

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

**TENTATIVE ORDER R2-2008-XXXX
NPDES PERMIT NO. CAS612008**

Issuing Waste Discharge Requirements for:

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

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

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

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 City/County Association of Governments (C/CAG) of San Mateo County, and San Mateo County, which have joined together to form the San Mateo Countywide Water Pollution Prevention Program

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

The city of Vallejo and the Vallejo Sanitary District

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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 includes cited regulatory and legal references and additional explanatory information in support of the requirements of this Permit. This information, including any supplements thereto, and any future response to comments on the Tentative Order, is hereby incorporated by reference.

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). These Alameda County 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, which have joined together to form the Contra Costa Clean Water Program (hereinafter collectively referred to as the Contra Costa Permittees). 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 City/County Association of Governments (C/CAG) of San Mateo County and San Mateo County, which have joined together to form the San Mateo Countywide Water Pollution Prevention Program (hereinafter collectively referred to as San Mateo Permittees). 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, which have joined together to form the Fairfield-Suisun Urban Runoff Management Program (hereinafter referred to as 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 separate municipal storm drain systems, 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 (MS4s), which provided guidance on permit application requirements for regulated MS4s.
10. 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, 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 Board, Office of Administrative Law and USEPA, where required. The latest version was effective as of December 22, 2006.

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, dioxins, furans, diazinon, dieldrin, chlordane, DDT, and selenium in Central San Francisco Bay; 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, 2008, 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 the storm drain systems and watercourses. NPDES-permitted discharges are exempt from this prohibition. Compliance with this prohibition shall be demonstrated in accordance with Provisions C.1. through C.17 of this Permit. Provision C.15 describes a tiered categorization of non-stormwater discharges based on potential for pollutant content, which 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.
- 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:
- Floating, suspended, or deposited macroscopic particulate matter, or foam;
 - Bottom deposits or aquatic growths;
 - Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
 - Visible, floating, suspended, or deposited oil or other products of petroleum origin; and
 - 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.1.** 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. Water Quality Standards Exceedances

The Permittees shall comply with Receiving Water Limitations B.1 and B.2 through the timely implementation of control measures and other actions to reduce pollutants in the discharge of stormwater runoff. The Permittees shall implement control measures and Best Management Practices (BMPs) to reduce pollutants in stormwater discharges to the maximum extent practicable in accordance with the requirements of this permit, including any modifications. The performance standards specified in Provisions C.2 through C.15 are designed to achieve compliance with Receiving Water Limitations B.1 and B.2 through implementing management practices, specifying level of implementation, and requiring timely and complete reporting to enable determination of compliance with the specified performance standards.

If exceedance(s) of water quality standards or water quality objectives (collectively, WQSs) persist in receiving waters, notwithstanding implementation of these Provisions, Permittees shall assure compliance with Discharge Prohibitions A.1 and A.2, and Receiving Water Limitations B.1 and B.2 by complying with the following procedure:

- 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, the Permittee(s) shall promptly notify 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 incorporated in 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;
- b. Submit any modifications to the report required by the Water Board within 30 days of notification;
- c. Within 30 days following adoption of the amendment to the Permit described above by the Water Board, the Permittees shall incorporate the approved modified control measures and levels of implementation, and any additional monitoring required; and,
- d. Implement the revised Permit requirements and monitoring program in accordance with the adopted schedule in C.1.a.

As long as Permittees have complied with the procedures set forth above and are implementing the revised Permit, 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

C.2.a. Street and Road Sweeping and Cleaning

- i. **Task Description – Sweeping Frequency, Timing and Efficiency** – Permittees shall designate streets, roads, and public parking lots within their jurisdiction that fit within each of the following three categories for street sweeping frequency based on land use. Sweeping frequency can also be based on trash and stormwater runoff pollutant levels generated, but can be no lower than these frequencies:
 - (1) **High Frequency** – Streets, road segments and public parking lots designated as high frequency include at least, but are not limited to, high-traffic zones, commercial and industrial districts, shopping malls, large schools, high-density residential dwellings, sport and event venues, and plazas. This designation shall include areas that consistently accumulated high volumes of trash, debris and other stormwater pollutants.
 - (2) **Medium Frequency** – Streets, road segments and public parking lots designated as medium priority include at least, but are not limited to, medium traffic zones; warehouse districts; and light, small-scale commercial and industrial areas.
 - (3) **Low Frequency** – Streets and road segments designated as low priority include at least, but are not limited to, light traffic zones and residential zones.
- ii. **Implementation Levels**
 - (1) Permittees shall identify and map all designated streets, roads, and public parking lots for sweeping frequency by November 30, 2008.
 - (2) Permittees shall sweep streets/roads/public parking lots on the following frequency:
 - High Frequency: average of at least twice per month;
 - Medium Frequency: average of at least once per month; and
 - Low Frequency: as necessary, but at least twice before the onset of the rainy season.
 - If a Permittee's existing overall street sweeping effort provides equivalent or greater street sweeping frequency to the requirements above, the Permittee may continue to implement its existing street sweeping program.
 - For areas where street sweeping is technically infeasible, Permittees shall increase implementation of other trash/litter control procedures to minimize pollutant discharges to storm drains and creeks.
- iii. **Recording & Reporting - Permittees shall perform annual assessments of street sweeping effectiveness on the basis of the following factors and report in the Annual Report:**

- (1) Report in the Year 1 Annual Report a map of the high, medium, and low frequency sweeping areas. Identify any significant changes in subsequent annual reports and the basis for those changes;
- (2) Report annually on types of sweepers used, swept curb miles, volume or weight of materials removed in summary form within the Annual Report;
- (3) Report on the public outreach efforts or use of additional resources in sweeping excess leaves and other material or addressing areas that are infeasible to sweep to minimize pollutant discharges to storm drains and creeks; and

C.2.b. Sweeping Equipment Selection and Operation:

