distances.
Commercial Development	Development or redevelopment to be used for commercial purposes, such as office buildings, retail or wholesale facilities, restaurants, shopping centers, hotels, and warehouses.
Construction Site	Any project, including projects requiring coverage under the General Construction Permit, that involves soil disturbing activities including, but not limited to, clearing, grading, paving, disturbances to ground such as stockpiling, and excavation. Construction sites are all sites with disturbed or graded land area not protected by vegetation, or pavement, that are subject to a building or grading permit.
Conditionally Exempted Non-Stormwater Discharge	Non-stormwater discharges that are prohibited by A.1. of this permit, unless such discharges are authorized by a separate NPDES permit or are not in violation of water quality standards because appropriate BMPs have been implemented to reduce pollutants to the maximum extent practicable, consistent with Provision C.15.
Discharger	Any responsible party or site owner or operator within the Permittees' jurisdiction whose site discharges stormwater runoff, or a non-stormwater discharge
Detached Single-family Home Project	The building of one single new house or the addition and/or replacement of impervious surface associated with one single existing house, which is not part of a larger plan of development.
Development	Construction, rehabilitation, redevelopment, or reconstruction of any public or private residential project (whether single-family, multi-unit, or planned unit development); or industrial, commercial, retail or other nonresidential project, including public agency projects.
Estate Residential Development	Development zoned for a minimum 1 acre lot size
Emerging Pollutants	Pollutants in water that either: (1) May not have been thoroughly studied to date but are suspected by the scientific community to be a source of impairment of beneficial uses and/or present a health risk; or (2) Are not yet part of a monitoring program.
Equivalent Funds	Monetary amount necessary to provide both: (1) Hydraulically sized treatment (in accordance with Provision C.3.d.) of:

	(a) An equal area of new and/or replaced impervious surface of similar land uses as that created by the Regulated Project; (b) An equivalent amount of pollutant loading as that created by the Regulated Project; or (c) An equivalent quantity of runoff from similar land uses as that created by the Regulated Project; and (2) A proportional share of the operation and maintenance costs of the Regional Project.
Equivalent Offsite Treatment	Hydraulically sized treatment (in accordance with Provision C.3.d.), using landscape-based treatment measures, and associated operation and maintenance of: (1) An equal area of new and/or replaced impervious surface of similar land uses as that created by the Regulated Project; (2) An equivalent amount of pollutant loading as that created by the Regulated Project; or (3) An equivalent quantity of runoff from similar land uses as that created by the Regulated Project.
Erosion	The diminishing or wearing away of land due to wind, or water. Often the eroded debris (silt or sediment) becomes a pollutant via stormwater runoff. Erosion occurs naturally, but can be intensified by land disturbing and grading activities such as farming, development, road building, and timber harvesting.
Full Trash Capture Device	Full trash capture systems are defined as "any device or series of devices that traps all particles retained by a 5mm mesh screen and has a design treatment capacity of not less than the peak flow rate resulting from a one-year, one-hour, storm in the tributary drainage catchment area." Trash collection booms and sea curtains do not meet this definition, but are effective for removal of floating trash if properly maintained. Because these devices do not meet the Full Trash Capture Device definition, only ¼ of the catchment area treated by these measures is credited toward meeting the trash management area requirement of C.10.a.
General Permits	Waste Discharge Requirements or NPDES Permits containing requirements that are applicable to a class or category of dischargers. The State of California has general stormwater permits for construction sites that disturb soil of 1 acre or more; industrial facilities; `Phase II smaller municipalities (including nontraditional Small MS4s, which are governmental facilities, such as military bases, public campuses, and prison and hospital complexes); and small linear underground/overhead projects disturbing at least 1 acre, but less than 5 acres (including trenching and staging areas).
Grading	The cutting and/or filling of the land surface to a slope or elevation.
Hydrologic source control measures	Site design techniques that minimize and/or slow the rate of stormwater runoff from the site.
Hydromodification	The modification of a stream's hydrograph, caused in general by increases in flows and durations that result when land is developed (e.g., made more impervious). The effects of hydromodification include, but are not limited to, increased bed and bank erosion, loss of habitat, increased sediment transport and deposition, and increased flooding.

Illicit Discharge	Any discharge to a municipal separate storm sewer (storm drain) system (MS4) that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations. The term *illicit discharge* includes all non-stormwater discharges not composed entirely of stormwater and discharges that are identified under Section A. (Discharge Prohibitions) of this Permit. The term illicit discharge does not include discharges that are regulated by an NPDES permit (other than the NPDES permit for discharges from the MS4) or authorized by the Regional Water Board Executive Officer.
Impervious Surface	A surface covering or pavement of a developed parcel of land that prevents the land's natural ability to absorb and infiltrate rainfall/stormwater. Impervious surfaces include, but are not limited to, roof tops; walkways; patios; driveways; parking lots; storage areas; impervious concrete and asphalt; and any other continuous watertight pavement or covering. Landscaped soil and pervious pavement, including pavers with pervious openings and seams, underlain with pervious soil or pervious storage material, such as a gravel layer sufficient to hold at least the C.3.d volume of rainfall runoff are not impervious surfaces. Open, uncovered retention/detention facilities shall not be considered as impervious surfaces for purposes of determining whether a project is a Regulated Project under Provisions C.3.b. and C.3.g. Open, uncovered retention/detention facilities shall be considered impervious surfaces for purposes of runoff modeling and meeting the Hydromodification Standard.
Industrial Development	Development or redevelopment of property to be used for industrial purposes, such as factories; manufacturing buildings; and research and development parks.
Infill Site	A site in an urbanized area where the immediately adjacent parcels are developed with one or more qualified urban uses or at least 75% of the perimeter of the site adjoins parcels that are developed with qualified urban uses and the remaining 25% of the site adjoins parcels that have previously been developed for qualified urban uses and no parcel within the site has been created within the past 10 years.
Infiltration Device	Any structure that is deeper than wide and designed to infiltrate stormwater into the subsurface, and, as designed, bypass the natural groundwater protection afforded by surface soil. These devices include dry wells, injection wells, and infiltration trenches (includes French drains).
Joint Stormwater Treatment Facility	A stormwater treatment facility built to treat the combined runoff from two or more Regulated Projects located adjacent to each other,
Local Roads	Roads that provide limited mobility and are the primary access to residential areas, businesses, farms, and other local areas. Local roads offer the lowest level of mobility and usually contain no bus routes. Service to through traffic movement usually is deliberately discouraged in local roads.
Low-income Housing	As defined under Government Code section 65589.5(h)(3).
Maximum Extent Practicable (MEP)	A standard for implementation of stormwater management actions to reduce pollutants in stormwater. Clean Water Act (CWA) 402(p)(3)(B)(iii) requires that municipal stormwater permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices,

	control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." Also see State Board Order WQ 2000-11.
Mixed-use Development or Redevelopment	Development or redevelopment of property to be used for two or more different uses, all intended to be harmonious and complementary. An example is a high-rise building with retail shops on the first 2 floors, office space on floors 3 through 10, apartments on the next 10 floors, and a restaurant on the top floor.
Municipal Separate Storm Sewer System (MS4)	A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains), as defined in 40 CFR 122.26(b)(8): (1) Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law...including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization or a designated and approved management agency under section 208 of the CWA) that discharges into waters of the United States; (2) Designed or used for collecting or conveying stormwater; (3) Which is not a combined sewer; and (4) Which is not part of a Publicly Owned Treatment Works (POTW), as defined in 40 CFR 122.2.
Municipal Corporation Yards, Vehicle Maintenance/Material Storage Facilities/	Any Permittee-owned or -operated facility, or portion thereof, that: (1) Conducts industrial activity, operates or stores equipment, and materials; (2) Performs fleet vehicle service/maintenance including repair, maintenance, washing, or fueling; (3) Performs maintenance and/or repair of machinery/equipment;
National Pollutant Discharge Elimination System (NPDES)	A national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the CWA.
Notice of Intent (NOI)	The application form by which dischargers seek coverage under General Permits, unless the General Permit requires otherwise.
Parking Lot	Land area or facility for the parking or storage of motor vehicles used for business, commerce, industry, or personal use.
Permittee/Permittees	Municipal agency/agencies that are named in and subject to the requirements of this Permit.
Permit Effective Date	The date at least 45 days after Permit adoption, provided the Regional Administrator of U.S. EPA Region 9 has no objection, whichever is later.
Pervious Pavement	Pavement that stores and infiltrates rainfall at a rate equal to immediately surrounding unpaved, landscaped areas, or that stores and infiltrates the rainfall runoff volume described in C.3.d.
Point Source	Any discernible, confined, and discrete conveyance including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling

	stock, concentrated animal feeding operations, landfill leachate collection systems, vessel, or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.
Pollutants of Concern	Pollutants that impair waterbodies listed under CWA section 303(d), pollutants associated with the land use type of a development, including pollutants commonly associated with urban runoff. Pollutants commonly associated with stormwater runoff include, but are not limited to, total suspended solids; sediment; pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead, zinc, and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers); oxygen-demanding substances (e.g., decaying vegetation and animal waste) litter and trash.
Potable Water	Water that is safe for domestic use, drinking, and cooking.
Pre-Project Runoff Conditions	Stormwater runoff conditions that exist onsite immediately before development activities occur. This definition is not intended to be interpreted as that period before any human-induced land activities occurred. This definition pertains to redevelopment as well as initial development.
Public Development	Any construction, rehabilitation, redevelopment or reconstruction of any public agency project, including but not limited to, libraries, office buildings, roads, and highways.
Qualified Urban Uses	Commercial, public institutional, transit or transportation passenger facility use, retail use, residential development with at least a density of 18 development units per acre, or any combination thereof.
Redevelopment	Land-disturbing activity that results in the creation, addition, or replacement of exterior impervious surface area on a site on which some past development has occurred.
Regional Monitoring Program (RMP)	A monitoring program aimed at determining San Francisco Bay Region receiving water conditions. The program was established in 1993 through an agreement among the Water Board, wastewater discharger agencies, dredgers, Municipal Stormwater Permittees and the San Francisco Estuary Institute to provide regular sampling of Bay sediments, water, and organisms for pollutants. The program is funded by the dischargers and managed by San Francisco Estuary Institute.
Regional Project	A regional or municipal stormwater treatment facility that discharges into the same watershed that the Regulated Project does.
Regulated Projects	Development projects as defined in Provision C.3.b.ii.
Residential Housing Subdivision	Any property development of multiple single-family homes or of dwelling units intended for multiple families/households (e.g., apartments, condominiums, and town homes).
Retrofitting	Installing improved pollution control devices at existing facilities to attain water quality objectives.
Sediments	Soil, sand, and minerals washed from land into water, usually after rain.

Self-treating Area	A landscaped area that absorbs and infiltrates a volume or flow rate of rainfall runoff that meets or exceeds the volume or flow design criteria in Provision C.3.d.; or A combination of impervious and pervious areas where the pervious area absorbs and infiltrates the volume or flow rainfall runoff meeting the criteria in Provision C.3.d. for the entire combined (pervious and impervious) area, and does receive the entire runoff from the impervious area.
Senior Housing	As defined under California Civil Code section 51.11(b)(4).
Solid Waste	All putrescible and nonputrescible solid, semisolid, and liquid wastes as defined by California Government Code Section 68055.1 (h).
Source Control BMP	Land use or site planning practices, or structural or nonstructural measures, that aim to prevent runoff pollution by reducing the potential for contact with rainfall runoff at the source of pollution. Source control BMPs minimize the contact between pollutants and urban runoff.
Standard Industrial Classification (SIC)	A federal system for classifying establishments by the type of activity in which they are engaged using a four-digit code.
Stormwater Pumping Station	Mechanical device (or pump) that is installed in MS4s or pipelines to discharge stormwater runoff and prevent flooding.
Stormwater Treatment System	Any engineered system designed to remove pollutants from stormwater runoff by settling, filtration, biological degradation, plant uptake, media absorption/adsorption or other physical, biological, or chemical process. This includes landscape-based systems such as grassy swales and bioretention units as well as proprietary systems.
Surface Water Ambient Monitoring Program (SWAMP)	The State Water Board's program to monitor surface water quality; coordinate consistent scientific methods; and design strategies for improving water quality monitoring, assessment, and reporting.
Total Maximum Daily Loads (TMDLs)	The maximum amount of a pollutant that can be discharged into a waterbody from all sources (point and nonpoint) and still maintain water quality standards. Under CWA section 303(d), TMDLs must be developed for all waterbodies that do not meet water quality standards even after application of technology-based controls, more stringent effluent limitations required by a state or local authority, and other pollution control requirements such as BMPs.
Toxicity Identification Evaluation (TIE)	TIE is a series of laboratory procedures used to identify the chemical(s) responsible for toxicity to aquatic life. These procedures are designed to decrease, increase, or transform the bioavailable fractions of contaminants to assess their contributions to sample toxicity. TIEs are conducted separately on water column and sediment samples.
Transit-Oriented Development	Development as defined in Provision C.3.e.i.(d).
Trash and Litter	Trash consists of litter and particles of litter. California Government Code Section 68055.1 (g) defines litter as all improperly discarded waste material, including, but not limited to, convenience food, beverage, and other product packages or

	containers constructed of steel, aluminum, glass, paper, plastic, and other natural and synthetic materials, thrown or deposited on the lands and waters of the state, but not including the properly discarded waste of the primary processing of agriculture, mining, logging, sawmilling, or manufacturing.
Treatment	Any method, technique, or process designed to remove pollutants and/or solids from polluted stormwater runoff, wastewater, or effluent.
Waste Load Allocations (WLAs)	A portion of a receiving water's TMDL that is allocated to one of its existing or future point sources of pollution.
Water Quality Control Plan (Basin Plan)	The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State within the Region, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives and discharge prohibitions. The Basin Plan was duly adopted and approved by the State Water Resources Control Board, U.S. EPA, and the Office of Administrative Law where required. The latest version is effective as of December 22, 2006.
Water Quality Objectives	The limits or levels of water quality elements or biological characteristics established to reasonably protect the beneficial uses of water or to prevent pollution problems within a specific area. Water quality objectives may be numeric or narrative.
Water Quality Standards	State-adopted and USEPA-approved water quality standards for waterbodies. The standards prescribe the use of the waterbody and establish the water quality criteria that must be met to protect designated uses. Water quality standards also include the federal and state anti-degradation policy.
Watershed	A watershed is the area of land drained by a stream or river system. It is where water precipitates and collects, extending from ridges down to the topographic low points where the water drains into a river, bay, ocean, or other waterbody. A watershed includes surface waterbodies (e.g., streams, rivers, lakes, reservoirs, wetlands, and estuaries), groundwater (e.g., aquifers and groundwater basins) and the surrounding landscape. The San Francisco Bay Region consists of seven major hydrologic units (watershed basins) within the Region. Table 2-1 of the Water Board's Basin Plan lists the waterbodies within these hydrologic units that have or will have designated beneficial uses. Figure 2-2 of the Basin Plan shows the seven hydrologic units and Figures 2-3 through 2-9 maps the locations of the water bodies listed in Table 2-1. For the purposes of Provision C.3.e., Regional or offsite stormwater treatment projects that discharge "into the same watershed" means that these projects discharge treated stormwater into the same waterbody (as delineated in Table 2-1 and Figures 2-3 and 2-9 of the Basin Plan) as the Regulated Project.
Wet Season	October 1 through April 30 of each year

APPENDIX I

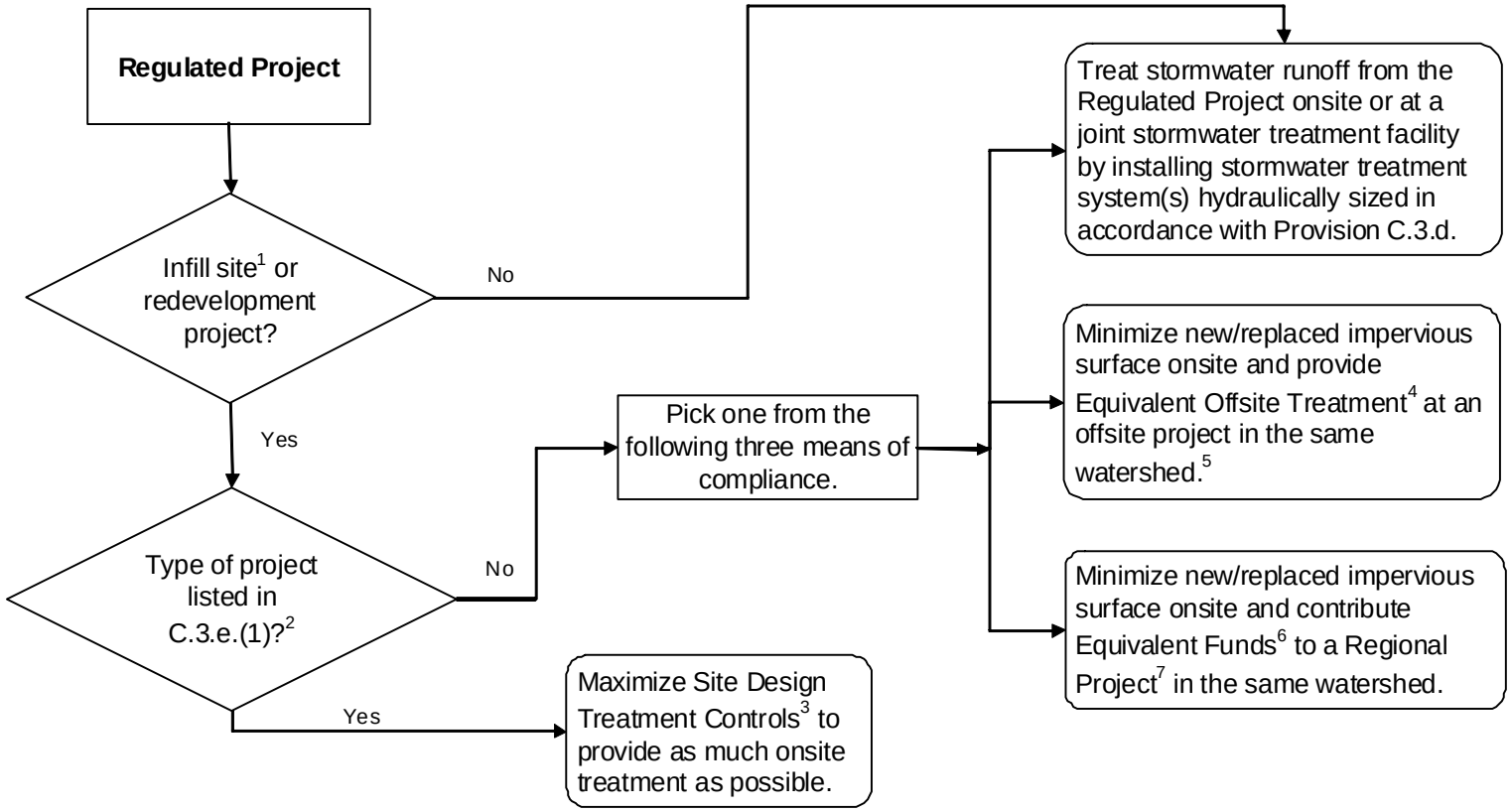
MUNICIPAL REGIONAL STORMWATER PERMIT

FACT SHEET

ATTACHMENT A

Provision C.3.e. Flowchart
Alternative Compliance with Provisions C.3.b. and d.

Provision C.3.e. Flowchart
Alternative Compliance with Provisions C.3.b.