- i. **Task Description** – When replacing existing sweeping equipment, Permittees shall select and operate high-performing sweepers that are efficient in removing pollutants, including fine particulates from impervious surfaces. At least 75 percent of the sweepers replaced during the Permit term shall have the particulate removal performance of regenerative air sweepers or better. High-performing sweepers are capable of removing fine particulates (i.e., particulates less than 150 microns). If a Permittee contracts a third party to perform street sweeping, the contract sweeper must meet this same requirement. Street sweeper operators shall be trained to enhance operations for water quality benefit.
- ii. **Implementation Level** – Permittees shall follow equipment design performance specifications to ensure that street sweeping equipment operates effectively and at the proper equipment design speed with appropriate verification; and is properly maintained. Provide annual training for sweeper operators. Permittees shall operate to optimize pollutant removal by permitting sweepers access to the curb by either parking restrictions which clear the curb or effective public outreach to inform citizens of sweeping days and times so that voluntary curb clearing can occur.
- iii. **Recording/Reporting** – Permittees shall summarize proper sweeping operation verification results in their Annual Report and report equipment type purchased within the reporting year. Report on efficient street sweeping methods, including the manner of specifying and confirming rate or speed at which street miles are covered by sweeper operators. Describe method and effectiveness of sweeper operator training for enhanced water quality performance. Report on public outreach efforts on the need for clearing the parked cars from the curbs on sweeping days.

C.2.c. 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.

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.
- (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*.

C.2.d. 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, and sidewalk and plaza cleaning, which prohibit the discharge of wash water to storm drains. Permittees shall implement the BMPs included in BASMAA's Mobile Surface Cleaner Program.
- ii. Reporting** – Permittees shall report implementation and compliance with these BMPs in their Annual Reports.

C.2.e. Bridge and Structure Maintenance and Graffiti Removal**i. Task Description**

- (1) Permittees shall implement appropriate BMPs to prevent pollutant discharge from bridges and structural maintenance activities directly over water or into storm drains.
- (2) Permittees shall implement BMPs for graffiti removal that would prevent non-stormwater discharge, such as wash waters.

ii. Implementation Levels

- (1) Permittees shall prevent concrete, steel, wood paint and paint chips, coating chips, or other 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 needing graffiti abatement. 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.

- iii. Reporting** – Permittees shall report compliance with these BMPs in their Annual Reports.

C.2.f. Catch Basin or Storm Drain Inlet Inspection and Cleaning

- i. Task Description** – Permittees shall annually inspect, before the wet season, all catch basins or storm drain inlets, and clean them to remove sediment, trash, litter, and other pollutants from the catch basins and storm drain inlets.
- ii. Implementation Levels** – Permittees shall comply with the following implementation levels to control pollutant sources from storm drain inlets and catch basins:
 - (1) Maintain for inspection maps of all storm drain inlets, outfalls and drainage areas contributing to those outfalls within the Permittee's jurisdiction.
 - (2) Maintain storm drain inlets and stormwater collection systems in accordance with the following:
 - (a) Inspect and clean storm drain inlets/catch basins, at least once per year before the rainy season.
 - (b) Increase inspection and maintenance frequency in problem areas, such as those that accumulate excessive sediment, trash and debris, to twice a year, or as required for compliance with Provision C.10.
 - (c) During inspections, check and implement corrective followup actions for the following:
 - (i) Accumulation of trash, sediments and pollutants (e.g., oily sheen);
 - (ii) Presence of illicit discharges; and
 - (iii) Storm drain pollution prevention message legibility (See Provision C.7.a.).
 - (3) In the course of inspection, identify storm drain inlets with high accumulations of litter/trash in Permittees' jurisdictions to prioritize areas where retrofit BMPs or other trash and litter abatement actions would be most effective in preventing trash and litter from entering storm drain systems. The results of this task shall be used in the prioritization and trash control requirements of Provision C.10.

iii. Record Keeping/Reporting

Permittees shall keep and maintain available for inspection records of inspections, cleaning, and maintenance for all drain inlets/catch basins and shall report them in their Annual Reports.

C.2.g. Stormwater Pump Stations

- 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 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 pollutant discharges to stormwater runoff from Permittee-owned or operated pump stations:
- (1) Establish an inventory of pump stations within their jurisdictions, including their locations and key characteristics, and inspection frequencies.
 - (2) Inspect these pump stations regularly, but at least four times a year, to address water quality problems, including trash control and sediment and debris removal.
 - (3) Inspect trash racks and oil absorbent booms at pump stations during or within 24 hours of significant storm events. Remove debris in trash racks and replace oil absorbent booms, as needed.
 - (4) Monitor dry weather and first flush flows at the pump stations that are designated in Provision C.8.e.iii.
- iii. Reporting**
- (1) Report information resulting from C.2.g.ii.(1)-(3), including records of inspection and maintenance activities, and volume or mass of waste materials removed from pump stations in the Annual Reports.
 - (2) Report the monitoring data for sampling dry weather and first flush pump station discharges and associated recommended BMPs in inspection, operation and maintenance procedures consistent with Provision C.8.e.iii requirements in Annual Reports.

C.2.h. Rural Public Works Construction and Maintenance (This provision applies only to Permittees with rural public works facilities)

- 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 always 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 occurs.
- ii. Implementation Level**
- (1) Permittees shall, where they do not already exist, develop, by July 1, 2009, BMPs for erosion and sedimentation control measures during and post construction and maintenance activities on rural roads, appropriate training and technical assistance requirements, for rural public works activities.
 - (2) Permittees shall develop and annually evaluate appropriate management practices for the following activities, which minimize impacts on streams and wetlands:

- (a) Road construction, maintenance, and repairs in rural areas to prevent and control road-related erosion and sediment transport;
 - (b) Identification and prioritization of rural roads that need increased maintenance on the basis of soil erosion potential, slope steepness, and stream habitat resources;
 - (c) Road or 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) Maintenance and repair of roads and drainage culverts in rural areas to prevent and control related erosion;
 - (e) Management of stormwater runoff to reduce erosion; and
 - (f) Development and implement an inspection program prior to each rainy season to maintain roads structural integrity and prevent impacts on water quality.
- (3) Permittees shall implement the following appropriate BMPs during and post construction and maintenance of stream crossings and drainage culverts to comply with water quality standards:
- (a) Increase maintenance for rural roads adjacent to streams and riparian habitat to reduce erosion, replace damaging shotgun culverts, re-grade roads to slope outward, and install water bars; and
 - (b) Rehabilitate existing and design new culverts and bridge crossings with measures to reduce erosion, provide fish passage and maintain natural stream geomorphology in a stable manner.
- (4) Permittees shall develop education and guidance on permitting requirements for rural public works activities so as to stress the importance of proper planning and construction.
- (5) Permittees shall provide training to rural public works maintenance staff at least twice within the Permit term.

iii. Reporting

- (1) If not previously submitted, submit BMPs for erosion and sedimentation control measures during and post construction and maintenance activities on rural roads for rural public works activities in the October, 2009 Annual Report.
- (2) Annually report on implementation of Performance Standards for the rural public works maintenance and support activities of this provision, including reporting on increased maintenance in priority areas.