Provision C.3.e. Flowchart Footnotes

[1] **Infill Site** – A site in an urbanized area (i.e., an area that satisfies the criteria of Public Resource Code § 21071) where the immediately adjacent parcels are developed with one or more qualified urban uses (i.e., commercial, public institutional, transit or transportation passenger facility use, retail use, residential development with at least a density of 18 development units per acre, or any combination thereof) or at least 75% of the perimeter of the site adjoins parcels that are developed with qualified urban uses and the remaining 25% of the site adjoins parcels that have previously been developed for qualified urban uses and no parcel within the site has been created within the past 10 years.

[2] **Provision C.3.e.(1) Projects:**

(a) Brownfields – Projects that meet US EPA's Brownfield Sites definition found in Public Law 107-118 (H.R. 2869) – "Small Business Liability Relief and Brownfields Revitalization Act" signed into law January 11, 2002, and that receive subsidy or similar benefits under a program designed to redevelop such sites;

(b) Low-income housing as defined under Government Code § 65589.5(h)(3), but limited to, the actual low income portion, or low income impervious area percentage, of the project;

(c) Senior citizen housing development, as defined under California Civil Code § 51.11(b)(4); or

(d) Transit Oriented Development Projects – Any development project that will be located within ½ mile of a transit station and will meet one of the criteria listed below. A transit station is defined as a rail or light-rail station, ferry terminal, bus hub, or bus transfer station. A bus hub or bus transfer station is required to have an intersection of three or more bus routes that are in service 16 hours a day, with a minimum route frequency of 15 minutes during the peak hours of 7 am to 10 am (inclusive) and 3 pm to 7 pm (inclusive).

i. A housing or mixed-use development project with a minimum density of 30 residential units per acre and that provides:

a) No more than one parking space per residential unit, and

b) Visitor parking that does not exceed 10% of the total number of residential parking spaces; or

ii. A commercial development project with a minimum floor area ratio (FAR) of three and that provides:

a) For restaurants, no more than 3 parking spaces per 1000 square feet;

b) For offices, no more than 1.25 parking spaces per 1000 square feet; and

c) For restaurants, no more than 2.0 parking spaces for 1000 square feet.

Sharing of parking between uses within these maximums is allowed. Carshare, bicycle, and blue zone parking spaces are not subject to these maximums.

[3] **Maximizing Site Design Treatment Controls** is defined as including a minimum of one of the following specific site design and/or treatment measures:

- Direct roof runoff into cisterns or rain barrels for reuse;
- Direct roof runoff to vegetated areas;
- Direct runoff from sidewalks, walkways, and/or patios into vegetated areas ;
- Direct runoff from driveways and/or uncovered parking lots into vegetated areas;
- Construct sidewalks, walkways, and/or patios with permeable surfaces;
- Construct bicycle lanes, driveways, and/or uncovered parking lots with permeable surfaces;
- Install landscaped-based stormwater treatment measures (non-hydraulically-sized) such as swales, tree wells or bioretention gardens;

Provision C.3.e. Flowchart Footnotes

[4] **Equivalent Offsite Treatment** – Hydraulically-sized treatment (in accordance with Provision C.3.d.), using landscape-based treatment measures, and associated operation and maintenance of:

(a) An equal area of new and/or replaced imperious surface as that created by the Regulated Project;

(b) An equivalent amount of pollutant loading as that created by the Regulated Project; or

(c) An equivalent quantify of runoff as that created by the Regulated Project.

Offsite projects must be constructed by the end of construction of the Regulated Infill or Redevelopment Project. If more time is needed to construct the offsite project, for each additional year, up to 3 years, after the construction of the Regulated Infill or Redevelopment Project, the offsite project must provide an additional 10% of the calculated Equivalent Offsite Treatment.

[5] **Watershed** – A watershed is the area of land drained by a stream or river system. It is where water precipitates and collects, extending from ridges down to the topographic low points where the water drains into a river, bay, ocean, or other water body. A watershed includes surface water bodies (e.g., streams, rivers, lakes, reservoirs, wetlands, and estuaries), groundwater (e.g., aquifers and groundwater basins) and the surrounding landscape. The San Francisco Bay Region consists of seven major hydrologic units (watershed basins) within the Region. Table 2-1 of the Water Board's Basin Plan lists the water bodies within these hydrologic units that have or will have designated beneficial uses. Figure 2-2 of the Basin Plan shows the seven hydrologic units and figures 2-3 of the Basin Plan shows the seven hydrologic units and figures 2-3 through 2-9 maps the locations of the water bodies listed in Table 2-1. For the purposes of Provision C.3.e., Regional or offsite stormwater treatment projects that discharge "into the same watershed" means that these projects discharge treated stormwater into the same waterbody (as delineated in Table 2-1 and Figures 2-3 and 2-9 of the Basin Plan) as the Regulated Project.

[6] **Equivalent Funds** –Monetary amount necessary to provide both:

(a) Hydraulically-sized treatment (in accordance with Provision C.3.d.) of:

i. An equal area of new and/or replaced impervious surface of similar land uses as that created by the Regulated Project;

ii. An equivalent amount of pollutant loading as that created by the Regulated Project; or

iii. An equivalent quantity of runoff from similar land uses as that created by the Regulated Project; and

(b) A proportional share of the operation and maintenance costs of the Regional Project.

[7] **Regional Project** – A regional or municipal stormwater treatment facility that discharges into the same watershed that the Regulated Project does. Regional Projects must be completed within 3 years after the end of construction of the Regulated Infill or Redevelopment Project. However, the timeline for completion of the Regional Project may be extended, up to 5 years after the completion of the Regulated Infill or Redevelopment Project, with prior Executive Officer approval. Executive Officer approval will be granted contingent upon a demonstration of good faith efforts to implement the Regional Project, such as having funds encumbered and applying for the appropriate regulatory permits.

ATTACHMENT B

Provision C.3.g.
Alameda Permittees
Hydromodification Management Requirements

Alameda Permittees Hydromodification Management Requirements

1. On-site and Regional Hydromodification Management (HM) Control Design Criteria

a. *Range of flows to control*: Flow duration controls shall be designed such that post-project stormwater discharge rates and durations match pre-project discharge rates and durations from 10 percent of the pre-project 2-year peak flow[55] up to the pre-project 10-year peak flow, except where the lower endpoint of this range is modified as described in Section 6 of this Attachment.

b. *Goodness of fit criteria*: The post-project flow duration curve shall not deviate above the pre-project flow duration curve by more than 10 percent over more than 10 percent of the length of the curve corresponding to the range of flows to control.

c. *Allowable low flow rate*: Flow control structures may be designed to discharge stormwater at a very low rate that does not threaten to erode the receiving waterbody. This flow rate (also called *Qcp*[56]) shall be no greater than 10 percent of the pre-project 2-year peak flow unless a modified value is substantiated by analysis of actual channel resistance in accordance with an approved User Guide as described in Section 6 of this Attachment.

d. *Standard HM modeling*: On-site and regional HM controls designed using the Bay Area Hydrology Model (BAHM[57]) and site-specific input data shall be considered to meet the HM Standard. Such use must be consistent with directions and options set forth in the most current BAHM User's Manual.[58] Permittees shall demonstrate to the satisfaction of the Executive Officer that any modifications of the BAHM made are consistent with the requirements of this Attachment and Provision C.3.f.

e. *Alternate HM modeling and design*: The project proponent may use a continuous simulation hydrologic computer model[59] to simulate pre-project and post-project runoff and to design HM controls. To use this method, the project proponent shall compare the

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[55] Where referred to in this Order, the 2-year peak flow is determined using a flood frequency analysis procedure based on USGS Bulletin 17 B to obtain the peak flow statistically expected to occur at a 2-year recurrence interval. In this analysis, the appropriate record of hourly rainfall data (e.g., 35–50 years of data) is run through a continuous simulation hydrologic model, the annual peak flows are identified, rank ordered, and the 2-year peak flow is estimated. Such models include USEPA's Hydrologic Simulation Program—Fortran (HSPF), U.S. Army Corps of Engineers' Hydrologic Engineering Center-Hydrologic Modeling System (HEC-HMS), and USEPA's Storm Water Management Model (SWMM).

[56] Qcp is the allowable low flow discharge from a flow control structure on a project site. It is a means of apportioning the critical flow in a stream to individual projects that discharge to that stream, such that cumulative discharges do not exceed the critical flow in the stream.

[57] *The Bay Area Hydrology Model – A Tool for Analyzing Hydromodification Effects of Development Projects and Sizing Solutions*, Bicknell, J., D. Beyerlein, and A. Feng, September 26, 2006. Available at http://www.scvurppp-w2k.com/permit_c3_docs/Bicknell-Beyerlein-Feng_CASQA_Paper_9-26-06.pdf

[58] *The Bay Area Hydrology Model – A Tool for Analyzing Hydromodification Effects of Development Projects and Sizing Solutions*, Bicknell, J., D. Beyerlein, and A. Feng, September 26, 2006. Available at http://www.scvurppp-w2k.com/permit_c3_docs/Bicknell-Beyerlein-Feng_CASQA_Paper_9-26-06.pdf

[59] Such models include US EPA's Hydrologic Simulation Program—Fortran (HSPF), U.S. Army Corps of Engineers Hydrologic Engineering Center-Hydrologic Modeling System (HEC-HMS), and USEPA's Surface Water Management Model (SWMM).

pre-project and post-project model output for a rainfall record of at least 30 years, and shall show that all applicable performance criteria in 1.a-e above are met.

2. Impracticability Provision

Where conditions (e.g., extreme space limitations) prevent a project from meeting the HM Standard for a reasonable cost, *and* where the project's runoff cannot be directed to a regional HM control within a reasonable time frame, *and* where an in-stream measure is not practicable, the project shall use (1) site design for hydrologic source control, *and* (2) stormwater treatment measures that collectively minimize, slow, and detain[60] runoff to the maximum extent practicable. In addition, the project proponent shall provide for or contribute financially to an alternative HM project as set forth below:

a. *Reasonable cost*: To show that the HM Standard cannot be met at a reasonable cost, the project proponent must demonstrate that the total cost to comply with both the HM Standard and the Provision C.3.d treatment requirement exceeds 2 percent of the project construction cost, excluding land costs. Costs of HM and treatment control measures shall not include land costs, soil disposal fees, hauling, contaminated soil testing, mitigation, disposal, or other normal site enhancement costs such as landscaping or grading that are required for other development purposes.

b. *Regional HM controls:* A regional HM control shall be considered available if there is a planned location for the regional HM control and if an appropriate funding mechanism for a regional HM control is in place by the time of project construction.

c. *In-stream measures practicability:* In-stream measures shall be considered practicable when an in-stream measure for the project's watershed is planned and an appropriate funding mechanism for an in-stream measure is in place by the time of project construction.

d. *Financial contribution to an alternative HM project:* The difference between 2 percent of the project construction costs and the cost of the treatment measures at the site (both costs as described in Section 2.a of this Attachment) shall be contributed to an alternative HM project, such as a stormwater treatment retrofit, HM retrofit, regional HM control, or in-stream measure that is not otherwise required by the Water Board or other regulatory agency. Preference shall be given to projects discharging, in this order, to the same tributary, mainstem, watershed, then in the same municipality or county.

3. Record Keeping

Permittees shall collect and retain the following information for all projects subject to HM requirements:

a. Site plans identifying impervious areas, surface flow directions for the entire site, and location(s) of HM measures;

b. For projects using standard sizing charts, a summary of sizing calculations used;

c. For projects using the BAHM, a listing of model inputs;

[60] Stormwater treatment measures that detain runoff are generally those that filter runoff through soil or other media and include bioretention units, bioswales, basins, planter boxes, tree wells, media filters, and green roofs.

d. For projects using custom modeling, a summary of the modeling calculations with corresponding graph showing curve matching (existing, post-project, and post-project with HM controls curves);

e. For projects using the Impracticability Provision, a listing of all applicable costs and a brief description of the alternative HM Project (name, location, date of start up, entity responsible for maintenance); and

f. A listing, summary, and date of modifications made to the BAHM, including technical rationale. Permittees shall submit this list and explanation annually with the Annual Report. This may be prepared at the Countywide Program level and submitted on behalf of participating Permittees.

4. HM Control Areas

Applicable projects shall be required to meet the HM Standard when such projects are in areas of HM applicability shown in Figure A-1.[61] Plans to restore a creek reach may reintroduce the applicability of HM requirements; in these instances, Permittees may add, but shall not delete, areas of applicability accordingly.

To assist in location and evaluation of project applicability, Figure A-1 depicts a number of features including the following:

- Hardened channels and culverts at least 24 inches in diameter (green solid or dashed lines);
- Natural channels (red lines);
- Boundaries of major watersheds (light blue lines); and
- Surface streets and highways (gray or black lines).

These data are of varying age, precision and accuracy and are not intended for legal description or engineering design. Watersheds extending beyond the County boundaries are shown for illustration purposes only. Project proponents are responsible for verifying and describing actual conditions of site location and drainage.

5. Figure A-1 is color-coded as follows:

a. Solid pink areas – Solid pink designates hilly areas, where high slopes (greater than 25 percent) occur. The HM Standard and all associated requirements apply in areas shown in solid pink on the map. In this area, the HM Standard does *not* apply if a project proponent demonstrates that all project runoff will flow through enclosed storm drains, existing concrete culverts, or fully hardened (with bed and banks continuously concrete-lined) channels to the tidal area shown in light gray.

b. Purple/red hatched areas – These are upstream of areas where hydromodification impacts are of concern because of factors such as bank instability, sensitive habitat, or restoration projects. The HM Standard and all associated requirements apply in areas shown in purple/red (printer-dependant) hatch marking on the map. Projects in these

[61] The watercourses potentially susceptible to hydromodification impacts are identified based on an assessment approach developed by Balance Hydrologics (2003).

areas may be subject to additional agency reviews related to hydrologic, habitat or other watershed-specific concerns.

c. **Solid white areas** – Solid white designates the land area between the hills and the tidal zone. This area may be susceptible to hydromodification unless the site is connected to storm drains that discharge to the tidal area. The HM Standard and all associated requirements apply to projects in solid white areas *unless* a project proponent demonstrates that all project runoff will flow through fully hardened channels.[62] Short segments of engineered earthen channels (length less than 10 times the maximum width of trapezoidal cross-section) can be considered resistant to erosion if located downstream of a concrete channel of similar or greater length and comparable cross-sectional dimensions. Plans to restore a hardened channel may affect the HM Standard applicability in this area.

d. **Solid gray areas** – Solid gray designates areas where streams or channels are tidally influenced or primarily depositional near their outfall in San Francisco Bay. The HM Standard does not apply to projects in this area. Plans to restore a hardened channel may affect the HM Standard applicability in this area.

e. **Dark gray, *Eastern County* area** – Dark gray designates the portion of eastern Alameda County that lies outside the discharge area of this NPDES permit. This area is in the Central Valley Regional Water Quality Control Board's jurisdiction.

6. Potential Exceptions to Figure A-1 Designations

The Program may choose to prepare a User Guide[63] to be used for evaluating individual receiving waterbodies using detailed methods to assess channel stability and watercourse critical flow. This User Guide would reiterate and collate established stream stability assessment methods that have been presented in the Program's HMP.[64] After the Program has collated its methods into a User Guide format, received approval of the User Guide from the Executive Officer,[65] and informed the public through such process as an electronic mailing list, the Permittees may use the User Guide to guide preparation of technical reports for the following: implementing the HM Standard using in-stream or regional HM controls; determining whether certain projects are discharging to a watercourse that is less susceptible (from point of discharge to the Bay) to hydromodification (e.g., would have a lower potential for erosion than set forth in these requirements); and/or determining if a watercourse has a higher critical flow and project(s) discharging to it are eligible for an alternative Qcp for the purpose of designing on-site or regional measures to control flows draining to these channels (i.e., the actual threshold of erosion-causing critical flow is higher than 10 percent of the 2-year pre-project flow). In no case shall the design value of Qcp exceed 50 percent of the 2-year pre-project flow.

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[62] In this paragraph, *fully hardened channels* include enclosed storm drains, existing concrete culverts, or channels whose bed and banks are continuously concrete-lined to the tidal area shown in light gray on the map.
[63] The User Guide may be offered under a different title.
[64] The Program's HMP has undergone Water Board staff review and been subject to public notice and comment.
[65] The User Guide shall not introduce a new concept, but rather reformat existing methods; therefore, Executive Officer approval is appropriate.

ATTACHMENT C

Provision C.3.g.
Contra Costa Permittees
Hydromodification Management Requirements

Contra Costa Permittees Hydromodification Management Requirements

1. Demonstrating Compliance with the Hydromodification Management (HM) Standard

Contra Costa Permittees shall ensure that project proponents shall demonstrate compliance with the HM Standard by demonstrating that any one of the following four options is met:

a. *No increase in impervious area.* The project proponent may compare the project design to the pre-project condition and show that the project will not increase impervious area and also will not facilitate the efficiency of drainage collection and conveyance.

b. *Implementation of hydrograph modification IMPs.* The project proponent may select and size IMPs to manage hydrograph modification impacts, using the design procedure, criteria, and sizing factors specified in the Contra Costa Clean Water Program's *Stormwater C.3 Guidebook*. The use of flow-through planters shall be limited to upper-story plazas, adjacent to building foundations, on slopes where infiltration could impair geotechnical stability, or in similar situations where geotechnical issues prevent use of IMPs that allow infiltration to native soils. Limited soil infiltration capacity in itself does not make use of other IMPs infeasible.

c. *Estimated post-project runoff durations and peak flows do not exceed pre-project durations and peak flows.* The project proponent may use a continuous simulation hydrologic computer model such as USEPA's Hydrograph Simulation Program—Fortran (HSPF) to simulate pre-project and post-project runoff, including the effect of proposed IMPs, detention basins, or other stormwater management facilities. To use this method, the project proponent shall compare the pre-project and post-project model output for a rainfall record of at least 30 years, using limitations and instructions provided in the Program's *Stormwater C.3 Guidebook*, and shall show that the following criteria are met:

i. For flow rates from 10 percent of the pre-project 2-year runoff event (0.1Q2) to the pre-project 10-year runoff event (Q10), the post-project discharge rates and durations shall not deviate above the pre-project rates and durations by more than 10 percent over more than 10 percent of the length of the flow duration curve.

ii. For flow rates from 0.5Q2 to Q2, the post-project *peak flows* shall not exceed pre-project peak flows. For flow rates from Q2 to Q10, post-project peak flows may exceed pre-project flows by up to 10 percent for a 1-year frequency interval. For example, post-project flows could exceed pre-project flows by up to 10 percent for the interval from Q9 to Q10 or from Q5.5 to Q6.5, but not from Q8 to Q10.

d. *Projected increases in runoff peaks and durations will not accelerate erosion of receiving stream reaches.* The project proponent may show that, because of the specific characteristics of the stream receiving runoff from the project site, or because of proposed stream restoration projects, or both, there is little likelihood that the cumulative impacts from new development could increase the net rate of stream erosion to the extent that beneficial uses would be significantly impacted. To use this option, the project proponent shall evaluate the receiving stream to determine the relative risk of erosion impacts and take the appropriate actions as described below and in Table A-1. Projects 20 acres or larger in total area shall not use the medium risk methodology in *(d)ii* below.

i. ***Low Risk.*** In a report or letter report, signed by an engineer or qualified environmental professional, the project proponent shall show that all downstream

channels between the project site and the Bay/Delta fall into one of the following *low-risk* categories.

(1) Enclosed pipes.

(2) Channels with continuous hardened beds and banks engineered to withstand erosive forces and composed of concrete, engineered riprap, sackcrete, gabions, mats, and such. This category excludes channels where hardened beds and banks are not engineered continuous installations (i.e., have been installed in response to localized bank failure or erosion).