C.2.i. Corporation Yard BMP Implementation

i. Task Description – Corporation Yard Maintenance

- (1) Permittees shall prepare, implement, and maintain specific Stormwater Pollution Prevention Plans (SWPPP) for corporation yards, including

municipal vehicle maintenance, parking areas, and material storage facilities to comply with water quality standards.

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

ii. Implementation Level

- (1) Implement BMPs to minimize pollutant discharges in stormwater and prohibit non-stormwater discharges, such as wash waters and street sweeper, vactor, and other related equipment cleaning washwater. 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 non-stormwater discharges are entering the storm drain system and that during storms, pollutant discharges are prevented to the maximum extent practicable. At a minimum, an inspection shall occur before the start of the rainy season.
- (3) Plumb all vehicle and equipment wash areas to the sanitary sewer after coordination with local sewer agencies and equip with a pretreatment device (if necessary) in accordance with the requirements of the local sewer agency.
- (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 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 annually report the results of inspections at all corporation yards.

C.3. New Development and Redevelopment

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-development runoff not exceed predevelopment levels for such pollutants that are listed;
- (3) Evaluate potential water quality effects and identify appropriate mitigation measures when conducting environmental reviews, such as 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 not regulated by Provision C.3., encourage the inclusion of adequate site design measures that include minimizing land disturbance and impervious surfaces (especially parking lots); clustering of structures and pavement; disconnecting roof downspouts; use of micro-detention, including distributed landscape 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 not regulated by Provision C.3., encourage the inclusion of adequate source control measures to limit pollutant generation, discharge, and runoff, to the maximum extent practicable. These source control measures should include floor mat/equipment/hood filter wash racks or covered outdoor wash racks plumbed to the sanitary sewer for restaurants; covered trash and food compactor enclosures with a sanitary sewer connection for dumpster drips; sanitary sewer drains for swimming pools; sanitary sewer-drained outdoor covered wash areas for vehicles, equipment, and accessories; sanitary sewer drain connections to take fire sprinkler test water; storm drain system stenciling; landscaping that minimizes irrigation and runoff, promotes surface infiltration where possible, and minimizes the use of pesticides and fertilizers; and appropriate covers, drains, and storage precautions for outdoor material storage areas, loading docks, repair/maintenance bays, and fueling areas.

- (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 and to require implementation of the measures required by Provision C.3 for all Regulated Projects defined in Provision C.3.b.

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 – July 1, 2008

iii. Reporting – Provide a brief summary of the method(s) of implementation of Provisions C.3.a.i.(1)–(8) in the October, 2009 Annual Report.

C.3.b Regulated Projects

i. Task Description – Permittees shall require all projects fitting the category descriptions listed 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 include stormwater treatment systems sized in accordance with Provision C.3.d and be installed on-site or at a regional stormwater treatment facility, unless the Provision C.3.e alternate compliance is evoked. Regulated Projects, as they are defined in this Provision, do not include Single-Family Homes that are not part of a larger plan of development (see Provision C.3.i). 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 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) Parking lots that are stand-alone or part of any other development project.
- (b) For redevelopment projects, specific exclusions to this category are:
- Interior remodels;
 - Routine maintenance or repair such as:
 - o roof or exterior wall surface replacement,
 - o pavement resurfacing within the existing footprint.

- (c) Where 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).
- (d) Where 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 Dates – July 1, 2008

Beginning July 1, 2010, 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 discretionary approvals before July 1, 2010, the lower 5000 square feet impervious surface threshold (for classification as a Regulated Project) shall not apply. Final discretionary approvals are decisions by a public agency or governmental body that require the exercise of judgment or deliberation to approve or disapprove a particular development project, as distinguished from just making a determination whether there is conformity with applicable statutes, ordinances or regulations. For public projects for which funding has been committed and construction is scheduled to begin by July 1, 2010, the lower 5000 square feet of impervious surface threshold (for classification as a Regulated Project) shall not apply.

(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 – July 1, 2008.

(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 previously developed site. 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:
 - o roof or exterior wall surface replacement,
 - o pavement resurfacing within the existing footprint.
- (a) Where 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 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 – July 1, 2008.

(4) **New Road Projects**

Any of the following that create 10,000 square feet or more of **newly constructed** contiguous impervious surface: streets, roads, or highways; contiguous paved surfaces installed as part of a street, road or highway project; (including contiguous sidewalks and bicycle lanes; or impervious trails that are greater than 10 feet wide or are creek-side (within 50 feet of the top of bank). This category includes new road projects that fall under the building and planning authority of the Permittees and excludes Caltrans new road projects.

Effective Date – July 1, 2008.

(5) **Road Expansion or Rehabilitation Projects**

Arterial streets or roads that are:

- (a) Rehabilitated down to the gravel base (i.e., roads or pavement that are demolished and rebuilt from the gravel base up);
 - (b) Widened with additional lanes, sidewalks, or medians; or
 - (c) Replaced,
- and** that create and/or replace 10,000 square feet or more of contiguous impervious surface.

This category includes road expansion or rehabilitation projects that fall under the building and planning authority of the Permittees and excludes Caltrans projects. This category also excludes replacement of local and collector non-arterial roads and paved trails, routine surface repaving, and pothole repair of all other streets, roads, and highways.

Effective Date – July 1, 2010. For Public Road projects in this category for which funding has been committed and construction is scheduled to begin by July 1, 2010, the lower 5000 square feet of impervious surface threshold (for classification as a Regulated Project) shall not apply. For private road projects in this category that have received final discretionary approvals before July 1, 2010, the lower 5000 square feet impervious surface threshold (for classification as a Regulated Project) shall not apply. Final discretionary approvals are decisions by a public agency or governmental body that require the exercise of judgment or deliberation to approve or disapprove a particular development project, as distinguished from just making the determination whether there is conformity with applicable statutes, ordinances or regulations.

- ii. Implementation Level** – All elements of Provision C.3.b.i shall be fully implemented by the effective dates set forth in this Permit, and a database shall be developed and maintained that contains all the information listed under Reporting (Provision C.3.b.iii.).

Due Dates for Full Implementation – See specific Effective Dates listed under Provisions C.3.b.i.(1)–(5).

- iii. Reporting** – For each Regulated Project approved during the reporting period (fiscal year) the following information shall be reported electronically in tabular form (as set forth in Annual Reporting Template):

- (1) Project Name, Number, Street Address, and Location (cross street);
- (2) 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;
- (3) Project watershed;
- (4) Project site area and square footage of land disturbance;
- (5) New and/or replaced impervious surface area and if redevelopment project, include pre-project impervious surface area;
- (6) Status of Project (e.g., application date, application deemed complete date, project approval date);
- (7) Source control measures;
- (8) Site design measures;
- (9) Post-construction stormwater treatment system(s) on-site or at a regional stormwater treatment facility; if alternate compliance refer to field (11);
- (10) Hydraulic Sizing Criteria used and reviewing entity (e.g., Permittee staff or third party reviewer);

- (11) Alternative compliance measures for Regulated Project (if applicable)
 - (a) If alternative compliance will be provided by Equivalent Offsite Treatment (see Provision C.3.e.i.(2)), include information required in Provision C.3.b.iii.(1), (3), (6), (9), (10), (12), and (13) for the off-site project; and
 - (b) If alternative compliance will be provided at a Regional Project (see Provision C.3.e.i.(2)), provide information required in Provision C.3.b.iii.(1), (3), (6), (9), (10), (12), (13) 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.
- (12) Hydromodification (HM) Controls (see Provision C.3.g)—If not required, state why not. If required, state control method used; and
- (13) Operation & maintenance responsibility mechanism.

C.3.c Low Impact Development (LID)

Task Description

- i. Require all Regulated Projects to integrate LID principles into project design through the following:
 - (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 indoor mat/equipment/hood filter wash racks or covered outdoor wash racks plumbed to the sanitary sewer for restaurants; covered trash and food compactor enclosures with a sanitary sewer connection for dumpster drips; covered outdoor wash areas and sanitary sewer connection for vehicles, wash area equipment, and accessories; and sanitary sewer connections for swimming pools and fire sprinkler test water, where allowed by the local sanitary sewer agency;
 - (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 Requirements**

Require all Regulated Projects to implement the following LID site design measures:

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

- (b) Minimize the impervious footprint of the Regulated Project;
- (c) Minimize disturbances to natural drainages;
- (d) For Regulated Projects with landscaped or other pervious areas:
 - (i) Drain a portion of impervious areas (e.g., rooftops, parking lots, sidewalks, walkways, patios) into pervious areas before discharging to the storm drain;
 - (ii) Properly design and construct pervious areas to effectively receive and infiltrate or treat runoff from impervious areas, taking into consideration the pervious areas' soil conditions, slope and other pertinent factors; and
- (e) For Regulated Projects with low traffic areas and appropriate soil conditions, construct a portion of walkways, trails, overflow parking lots, alleys, or other low-traffic areas with permeable surfaces, such as pervious concrete, porous asphalt, unit pavers, and granular materials.

(3) Stormwater Treatment Requirements

Require all Regulated Projects to select stormwater treatment systems in the following order of preference:

- (a) Stormwater treatment systems that reduce runoff, store stormwater for beneficial reuse, and enhance infiltration to the extent that is practical and safe;
- (b) Multi-benefit natural feature stormwater treatment systems, such as landscape-based bioretention systems, vegetated swales, tree wells, planter boxes, and green roofs; and
- (c) Prefabricated and/or proprietary stormwater treatment systems.

All stormwater treatment systems installed for Regulated Projects shall be constructed to meet the requirements of Provision C.3.d.

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

Due Date for Implementation – July 1, 2009.

- iii. Reporting** – Provide a brief summary of the method(s) of implementation of Provisions C.3.c.i.(1)-(3) above in the October, 2010 Annual Report. For specific tasks listed above that are reported using the reporting tables required for Provision C.3.b.iii., 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 – July 1, 2008

iii. **Reporting** – To be done using reporting tables required in Provision C.3.b.iii.

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.
- (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 fine grain soil in the infiltration flow path of 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, treatment system approvals should be subject to a higher level of analysis that considers the potential for pollutants (such as from on-site 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; and
- (e) Infiltration devices are located a minimum of 100 feet horizontally away from any known water supply wells.

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

i. Task Description – Each Permittee may allow Regulated Projects that are:

- (1) New infill development projects with a total project area < 1 acre (hereinafter called Regulated New Infill Projects); or
- (2) Redevelopment projects (hereinafter called Regulated Redevelopment Projects),

to provide alternative compliance with Provisions C.3.b.i.(1)-(3) and C.3.d., which require that stormwater runoff from a Regulated Project be treated on-site or at a regional stormwater treatment facility, with stormwater treatment system(s) hydraulically sized in accordance with Provision C.3.d. New infill development projects are projects that will be built on previously undeveloped vacant land within existing urban areas that are already largely developed. The different types of Regulated New Infill or Redevelopment Projects and the corresponding alternative compliance methods are described below (also see flowchart in Attachment F):

- (3) Exemption from Installing Hydraulically Sized Stormwater Treatment Systems: The following Regulated New Infill or Redevelopment Projects may provide alternative compliance with Provision C.3.d. by Maximizing Site Design Treatment Controls¹ to provide as much on-site stormwater treatment as possible:

¹ Maximizing Site Design Treatment Controls is defined as including a minimum of one of the following specific site design and/or treatment measures:

- Diverting roof runoff to vegetated areas before discharge to storm drain;
- Directing surface runoff to vegetated areas before discharge to storm drain;

- (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;
 - (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 Development² projects.
- (4) All other Regulated New Infill or Redevelopment Projects may provide alternative compliance by satisfying one or more of the following requirements after minimizing the new and/or replaced impervious surface on-site:
- (a) Installing, operating and maintaining Equivalent Offsite Treatment³ at an off-site project in the same watershed;
 - (b) Contributing Equivalent Funds⁴ to a Regional Project⁵

-
- Installing landscaped-based stormwater treatment measures (non-hydraulically-sized) such as tree wells or bioretention gardens; or
 - Installing prefabricated/proprietary stormwater treatment controls (non-hydraulically-sized).