(3) Channels subject to tidal action.

(4) Channels shown to be aggrading (i.e., consistently subject to accumulation of sediments over decades) and to have no indications of erosion on the channel banks.

ii. ***Medium Risk.*** Medium risk channels are those where the boundary shear stress could exceed critical shear stress as a result of hydrograph modification but where either the sensitivity of the boundary shear stress to flow is low (e.g., an oversized channel with high width to depth ratios) or where the resistance of the channel materials is relatively high (e.g., cobble or boulder beds and vegetated banks). In *medium-risk* channels, accelerated erosion due to increased watershed imperviousness is not likely but is possible, and the uncertainties can be more easily and effectively addressed by mitigation than by additional study.

In a preliminary report, the project proponent's engineer or qualified environmental professional shall apply the Program's *Basic Geomorphic Assessment*[66] methods and criteria to show each downstream reach between the project site and the Bay/Delta is either at *low-risk* or *medium-risk* of accelerated erosion due to watershed development. In a following, detailed report, a qualified stream geomorphologist[67] shall use the Program's Basic Geomorphic Assessment methods and criteria, available information, and current field data to evaluate each *medium-risk* reach. For *each medium-risk* reach, the detailed report shall show one of the following:

(1) A detailed analysis, using the Program's criteria, showing the particular reach may be reclassified as *low-risk.*

(2) A detailed analysis, using the Program's criteria, confirming the *medium-risk* classification, and:

(a) A preliminary plan for a mitigation project for that reach to stabilize stream beds or banks, improve natural stream functions, and/or improve habitat values, and

(b) A commitment to implement the mitigation project timely in connection with the proposed development project (including milestones, schedule, cost estimates, and funding), and

(c) An opinion and supporting analysis by one or more qualified environmental professionals that the expected environmental benefits of the mitigation

[66] Contra Costa Clean Water Program *Hydrograph Modification Management Plan*, May 15, 2005, Attachment 4, pp. 6-13. This method must be made available in the Program's *Stormwater C.3 Guidebook.*

[67] Typically, detailed studies will be conducted by a stream geomorphologist retained by the lead agency (or, on the lead agency's request, another public agency such as the Contra Costa County Flood Control and Water Conservation District) and paid for by the project proponent.

project substantially outweigh the potential impacts of an increase in runoff from the development project, and

(d) Communication, in the form of letters or meeting notes, indicating consensus among staff representatives of regulatory agencies having jurisdiction that the mitigation project is feasible and desirable. In the case of the Regional Water Board, this must be a letter, signed by the Executive Officer or designee, specifically referencing this requirement. (This is a preliminary indication of feasibility required as part of the development project's Stormwater Control Plan. All applicable permits must be obtained before the mitigation project can be implemented.)

iii. ***High Risk.*** High-risk channels are those where the sensitivity of boundary shear stress to flow is high (e.g., incised or entrenched channels, channels with low width-to-depth ratios, and narrow channels with levees) or where channel resistance is low (e.g., channels with fine-grained, erodible beds and banks, or with little bed or bank vegetation). In a *high-risk* channel, it is presumed that increases in runoff flows will accelerate bed and bank erosion.

To implement this option (i.e., to allow increased runoff peaks and durations to a high-risk channel), the project proponent must perform a comprehensive analysis to determine the design objectives for channel restoration and must propose a comprehensive program of in-stream measures to improve channel functions while accommodating increased flows. Specific requirements are developed case-by-case in consultation with regulatory agencies having jurisdiction. The analysis will typically involve watershed-scale continuous hydrologic modeling (including calibration with stream gauge data where possible) of pre-project and post-project runoff flows, sediment transport modeling, collection and/or analysis of field data to characterize channel morphology including analysis of bed and bank materials and bank vegetation, selection and design of in-stream structures, and project environmental permitting.

2. IMP Model Calibration and Validation

The Program shall monitor flow from Hydrograph Modification Integrated Management Practices (IMPs) to determine the accuracy of its model inputs and assumptions. Monitoring shall be conducted with the aim of evaluating flow control effectiveness of the IMPs. The Program shall implement monitoring where feasible at future new development projects to gain insight into actual versus predicted rates and durations of flow from IMP overflows and underdrains.

At a minimum, Permittees shall monitor five locations for a minimum of two rainy seasons. If two rainy seasons are not sufficient to collect enough data to determine the accuracy of model inputs and assumptions, monitoring shall continue until such time as adequate data are collected.

Permittees shall conduct the IMP monitoring as described in the IMP Model Calibration and Validation Plan in Section 5 of this Attachment. Monitoring results shall be submitted to the Executive Officer by June 15 of each year following collection of monitoring data. If the first year's data indicate IMPs are not effectively controlling flows as modeled in the HMP, the Executive Officer may require the Program to make adjustments to the IMP sizing factors or design, or otherwise take appropriate corrective action. The Permittees shall submit an IMP

Monitoring Report by August 30 of the second year[68] of monitoring. The IMP Monitoring Report shall contain, at a minimum, all the data, graphic output from model runs, and a listing of all model outputs to be adjusted, with full explanation for each. Board staff will review the IMP Monitoring Report and require the Program to make any appropriate changes to the model within a 3-month time frame.

3. Stormwater C.3 Guidebook

a. NRCS Soil Groups: The *Stormwater C.3 Guidebook* shall include IMP sizing factors for use on development sites with Hydrologic Soil Group *B* and *C* soils, which shall be calculated using the methods and references in the *Contra Costa Clean Water Program Hydrograph Modification Management Plan*, dated May 15, 2005.

b. Self-Retaining Areas: The *Stormwater C.3 Guidebook* shall also include appropriate criteria, based on detailed hydrologic analysis, to ensure runoff peak flows and durations from *self-retaining areas* do not exceed pre-project peak flows and durations from these same areas. Until such time as the Executive Officer approves these criteria, no areas shall be considered *self-retaining* for the purposes of designing and implementing HM controls (i.e., stormwater flow and duration controls).

[68] If the monitoring extends beyond 2 years, an IMP Monitoring Report shall be submitted by August 30 annually until model calibration and validation is complete.

Table C-1: Summary of Option #4

Summary only. If there are conflicts between this summary table and the text of the Hydrograph Modification Management Standard, the text shall apply.

Risk Classification and Definition	To Show Classification Applies	Requirements for HMP Compliance
Low: Enclosed pipes, channels with continuous hardened beds and banks, channels subject to tidal action, and channels shown to be aggrading over time with no sign of bank erosion.	An engineer or qualified environmental professional reviews all downstream reaches between the project site and the Bay/Delta and writes report/letter showing *all* reaches meet the *low risk* definition.	No additional requirements.
Medium: Channels where the boundary shear stress could exceed critical shear stress as a result of hydrograph modification, but where either the sensitivity of the boundary shear stress to flow is low (e.g., an oversized channel with high width-to-depth ratios) or where the resistance of the channel materials is relatively high (e.g., cobble or boulder beds and vegetated banks). Accelerated erosion due to increased watershed imperviousness is not likely but is possible, and the uncertainties can be more easily and effectively addressed by mitigation than by additional study. Not allowed for projects 20 acres or larger in total area.	An engineer or qualified environmental professional applies the Program's Basic Geomorphic Assessment* methods and Risk Class criteria and shows in a Preliminary Report that *each* downstream reach between the project site and the Bay/Delta is either *medium risk* or *low risk.*	The project proponent's qualified geomorphologist applies the Program's Basic Geomorphic Assessment* methods and criteria, available information, and current field data to show, for each reach that was characterized in the Preliminary Report as *medium risk*. The geomorphologist prepares a detailed report showing, for each reach, either: The particular reach should be reclassified as *low risk.* [No further action for that reach is required.] OR The particular reach is confirmed to be *medium risk.* Present a mitigation project plan to stabilize stream bed and/or banks, improve natural stream functions, and/or improve habitat values as described in Section 4.b.ii of the Standard. Approval includes Water Board staff written approval.
High: Channels where the sensitivity of boundary shear stress to flow is high (e.g., incised or entrenched channels, channels with low width-to-depth ratios, and narrow channels with levees) or where channel resistance is low (e.g., channels with fine-grained, erodible beds and banks, or with little bed or bank vegetation).	Default classification if neither *low* nor *medium* risk classification applies to all downstream channels between the project site and the Bay/Delta fall.	The project proponent's qualified geomorphologist conducts a Detailed Geomorphic and Hydrologic Assessment* to determine the design objectives for stream restoration and a comprehensive program of in-stream measures to improve channel functions while accommodating increased flows. Specific requirements are developed case-by-case in cooperation with the applicable regulatory agencies. As with all in-stream activities, Water Board staff sign off is required, and input should be sought in the project's early stages.

* These methods are described in Contra Costa Clean Water Program *Hydrograph Modification Management Plan*, May 15, 2005, Attachment 4, and must be described in the Program's *Stormwater C.3 Guidebook*.

4. IMP Model Calibration and Validation Plan Objective

As part of the process of continuous improvement of the HMP, the Program shall investigate means to monitor flow from Hydrograph Modification Integrated Management Practices (IMPs). Monitoring shall be conducted with the aim of evaluating flow control effectiveness of the IMPs. The Program shall implement monitoring where feasible at future new development projects at a minimum of five locations and for a minimum of two rainy seasons to gain insight into actual versus predicted rates and durations of flow from IMP overflows and underdrains. If two rainy seasons are not sufficient to collect enough data to determine the accuracy of model inputs and assumptions, monitoring shall continue until such time as adequate data are collected.

a. The Dischargers Shall Identify and Establish Monitoring Sites – Program staff shall work with municipal Co-Permittees to identify potential monitoring sites on development projects that implement IMPs. Proposed sites shall be identified during review of planning and zoning applications so that monitoring stations can be designed and constructed as part of the development project. Monitoring shall begin after the development project is complete and the site is in use.

Criteria for appropriate sites include**,** but are not limited to**,** the following:

- To ensure applicability of results, the development project and IMPs should be typical of development sites and types of IMPs foreseen throughout the County. In particular, at least one each of the infiltration planter, flow-through planter, and *dry* swale shall be selected for monitoring.
- The area tributary to the IMP should be clearly defined, should contain and direct runoff at all rainfall intensities to the IMP. Two monitoring locations shall contain tributary areas that are a mix of pervious and impervious areas to test the pervious area simplifying assumptions used in the HMP, Table 14, Attachment 2, page 49. If no such locations are constructed by the monitoring period, modeling of mixed (pervious and impervious) tributary areas can substitute for direct monitoring of this type of location.
- The site shall be easily accessible at all times of day and night to allow inspection and maintenance of measurement equipment.
- Hourly rain gauge data representative of the site's location shall be available.

b. Documentation of Monitoring Sites – The Dischargers shall record and report (i.e., document) pertinent information for each monitoring site. Documentation of each monitoring site shall include the following:

- Amount of tributary area;
- Condition of roof or paving;
- Grading and drainage to the IMP, including calculated time of concentration.
- Locations and elevations of inlets and outlets;
- As-built measurements of the IMP including depth of soil and gravel layers, height of underdrain pipe above the IMP floor or native soil;

- Detailed specifications of soil and gravel layers and of filter fabric and other appurtenances; and
- Condition of IMP surface soils and vegetation.

c. Design, Construction, and Operation of Monitoring Sites – The Dischargers shall ensure that IMPs selected for monitoring are equipped with a manhole, vault, or other means to install and access equipment for monitoring flows from IMP overflows and underdrains.

Development of suitable methods for monitoring the entire range of flows may require experiment. The Program and Water Board are interested in the timing and duration of very low flows from underdrains, as well as higher flows from IMP overflows. The Dischargers shall ensure that equipment is configured to measure the entire range of flows and to avoid potential clogging of orifices used to measure low flows.

The Dischargers shall ensure that construction of IMPs is inspected carefully to ensure that IMPs are installed as designed and to avoid potential operational problems. For example, gravel used for underdrain layers should be washed free of fines, and filter fabric should be installed without breaks.

The Dischargers shall ensure that, following construction, artificial flows are applied to the IMP to verify the IMP and monitoring equipment are operating correctly and to resolve any operational problems prior to measuring flows from actual rain storms.

The Dischargers shall ensure that monitoring equipment is properly maintained. Maintenance of monitoring equipment will require, initially, inspections during and after storms that produce runoff. The inspection and maintenance schedule may be adjusted as additional experience is gained.

d. Data to be Obtained – The Dischargers shall collect the following data for each IMP, during the monitoring period:

- Hourly rainfall and more frequent rainfall data where available;
- Hourly IMP outflow and 15-minute outflow for all time periods in which sub-hourly rainfall data are available;
- Hourly IMP inflow (if possible) and more frequent inflow (if possible) when sub-hourly rainfall data are available; and
- Notes and observations.

e. Evaluation of Data – The principal use of the monitoring data shall be a comparison of predicted to actual flows. The Dischargers shall ensure that the HSPF model is set up as it was to prepare the curves in Attachment 2 of the HMP, with appropriate adjustments for the drainage area of the IMP to be monitored and for the actual sizing and configuration of the IMP. Hourly rainfall data from observed storms shall be input to the model, and the resulting hourly predicted output recorded. Where sub-hourly rainfall data are available, the model shall be run with, and output recorded for, 15-minute time steps.

The Dischargers shall compare predicted hourly outflows to the actual hourly outflows. As more data are gathered, the Dischargers may examine aggregated data to characterize deviations from predicted performance at various storm intensities and durations.

Because high-intensity storms are rare, it will take many years to obtain a suitable number of events to evaluate IMP performance under overflow conditions. Underdrain flows will occur more frequently, but possibly only a few times a year, depending on rainfall and IMP characteristics (e.g., extent to which the IMP is oversized, and actual, rather than predicted, permeability of native soils). However, evaluating a range of rainfall events that do *not* produce underflow will help demonstrate the effectiveness of the IMP.

5. Record Keeping and Reporting

Permittees shall collect and retain the following information for all projects subject to HM requirements:

a. Site plans identifying impervious areas, surface flow directions for the entire site, and location(s) of HM measures;

b. For projects using standard sizing charts, a summary of sizing calculations used;

c. For projects using the BAHM, a listing of model inputs;

d. For projects using custom modeling, a summary of the modeling calculations with corresponding graph showing curve matching (existing, post-project, and post-project with HM controls curves);

e. For projects using the Impracticability Provision, a listing of all applicable costs and a brief description of the alternative HM project (name, location, date of start up, entity responsible for maintenance); and

f. A list and thorough technical explanation of any changes in design criteria for HM Controls, including IMPs. Permittees shall submit this list and explanation annually with the Annual Report.

ATTACHMENT D

Provision C.3.g.
Fairfield-Suisun Permittees
Hydromodification Management Requirements

Fairfield-Suisun Permittees Hydromodification Management Requirements

1. On-site and Regional Hydromodification Management (HM) Control Design Criteria

a. *Range of flows to control*: Flow duration controls shall be designed such that post-project stormwater discharge rates and durations match pre-project discharge rates and durations from 20 percent of the pre-project 2-year peak flow[69] up to the pre-project 10-year peak flow.

b. *Goodness of fit criteria*: The post-project flow duration curve shall not deviate above the pre-project flow duration curve by more than 10 percent over more than 10 percent of the length of the curve corresponding to the range of flows to control.

c. *Allowable low flow rate:* Flow control structures may be designed to discharge stormwater at a very low rate that does not threaten to erode the receiving waterbody. This flow rate (also called Qcp[70]) shall be no greater than 20 percent of the pre-project 2-year peak flow.

d. *Standard HM modeling:* On-site and regional HM controls designed using the Bay Area Hydrology Model (BAHM[71]) and site-specific input data shall be considered to meet the HM Standard. Such use must be consistent with directions and options set forth in the most current BAHM User Manual.[72] Permittees shall demonstrate to the satisfaction of the Executive Officer that any modifications of the BAHM made are consistent with this Attachment and Provision C.3.g.

e. *Alternate HM modeling and design:* The project proponent may use a continuous simulation hydrologic computer model[73] to simulate pre-project and post-project runoff and to design HM controls. To use this method, the project proponent shall compare the pre-project and post-project model output for a rainfall record of at least 30 years, and shall show that all applicable performance criteria in 1.a–c above are met.

f. *Sizing Charts:* The Program developed design procedures, criteria, and sizing factors for infiltration basins and bioretention units, based on a low flow rate that exceeds the allowable low flow rate. After the Program has modified its sizing factors[74] to the allowable criteria, received approval of the modified sizing factors from the Executive

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[69] Where referred to in this Order, the 2-year peak flow is determined using a flood flow frequency analysis procedure based on USGS Bulletin 17 B to obtain the peak flow statistically expected to occur at a 2-year recurrence interval. In this analysis, the appropriate record of hourly rainfall data (e.g., 35–50 years of data) is run through a continuous simulation hydrologic model, the annual peak flows are identified, rank ordered, and the 2-year peak flow is estimated. Such models include USEPA's Hydrologic Simulation Program—Fortran (HSPF), U.S. Army Corps of Engineers' Hydrologic Engineering Center-Hydrologic Modeling System (HEC-HMS), and USEPA's Storm Water Management Model (SWMM).

[70] Qcp is the allowable low flow discharge from a flow control structure on a project site. It is a means of apportioning the critical flow in a stream to individual projects that discharge to that stream, such that cumulative discharges do not exceed the critical flow in the stream.

[71] See www.bayareahydrologymodel.org , Resources

[72] *The Bay Area Hydrology Model User Manual*is available at http://www.bayareahydrologymodel.org/downloads.html.

[73] Such models include USEPA's Hydrologic Simulation Program—Fortran (HSPF), U.S. Army Corps of Engineers Hydrologic Engineering Center-Hydrologic Modeling System (HEC-HMS), and USEPA's Storm Water Management Model (SWMM).

[74] Current sizing factors and design criteria are shown in Appendix D of the FSURMP HMP.

Officer,[75] and informed the public through such mechanism as an electronic mailing list, project proponents may meet the HM Standard by using the Program's design procedures, criteria, and sizing factors for infiltration basins and/or bioretention units.

2. Impracticability Provision

Where conditions (e.g., extreme space limitations) prevent a project from meeting the HM Standard for a reasonable cost, *and* where the project's runoff cannot be directed to a regional HM control within a reasonable time frame, *and* where an in-stream measure is not practicable, the project shall use (1) site design for hydrologic source control, *and* (2) stormwater treatment measures that collectively minimize, slow, and detain[76] runoff to the maximum extent practicable. In addition, if the cost of providing site design for hydrologic source control and treatment measures to the maximum extent practicable does not exceed 2% of the project cost (as defined in "2.a." below), the project proponent shall provide for or contribute financially to an alternative HM project as set forth below:

a. *Reasonable cost*: To show that the HM Standard cannot be met at a reasonable cost, the project proponent must demonstrate that the total cost to comply with both the HM Standard and the Provision C.3.d. treatment requirement exceeds 2 percent of the project construction cost, excluding land costs. Costs of HM and treatment control measures shall not include land costs, soil disposal fees, hauling, contaminated soil testing, mitigation, disposal, or other normal site enhancement costs such as landscaping or grading that are required for other development purposes.

b. *Regional HM controls*: A regional HM control shall be considered available if there is a planned location for the regional HM control and if an appropriate funding mechanism for a regional HM control is in place by the time of project construction.

c. *In-stream measures practicability*: In-stream measures shall be considered practicable when an in-stream measure for the project's watershed is planned and an appropriate funding mechanism for an in-stream measure is in place by the time of project construction.

d. *Financial contribution to an alternative HM project*: The difference between 2 percent of the project construction costs and the cost of the treatment measures at the site (both costs as described in Section 2.a of this Attachment) shall be contributed to an alternative HM project, such as a stormwater treatment retrofit, HM retrofit, regional HM control, or in-stream measure. Preference shall be given to projects discharging, in this order, to the same tributary, mainstem, watershed, then in the same municipality or county.