² **Transit-Oriented Development**—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; 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;
 - (c) For retail, no more than 2.0 parking spaces for 1000 square feet.
 Sharing of parking between uses within these maximums is allowed. Carshare and bicycle parking spaces are not subject to these maximums.

³ **Equivalent Offsite Treatment**—Hydraulically-sized treatment (in accordance with Provision C.3.d.) 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.

⁴ **Equivalent Funds**—Monetary amount necessary to provide both:

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

For the alternatives described above, off-site projects must be completed by the end of construction of the Regulated New Infill or Redevelopment Project. Regional Projects must be completed within 3 years after the end of construction of the Regulated New Infill or Redevelopment Project.

ii. Effective Date – July 1, 2009

iii. Implementation Level

- (1) For Permittees with Alternative Compliance Policies previously approved by the Executive Officer, these Programs/Policies must either be rescinded or modified to be consistent with Provision C.3.e. of this Permit by July 1, 2009.
- (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 off-site projects and Regional Projects installed in accordance with Provision C.3.e.i.(4)(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 must 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 will be done in conjunction with reporting requirements under Provision C.3.b.

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.
- 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.

4. An equivalent quantity of runoff from similar land uses as that created by the Regulated Project; and,

5. Operation and maintenance costs of the Regional Project.

⁵ **Regional Project**—A regional or municipal stormwater treatment facility that discharges into the same watershed that the Regulated Project does.

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 A–E. 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 percent of the 2-year peak flow⁶ up to the pre-project 10-year peak flow. For Fairfield-Suisun 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.
- (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

⁶ Where referred to in this Order, the 2-year peak flow is determined using a flood frequency analysis on the basis of USGS Bulletin 17 B to obtain the flow peak statistically expected to occur at 2-year intervals. In this analysis, the entire record of hourly rainfall data (e.g., 35-50 years of data) is run through a continuous simulation computational model, the annual peak flows are identified, rank ordered, and the 2-year flow is generated. Such models include USEPA's Hydrograph 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).

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. For sizing a particular site's HM control, the nearest rainfall data shall be used.
- (4) **Calculating Post-Project Runoff:** Retention and detention units shall be considered impervious surfaces for purposes of calculating post-project runoff. 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:** Except for the Vallejo Permittees, Permittees have HM control requirements adopted by the Water Board as Permit amendments prior to the adoption of this Order. These Permittees shall continue to implement these pre-existing requirements. Where existing requirements differ from this Order's Provision C.3.g., this Provision C.3.g. prevails. The pre-existing HM control requirements, with some changes to reflect current data or to provide consistency across the Region, are contained in the following Attachments for each respective Permittee:
 - Attachment A for Alameda Permittees
 - Attachment B for Contra Costa Permittees
 - Attachment C for Fairfield-Suisun Permittees
 - Attachment D for San Mateo Permittees
 - Attachment E 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) *On-site 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.
- (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 on-site 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. [Dale: Jill wrote this – do you agree?] Designing in-stream controls requires a hydrologic and geomorphic evaluation (including 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.⁷

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 information in Provision C.3.b.iii. (as set forth in Reporting Template in Attachment L):

- (1) Device(s) or method(s) used to meet the HM Standard, such as detention basin(s), bioretention 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 A–E.

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

- (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:

⁷ 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.

- 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.⁸

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 provide a summary of projects incorporating measures to address Provision C.3.g and the measures used.
- By November 30, 2008: Submit a detailed workplan and schedule for completion of the information required in Provision C.3.g.vi.(2);
 - By July 1, 2009 : Submit the map required in Provision C.3.g.v.(2)(a);

⁸ Within the context of Provision C.3.g., “highly developed watersheds” refers to catchments or subcatchments that are 65% impervious or more.

- By November 30, 2009: Submit a draft HMP;
- By November 30, 2010: Provide responses to Water Board comments on draft HMP so that the final HMP is submitted for Water Board approval by July 1, 2011; and
- 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:
 - (a) The project proponent's signed statement accepting responsibility for the operation and maintenance of the installed stormwater treatment system(s) until such responsibility is legally transferred to another entity;
 - (b) Written conditions in the sales or lease agreements for the project that requires the buyer or lessee to assume responsibility for the O&M of the installed stormwater treatment system(s) until such responsibility is legally transferred to another entity;
 - (c) Written text in project 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 stormwater treatment system(s) 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 treatment system(s) 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 (see Provision C.3.g).
 - (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 stormwater treatment facilities and regional HM controls that are Permittee-owned and/or operated.
- (5) A database of all Regulated Projects (public and private) that have installed stormwater treatment systems. This database 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;
 - (g) Compliance status of treatment system(s) and HM control(s) (if any); and
 - (h) Any problems, 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 or proprietary systems.
 - (d) Inspection by the Permittee of all installed stormwater treatment systems subject to Provision C.3., at least once every 5 years.

Due Date for Full Implementation – July 1, 2009

iii. 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 Reporting Template in Attachment L):
 - Name of facility/site inspected;

- Location (street address) of facility/site inspected;
 - Name of responsible operator for installed stormwater treatment systems and HM controls; and
 - For each inspection:
 - o Date of inspection;
 - o Type of inspection (e.g., initial, annual, follow-up, spot);
 - o Type(s) of stormwater treatment systems inspected;
 - o Type of HM controls inspected;
 - o Compliance status (e.g., proper installation, operation, and maintenance); and
 - o 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 annually:
- (a) Overall compliance rate/percentage for facilities inspected during the reporting period;
 - (b) Compliance rate/percentage for specific types of stormwater treatment systems inspected;
 - (c) Comparison of the compliance rates/percentages during the reporting period with compliance rates/percentages from past reporting periods to see if there is improvement; and
 - (d) A summary discussion of effectiveness of O&M Program and any proposed changes to improve O&M Program (e.g., changes in prioritization plan or frequency of O&M inspections, changes to improve effectiveness of program).