3. Record Keeping

Permittees shall collect and retain the following information for all projects subject to HM requirements:

a. Site plans identifying impervious areas, surface flow directions for the entire site, and location(s) of HM measures;

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[75] The modified sizing factors will not introduce a new concept but rather make an existing compliance mechanism more stringent; therefore, Executive Officer approval is appropriate.

[76] Stormwater treatment measures that detain runoff are generally those that filter runoff through soil or other media, and include bioretention units, bioswales, basins, planter boxes, tree wells, media, filters, and green roofs.

b. For projects using standard sizing charts, a summary of sizing calculations used;

c. For projects using the BAHM, a listing of model inputs;

d. For projects using custom modeling, a summary of the modeling calculations with corresponding graph showing curve matching (existing, post-project, and post-project with HM controls curves);

e. For projects using the Impracticability Provision, a listing of all applicable costs and a brief description of the alternative HM project (name, location, date of start up, entity responsible for maintenance); and

f. A listing, summary, and date of modifications made to the BAHM, including technical rationale. Permittees shall submit this list and explanation annually with the Annual Report.

4. HM Control Areas

Applicable projects shall be required to meet the HM Standard when such projects discharge into the upstream reaches of Laurel or Ledgewood Creeks, as delineated in Figures C-1 and C-2. Plans to restore a creek reach may reintroduce the applicability of HM requirements; in these instances, Permittees may add, but shall not delete, areas of applicability accordingly.

ATTACHMENT E

Provision C.3.g.
San Mateo Permittees
Hydromodification Management Requirements

San Mateo Permittees Hydromodification Management Requirements

1. On-site and Regional Hydromodification Management (HM) Control Design Criteria

a. *Range of flows to control:* Flow duration controls shall be designed such that post-project stormwater discharge rates and durations match pre-project discharge rates and durations from 10 percent of the pre-project 2-year peak flow[77] up to the pre-project 10-year peak flow.

b. *Goodness of fit criteria*: The post-project flow duration curve shall not deviate above the pre-project flow duration curve by more than 10 percent over more than 10 percent of the length of the curve corresponding to the range of flows to control.

c. *Allowable low flow rate:* Flow control structures may be designed to discharge stormwater at a very low rate that does not threaten to erode the receiving waterbody. This flow rate (also called Qcp[78]) shall be no greater than 10 percent of the pre-project 2-year peak flow.

d. *Standard HM modeling*: On-site and regional HM controls designed using the Bay Area Hydrology Model (BAHM[79]) and site-specific input data shall be considered to meet the HM Standard. Such use must be consistent with directions and options set forth in the most current BAHM User Manual.[80] Permittees shall demonstrate to the satisfaction of the Executive Officer that any modifications of the BAHM made are consistent with the requirements of Provision C.3.g.

e. *Alternate HM modeling and design*: The project proponent may use a continuous simulation hydrologic computer model[81] to simulate pre-project and post-project runoff and to design HM controls. To use this method, the project proponent shall compare the pre-project and post-project model output for a rainfall record of at least 30 years, and shall show that all applicable performance criteria in 1.a.–c. above are met.

2. Impracticability Provision

Where conditions (e.g., extreme space limitations) prevent a project from meeting the HM Standard for a reasonable cost, *and* where the project's runoff cannot be directed to a

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[77] Where referred to in this Order, the 2-year peak flow is determined using a flood flow frequency analysis procedure based on USGS Bulletin 17 B to obtain the peak flow statistically expected to occur at a 2-year recurrence interval. In this analysis, the appropriate record of hourly rainfall data (e.g., 35–50 years of data) is run through a continuous simulation hydrologic model, the annual peak flows are identified, rank ordered, and the 2-year peak flow is estimated. Such models include USEPA's Hydrologic Simulation Program—Fortran (HSPF), U.S. Army Corps of Engineers' Hydrologic Engineering Center-Hydrologic Modeling System (HEC-HMS), and USEPA's Storm Water Management Model (SWMM).

[78] Qcp is the allowable low flow discharge from a flow control structure on a project site. It is a means of apportioning the critical flow in a stream to individual projects that discharge to that stream, such that cumulative discharges do not exceed the critical flow in the stream.

[79] See www.bayareahydrologymodel.org , Resources

[80] The Bay Area Hydrology Model User Manualis available at http://www.bayareahydrologymodel.org/downloads.html

[81] Such models include USEPA's Hydrologic Simulation Program—Fortran (HSPF), U.S. Army Corps of Engineers Hydrologic Engineering Center-Hydrologic Modeling System (HEC-HMS), and USEPA's Storm Water Management Model (SWMM).

regional HM control within a reasonable time frame, *and* where an in-stream measure is not practicable, the project shall use (1) site design for hydrologic source control, *and* (2) stormwater treatment measures that collectively minimize, slow, and detain[82] runoff to the maximum extent practicable. In addition, , if the cost of providing site design for hydrologic source control and treatment measures to the maximum extent practicable does not exceed 2% of the project cost (as defined in "2.a." below), the project proponent shall provide for or contribute financially to an alternative HM project as set forth below:

a. *Reasonable cost*: To show that the HM Standard cannot be met at a reasonable cost, the project proponent must demonstrate that the total cost to comply with both the HM Standard and the Provision C.3.d treatment requirement exceeds 2 percent of the project construction cost, excluding land costs. Costs of HM and treatment control measures shall not include land costs, soil disposal fees, hauling, contaminated soil testing, mitigation, disposal, or other normal site enhancement costs such as landscaping or grading that are required for other development purposes.

b. *Regional HM controls:* A regional HM control shall be considered available if there is a planned location for the regional HM control and if an appropriate funding mechanism for a regional HM control is in place by the time of project construction.

c. *In-stream measures practicability:* In-stream measures shall be considered practicable when an in-stream measure for the project's watershed is planned and an appropriate funding mechanism for an in-stream measure is in place by the time of project construction.

d. *Financial contribution to an alternative HM project*: The difference between 2 percent of the project construction costs and the cost of the treatment measures at the site (both costs as described in Section 2.a of this Attachment shall be contributed to an alternative HM project, such as a stormwater treatment retrofit, HM retrofit, regional HM control, or in-stream measure. Preference shall be given to projects discharging, in this order, to the same tributary, mainstem, watershed, then in the same municipality, or county.

3. Record Keeping

Permittees shall collect and retain the following information for all projects subject to HM requirements:

a. Site plans identifying impervious areas, surface flow directions for the entire site, and location(s) of HM measures;

b. For projects using standard sizing charts, a summary of sizing calculations used;

c. For projects using the BAHM, a listing of model inputs;

d. For projects using custom modeling, a summary of the modeling calculations with corresponding graph showing curve matching (existing, post-project, and post-project with HM controls curves);

[82] Stormwater treatment measures that detain runoff are generally those that filter runoff through soil or other media, and include bioretention units, bioswales, basins, planter boxes, tree wells, media filters, and green roofs.

e. For projects using the Impracticability Provision, a listing of all applicable costs and a brief description of the alternative HM project (name, location, date of startup, entity responsible for maintenance); and

f. A listing, summary, and date of modifications made to the BAHM, including technical rationale. Permittees shall submit this list and explanation annually with the Annual Report. This may be prepared at the Countywide Program level and submitted on behalf of participating Permittees.

4. HM Control Areas

Applicable projects shall be required to meet the HM Standard when such projects are in the HM control areas shown in Figure D-1. Plans to restore a creek reach may reintroduce the applicability of HM requirements; in these instances, Permittees may add, but shall not delete, areas of applicability accordingly.

The HM Standard and all associated requirements apply in areas that are shown in green on the map and noted in the map's key as *areas subject to HMP*. The other areas are exempt from the HM Standard because they drain to hardened channels or low gradient channels (a characteristic applicable to San Mateo County's particular shoreline properties), or are in highly developed areas. Plans to restore a hardened channel may affect areas of applicability.

Areas shown in Figure D-1 may be modified as follows:

a. Street Boundary Interpretation – Streets are used to mark the boundary between areas where the HM Standard must be met and exempt areas. Parcels on the boundary street are considered within the area exempted from the hydromodification requirements. Nonetheless, there might be cases where the drainage from a particular parcel(s) on the boundary street drains westward into the hydromodification required area and, as such, any applicable project on such a parcel(s) would be subject to the hydromodification requirements.

b. Hardened Channel/Drainage to Exempt Area – If drainage leaving a proposed project subject to the HM Standard is determined to flow only through a hardened channel and/or enclosed pipe along its entire length before directly discharging into a waterway in the exempt area or into tidal waters, the project would be exempted from the HM Standard and its associated requirements. The project proponent must demonstrate, in a statement signed by an engineer or qualified environmental professional, that this condition is met.

c. Boundary Re-Opener – If the municipal regional permit or future permit reissuances or amendments modify the types of projects subject to the hydromodification requirements, the appropriate location for an HMP boundary or boundaries will be reevaluated at the same time.

ATTACHMENT F

Provision C.3.g.
Santa Clara Permittees
Hydromodification Management Requirements

Santa Clara Permittees Hydromodification Management Requirements

1. On-site and Regional Hydromodification Management (HM) Control Design Criteria

a. *Range of flows to control:* Flow duration controls shall be designed such that post-project stormwater discharge rates and durations match pre-project discharge rates and durations from 10 percent of the pre-project 2-year peak flow[83] up to the pre-project 10-year peak flow, except where the lower endpoint of this range is modified as described in Section 5 of this Attachment.

b. *Goodness of fit criteria*: The post-project flow duration curve shall not deviate above the pre-project flow duration curve by more than 10 percent over more than 10 percent of the length of the curve corresponding to the range of flows to control.

c. *Allowable low flow rate*: Flow control structures may be designed to discharge stormwater at a very low rate that does not threaten to erode the receiving waterbody. This flow rate (also called *Qcp*[84]) shall be no greater than 10 percent of the pre-project 2-year peak flow unless a modified value is substantiated by analysis of actual channel resistance in accordance with an approved User Guide as described in Section 5 of this Attachment.

d. *Standard HM modeling*: On-site and regional HM controls designed using the Bay Area Hydrology Model (BAHM[85]) and site-specific input data shall be considered to meet the HM Standard. Such use must be consistent with directions and options set forth in the most current BAHM User Manual.[86] Permittees shall demonstrate to the satisfaction of the Executive Officer that any modifications of the BAHM made are consistent with this attachment and Provision C.3.g.

e. *Alternate HM modeling and design*: The project proponent may use a continuous simulation hydrologic computer model[87] to simulate pre-project and post-project runoff and to design HM controls. To use this method, the project proponent shall compare the pre-project and post-project model output for a rainfall record of at least 30 years, and shall show that all applicable performance criteria in 1.a. – c. above are met.

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[83] Where referred to in this Order, the 2-year peak flow is determined using a flood flow frequency analysis procedure based on USGS Bulletin 17B to obtain the peak flow statistically expected to occur at a 2-year recurrence interval. In this analysis, the appropriate record of hourly rainfall data (e.g., 35–50 years of data) is run through a continuous simulation hydrologic model, the annual peak flows are identified, rank ordered, and the 2-year peak flow is estimated. Such models include USEPA's Hydrologic Simulation Program—Fortran (HSPF), U.S. Army Corps of Engineers' Hydrologic Engineering Center-Hydrologic Modeling System (HEC-HMS), and USEPA's Storm Water Management Model (SWMM).

[84] Qcp is the allowable low flow discharge from a flow control structure on a project site. It is a means of apportioning the critical flow in a stream to individual projects that discharge to that stream, such that cumulative discharges do not exceed the critical flow in the stream.

[85] See www.bayareahydrologymodel.org , Resources.

[86] *The Bay Area Hydrology Model User Manual*is available at http://www.bayareahydrologymodel.org/downloads.html.

[87] Such models include USEPA's Hydrologic Simulation Program—Fortran (HSPF), U.S. Army Corps of Engineers Hydrologic Engineering Center-Hydrologic Modeling System (HEC-HMS), and USEPA's Storm Water Management Model (SWMM).

2. Impracticability Provision

Where conditions (e.g., extreme space limitations) prevent a project from meeting the HM Standard for a reasonable cost, *and* where the project's runoff cannot be directed to a Regional HM control[88] within a reasonable time frame, *and* where an in-stream measure is not practicable, the project shall use (1) site design for hydrologic source control, *and* (2) stormwater treatment measures that collectively minimize, slow, and detain[89] runoff to the maximum extent practicable. In addition, if the cost of providing site design for hydrologic source control and treatment measures to the maximum extent practicable does not exceed 2% of the project cost (as defined in "2.a." below), the project shall contribute financially to an alternative HM project as set forth below:

a. *Reasonable cost*: To show that the HM Standard cannot be met at a reasonable cost, the project proponent must demonstrate that the total cost to comply with both the HM Standard and the Provision C.3.d treatment requirement exceeds 2 percent of the project construction cost, excluding land costs. Costs of HM and treatment control measures shall not include land costs, soil disposal fees, hauling, contaminated soil testing, mitigation, disposal, or other normal site enhancement costs such as landscaping or grading that are required for other development purposes.

b. *Regional HM control:* A regional HM control shall be considered available if there is a planned location for the regional HM control and if an appropriate funding mechanism for a regional control is in place by the time of project construction.

c. *In-stream measures practicability:* In-stream measures shall be considered practicable when an in-stream measure for the project's watershed is planned and an appropriate funding mechanism for an in-stream measure is in place by the time of project construction.

d. *Financial contribution to an alternative HM project:* The difference between 2 percent of the project construction costs and the cost of the treatment measures at the site (both costs as described in Section 2.a of this Attachment) shall be contributed to an alternative HM project, such as a stormwater treatment retrofit, HM retrofit, regional HM control, or in-stream measure. Preference shall be given to projects discharging, in this order, to the same tributary, mainstem, watershed, then in the same municipality or county.

3. Record Keeping

Permittees shall collect and retain the following information for all projects subject to HM requirements:

a. Site plans identifying impervious areas, surface flow directions for the entire site, and location(s) of HM measures;

b. For projects using standard sizing charts, a summary of sizing calculations used;

c. For projects using the BAHM, a listing of model inputs;

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[88] *Regional HM controls* are flow duration control structures that collect stormwater runoff discharge from multiple projects (each of which should incorporate hydrologic source control measures as well) and are designed such that the HM Standard is met for all the projects at the point where the regional control measure discharges.

[89] Stormwater treatment measures that detain runoff are generally those that filter runoff through soil or other media, and include bioretention units, bioswales, basins, planter boxes, sand filters, and green roofs.

d. For projects using custom modeling, a summary of the modeling calculations with corresponding graph showing curve matching (existing, post-project, and post-project with HM controls curves);

e. For projects using the Impracticability Provision, a listing of all applicable costs and a brief description of the alternative HM project (name, location, date of start up, entity responsible for maintenance); and

f. A listing, summary, and date of modifications made to the BAHM, including technical rationale. Permittees shall submit this list and explanation annually with the Annual Report. This may be prepared at the Countywide Program level and submitted on behalf of participating Permittees.

4. HM Control Areas

Applicable projects shall be required to meet the HM Standard when such projects are located in areas of HM applicability as described below and shown in Figure E-1.

a. Purple areas: These areas represent catchments that drain to hardened channels that extend continuously to the Bay or to tidally influenced sections of creeks. The HM Standard and associated requirements do not apply to projects in the areas designated in purple on the map.

Plans to restore a creek reach may reintroduce the applicability of HM requirements, unless the creek restoration project is designed to accommodate the potential hydromodification impacts of future development; if this is not the case, in these instances, Permittees may add, but shall not delete, areas of applicability accordingly.

b. Red areas: These areas represent catchments and subwatersheds that are greater than or equal to 65% impervious, based on existing imperviousness data sources. The HM Standard and associated requirements do not apply to projects in the areas designated in red on the map.

c. Pink areas: These are areas that are under review by the Permittees for accuracy of the imperviousness data. The HM Standard and associated requirements apply to projects in areas designated as pink on the map until such time as a Permittee presents new data that indicate that the actual level of imperviousness of a particular area is greater than or equal to 65% impervious. Any new data will be submitted to the Water Board in one coordinated submittal within one year of permit adoption.

d. Green area: These areas represent catchments and subwatersheds that are less than 65% impervious and are not under review by the Permittees. The HM Standard and associated requirements apply to projects in areas designated as green on the map.

5. Potential Exceptions to Map Designations

The Program may choose to prepare a User Guide[90] to be used for evaluating individual receiving waterbodies using detailed methods to assess channel stability and watercourse critical flow. This User Guide would reiterate and collate established stream stability assessment methods that have been presented in the Program's HMP.[91] After the Program has collated its methods into User Guide format, received approval of the User Guide from

[90] The User Guide may be offered under a different title.
[91] The Program's HMP has undergone Water Board staff review and been subject to public notice and comment.

the Executive Officer,[92] and informed the public through such process as an electronic mailing list, the Permittees may use the User Guide to guide preparation of technical reports for the following: implementing the HM Standard using in-stream or regional controls; determining whether certain projects are discharging to a watercourse that is less susceptible (from point of discharge to the Bay) to hydromodification (e.g., would have a lower potential for erosion than set forth in these requirements); and/or determining if a watercourse has a higher critical flow and project(s) discharging to it are eligible for an alternative Qcp for the purpose of designing on-site or regional measures to control flows draining to these channels (i.e., the actual threshold of erosion-causing critical flow is higher than 10 percent of the 2-year pre-project flow). In no case shall the design value of Qcp exceed 50 percent of the 2-year pre-project flow.

[92] The User Guide will not introduce a new concept, but rather reformat existing methods; therefore, Executive Officer approval is appropriate.

ATTACHMENT G

Provision C.8.
Status and Long-Term Monitoring
Follow-up Analysis and Actions

Status and Long-Term Monitoring Follow-up Analysis and Actions for Biological Assessment, Bedded Sediment Toxicity, and Bedded Sediment Pollutants

When results from Biological Assessment, Bedded Sediment Toxicity, and/or Bedded Sediment Pollutants monitoring indicate impacts at a monitoring location, Permittees shall evaluate the extent and cause(s) of impacts to determine the potential role of urban runoff as indicated in Table G-1.

Table G-1. Sediment Triad Approach to Determining Follow-Up Actions

Chemistry Results[93]	Toxicity Results[94]	Bioassessment Results[95]	Action
No chemicals exceed Threshold Effect Concentrations (TEC), mean Probable Effects Concentrations (PEC) quotient < 0.5 and pyrethroids < 1.0 Toxicity Unit (TU)[96]	No Toxicity	No indications of alterations	No action necessary
No chemicals exceed TECs, mean PEC quotient < 0.5 and pyrethroids< 1.0 TU	Toxicity	No indications of alterations	(1) Take confirmatory sample for toxicity. (2) If toxicity repeated, attempt to identify cause and spatial extent. (3) Where impacts are under Permittee's control, take management actions to minimize upstream sources causing toxicity; initiate no later than the second fiscal year following the sampling event.

[93] TEC and PEC are found in MacDonald, D.D., G.G. Ingersoll, and T.A. Berger. 2000. Development and Evaluation of Consensus-based Sediment Quality Guidelines for Freshwater Ecosystems. *Archives of Environ. Contamination and Toxicology* 39(1):20–31.

[94] Toxicity is exhibited when *Hyallela* survival statistically different than and < 20 percent of control.

[95] Alterations are exhibited if metrics indicate substantially degraded community.