C.3.i Detached Single-Family Home Projects

- i. Task Description** – Permittees shall require all detached single-family home projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project) to implement one or more stormwater lot-scale BMPs from the list below. A detached single-family home project is defined as 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. This category includes all single-family home projects that require approvals and/or permits issued under the Permittees' planning, building, or other comparable authority.
- Diverting roof runoff to vegetated areas before discharge to storm drain;
 - Directing paved surface runoff flow to vegetated areas before discharge to storm drain; and/or

- Installing driveways, patios and walkways with pervious material such as pervious concrete or pavers.
- ii. **Implementation Level** – All elements of this task shall be fully implemented.
Due Date for Full Implementation – July 1, 2011.
- 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 BMPs (e.g., for roof runoff and paved areas) as a resource for single-family homes and small Regulated Projects.
- v. **Implementation Level** – This task may be fulfilled by Permittees cooperating on a countywide or regional basis.
Due Date for Implementation – July 1, 2011.
- vi. **Reporting** – A report containing the standard specifications for lot-scale treatment BMPs shall be submitted by July 1, 2011.

C.3.j Collection of Impervious Surface Data for Small Projects

- i. **Task Description** – Permittees shall jointly propose a regional pilot study and identify representative permittees who will collect impervious surface data representative of region-wide data for all new and redevelopment projects that can be described by the categories listed below and that create 1,000 to 10,000 square feet of impervious surface (collectively over the entire project).
 - Commercial
 - Mixed Use
 - Industrial
 - Public
 - Multi-unit Residential
 - Parking Lots
 - Single-family Homes
- ii. **Implementation Level** – For each approved project, the impervious surface data collection pilot study shall collect the following information:
 - Project Name, Number, Street Address, and Location (cross street);
 - Name of responsible party;
 - Project type (e.g., commercial, industrial, mixed use, public, multi-unit residential, parking lot);
 - Project description;

- Project watershed—standard map;
- Site Acreage (or square footage of land disturbance);
- New or replaced impervious surface area;
- application date);
- Project approval date, if known;
- Source control measures installed, if applicable;
- Site design measures installed, if applicable; and
- Stormwater treatment system(s) installed, if applicable.

Due Date for Full Implementation – Submit the pilot study for Water Board review by November 30, 2008. Start data collection for the pilot study by July 1, 2009

- iii. Reporting** –Representative Permittees identified in the pilot study shall submit in electronic format the information listed above for all projects approved during the reporting period (fiscal year) in the annual reports.

C.4. Industrial and Commercial Site Controls

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 update ordinances, as necessary, to ensure that they have the following regulatory authority:

- (1) Response to violations: Permittees shall have the ability to promptly require that dischargers⁹ cease and desist discharging and/or cleanup and abate a discharge, including the ability to:
 - (a) effectively require the discharger to cleanup and abate their discharges, or, if that is not possible,
 - (b) the Permittee will perform the cleanup and abatement work and bill the responsible party, if necessary.

Permittees shall notify the discharger of the violation and require problem correction within a time frame commensurate with the threat to water quality. Permittees shall require abatement and/or cleanup within 48 hours for an ongoing discharge or spill and within 45 days for a threatened discharge. Permittees shall begin enforcement actions if violations are not corrected within the required time frame. In specific situations where the Permittee agrees with the discharger that cleanup and abatement is not achievable within the above time frames, the Permittees shall notify the Water Board of the extended time frame with rationale.

- (2) Monetary penalties: Permittees shall have the ability to:
 - (a) levy citations or administrative fines against responsible parties either immediately at the site, or within a few days, and
 - (b) require recovery and remediation costs from responsible parties.
- (3) Permittees shall have the ability to impose more substantial civil or criminal sanctions (including referral to a city or district attorney) and escalate corrective response where repeat or escalating violations occur.

ii. **Implementation Level** – Enforce stormwater ordinances for industrial and commercial sites as necessary to maintain compliance with this Order. If necessary to achieve the legal authority element described in Provision C.4.a.i., revise local ordinances by July 1, 2009.

iii. Reporting

The Annual Report shall include the following information:

- (1) Summary of current stormwater ordinance legal authority sufficient to meet above requirements in the October, 2009 Annual Reports, and

⁹ Any responsible party or site owner or operator within the Permittees' jurisdiction whose site discharges stormwater runoff, or a non-stormwater discharge.

- (2) Planned additional changes to stormwater ordinances, including timeline for adoption.

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

- i. Task Description** – Each Permittee shall inspect all commercial and industrial facilities that could reasonably be considered to cause or contribute to pollution of stormwater runoff. Permittees shall maintain a list of commercial and industrial facilities to inspect as part of an Inspection Plan, and submit this Inspection Plan with the October 15, 2009 Annual Report.

The Inspection Plan shall contain the following information per Provision C.4.b.ii below:

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

ii. Implementation Level

(1) Commercial and Industrial Source Identification

Each Permittee shall annually update and maintain a list of industrial and commercial facilities to inspect that could reasonably be considered to cause or contribute to pollution of stormwater runoff, as required in Provision C.4.b.i.

Types of businesses to be inspected include the following:

(a) Industrial Sites/Sources

- (i) Industrial facilities, as defined at 40 CFR 122.26(b)(14), including those subject to the State Board's General Industrial Stormwater NPDES Permit;
- (ii) Operating and closed landfills;
- (iii) Facilities subject to SARA Title III; and
- (iv) Hazardous-waste treatment, disposal, storage and recovery facilities.