[96] Toxicity Units (TU) are calculated as follows: TU = Actual concentration (organic carbon normalized) ÷ Reported *H. azteca* LC_{50} concentration (organic concentration normalized). Weston, D.P., R.W. Holmes, J. You, and M.J. Lydy, 2005. Aquatic Toxicity Due to Residential Use of Pyrethroid Insecticides. *Environ. Science and Technology* 39(24):9778–9784.

Chemistry Results[93]	Toxicity Results[94]	Bioassessment Results[95]	Action
No chemicals exceed TECs, mean PEC quotient < 0.5 and pyrethroids< 1.0 TU	No Toxicity	Indications of alterations	Identify the most probable cause(s) of the alterations in biological community. Where impacts are under Permittee's control, take management actions to minimize the impacts causing physical habitat disturbance; initiate no later than the second fiscal year following the sampling event.
No chemicals exceed TECs, mean PEC quotient < 0.5 and pyrethroids< 1.0 TU	Toxicity	Indications of alterations	(1) Identify cause(s) of impacts and spatial extent. (2) Where impacts are under Permittee's control, take management actions to minimize impacts; initiate no later than the second fiscal year following the sampling event.
3 or more chemicals exceed PECs, the mean PEC quotient is > 0.5, or pyrethroids > 1.0 TU	No Toxicity	Indications of alterations	(1) Identify cause of impacts. (2) Where impacts are under Permittee's control, take management actions to minimize the impacts caused by urban runoff; initiate no later than the second fiscal year following the sampling event.
3 or more chemicals exceed PECs, the mean PEC quotient is > 0.5, or pyrethroids > 1.0 TU	Toxicity	No indications of alterations	(1) Take confirmatory sample for toxicity. (2) If toxicity repeated, attempt to identify cause and spatial extent. (3) Where impacts are under Permittee's control, take management actions to minimize upstream sources; initiate no later than the second fiscal year following the sampling event.
3 or more chemicals exceed PECs, the mean PEC quotient is > 0.5, or pyrethroids > 1.0 TU	No Toxicity	No Indications of alterations	If PEC exceedance is Hg or PCBs, address under TMDLs
3 or more chemicals exceed PECs, the mean PEC quotient is > 0.5, or pyrethroids > 1.0 TU	Toxicity	Indications of alterations	(1) Identify cause(s) of impacts and spatial extent. (2) Where impacts are under Permittee's control, take management actions to address impacts.

ATTACHMENT H

Provision C.8.
Standard Monitoring Provisions

All monitoring activities shall meet the following requirements:

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. [40 CFR 122.41(j)(1)]
2. Permittees shall retain records of all monitoring information, including all calibration and maintenance of monitoring instrumentation, and copies of all reports required by 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 Water Board or USEPA at any time and shall be extended during the course of any unresolved litigation regarding this discharge. [40 CFR 122.41(j)(2), CWC section 13383(a)]
3. Records of monitoring information shall include [40 CFR 122.41(j)(3)]:
   a. The date, exact place, and time of sampling or measurements;
   b. The individual(s) who performed the sampling or measurements;
   c. The date(s) analyses were performed;
   d. The individual(s) who performed the analyses;
   e. The analytical techniques or methods used; and,
   f. The results of such analyses.
4. 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 of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four years, or both. [40 CFR 122.41(j)(5)]
5. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the monitoring Provisions. [40 CFR 122.41(l)(4)(iii)]
6. All chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory certified for such analyses by the California Department of Health Services or a laboratory approved by the Executive Officer.
7. For priority toxic pollutants that are identified in the California Toxics Rule (CTR) (65 Fed. Reg. 31682), the Permittees shall instruct its laboratories to establish calibration standards that are equivalent to or lower than the Minimum Levels (MLs) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP). If a Permittee 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 Permittee must submit documentation from the laboratory to the Water Board for approval prior to raising the ML for any priority toxic pollutant.
8. The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-

compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both. [40 CFR 122.41(k)(2)]

9. If the discharger monitors any pollutant more frequently than required by the Permit, unless otherwise specified in the Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the reports requested by the Water Board. [40 CFR 122.41(l)(4)(ii)]

ATTACHMENT I

Provision C.10.
SCVURPPP Urban Rapid Trash Assessment Methodology

URBAN RAPID TRASH ASSESSMENT PROTOCOL
Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP)

Adapted from the San Francisco Bay Regional Water Quality Control Board Rapid Trash Assessment Protocol, Version 8.

Monitoring Design:
The urban rapid trash assessment can be used for a number of purposes, such as ambient monitoring, evaluation of management actions, determination of trash accumulation rates, or comparing sites with and without public access. Ambient monitoring efforts should provide information at sites distributed throughout a waterbody, and several times a year to characterize spatial and temporal variability. Additionally, the ambient sampling design should document the effects of episodes that affect trash levels such as storms or community cleanup events. Pre- and post-project assessments can assist in evaluating the effectiveness of management practices ranging from public outreach to structural controls, or to document the effects of public access on trash levels in waterbodies (e.g., upstream/downstream). Such evaluations should consider trash levels over time and under different seasonal conditions. Trash accumulation rates may be determined by conducting trash assessments before and after the summer or dry weather index (to capture rates of littering) and the winter or rainy index (to capture rates of accumulation from upstream sources). This method was developed for sections of wade-able streams, but can be adapted to shorelines of lakes, beaches, or estuaries. This adapted version of the San Francisco Bay Regional Water Quality Control Board Rapid Trash Assessment Protocol, Version 8 is designed to more effectively assess urban "Hotspots" and to detect changes as a result of management actions.

Site Definition:
A team of two people or more defines or verifies a 100-foot section of the stream or shoreline to analyze. When a site is first established, it is recommended that the 100-foot distance be accurately measured. The length should be measured not as a straight line, but as 100 feet of the actual stream or shore length, including sinuous curves. Where possible, the starting and ending points of the stream section should be easily identified landmarks, such as an oak tree or boulder, and noted on the worksheet ("Upper/Lower Boundaries of Reach"), or documented using a global positioning system (GPS), so that future assessments are made at the same location. The team should confer and document the upper boundary of the banks to be surveyed, based on evaluation of whether trash can be carried to the waterbody by wind or water (e.g., an upper terrace in the stream bank). The team documents the location of the high water line based on site-specific physical indicators, such as a debris line found in the riparian vegetation along the stream channel. If the high water line cannot be determined, it is suggested that bankfull height be documented, noting that the high water line could not be determined. Trash located below the high water line can be expected to move into the streambed or to be swept downstream during the next winter season. Visually extend all boundaries in order to encompass the 100' section. Defining site characteristics will facilitate the comparison of trash assessments conducted at the same site at different times of the year.

Survey:
It is highly recommended that all trash items within an assessed site be picked up, so that the site can be re-assessed to evaluate usage patterns, trash return rates, and management actions. A survey, including notes and scoring, will take approximately one to two hours based on how trash-impacted the site is and how many people are working together. The first time a reach is assessed, the process will

generally take longer than on subsequent visits. Begin the survey at the downstream end of the selected reach so that trash can be seen in the undisturbed stream channel. Tasks can be divided according to the number of team members. If there are two team members, one team member begins walking along the bank or in the water at the edge of the stream or shore, looking for trash on the bank up to the upper bank boundary, and above and below the high water line. This person picks up trash and tallies the items on the trash assessment worksheet as either above or below the high water line based on the previously determined boundary. The other person walks in the streambed and up and down the opposite bank, picking up and calling out specific trash items found in the water body and on the opposite bank both above and below the high water line, for the tally person to mark down appropriately on the trash assessment sheet. All team members pick up the trash items as they are found. All team members should wear gloves to avoid injuries.

The person tallying the trash indicates on the sheet whether the trash was found above the high water line on the bank, or below the high water line either on the bank or in the stream (i.e., tally dots or circles (•) for above high water line, tally lines (|) for below). If it is evident that items have been littered, dumped, or accumulated via downstream transport, make a note in the designated rows near the bottom of the tally sheet - this will help when assessing scores. A trash grabber, metal kitchen tongs, or a similar tool should be used to help pick up trash. Be sure to look under bushes, logs, and other plant growth to see if trash has accumulated underneath. The ground and substrate should be inspected to ensure that small items such as cigarette butts and pieces of broken glass or Styrofoam are picked up and counted. The tally count is an important indicator of trash impairment and should be used in conjunction with the total score to assist in site comparisons.

Sometimes items are broken into many pieces. Transportable, persistent, and buoyant, fragments such as plastics should be individually counted, while paper and broken glass, with lower persistence and/or mobility, should be counted based on the parent item(s). Broken glass pieces that are scattered, with no recognizable original shape, should be counted individually. The judgment of whether to count all fragments or just one item also depends on the potential exposure to downstream fish and wildlife, or to waders and swimmers at a given site. Concrete is trash when it is dumped, but not when it is placed. Consider tallying only those items that would be removed in a restoration or cleanup effort.

Once the team is finished with the tallying, use the tally sheet margins to count up two totals for each trash item line: one total for items found above the high water line, and one total for items found below the high water line. Now sum the totals of above and below for each trash category, and write in next to each trash category. Complete the worksheets before leaving the site in order to remember pertinent details. The team should discuss each parameter and agree on a score based on a discussion of the condition categories. Discuss and document possible influential factors affecting trash levels at the site, such as a park, school, or nearby residences or businesses. Within each trash parameter, narrative language is provided to assist with choosing a condition category. The worksheet provides a range of numbers within some of the categories, allowing for a range of conditions encountered in the field. Note that trash located in the water leads to lower scores than trash above the high water line. Not all specific trash conditions mentioned in the narratives need to be present to fit into a specific condition category (e.g., “site frequently used by people”), nor do the narratives describe all possible conditions. Scores of “0” should be reserved for the most extreme conditions. Once the scores are assigned for the six categories, sum the final score and include specific notes about the site at the end of the sheet. To characterize the variability, persistence, and return rate of trash it is necessary to assess a site three to four times, bracketing different seasons.

Trash Assessment Parameters:
The rapid trash assessment includes a range of parameters that capture the breadth of issues associated with trash and water quality. The first two parameters focus on qualitative and quantitative levels of trash, the second two parameters characterize trash levels of certain types of trash that may affect water quality, and the last two parameters estimate sources of trash (adjacent land use-related littering, dumping or upstream sources).

1. **Level of Trash.** This assessment parameter is intended to reflect a qualitative "first impression" of the site, after observing the entire length of the reach. Sites scoring in the "poor" range are those where trash is one of the first things noticeable about the waterbody and where trash is evident in very large amounts. Sites that score in the "optimal" range appear to have little or no trash.
2. **Actual Number of Trash Items Found.** Based on the tally of trash along the 100-foot stream reach, total the number of items both above and below the high water line, and choose a score within the appropriate condition category based on the number of tallied items. Where more than 500 items have been tallied, assign the following scores: 5: 501-600 items; 4: 601-700 items; 3: 701-800 items; 2: 801-900 items; 1: 901-1000 items; 0: over 1000 items. Use similar guidelines to assign scores in other condition categories.
3. **Transportable, Persistent, Buoyant Trash.** As indicated in the technical notes, below, certain characteristics of trash make it more harmful to aquatic life. If trash items are persistent in the environment, buoyant (floatable), and relatively small, they can be transported long distances and be mistaken by wildlife as food items. Larger items can cause entanglement. All of these factors are considered in the narrative descriptions in this assessment parameter.
4. **Biohazards, Toxic Items, Sharp Objects and Site Accessibility/Use.** This category is concerned with items that are dangerous to people who wade or swim in the water, and with pollutants that could accumulate in fish in the downstream environment. Medical waste, diapers, and human or pet waste could potentially adversely affect water quality. Site accessibility and site use is considered in the scoring of this condition category. Sites with very difficult or restricted human access and no evidence of recreational use will receive higher scores because…?
5. **Illegal Dumping and Littering.** This assessment category relates to direct placement of trash items at a site, with "poor" conditions assigned to sites that appear to be dumping or littering locations based on adjacent land use practices or site accessibility.
6. **Accumulation of Trash.** Trash that accumulates from upstream locations is distinguished from dumped trash by indications of age and transport. Faded colors, silt marks, trash wrapped around roots, and signs of decay suggest downstream transport, indicating that the local drainage system facilitates conveyance of trash to water bodies, in violation of clean water laws and policies.

Technical Notes on Trash and Water Quality:
Trash is a water pollutant that has a large range of characteristics of concern. Not all litter and debris delivered to streams are of equal concern to water quality. Besides the obvious negative aesthetic effects, most of the harm of trash in surface waters is imparted to aquatic life in the form of ingestion or entanglement. Some elements of trash can negatively affect water quality such as discarded medical

waste, and human or pet waste, . Also, some household and industrial wastes may contain toxic substances that may influence water quality, such as batteries, pesticide containers, and fluorescent light bulbs that contain mercury. Sharp glass and metal objects are potential puncture and laceration hazards. Larger trash such as discarded appliances can present physical barriers to natural stream flow, causing physical impacts such as bank erosion. From a management perspective, the persistence and accumulation of trash in a waterbody are of particular concern and signify a priority area for prevention of trash discharges. Also of concern are trash "hotspots" where illegal dumping, littering, and/or accumulation of trash occur in very large amounts.

Rapid Trash Assessment. Trash assessment includes a visual survey of the waterbody (e.g., streambed and banks) and adjacent areas from which trash elements can be carried to the waterbody by wind, water, or gravity. The delineation of these adjacent areas is site-specific and requires some judgment and documentation. The rapid trash assessment worksheet is designed to represent the range of effects that trash has on the physical, biological, and chemical integrity of water bodies, in accordance with the goals of the Clean Water Act and the California Water Code. The worksheet also provides a record for evaluation of the management of trash discharges, by documenting sites that receive direct discharges (i.e., dumping or littering) and those that accumulate trash from upstream locations.

Trash Characteristics of Concern. Buoyant (floatable) elements tend to be more harmful to water quality than settleable elements, due to their ability to be transported throughout the waterbody and ultimately to the marine environment. Elements such as plastics, synthetic rubber and synthetic cloth, because of their persistence, have a more adverse effect on water quality than degradable elements such as paper or organic waste. Glass and metal are less persistent, even though they are not biodegradable, because wave action and rusting can cause them to break into smaller pieces. Natural rubber and cloth can degrade but not as quickly as paper (U.S. EPA, 2002). Smaller elements such as plastic resin pellets (a by-product of plastic manufacturing) and cigarette butts are often more harmful to aquatic life than larger elements, since they can be ingested by a large number of small organisms which can then suffer malnutrition or internal injuries. Larger plastic elements such as plastic grocery bags are also harmful to larger aquatic life such as sea turtles, which can mistake the trash for floating prey and ingest it, leading to starvation or suffocation. Floating debris that is not trapped and removed will eventually end up on the beaches or in the ocean, repelling visitors and residents from the beaches and degrading coastal and open ocean waters.

Leaf litter is trash when there is evidence of intentional dumping. Leaves and pine needles in streams provide a natural source of food for organisms, but excessive levels due to human influence can cause nutrient imbalance and oxygen depletion in streams, to the detriment of the aquatic ecosystem. Clumps of leaf litter and yard waste from trash bags should be treated as trash in the water quality assessment, and not confused with natural inputs of leaves to streams. If there is a question in the field, check the type of leaf to confirm that it comes from a nearby riparian tree. In some instances, leaf litter may be trash if it originates from dense ornamental stands of nearby human planted trees that are overloading the stream's assimilative capacity for leaf inputs. Other biodegradable trash, such as food waste, also exerts a demand on dissolved oxygen, but aquatic life is unlikely to be adversely affected unless the dumping of food waste is substantial and persistent at a given location.

Wildlife impacts due to trash occur in creeks, lakes, estuaries, and ultimately the ocean. The two primary problems that trash poses to wildlife are entanglement and ingestion. Marine mammals,

turtles, birds, fish, and crustaceans all have been affected by entanglement in or ingestion of floatable debris. Many of the species most vulnerable to the problems of floatable debris are endangered or threatened by extinction.

Entanglement results when an animal becomes encircled or ensnared by debris. It can occur accidentally, or when the animal is attracted to the debris as part of its normal behavior or out of curiosity. Entanglement is harmful to wildlife for several reasons. Not only can it cause wounds that can lead to infections or loss of limbs; it can also cause strangulation or suffocation. In addition, entanglement can impair an animal's ability to swim, which can result in drowning, or in difficulty in moving, finding food, or escaping predators (U.S. EPA, 2001).

Ingestion occurs when an animal swallows floatable debris. It sometimes occurs accidentally, but usually animals feed on debris because it looks like food (i.e., plastic bags look like jellyfish, a prey item of sea turtles). Ingestion can lead to starvation or malnutrition if the ingested items block the intestinal tract and prevent digestion, or accumulate in the digestive tract, making the animal feel "full" and lessening its desire to feed. Ingestion of sharp objects can damage the mouth, digestive tract and/or stomach lining and cause infection or pain. Ingested items can also block air passages and prevent breathing, thereby causing death (U.S. EPA, 2001).

Common settled debris includes glass, cigarettes, rubber, construction debris and more. Settleables are a problem for bottom feeders and dwellers and can contribute to sediment contamination. Larger settleable items such as automobiles, shopping carts, and furniture can redirect stream flow and destabilize the channel.

In conclusion, trash in water bodies can adversely affect humans, fish, and wildlife. Not all water quality effects of trash are equal in severity or duration, thus the trash assessment methodology was designed to reflect a range of trash impacts to aquatic life, public health, and aesthetic enjoyment. When considering the water quality effects of trash while conducting a trash assessment, remember to evaluate individual items and their buoyancy, degradability, size, potential health hazard, and potential hazards to fish and wildlife. Utilize the narratives in the worksheet, refer to the technical notes and trash parameter descriptions in the text as needed, and select your scores after careful consideration of actual conditions.

References:

U.S. Environmental Protection Agency, 2001. Draft Assessing and Monitoring Floatable Debris.

U.S. Environmental Protection Agency, 2002. The Definition, Characterization and Sources of Marine Debris. Unit 1 of Turning the Tide on Trash, a Learning Guide on Marine Debris.

Urban Rapid Trash Assessment Protocol Summary

Santa Clara Valley Urban Runoff Pollution Prevention Program

All field teams should read the Urban Rapid Trash Assessment Protocol before conducting trash assessments. This summary should be used as a tool in the field. It provides the key points from the protocol that should be considered in the field before starting conducting a survey.

Site Definition:

- Establish or confirm 100-foot sampling reach and identify the downstream starting point, (Lower Reach Boundary), and the upstream ending point, (Upper Reach Boundary).
- Confer and document the upper bank boundary of the survey area, taking the entire 100-foot reach into account. The boundary should include the area where trash can be carried to the waterbody by wind or water.
- Confer and document the high water line. Trash below this line should be expected to move into the streambed or downstream during next winter season (use bankfull height if unsure).
- Detailed site definition will facilitate data comparison from the same sampling reach over time.