(b) Other Industrial and Commercial Sites/Sources

- (i) Automobile mechanical repair, maintenance, fueling, or cleaning;
- (ii) Airplane mechanical repair, maintenance, fueling, or cleaning;
- (iii) Boat mechanical repair, maintenance, fueling, or cleaning;

- (iv) Automobile and other vehicle body repair or painting;
 - (v) Fixed automobile and other vehicle washing;
 - (vi) Automobile (or other vehicle) storage facilities;
 - (vii) Retail or wholesale fueling;
 - (viii) Kennels;
 - (ix) Animal facilities, including horse boarding facilities;
 - (x) Building trades central facilities or yards;
 - (xi) Botanical or zoological gardens and exhibits;
 - (xii) Nurseries and greenhouses;
 - (xiii) Golf courses, parks and other recreational areas;
 - (xiv) Cemeteries;
 - (xv) Food service facilities;
 - (xvi) Building material retailers and storage; and
 - (xvii) Plastic manufacturers.
- (c) Mobile Sources—include both fixed base (if the business has a fixed base within a Permittee’s jurisdiction), and field activities of such businesses—this requirement shall not require a Permittee to conduct inspections during non-business hours)
- (i) Mobile automobile and other vehicle body repair or painting;
 - (ii) Mobile automobile and other vehicle washing;
 - (iii) Power washing services;
 - (iv) Mobile carpet, drape, or furniture cleaning;
 - (v) Pest control services;
 - (vi) Cement mixing or cutting and masonry activities;
 - (vii) Painting and coating;
 - (viii) Landscaping;
 - (ix) Pool and fountain cleaning and repair;
 - (x) Portable sanitary services; and
 - (xi) Mobile food service facilities
- (d) Other Sources
- (i) All other commercial or industrial sites/sources that the Permittee determines may contribute a significant pollutant load to the MS4.
 - (ii) All other commercial or industrial sites/sources tributary to a CWA section 303(d) impaired waterbody segment where the site source generates or may generate PCBs, copper, mercury, pesticide toxicity, trash and litter, plastic pellets and debris, and selenium.
- (2) **Prioritization of Facilities**
Facilities of the types described in Provision 4.b.ii(1) above shall be further prioritized into high, medium, and low categories on the basis of the

potential for water quality impact using criteria such as pollutant sources on site, pollutants of concern, proximity to a waterbody, violation history of the facility, and so on.

- (3) For each facility on the list in Provision 4.b.ii.(1), 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 narrative description of business activity including SIC code;
 - (c) Inspection priority and inspection frequency; and
 - (d) If coverage under the State Board's General Industrial Stormwater NPDES Permit is required in Permittee's jurisdiction.
- (4) **Types/Contents of Inspections**

Each Permittee shall conduct inspections for 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 to the MEP;
 - (b) Visual observations for evidence of unauthorized discharges, illicit connections, and potential discharge of pollutants to stormwater;
 - (c) Noncompliance with local requirements; and
 - (d) Check for coverage under the State Board's General Industrial Stormwater Permit, if applicable.
- (5) **Inspection Frequency**

Permittees shall inspect facilities according to the following inspection schedule:

 - (a) Facilities with high potential for stormwater pollution as determined by the Permittee or included in Provision 4.b.ii.(1)(a) shall be inspected annually;
 - (b) Facilities with medium potential for stormwater pollution as determined by the Permittee, shall be inspected at least once every three years;
 - (c) Facilities with low potential for stormwater pollution as determined by the Permittee, shall be inspected at least once every 5 years;
 - (d) Facilities with either a Tier One or Two (defined below) written violation occurring in the previous year shall be inspected at least annually until compliance is achieved. Tier One violations require a follow-up inspection within 60 days; and
 - (e) For facilities with no exposure of commercial or industrial activities to stormwater, Permittees need not perform additional inspections. Permittees shall continue to track these facilities for significant change in the exposure of their operations to stormwater.

iii. Reporting

The Annual Report shall include the following information:

- (1) The list of industrial and commercial facilities, required by Provision 4.b.ii.(1) above, as maintained and updated, in the format set forth in the Annual Report Template (Attachment L.); and
- (2) A list of inspections performed and compliance status with required inspection frequency, and follow-up for noncompliance problem resolution as set forth in the Annual Report Form (Attachment L.).

C.4.c. Enforcement Response Plan

i. Task Description – Permittees shall develop and employ an Enforcement Response Plan (ERP) that leads to effective site management by operators. The ERP shall consist of the following elements:

- (1) Violations shall be categorized as follows:
 - (a) Tier One (substantial violation)
Violations where there is evidence of illegal non-stormwater discharge or polluted stormwater runoff or toxicity reaching or having reached municipal storm drain or surface waters either in dry or wet weather or repeated Tier Two violations (defined below).
 - (b) Tier Two (less significant)
Violations where there is evidence of noncompliance with ordinances and/or other municipal legal authorities, or evidence of potential or threatened polluted discharge, without illegal non- stormwater discharge or polluted stormwater runoff discharge reaching municipal storm drains or surface waters either in dry or wet weather.
- (2) Verbal warnings must be documented in an inspection database and are allowed only for the first observed Tier Two offense within a yearly period.
- (3) Written warnings shall be issued for a second Tier Two violation within a yearly period.
- (4) Written enforcement actions shall be issued for observed Tier One violations or evidence of Tier One violations.
- (5) The ERP will provide guidelines on when to issue a citation and require cleanup, cost recovery, and pursue administrative or criminal penalties.
- (6) The Permittee's ERP shall incorporate all appropriate enforcement options, in a reasonable progression.

ii. Implementation Level

- (1) **Tracking repeat offenses**
Employ a 3-year rolling window for tracking repeat and escalating stormwater offenses to focus inspection and followup effort on resolving pollution incidents at facilities with repeat violations. If there is a change in ownership, the rolling window shall start again.
- (2) **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.

iii. Reporting

Permittees shall include the following information in each Annual Report as set forth in the Annual Report Template (Attachment L.):

- (1) Enforcement actions taken, including violation history. Facilities may be listed using a unique identifier and categorized by type of business. Water Board staff shall be able to, if necessary, require more detailed information on a specific site;
- (2) Summary of types of violations noted by business category, and resolution;
- (3) Summary of deviations from the ERP and cause for deviation; and
- (4) Facilities that are required to have coverage under the State Board's General Industrial Stormwater Permit, but have not filed for coverage, or NOI facilities that have been reported in violation.

Permittees shall maintain adequate records of inspections and follow-up enforcement responses for facilities inspected as described in Provision C.4.b.iii and Attachment L. Additional records shall be made available to Water Board staff as needed for a more detailed review of enforcement response through problem resolution.

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;
- (4) Implementation of typical BMPs at Industrial and Commercial Facilities;
- (5) Requirements of the State Board's General Industrial Stormwater NPDES Permit; and
- (6) Local agency requirements including stormwater related ordinances.