Conducting a Trash Survey:

- Select a score from within the condition categories for the first Trash Assessment Parameter, Level of Trash. Do this before picking up any trash so that the score represents a true first impression (see number 1 below under Trash Assessment Parameters).
- Remove all trash from the 100-foot Reach (note items that physically cannot be removed so that trash accumulation rate analyses can be performed accurately).
- Wear protective clothing including waders and gloves. Use tongs or grabbers to help pick up trash items.
- Divide tasks between team members, designating one person to tally the trash items.
- During the survey all team members should make mental and written notes about apparent trash item sources (Did an item originate from upstream sources? Was it littered or dumped?). The person recording should use the space provided under the trash item categories on the Trash Item Tally Worksheet to record rough tallies of trash item sources.
- Trash collectors should call out trash items based on the items listed under the trash categories in the Trash Tally Worksheet. Specify whether a trash item was collected from above or below the high water line.
- Tally dots or circles (•) for above high water line, tally lines (|) for below.
- Be a sleuth. Look under bushes, logs, and other plant growth for accumulated trash. Inspect ground and substrate for items such as cigarette butts, pieces of broken glass or Styrofoam.
- For items broken into many pieces: paper and broken glass should be counted based on the parent item(s). Broken glass pieces that are scattered, with no recognizable original shape, should be counted individually.
- For each trash item, count tallies and record totals in the margins of the Trash Tally Worksheet. Record separate totals for items collected above and below the high water mark. Record above and below totals for trash categories in the spaces provided on the Trash Tally Worksheet.

- Team members should discuss and agree on a condition category score for each Trash Assessment Parameter based on results from the Trash Tally Worksheet and on impressions about trash sources and adjacent and upstream land uses.
- Read narrative descriptions to help guide condition category score selection.

Trash Assessment Parameters:

1. **Level of Trash.** Reflects qualitative "first impression" of the site after observing the entire length of the reach. Sites scoring in the "poor" range are those where trash is one of the first things noticeable about the waterbody and where trash is evident in very large amounts. Sites that score in the "optimal" range appear to have little or no trash.
2. **Actual Number of Trash Items Found.** Based on the tally of trash along the 100-foot stream reach, total the number of items both above and below the high water line, and choose a score within the appropriate condition category based on the number of tallied items. Note that trash located in the water leads to lower scores than trash above the high water line. Where more than 500 items have been tallied, assign the following scores: 5: 501-600 items; 4: 601-700 items; 3: 701-800 items; 2: 801-900 items; 1: 901-1000 items; 0: over 1000 items. Use similar guidelines to assign scores in other condition categories.
3. **Transportable**, Persistent, Buoyant Trash. As indicated in the technical notes, below, certain characteristics of trash make it more harmful to aquatic life. If trash items are persistent in the environment, buoyant (floatable), and relatively small, they can be transported long distances and be mistaken by wildlife as food items. Larger items can cause entanglement. All of these factors are considered in the narrative descriptions in this assessment parameter.
4. **Biohazards, Toxic Items, Sharp Objects and Site Accessibility/Use.** This category is concerned with items that are dangerous to people who wade or swim in the water, and with pollutants that could accumulate in fish in the downstream environment. Medical waste, diapers, and human or pet waste could potentially adversely affect water quality. Site accessibility and site use is considered in the scoring of this trash assessment parameter. Sites with very difficult or restricted human access and no evidence of recreational use will receive higher scores because…?
5. **Illegal Dumping and Littering.** This assessment category relates to direct placement of trash items at a site, with "poor" conditions assigned to sites that appear to be dumping or littering locations based on adjacent land use practices or site accessibility.
6. **Accumulation of Trash.** Trash that accumulates from upstream locations is distinguished from dumped trash by indications of age and transport. Faded colors, silt marks, trash wrapped around roots, and signs of decay suggest downstream transport, indicating that the local drainage system facilitates conveyance of trash to water bodies, in violation of clean water laws and policies.

Urban Rapid Trash Assessment Worksheet

Santa Clara Valley Urban Runoff Pollution Prevention Program

WATERSHED/STREAM: _____ DATE/TIME: _____
MONITORING GROUP, STAFF: _____ STATION ID_____
STATION NAME /LOCATION:_____

	CONDITION CATEGORY			
Trash Assessment Parameter	**Least Disturbed (Optimal Urban)**	**Sub optimal Urban**	**Marginal Urban**	**Poor**
1. Level of Trash	On first glance, little or no trash visible. Little or no trash evident when streambed and stream banks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, trash is evident in low levels. After close inspection small levels of trash evident in stream bank and streambed.	Trash is evident in medium on first glance. Stream, bank surfaces, and riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, food wrappers, blankets, clothing.	Trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 100 trash items found based on a trash assessment of a 100-foot stream reach.	101 to 250 trash items found based on a trash assessment of a 100-foot stream reach.	251 to 500 trash items found based on a trash assessment of a 100-foot stream reach.	Over 500 trash items found based on a trash assessment of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Transportable, Persistent, Buoyant Litter	Little or no (< 25 pieces) transportable, persistent, buoyant litter such as: hard or soft plastics, styrofoam, balloons, cigarette butts.	Low to medium presence (26-75 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, styrofoam, balloons, cigarette butts.	Medium prevalence (76-200 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, styrofoam, balloons, cigarette butts.	Large amount (>200 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, styrofoam, cigarette butts;
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Biohazard, Toxic and Sharp Objects	B: Trash contains no medical waste, diapers, pet or human waste. No evidence of toxic substances such as chemical containers or batteries. Only 1 piece of broken glass or metal debris, if any, is present.	B: No toxic substances, but small presence (2-10 pieces) of sharp objects such as broken glass and metal debris.	Presence of **any one** of the following: hypodermic needles or other medical waste; used diaper, pet waste, or human feces; any toxic substance such as chemical containers, batteries, or fluorescent light bulbs. Medium to high prevalence (11-50 pieces) sharp objects.	Presence of **more than one** of the items described in the marginal condition category, and/or high prevalence of (> 50) sharp objects.

	CONDITION CATEGORY			
Trash Assessment Parameter	**Least Disturbed (Optimal Urban)**	**Sub optimal Urban**	**Marginal Urban**	**Poor**
Site Accessibility	A: Access is difficult, restricted by locked gate or some other physical barrier like steep banks or thick riparian veg. Site reach does not appear to be used by people. Might be private property or protected watershed.	A: Access is limited and site reach does not appear to be used by people. No trails down to creek.	A: Public access to reach is fair to good but site does not appear to be used frequently, **or** private access is good without any public access.	A: Excellent reach access including trails down to and adjacent creek and creekside space for sitting down. Some evidence that reach is used frequently by the public (e.g. rope swings, many beer/soda cans and food wrappers left on the banks, etc.).
B SCORE	10 9	8 7 6	5 4 3	2 1 0
A SCORE	10 9	8 7 6	5 4 3	2 1 0
5. Illegal Dumping	D: No evidence of illegal dumping. No bags of trash, no yard waste, no household items placed at site to avoid proper disposal, no shopping carts.	D: Some evidence of illegal dumping. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris.	D: Presence of one of the following: furniture, appliances, shopping carts, bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	D: Evidence of chronic dumping, with more than one of the following items: furniture, appliances, shopping carts, bags of garbage, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
Illegal Littering	L: Any trash is incidental litter or carried downstream from another location.	L: Some evidence of litter within creek and banks originating from adjacent land uses	L: Prevalent in-stream or shoreline littering that appears to originate from adjacent land uses.	L: Large amount of litter within creek and on banks that appears to originate from adjacent land uses.
D-SCORE	10 9	8 7 6	5 4 3	2 1 0
L-SCORE	10 9	8 7 6	5 4 3	2 1 0
6. Accumulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location, based on evidence such as silt marks, faded colors or location near high water line.	Evidence that trash is carried to the location from upstream, as evidenced by its location near high water line, siltation marks on the debris, or faded colors.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. A large percentage of trash items have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score _____

SITE DEFINITION:
UPPER/LOWER BOUNDARIES OF REACH: _____
HIGH WATER LINE: _____
UPPER EXTENT OF BANKS OR SHORE: _____
_____

NOTES:
_____
_____
_____
_____
_____
_____
_____

Urban Rapid Trash Assessment Worksheet

Santa Clara Valley Urban Runoff Pollution Prevention Program

TRASH ITEM TALLY (Tally with (•) if found above high water line, and (|) if below)

PLASTIC # Above___ # Below____	**METAL** # Above___ # Below____
Plastic Bags	Aluminum Foil
Plastic Bottles	Aluminum or Steel Cans
Plastic Bottle Caps	Bottle Caps
Plastic Cup Lid/Straw	Metal Pipe Segments
Plastic Pipe Segments	Auto Parts (specify below)
Plastic Six-Pack Rings	Wire (barb, chicken wire etc.)
Plastic Wrapper	Metal Object
Soft Plastic Pieces	**LARGE** (specify below) # Above___ # Below____
Hard Plastic Pieces	Appliances
Styrofoam cups pieces	Furniture
Styrofoam Pellets	Garbage Bags of Trash
Fishing Line	Tires
Tarp	Shopping Carts
Other (write-in)	Other (write-in)
BIOHAZARD # Above___ # Below____	**TOXIC** # Above___ # Below____
Human Waste/Diapers	Chemical Containers
Pet Waste	Oil/Surfactant on Water
Syringes or Pipettes	Spray Paint Cans
Dead Animals	Lighters
Other (write-in)	Small Batteries
CONSTRUCTION DEBRIS #Above___#Below__	Vehicle Batteries
Concrete (not placed)	Other (write-in)
Rebar	**BIODEGRADABLE** # Above___ # Below____
Bricks	Paper
Wood Debris	Cardboard
Other (write-in)	Food Waste
MISCELLANEOUS # Above___ # Below____	Yard Waste (incl. trees)
Synthetic Rubber	Leaf Litter Piles
Foam Rubber	Other (write-in)
Balloons	**GLASS** # Above___ # Below____
Ceramic pots/shards	Glass bottles
Hose Pieces	Glass pieces
Cigarette Butts	**FABRIC AND CLOTH** # Above___# Below____

Golf Balls	Synthetic Fabric
Tennis Balls	Natural Fabric (cotton, wool)
Other (write-in)	Other (write-in)
Total pieces Above:	**Below:** **Grand total:**
Tally all trash in above rows; make notes below as needed to facilitate scoring.	
Littered:	
Dumped:	
Downstream Accumulation:	

SPECIFIC DESCRIPTION OF ITEMS FOUND:_____

_____

ATTACHMENT J

Standard NPDES Stormwater Permit Provisions

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

Standard Provisions and Reporting Requirements
for
NPDES Stormwater Discharge Permits

February 2009

A. GENERAL PROVISIONS

1. Neither the treatment nor the discharge of pollutants shall create a pollution, contamination, or nuisance as defined by Section 13050 of the California Water Code.

2. All discharges authorized by this Order shall be consistent with the terms and conditions of this Order.

3. Duty to Comply

a. If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Clean Water Act, or amendments thereto, for a toxic pollutant which is present in the discharge authorized herein and such standard or prohibition is more stringent than any limitation upon such pollutant in a Board adopted Order, discharger must comply with the new standard or prohibition. The Board will revise or modify the Order in accordance with such toxic effluent standard or prohibition and so notify the discharger.

b. If more stringent applicable water quality standards are approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the discharger must comply with the new standard. The Board will revise and modify this Order in accordance with such more stringent standards.

c. The filing of a request by the discharger for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. [40 CFR 122.41(f)]

4. Duty to Mitigate

The discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this order and permit which has a reasonable likelihood of adversely affecting public health or the environment, including such accelerated or additional monitoring as requested by the Board or Executive Officer to determine the nature and impact of the violation. [40 CFR 122.41(d)]

5. Pursuant to U.S. Environmental Protection Agency regulations the discharger must notify the Regional Board as soon as it knows or has reason to believe (1) that they have begun or expect to begin, use or manufacture of a pollutant not reported in the permit application, or (2) a discharge of toxic pollutants not limited by this permit has occurred, or will occur, in concentrations that exceed the limits specified in 40 CFR 122.42(a).

6. The discharge of any radiological, chemical, or biological warfare agent waste is prohibited.

7. All facilities used for transport, treatment, or disposal of wastes shall be adequately protected against overflow or washout as the result of a 100-year frequency flood.

8. Collection, treatment, storage and disposal systems shall be operated in a manner that precludes public contact with wastewater, except where excluding the public is inappropriate, warning signs shall be posted.

9. Property Rights

This Order and Permit does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, nor protect the discharger from liabilities under federal, state or local laws, nor create a vested right for the discharge to continue the waste discharge or guarantee the discharger a capacity right in the receiving water. [40 CFR 122.41(g)]

10. Inspection and Entry

The Board or its authorized representatives shall be allowed:

a. Entry upon premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of the order and permit;

b. Access to and copy at, reasonable times, any records that must be kept under the conditions of the order and permit;

c. To inspect at reasonable times any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under the order and permit; and

d. To photograph, sample, and monitor, at reasonable times for the purpose of assuring compliance with the order and permit or as otherwise authorized by the Clean Water Act, any substances or parameters at any locations. [40 CFR 122.41(i)]

11. Permit Actions

This Order and Permit may be modified, revoked and reissued, or terminated in accordance with applicable State and/or Federal regulations. Cause for taking such action includes, but is not limited to any of the following:

a. Violation of any term or condition contained in the Order and Permit;

b. Obtaining the Order and Permit by misrepresentation, or by failure to disclose fully all relevant facts;

c. Endangerment to public health or environment that can only be regulated to acceptable levels by order and permit modification or termination; and

d. Any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

12. Duty to Provide Information

The discharger shall furnish, within a reasonable time, any information the Board may request to determine whether cause exists for modifying, revoking and reissuing, or

terminating the permit. The discharger shall also furnish to the Board, upon request, copies of records required to be kept by its permit. [40 CFR 122.41(h)]

13. Availability

A copy of this permit shall be maintained at the discharge facility and be available at all times to operating personnel.

14. Continuation of Expired Permit

This permit continues in force and effect until a new permit is issued or the Board rescinds the permit. Only those dischargers authorized to discharge under the expiring permit are covered by the continued permit.

B. STANDARD STORM WATER PROVISIONS

These provisions apply to facilities which do not direct all storm water flows to the wastewater treatment plant headworks.

1. The Storm Water Pollution Prevention Plan (SWPP Plan) shall be designed in accordance with good engineering practices and shall address the following objectives:

a. to identify pollutant sources that may affect the quality of storm water discharges; and

b. to identify, assign, and implement control measures and management practices to reduce pollutants in storm water discharges.

The SWPP Plan may be combined with the existing spill prevention plan as required in accordance with Provision E.5. The SWPP Plan shall be retained on-site and made available upon request of a representative of the Board.

2. Source Identification

The SWPP Plan shall provide a description of potential sources which may be expected to add significant quantities of pollutants to storm water discharges, or which may result in non-storm water discharges from the facility. The SWPP Plan shall include, at a minimum, the following items:

a. A topographical map (or other acceptable map if a topographical map is unavailable), extending one-quarter mile beyond the property boundaries of the facility, showing: the wastewater treatment facility process areas, surface water bodies (including springs and wells), and the discharge point(s) where the facility's storm water discharges to a municipal storm drain system or other points to waters of the State. The requirements of this paragraph may be included in the site map required under the following paragraph if appropriate.

b. A site map showing:

i. Storm water conveyance, drainage, and discharge structures;

ii. An outline of the storm water drainage areas for each storm water discharge point;

iii. Paved areas and buildings;

iv. Areas of pollutant contact with storm water or release to storm water, actual or potential, including but not limited to outdoor storage, and process areas, material

loading, unloading, and access areas, and waste treatment, storage, and disposal areas;

v. Location of existing storm water structural control measures (i.e., berms, coverings, etc.);

vi. Surface water locations, including springs and wetlands;

vii. Vehicle service areas.

c. A narrative description of the following:

i. Wastewater treatment process activity areas;

ii. Materials, equipment, and vehicle management practices employed to minimize contact of significant materials of concern with storm water discharges;

iii. Material storage, loading, unloading, and access areas;

iv. Existing structural and non-structural control measures (if any) to reduce pollutants in storm water discharge;

v. Methods of on-site storage and disposal of significant materials.

d. A list of pollutants that have a reasonable potential to be present in storm water discharge in significant quantities.

3. Storm Water Management Controls

The SWPP Plan shall describe the storm water management controls appropriate for the facility and a time schedule for fully implementing such controls. The appropriateness and priorities of controls in the SWPP Plan shall reflect identified potential sources of pollutants. The description of storm water management controls to be implemented shall include, as appropriate:

a. Storm Water Pollution Prevention Personnel

Identify specific individuals (and job titles) who are responsible for developing, implementing, and reviewing the SWPP Plan.

b. Good Housekeeping

Good housekeeping requires the maintenance of clean, orderly facility areas that discharge storm water. Material handling areas shall be inspected and cleaned to reduce potential for pollutants to enter the storm drain conveyance system.

c. Spill Prevention and Response

Identify areas where significant materials can spill into or otherwise enter the storm water conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, cleanup equipment and procedures should be identified, as appropriate. The necessary equipment to implement a clean up shall be available and personnel trained in proper response, containment and cleanup of spills. Internal reporting procedures for spills of significant materials shall be established.

d. Source Control

Source controls, such as elimination or reduction of the use of toxic pollutants, covering of pollutant source areas, sweeping of paved areas, containment of potential pollutants, labeling all storm drain inlets with "No Dumping" signs,

isolation/separation of industrial from non-industrial pollutant sources so that runoff from these areas does not mix, etc.

e. Storm Water Management Practices

Storm water management practices are practices other than those which control the sources of pollutants. They include treatment/conveyance structures such as drop inlets, channels, retention/detention basins, treatment vaults, infiltration galleries, filters, oil/water separators, etc. Based on assessment of the potential of various sources to contribute pollutants to storm water discharges in significant quantities, additional storm water management practices to remove pollutants from storm water discharges shall be implemented and design criteria shall be described.

f. Sediment and Erosion Control

Measures to minimize erosion around the storm water drainage and discharge points such as riprap, revegetation, slope stabilization, etc. shall be described and implemented.

g. Employee Training

Employee training programs shall inform all personnel responsible for implementing the SWPP Plan. Training should address spill response, good housekeeping, and material management practices. New employee and refresher training schedules should be identified.

h. Inspections

All inspections shall be done by trained personnel. Material handling areas shall be inspected for evidence of, or the potential for, pollutants entering storm water discharges. A tracking or follow up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorder. Inspection records shall be retained for five years.

i. Records

A tracking and follow-up procedure shall be described to ensure that adequate response and corrective actions have been taken in response to inspections.

4. An annual facility inspection shall be conducted to verify that all elements of the SWPP Plan are accurate and up to date. The results of this review shall be reported in the annual report to the Board on October 1 of each year.

C. GENERAL REPORTING REQUIREMENTS

1. Signatory Requirements

a. All reports required by the order and permit and other information requested by the Board or USEPA Region 9 shall be signed by a principal executive officer or ranking elected official of the discharger, or by a duly authorized representative of that person. [40 CFR 122.22(b)]

b. Certification

All reports signed by a duly authorized representative under Provision E.1.a. shall contain the following certification:

"I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed 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. [40 CFR 122.22(d)]

2. Should the discharger discover that it failed to submit any relevant facts or that it submitted incorrect information in any report, it shall promptly submit the missing or correct information. [40 CFR 122.41(l)(8)]

3. False Reporting

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 permit, including monitoring reports or reports of compliance or noncompliance shall be subject to enforcement procedures as identified in Section F of these Provisions.

4. Transfers

a. This permit is not transferable to any person except after notice to the Board. The Board may require modification or revocation and reissuance of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the Clean Water Act.

b. Transfer of control or ownership of a waste discharge facility under an National Pollutant Discharge Elimination System permit must be preceded by a notice to the Board at least 30 days in advance of the proposed transfer date. The notice must include a written agreement between the existing discharger and proposed discharger containing specific dates for transfer of responsibility, coverage, and liability between them. Whether an order and permit may be transferred without modification or revocation and reissuance is at the discretion of the Board. If order and permit modification or revocation and reissuance is necessary, transfer may be delayed 180 days after the Board's receipt of a complete application for waste discharge requirements and an NPDES permit.

5. Spill Prevention and Contingency Plans

The discharger shall file with the Board, for Executive Officer review and approval within ninety (90) days after the effective date of this Order, a technical report or a statement that the existing plan(s) was reviewed and updated, as appropriate, on preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. The technical report or updated revisions should:

a. Identify the possible sources of accidental loss, untreated or partially treated waste bypass, and polluted 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.

This Board, after review of the technical report or updated revisions, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions may be incorporated as part of this Order, upon notice to the discharger. If the discharger already has an approved plan(s) he shall update them as specified in the plan(s).

6. Compliance Reporting

a. Planned Changes

The discharger shall file with the Board a report of waste discharge at least 120 days before making any material change or proposed change in the character, location or volume of the discharge.

b. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final compliance dates contained in any compliance schedule shall be submitted within 10 working days following each scheduled date unless otherwise specified within this order and permit. If reporting noncompliance, the report shall include a description of the reason for failure to comply, a description and schedule of tasks necessary to achieve compliance and an estimated date for achieving full compliance. A final report shall be submitted within 10 working days of achieving full compliance, documenting full compliance

c. Non-compliance Reporting (Twenty-four hour reporting:)

i. The discharger shall report any noncompliance that may endanger health or the environment. All pertinent information shall be provided orally within 24 hours from the time the discharger becomes aware of the circumstances. A written submission shall also be provided within five working days of the time the discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

ii. The following shall be included as information that must be reported within 24 hours under this paragraph:

(1) Any upset that exceeds any effluent limitation in the permit.

(2) Violation of a maximum daily discharge limitation for any of the pollutants listed in this permit to be reported within 24 hours.

(3) The Board may waive the above-required written report on a case-by-case basis.

D. ENFORCEMENT

1. The provision contained in this enforcement section shall not act as a limitation on the statutory or regulatory authority of the Board.

2. Any violation of the permit constitutes violation of the California Water Code and regulations adopted hereunder and the provisions of the Clean Water Act, and is the basis for enforcement action, permit termination, permit revocation and reissuance, denial of an application for permit reissuance; or a combination thereof.

3. The Board may impose administrative civil liability, may refer a discharger to the State Attorney General to seek civil monetary penalties, may seek injunctive relief or take other appropriate enforcement action as provided in the California Water Code or federal law for violation of Board orders.

4. It shall not be a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this order and permit.

5. A discharger seeking to establish the occurrence of any upset (See Definitions, G. 24) has the burden of proof. A discharger who wishes to establish the affirmative defense of any upset in an action brought for noncompliance shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:

a. an upset occurred and that the Permittee can identify the cause(s) or the upset;

b. the permitted facility was being properly operated at the time of the upset;

c. the discharger submitted notice of the upset as required in paragraph E.6.d.; and

d. the discharger complied with any remedial measures required under A.4.

No determination made before an action for noncompliance, such as during administrative review of claims that noncompliance was caused by an upset, is final administrative action subject to judicial review.
In any enforcement proceeding, the discharger seeking to establish the occurrence of any upset has the burden of proof. [40 CFR 122.41(n)]

E. DEFINITIONS

1. Daily discharge means:

a. For flow rate measurements, the average flow rate measured during a calendar day or during any 24-hour period reasonably representative of the calendar day for purposes of sampling.

b. For pollutant measurements, the concentration or mass emission rate measured during a calendar day or during any 24-hour period reasonably representative of the calendar day for purposes of sampling.

2. Daily Maximum Limit means the maximum acceptable daily discharge. For pollutant measurements, unless otherwise specified, the results to be compared to the daily maximum limit are based on composite samples.

3. DDT and Derivatives shall mean the sum of the p,p' and o,p' isomers of DDT, DDD (TDE), and DDE.

4. Duly authorized representative is one whose:

a. Authorization is made in writing by a principal executive officer or ranking elected official;

b. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as general manager in a partnership, manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and

c. Written authorization is submitted to the USEPA Region 9. If an authorization becomes no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements above must be submitted to the Board and USEPA Region 9 prior to or together with any reports, information, or applications to be signed by an authorized representative.

5. Hazardous substance means any substance designated under 40 CFR 116 pursuant to Section 311 of the Clean Water Act.

6. HCH shall mean the sum of the alpha, beta, gama (Lindane), and delta isomers of hexachlorocyclohexane.

7. Inadequately Treated Waste is wastewater receiving partial treatment but failing to meet discharge requirements.

8. Initial dilution is the process which results in the rapid and irreversible turbulent mixing of wastewater with receiving water around the point of discharge.

9. Mass emission rate is obtained from the following calculation for any calendar day:

$$\text{Mass emission rate (lb/day)} = \frac{8.345}{N}\left(\sum_{i=1}^{N} Q_i C_i\right)$$

$$\text{Mass emission rate (kg/day)} = \frac{3.785}{N}\left(\sum_{i=1}^{N} Q_i C_i\right)$$

In which 'N' is the number of samples analyzed in any calendar 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 which may be taken in any calendar 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. The daily concentration measured over any calendar day of all constituents shall be determined from the flow- weighted average of the same constituents in the combined waste streams as follows:

$$C_d = \text{Average daily concentration} = \frac{1}{}\left(\sum^{N} Q_i C_i\right)$$

Q_t i=1

In which 'N' is the number of component waste streams. 'Q' and 'C' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' waste streams. 'Qt' is the total flow rate of the combined waste streams.

10. Maximum allowable mass emission rate, whether for a 24-hour, weekly 7-day, monthly 30-day, or 6-month period, is a limitation expressed as a daily rate determined with the formulas in paragraph above, using the effluent concentration limit specified in the order and permit for the period and the specified allowable flow. (Refer to Section C of Part A of Self- Monitoring Program for definitions of limitation period)

11. Overflow is defined as the intentional or unintentional spilling or forcing out of untreated or partially treated wastes from a transport system (e.g. through manholes, at pump stations, and at collection points) upstream from the plant headworks or from any treatment plant facilities.

12. Priority pollutants are those constituents referred to in 40 CFR S122, Appendix D and listed in the USEPA NPDES Application Form 2C, (dated 6/80) Items V-3 through V-9.

13. Storm Water means storm water runoff, snow melt runoff, and surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

14. Toxic pollutant means any pollutant listed as toxic under Section 307(a)(1) of the Clean Water Act or under 40 CFR S401.15.

15. Total Identifiable Chlorinated hydrocarbons (TICH) shall be measured by summing the individual concentrations of DDT, DDD, DDE, aldrin, BHC, chlordane, endrin, heptachlor, lindane, dieldrin, PCBs and other identifiable chlorinated hydrocarbons.

16. Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass or overflow. It does not mean economic loss caused by delays in production.

17. Upset means an exceptional incident in which there is unintentional temporary noncompliance with effluent technology based permit limitations in the order and permit because of factors beyond the reasonable control of the discharger. It does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

18. Waste, waste discharge, discharge of waste, and discharge are used interchangeably in this order and permit. The requirements of this order and permit are applicable to the entire volume of water, and the material therein, which is disposed of to surface and ground waters of the State of California.

ATTACHMENT K

Provision C.3.b.
Sample Reporting Table

Provision C.3.b. Sample Reporting Table
Regulated Projects Approved During the Reporting Period 07/08 to 06/09
City of Eden Annual Report FY 2008-09

Project Name, Project Number, Location, Street Address,	Name of Developer, Project Phase No.,[1] Project Type & Description	Project Watershed[2]	Total Site Area, Total Area of Land Disturbed	Total New and/or Replaced Impervious Surface Area[3]	Total Pre- and Post-Project Impervious Surface Area[4]	Status of Project[5]	Source Control Measures	Site Design Measures	Treatment Systems Installed[6]	Operation & Maintenance Responsibility Mechanism	Hydraulic Sizing Criteria	Alternative Compliance Measures[7,8]	HM Controls[9,10]
Private Projects													
Nirvana Estates; Project #05-122; Property bounded by Paradise Lane, Serenity Drive, and Eternity Circle; Eden, CA	Heavenly Homes; Phase 1; Construction of 156 single-family homes and 45 townhomes with commercial shops and underground parking.	Runoff from site drains to Babbling Brook	25 acres site area, 21 acres disturbed	20 acres new	20 acres post-project	Application submitted 12/29/07, Application deemed complete 1/30/08, Project approved 7/16/08	Stenciled inlets, street sweeping, covered parking, car wash pad drains to sanitary sewer	Pervious pavement for all driveways, sidewalks, and commercial plaza	vegetated swales, detention basins,	Conditions of Approval require Homeowners Association to perform regular maintenance. Written record will be made available to City inspectors.	WEF Method	n/a	Contra Costa sizing charts used to design detention basin at Peace Park. Also contributed to in-stream projects in Babbling Brook
Barter Heaven; Project #05-345; Shoppers Lane & Bargain Avenue; 14578 Shoppers Lane, Eden, CA	Deals Galore Development Co.; Demolition of strip mall and parking lot and construction of 500-unit 5-story shopping mall with underground parking and limited outdoor parking.	Runoff from site drains to Bargain River	5 acres site area, 3 acres disturbed	1 acre new, 2 acres replaced	3.5 acres pre-project, 4.5 acres post-project	Application submitted 7/9/08, Application deemed complete 8/2/08, Project approved 12/12/08	Stenciled inlets, trash enclosures, underground parking, street sweeping	One-way aisles to minimize outdoor parking footprint; roof drains to planter boxes	tree wells with bioretention; planter boxes with bioretention	Conditions of Approval require property owner (landlord) to perform regular maintenance. Written record will be made available to City inspectors.	BMP Handbook Method	$ 250,000 paid to Renew Regional Project sponsored by Riverworks Foundation, 243 Water Way, Eden, CA 408-345-6789	Renew Project includes treatment and HM Controls

Provision C.3.b. Sample Reporting Table
Regulated Projects Approved During the Reporting Period 07/08 to 06/09
City of Eden Annual Report FY 2008-09

Project Name, Project Number, Location, Street Address,	Name of Developer, Project Phase No.,[1] Project Type & Description	Project Watershed[2]	Total Site Area, Total Area of Land Disturbed	Total New and/or Replaced Impervious Surface Area[3]	Total Pre- and Post-Project Impervious Surface Area[4]	Status of Project[5]	Source Control Measures	Site Design Measures	Treatment Systems Installed[6]	Operation & Maintenance Responsibility Mechanism	Hydraulic Sizing Criteria	Alternative Compliance Measures[7,8]	HM Controls[9,10]
New Beginnings; Project No. #05-456; Hope Street & Chance Road; 567 Hope Boulevard, Eden, CA	Fresh Start Corporation; Demolition of abandoned warehouse and construction of a 5-story building with 250 low-income rental housing units.	Runoff from site drains to Poor Man Creek	5 acres site area, 100,000 ft^2 disturbed	1 acre replaced	2 acres pre-project, 1 acre post-project	Application submitted 2/9/09, Application deemed complete 4/10/09; Project approved 6/30/09	Trash enclosures, underground parking, street sweeping, car wash pad drains to sanitary sewer	roof drains to landscaping	parking runoff flows to six bioretention units/gardens	Conditions of Approval require property owner (landlord) to perform regular maintenance. Written record will be made available to City inspectors.	not sized	Whole project is exempted from hydraulically sized treatment requirement - project is 100% low-income housing (Govt Code § 65589.5(h)(3))	n/a
Public Projects													
Gridlock Relief, Project No. #05-99, ABC Blvd between Main and Huett Streets, Eden, CA	City of Eden. Widening of ABC Blvd from 4 to 6 lanes	Runoff from site drains to Congestion River	6 acres site area, 3 acres disturbed	2 acres new, 1 acre replaced	4 acres pre-project, 6 acres post-project	Application submitted 7/9/06, Application deemed complete 10/6/08, Project approved 12/9/08, Construction scheduled to begin 7/10/09	none	ABC Blvd sloped to drain runoff into landscaped areas in median	Runoff leaving underdrain system of landscaped median is pumped to bioretention gardens along on either side of ABC Blvd	Signed statement from City of Eden assuming post-construction responsibility for treatment BMP maintenance.	WEF Method	n/a	BAHM used to design and size stormwater treatment units so that increased runoff is detained.

Sample Reporting Table C.3.b. Footnotes

1. If a project is being constructed in Phases, use a separate row entry for each Phase.
2. State the watershed(s) that the Regulated Project drains to. Optional but recommended: Also state the downstream watershed(s).
3. State both the total new impervious surface area and the total replaced impervious surface area, as applicable.
4. For redevelopment projects state both the pre-project impervious surface area and the post-project impervious surface area.
5. State project application date; application deemed complete date; and final, major, staff-level discretionary review and approval date.
6. List stormwater treatment system(s) installed onsite or at a joint stormwater treatment system facility.
7. For Equivalent Offsite Treatment, on a separate page, give a discussion of the alternative compliance site including the information specified in Provision C.3.b.v.(1)(l)(i) for the offsite project.
8. For Regional Projects, on a separate page, provide the information specified in Provision C.3.b.v.(1)(l)(ii).
9. If HM control is not required, state why not.
10. If HM control is required, state control method used (e.g., method to design and size device(s) or method(s) used to meet the HM Standard, and description of device(s) or method(s) used, such as detention basin(s), biodetention unit(s), regional detention basin, or in-stream control).

Instructions for Provision C.3.b. Sample Reporting Table

1. **Project Name, Number, Location, and Street Address** – Include the following information:
   - Name of the project
   - Number of the project (if applicable)
   - Location of the project with cross streets
   - Street address of the project (if available)

2. **Name of Developer, Project Phase Number, Project Type, and Project Description** – Include the following information:
   - Name of the developer
   - Project phase name and/or number (only if the project is being developed in phases) – each phase should have a separate row entry
   - Type of development (i.e., new and/or redevelopment)
   - Description of development (e.g., 5-story office building, residential with 160 single-family homes with five 4-story buildings to contain 200 condominiums, 100 unit 2-story shopping mall, mixed use retail and residential development (apartments), industrial warehouse)

3. **Project Watershed**
   - State the watershed(s) that the Project drains into
   - Optional but recommended: Also state the downstream watershed(s)

4. **Total Site Area and Total Area of Land Disturbed** – State the total site area and the total area of land disturbed.

5. **Total New and/or Replaced Impervious Surface Area**
   - State the total new impervious surface area
   - State the total replaced impervious surface area, as applicable

6. **Total Pre- and Post-Project Impervious Surface Area** – For redevelopment projects, state both the pre-project impervious surface area and the post-project impervious surface area.

7. **Status of Project –** Include the following information:
   - Project application submittal date
   - Project application deemed complete date
   - Final, major, staff-level discretionary review and approval date

8. **Source Control Measures** – List all source control measures that have been or will be included in the project.

9. **Site Design Measures –** List all site design measures that have been or will be included in the project.

10. **Treatment Systems Installed** – List all post-construction stormwater treatment system(s) installed onsite and/or at a joint stormwater treatment system facility.

11. **Operation and Maintenance Responsibility Mechanism –** List the legal mechanism(s) that have been or will be used to assign responsibility for the maintenance of the post-construction stormwater treatment systems.

12. **Hydraulic Sizing Criteria Used** – List the hydraulic sizing criteria used for the Project.

13. **Alternative Compliance Measures**
    - **Equivalent Offsite Treatment** – On a separate page, give a discussion of the alternative compliance project including the information specified in Provision C.3.b.v.(1)(l)(i) for the offsite project
    - **Regional Project** – On a separate page, provide the information specified in Provision C.3.b.v.(1)(l)(ii).

14. **HM Controls**
    - If HM control is not required, state why not
    - If HM control is required, state control method used (e.g., method to design and size device(s), method(s) used to meet the HM Standard, and description of device(s) or method(s) used, such as detention basin(s), biodetention unit(s), regional detention basins, or in-stream control)

ATTACHMENT L

Provision C.3.h.
Sample Reporting Table

Table C.3.h. – Operation and Maintenance of Stormwater Treatment Systems
City of Eden Annual Report FY 2008-09

Facility/Site Inspected and Responsible Party for Maintenance	Date of Inspection	Type of Inspection (annual, follow-up, etc.)	Type of Treatment System or HM Control Inspected	Inspection Findings or Results	Enforcement Action Taken (Warning, NOV, administrative citation, etc.)	Comments
ABC Company 123 Alphabet Road San Jose	12/06/08	annual	offsite bioretention unit	proper operation	none	Unit is operating properly and is well maintained.
DEF site 234 Blossom Drive Santa Clara	12/17/08	annual	onsite media filter	ineffective filter media	verbal warning	Media filter is clogged and needs to be replaced.
	12/19/08	follow-up	onsite media filter	proper operation	none	New media filter in place and unit is operating properly.
	1/19/09	follow-up	onsite media filter	proper operation	none	Unit is operating properly.
GHI Hotel 1001 Grand Blvd 227 Touring Parkway	12/21/08	annual	onsite swales	proper operation	notice of violation	Bioretention unit #2 is badly eroded because of flow channelization. Stormwater is flowing over the eroded areas, bypassing treatment and running off into parking area.
			onsite bioretention unit #1	proper operation		
			onsite bioretention unit #2	eroded areas due to flow channelization		
	12/27/08	follow-up	onsite bioretention unit #2	proper operation	none	Entire bioretention unit #2 has been replanted and re-graded. Raining heavily but no overflow observed.
Rolling Hills Estates Homeowners' Association 543 Rolling Hill Drive Pleasanton	01/17/09	annual	onsite pond	sediment and debris accumulation	notice of violation	Pond needs sediment removal and check dam needs debris removal.
	01/24/09	follow-up	onsite pond	sediment and debris accumulation	administrative citation $1000	Pond still a mess. Administrative citation requires maintenance within a week.
	01/31/09	follow-up	onsite pond	proper maintenance	none	Pond maintenance completed.
	02/18/09	spot inspection	onsite pond	proper operation and maintenance	none	Proper operation and maintenance.

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osphorus, orthophosphate, ogen, nitrate, , silica, chloride, organic carbon, d sediment ation)	Applicable SWAMP comparable method	3/yr in conjunction with algae sampling & water column toxicity	Grab sample	20 / 10 / 4	20% of results in waterbody exceed one water quality stand established thresh
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gen Indicators[1]	Applicable SWAMP Comparable Method	1/yr (During Summer)	Follow U.S. EPA protocol	5 / 5 / * *Fairfield-Suisun & Vallejo Permittees: 3 sites twice in permit term	Exceedance of USE Basin Plan crite
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Long-Term Monitoring

Long-Term Monitoring is intended to detect exceedances of water quality objectives in receiving waters, update and refine estimates of mass emissions from MS4s, help assess long-term trends in pollutant concentrations and toxicity in receiving waters and sediment, and evaluate if stormwater discharges are causing or contributing to toxic impacts on aquatic life.

Parameters and Methods – Permittees shall conduct sampling pursuant to Table 8.3. Samples, other than sediment samples, shall be wet weather flow-weighted composite samples, collected during storm events that produce rainfall of at least 0.10 inch. Sampled storms should be separated by 21 days of dry weather, but, at a minimum, sampled storms must have 72 hours of antecedent dry weather. Samples must include the first rise in the hydrograph.

Frequency – Permittees shall conduct Long-Term Monitoring every other year (biennially). Where possible, Long-Term Monitoring should be done in conjunction with Pollutants of Concern Monitoring and/or SWAMP monitoring.

Table 8.3. Long-Term Monitoring Elements

Long-Term Monitoring Parameter	Sampling &/or Analytical Method	Minimum Sampling Occurrence	Result(s) that Trigger a Monitoring Project in Provision C.8.e.i.
Dissolved & Total Metals[2]	Applicable SWAMP Comparable Method	Average of 4 wet weather events/year	If applicable water quality objective is exceeded, repeat wet weather

[1] Includes fecal coliform and *E. Coli.*

Long-Term Monitoring Parameter	Sampling &/or Analytical Method	Minimum Sampling Occurrence	Result(s) that Trigger a Monitoring Project in Provision C.8.e.i.
Semi-Volatile Organics	Method 8270C		
Suspended Sediment Concentration	Applicable SWAMP Comparable Method	Average of 4 wet weather events/year	Not applicable
Toxicity – Water Column	Applicable SWAMP Comparable Method	Average of 4 wet weather events/year	If Ceriodaphnia or Pimephales survival or Selenastrum growth is < 50% of control results, repeat wet weather sample. If 2nd sample yields < 50% of control results, proceed to C.8.e.i.
Toxicity – Bedded Sediment, fine-grained	Applicable SWAMP Comparable Method	Once, during April-July, coordinate with SWAMP	See Attachment G, Table G-1
Pollutants – Bedded Sediment, fine-grained	Applicable SWAMP Comparable Method	Once, during April-July, coordinate with SWAMP	See Attachment G, Table G-1

Locations – Permittees shall participate in a program to sample and monitor one long-term monitoring station per county, except for Fairfield-Suisun and Vallejo Permittees, who shall jointly sample one long-term station. Permittees shall locate fixed monitoring stations and conduct Long-Term Monitoring on the applicable waterbody shown in Table 8.4. Permittees may select and monitor alternate Long-Term Monitoring locations based on their knowledge of such factors as site access and stream characteristics (e.g., depositional properties) and upon approval from the Executive Officer.

Table 8.4. Long-Term Monitoring Locations

Stormwater Countywide Program	Waterbody	Suggested Location
Alameda Permittees	Alameda Creek OR	East of Alvarado Blvd*
	Lower San Leandro Creek	Empire Road*
Contra Costa Permittees	Kirker Creek OR	Floodway*
	Walnut Creek	Concord Avenue*
Fairfield-Suisun & Vallejo Permittees	Laurel Creek	Pintail Drive*
Santa Clara Permittees	Guadalupe River OR	USGS Gaging Station 11169025*

[2] Include total and dissolved aluminum, antimony, arsenic, beryllium, cadmium, total chromium, hexavalent chromium, iron, lead, nickel, selenium, silver, thallium, and zinc. Note that copper and mercury are required under Pollutants of Concern Monitoring.

Stormwater Countywide Program	Waterbody	Suggested Location
	Coyote Creek	Montague*
San Mateo Permittees	San Mateo Creek	Gateway Park*

* The SWAMP plan is to collect sediment toxicity and sediment chemistry samples annually at these stations during the month of June.

Long-Term Monitoring Results – When Long-Term Monitoring produces results such as those described in the final column of Table 8.3, Permittees shall conduct Monitoring Project(s) as described in C.8.e.i., or, for bedded sediment, as described in Attachment G.

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Trash or litter is defined in California Government Code Section 68055.1(g), as follows: "Litter means all improperly discarded waste material, including, but not limited to, convenience food, beverage, and other product packages or containers constructed of steel, aluminum, glass, paper, plastic, and other natural and synthetic materials, thrown or deposited on the lands and waters of the state, but not including the properly discarded waste of the primary processing of agriculture, mining, logging, sawmilling, or manufacturing".

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Non-Population based Permittees Hot Spot Selection – Non-population based entities such as flood management districts – Hot spot implementation requirements are assigned based approximately on service area population and development density, and overall size of service area, in Table 10-1.

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Permittees shall achieve TAL by July 1, 2012, at these trash hot spots, and then maintain at least that level.

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the "Urban Optimal" level of the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) version of the Water Board developed Rapid Trash Assessment method (Urban RTA) Attachment 10.1. The Urban Optimal level of the Urban RTA includes the requirements of less than 100 pieces of trash per 100 foot assessment reach, and that there be no visual impact from trash within the assessment reach

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Task Description – Permittees shall investigate and abate mercury sources in or to their storm drain systems in conjunction with the Water Board and other appropriate regulatory agencies with investigation and cleanup

authorities. The purpose of this task is to implement and evaluate the benefit of a suite of abatement measures at five pilot project locations. Permittees shall document the knowledge and experience gained through pilot implementation, and this documentation will provide a basis for determining the scope of abatement implementation in subsequent permit terms. Permittees shall also quantify and report the amount of mercury loads abated resulting from implementation of these measures.

Implementation Level – Reducing loads of PCBs is the main pilot location selection factor for this Provision, and mercury load reductions is a secondary criterion. Accordingly, for PCBs pilot project locations selected as part of Provision C.12.c, Permittees shall conduct reconnaissance in the pilot project drainage areas. Permittees shall test sediments in storm drains and conveyances to characterize the extent and magnitude of mercury concentrations. They shall evaluate monitoring data and determine if a mercury sediment abatement program would reduce mercury loading significantly. If so determined, the Permittees shall cause abatement activities to be conducted at those sites under Permittee jurisdiction with identified remedial activities. When contamination is located on private property, Permittees must ensure that cleanup occurs either by exercising direct authority to require cleanup or by notifying appropriate authorities to ensure that oversight is established. Permittees are responsible for contaminants located on public rights-of-way and the stormwater conveyance system.

Reporting – Report on mercury-related aspects of work and loads abated as part of reporting requirements for C.12.c.

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Permittees shall document the knowledge and experience gained through pilot implementation, and this documentation will provide a basis for determining the implementation scope of enhanced sediment removal management practices in subsequent permit terms.

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Polychlorinated Biphenols (PCBs) Controls

Permittees shall implement the following control programs for PCBs. Permittees shall perform the control measures and provide reporting on those control measures according to the provisions below. The purpose of these provisions is to implement the urban runoff requirements of the PCBs TMDL and reduce PCBs loads to make substantial progress toward achieving the urban runoff PCBs load allocation. Permittees may comply with any requirement of this Provision through a collaborative effort.

Implement Project throughout Region to Incorporate PCBs and PCB-Containing Equipment Identification into Existing Industrial Inspections

Task Description – Permittees shall develop training materials and train municipal industrial building inspectors to identify, in the course of their existing inspections, PCBs or PCB-containing equipment. Permittees shall incorporate such PCB identification into industrial inspection programs.

Implementation Level – Where inspectors identify during inspections PCBs or PCB-containing equipment, Permittees shall document incident in inspection report and refer to appropriate regulatory agencies (e.g. county health departments, Department of Toxic Substances Control, California Department of Health Services, and the Water Board) as necessary.

Reporting – Permittees shall report the results of training and inspection for PCB identification in the 2010, and following Annual Reports.

Conduct Pilot Projects to Evaluate Managing PCB-Containing Materials and Wastes during Building Demolition and Renovation (e.g., Window Replacement) Activities

Task Description – Permittees shall evaluate potential presence of PCBs at construction sites, current material handling and disposal regulations/programs (e.g., municipal ordinances, RCRA, TSCA) and current level of implementation.

Implementation Level –

Permittees shall develop a sampling and analysis plan to evaluate PCBs at construction sites that involve demolition activities (including research on when, where, and which materials potentially contained PCBs).

Permittees shall implement a sampling and analysis plan at a minimum of 10 sites distributed throughout the combined Permittees' jurisdiction areas.

Permittees shall develop/select BMPs to reduce or prevent discharges of PCBs during demolition/remodeling. The BMPs will focus on methods to identify, handle, contain, transport and dispose of PCB-containing building materials.

Permittees shall develop model ordinances or policies, train and deploy inspectors, and pilot test BMPs at 5 sites.

Reporting –

In the 2010 Annual Report, Permittees shall submit the results of the evaluation (Provision C.12.b.i.) of current regulations, level of implementation, and regulatory gaps as well as the sampling and analysis plan (of Provision C.12.b.ii.).

In the 2010 Annual Report, Permittees shall submit a status report on sampling and analysis along with whatever sampling results are available.

In the 2011 Annual Report, Permittees shall submit the final sampling and analysis report, recommendations for next steps for sampling, a list of appropriate BMPs, BMP training program, and model ordinances and policies to prevent PCB discharges from building demolition and improvement activities.

In the 2012 Annual Report, Permittees shall submit the results of pilot program effectiveness evaluation.

Pilot Projects to Investigate and Abate On-land Locations with Elevated PCB Concentrations, Including Public Rights-of-way, and Stormwater Conveyances with Accumulated Sediments with Elevated PCBs Concentrations.

Task Description – Permittees shall investigate and abate PCBs sources in or to their storm drain systems in conjunction with the Water Board and other appropriate regulatory agencies with investigation and cleanup authorities. The purpose of this task is to implement and evaluate the benefit of a suite of abatement measures at five pilot project locations. Permittees shall document the knowledge and experience gained through pilot implementation, and this documentation will provide a basis for determining the implementation scope of abatement projects in subsequent permit terms. Permittees shall also quantify and report the amount of PCBs loads abated resulting from implementation of these measures.

Implementation Level –

Permittees, working collaboratively, shall identify 5 drainage areas that contain high levels of PCBs and conduct pilot projects to investigate and abate these high PCB concentrations. To accomplish this, Permittees shall interview municipal staff and review municipal databases, data collected or compiled through grant-funded efforts, other agency files, and other available information to identify potential PCB source areas and areas where PCB-contaminated sediment accumulates, including within stormwater conveyances. Permittees shall qualitatively rank and map potential PCB source areas within each drainage. Investigation of mercury (Provision C.11.c.) shall be included in these efforts unless not appropriate. When contamination is located on private property, Permittees must ensure that cleanup occurs either by exercising direct authority to require cleanup or by notifying appropriate authorities to ensure that oversight is established. Permittees are responsible for contaminants located on public rights-of-way and the stormwater conveyance system.

Permittees shall conduct reconnaissance surveys of the identified drainages and gather information concerning past or current use of PCBs to further identify potential source areas and determine whether runoff from such locations is likely to convey soils/sediments with PCBs to municipal stormwater conveyances.

Permittees shall validate existence of elevated PCB concentrations through surface soil/sediment sampling and analysis where visual inspections and/or other information suggest potential source areas within each drainage.

Where data confirm significantly elevated PCB concentrations in surface soils/sediments within the subject pilot drainage, Permittees shall provide available information on current site conditions and owner/operators and other potentially responsible parties to Water Board and other appropriate regulatory agencies to facilitate their issuance of orders for further investigation and remediation of subject sites. Permittees shall assist the Water Board and other appropriate agencies to identify/evaluate funding to perform abatement and/or responsible parties and abatement options.

Permittees shall identify areas for expedited abatement on the basis of loading potential including factors such as PCB concentration, mass of sediment, and mobilization potential and/or human health protection thresholds, such as California Human Health Screening Levels.

Permittees shall conduct an abatement program in portions of drainages under their jurisdiction in conjunction with the Water Board and other appropriate agencies.

Reporting

Permittees shall report on the identified suspect drainage areas [Provision C.12.c.ii (1)] and results of the surveys [Provision C.12.c.ii.(2)] in the 2010 Annual Report.

Permittees shall report sampling and chemical analysis results at pilot locations [Provision C.12.c.ii.(3)] in the 2010 and 2011 Annual Reports.

Permittees shall report on proposed abatement opportunities and activities [Provision C.12.c.ii.(4) and (5)], responsible parties, funding, agency oversight, and schedules in the 2012 Annual Report.

Permittees shall report results of abatement program effectiveness and estimates of loads reduced (see C.11.g) in the 2013 Annual Report.

Conduct Pilot Projects to Evaluate and Enhance Municipal Sediment Removal and Management Practices

Task Description – Permittees shall jointly evaluate ways to enhance PCBs load reduction benefits of operation and maintenance activities that remove or manage sediment. The purpose of this task is to implement these management practices at the pilot scale in five drainages during this permit term. Permittees shall document the knowledge and experience gained through pilot implementation, and this documentation will provide a basis for determining the implementation scope of enhanced sediment removal and management practices in subsequent permit terms. Permittees shall also quantify and report the amount of PCBs loads removed or avoided resulting from implementation of these measures.

Implementation Level – In all pilot program drainages selected as part of Provision C.12.c, Permittees shall jointly evaluate ways to enhance existing municipal street sweeping (in coordination and consultation with local sanitary sewer agency), including curb clearing parking restrictions, inlet cleaning, catch basin cleaning, stream and stormwater conveyance system maintenance, and pump station cleaning via increased effort and/or retrofits. This evaluation shall also include consideration of street flushing and capture, collection, or routing to the POTW as a potential enhanced management practice. Permittees shall also jointly evaluate existing information on high-efficiency street sweepers. The goal is to evaluate the cost-effectiveness of high-efficiency street sweeping relative to reducing pollutant loads. Permittees shall develop recommendations for follow-up studies to be conducted.

Reporting – Permittees shall submit the results of these two evaluations in the 2010 Annual Report.

Beginning July 1, 2011, Permittees shall implement the most potentially effective measure(s) based on the evaluation of Provision C.12.d. ii. throughout the region.

Reporting – Permittees shall report effectiveness of enhanced practices pilot implementation in the 2013 Annual Report, and their plan for implementing enhanced practices in the next permit term.

Conduct Pilot Projects to Evaluate On-Site Stormwater Treatment via Retrofit

Task Description – Permittees shall evaluate and quantify the removal of PCBs by on-site treatment systems via retrofit of such systems into existing storm drain systems. The purpose of this task is to implement on-site treatment projects at the pilot scale in ten locations during this permit term. Permittees shall document the knowledge and experience

gained through pilot implementation, and this documentation will provide a basis for determining the implementation scope of on-site treatment retrofits in subsequent permit terms.

Implementation Level – Permittees, working collaboratively, shall identify at least 10 locations throughout the Permittees' jurisdictions that present opportunities to install on-site treatment systems (e.g., detention basins, bioretention units, sand filters, infiltration basins, treatment wetlands) and shall assess the best treatment options for those locations. Every county (San Mateo, Contra Costa, Alameda, Santa Clara, and Solano) should have at least one location. This assessment shall identify potential locations draining a variety of land uses, discuss technical feasibility, and discuss economical feasibility. Permittees shall choose pilot study locations primarily on the basis of elevated PCBs concentrations with additional consideration to mercury concentrations.

On the basis of the Provision C.12.e.ii. report, Permittees shall select sites to perform pilot studies and shall conduct pilot studies in selected locations. Taken as a group, these 10 pilot study locations should span treatment types and drainage characteristics.

Reporting –

In the 2010 Annual Report, Permittees shall report on candidate locations with types of treatment retrofit for each location. The report shall include assessment of at least 10 locations.

In the 2013 Annual Report, Permittees shall report status, results, PCBs-removal effectiveness, and lessons learned from the pilot studies and their plan for implementing this type of treatment on an expanded basis throughout the region during the next permit term.

Diversion of Dry Weather and First Flush Flows to POTWs

Task Description – Permittees shall evaluate the reduced loads of PCBs from diversion of dry weather and first flush stormwater flows to sanitary sewers. The knowledge and experience gained through pilot implementation will be used to determine the implementation scope of dry weather diversion in subsequent permit terms. Permittees shall document the knowledge and experience gained through pilot implementation, and this documentation will provide a basis for determining the implementation scope of dry weather diversion projects in subsequent permit terms.

Implementation Level – Permittees shall implement pilot projects to address the role of pump stations as a source of pollutants of concern (primarily PCBs and secondarily mercury). This work is in addition to Provisions C.2 and C.10 that address dissolved oxygen depletion and trash impacts in receiving waters. The objectives of this provision are: to implement five pilot projects for dry weather diversion from stormwater pump stations to POTWs; evaluate the reduced loads of mercury and PCBs

resulting from the diversion; and gather information to guide the selection of additional diversion projects required in future permits. Collectively, Permittees shall select 5 stormwater pump stations and 5 alternates by evaluating drainage characteristics and the feasibility of diverting flows to the sanitary sewer.

Permittees should work with the local POTW on a watershed, program, or regional level to evaluate feasibility and to establish cost sharing agreements. The feasibility evaluation shall include, but not be limited to, costs, benefits, and impacts on the stormwater and wastewater agencies and the receiving waters relevant to the diversion and treatment of the dry weather and first flush flows.

From this feasibility evaluation, Permittees shall select 5 pump stations and 5 alternates for pilot diversion studies. At least one dry weather diversion pilot project shall be implemented in each of the five counties (San Mateo, Contra Costa, Alameda, Santa Clara, and Solano). The pilot and alternate locations should be located in industrially dominated catchments where elevated PCB concentrations are documented.

Permittees shall implement flow diversion to the sanitary sewer at the 5 pilot pump stations. As part of the pilot studies, they shall monitor and measure PCBs load reduction.

Reporting –

Permittees shall summarize the results of the feasibility evaluation in the 2010 Annual Report, including:

- Selection criteria leading to the identification of the 5 candidate and 5 alternate pump station for pilot studies.
- Time schedules for conducting the pilot studies.
- A proposed method for distributing PCBs load reductions to participating wastewater and stormwater agencies.

Permittees shall report annually on the status of the pilot studies in each subsequent annual report.

The 2013 Annual Report shall include:

- Evaluation of pilot program effectiveness.
- PCBs loads reduced.
- Updated feasibility evaluation procedures to guide future diversion project selection.

Monitor Stormwater PCB Pollutant Loads and Loads Reduced

Permittees shall develop and implement a monitoring program as required in Provision C.8.f. to quantify PCBs loads and loads reduced (see C.11.g for details) through the source control, treatment and other management measures implemented as part of the pilot studies of C.12.a through C.12.f.

Fate and Transport Study of PCBs in Urban Runoff

Task Description – Permittees shall conduct or cause to be conducted studies aimed at better understanding the fate, transport, and biological uptake of PCBs discharged in urban runoff.

Implementation Level – The specific information needs include understanding the in-Bay transport of PCBs discharged in urban runoff, the influence of urban runoff on the patterns of food web PCBs accumulation, and the identification of drainages where urban runoff PCBs are particularly important in food web accumulation.

Reporting – Permittees shall submit in the 2010 Annual Report a workplan describing the specific manner in which these information needs will be accomplished and describing the studies to be performed with a schedule. Permittees shall report on status of the studies in the 2011, and 2012 Annual Reports. Permittees shall report in the 2013 Annual Report the findings and results of the studies completed, planned, or in progress as well as implications of studies on potential control measures to be investigated, piloted or implemented in future permit cycles.

Development of a Risk Reduction Program Implemented throughout the Region

Task Description – Permittees shall develop and implement or participate in effective programs to reduce PCBs-related risks to humans and quantify the resulting risk reductions from these activities.

Implementation Level – The risk reduction activities shall include investigating ways to address public health impacts of PCBs in San Francisco Bay/Delta fish, including activities that reduce actual and potential exposure of health impacts to those people and communities most likely to be affected by PCBs in San Francisco Bay-caught fish, such as subsistence fishers and their families. Such strategies should include public participation in developing effective programs in order to ensure their effectiveness. The Permittees may include studies needed to establish effective exposure reduction activities and risk communication messages as part of their planning. The risk reduction activities may be performed by a third party if the Permittees wish to provide funding for this purpose. This requirement may be satisfied by a combination of related efforts through the Regional Monitoring Program or other similar collaborative efforts.

Reporting – Permittees shall submit in the 2010 Annual Report the specific manner in which these risk reduction activities will be accomplished and describe the studies to be performed with a schedule. Permittees shall report on status of the studies in the 2011, and 2012 Annual Reports. Permittees shall report the findings and results of the studies completed, planned, or in progress as well as the status of other risk reduction actions in the 2013 Annual Report.