Permittees, either countywide or regionally, are encouraged to create or adopt a guidebook for inspectors or reference existing inspector guidance and the

California Association of Stormwater Quality Agencies (CASQA) Industrial BMP Handbook.

iii. Reporting

The Annual Report shall include the following information:

- (1) Dates of trainings;
- (2) Training topics that have been covered; and
- (3) Number of attendees at each training versus total number of inspectors.

C.5. Illicit Discharge Detection and Elimination

C.5.a. Legal Authority

- i. Task Description** – Permittees shall update ordinances and/or other relevant legal documents to the extent that is necessary to ensure adequate legal authority is available to fully implement an Enforcement Response Plan (ERP), defined in Provision C.5.b. below, that contains the following elements:
- (1) **Response Authority** – Permittees shall have the authority to effectuate cessation, abatement, and cleanup of polluted discharges, illegal dumping and significant trash/litter generating activities.
 - (a) Permittees shall be able to legally require facilities, mobile sources, and responsible parties within their jurisdictions to terminate, abate, and cleanup non-exempted, non-stormwater discharges (including illicit connections and discharges), illegal dumping and significant trash/litter-generating activities or other polluted discharges within the time frames specified in Provision C.5.b.i.(2).
 - (b) If (a) is not possible, Permittees shall be able to take necessary cleanup and abatement actions within the time frames as specified in Provision C.5.b.i.(2), and recover costs from the responsible party.
 - (2) **Citation Authority**
 - (a) Permittees shall be able to issue citations, fines/administrative penalties.
 - (b) Permittees shall be able to seek recovery of costs incurred during a cleanup and abatement response to an illicit non-stormwater discharge, illegal dumping, or trash-litter generating activity from a responsible party.
 - (3) **Authority to Address Repeat Offenses** – Permittee shall be able to impose more substantial sanctions, including referral to a city or district attorney, and maintain appropriate escalating response where repeat or escalating violations occur.
- ii. Implementation Level** – Adequate legal authority shall be in place by November 30, 2008.
- iii. Reporting** – Report status of legal authority in the October, 2009 Annual Report.

C.5.b. Create and Maintain ERP

i. Task Description

Range of Enforcement Capabilities – Permittees shall have ERPs with a range of enforcement options that meet the goals of each category (1)–(5) listed below, and that can be used easily and in a timely fashion. There may be multiple legal mechanisms, in current and regular use by Permittees, which meet these requirements.

- (1) **Quick response** – Ability to bring about the cease and desist of a known or reported discharge and/or order the cleanup and abatement of the discharge,

or, if that is not possible, the Permittee performs the cleanup and/or abatement work and bills the responsible party, if necessary.

- (2) **Timely results** – Permittees shall require problem correction within a time frame commensurate with the threat to water quality. Permittees shall require cleanup and/or abatement within 48 hours for an ongoing discharge or spill and within 45 days for a threatened discharge. In specific situations where the Permittee determines in consultation with the site owner or responsible party that cleanup and abatement is not achievable within the above time frames, the Permittee shall notify the Water Board of the extended time frame with rationale.
- (3) **Enforcement Authorities Must Differentiate Between Categories of Violations**
 - (a) **Tier One** (Substantial): Violations applicable where there is evidence of illegal non-stormwater discharge or dumping; illicit connections of significant volume, flow, or toxicity reaching or having reached municipal storm drains or other municipal conveyances leading to surface waters; or repeated Tier Two violations.
 - (b) **Tier Two** (Less Significant): Violations applicable where there is evidence of non-compliance with illegal dumping and trash/litter control ordinances, or other municipal legal authorities prohibiting illegal non-stormwater discharges without reaching the municipal storm drain or other municipal conveyances leading to surface waters.
 - (c) If the Permittee is aware of a Tier One violation that does not enter the municipal conveyance, the Permittee shall notify the Water Board within 48 hours.
- (4) **Progressive Enforcement Response Policy** – Permittees shall implement progressive responses to violations of ordinances and/or other legal authorities. Tiers shall reflect Tier 1 and Tier 2 categories described above, with implementation subject to the following, unless justification is documented:

Permittees shall implement progressive responses to illicit non-stormwater discharges, illegal dumping, trash/litter generating activities of varying seriousness, and/or repeat violations. The progressive response policy shall explain how and when to use each type of outreach, education, and/or enforcement tool available in a Permittee's ERP toolbox, in a reasonable progression. Start with reactive inspections and followup, patrol routinely, or while conducting other inspections. At a minimum, respond to referrals or directly observed discharges or potential discharges as they occur.
- (5) **Appropriate Response** – Because illicit discharges, illegal dumping activities, and trash/litter generation are, by nature, highly variable in type of substance, level of seriousness, and intent of discharger, the appropriate responses (outreach, education, or enforcement) may vary case to case. The identification of the appropriate response shall ultimately be a function of the Permittee's best professional judgment.

Factors in this determination include the following:

- Nature of substance (whether hazardous to humans and/or environment);
 - Quantity of discharge;
 - Intentional act (as opposed to negligent or uneducated);
 - Whether prior verbal warning was previously issued; and
 - Whether multiple offenses occurred within a one-year period.
- ii. **Implementation Level** – Develop and maintain an ERP by November 30, 2008 and fully train staff on the ERP by July 1, 2009.
- iii. **Reporting** – Report staff training and provide a copy of the ERP in the October, 2009 Annual Report.

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

- i. **Task Description** – Permittees shall have a central contact point, including phone numbers for complaints and spill reporting, and publicize to both internal Permittee staff and the public. If 911 is selected, also create and 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 list for internal use that shows the various responsible agencies and their contacts, who would be involved in illicit discharge incidence 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** – Have the contact information available and integrated into training and outreach both to Permittee staff and the public by November 30, 2008.
- iii. **Reporting** - Submit complaint and spill response number or list with October, 2009 Annual Report and update annually if changes occur.

C.5.d. 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 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** – Conduct a survey of strategic collection system check points (one screening point per square mile of Permittee urban and suburban jurisdiction area, less open space, as defined in C.10.a.i.), once in the dry season each year. Routine surveys that occur on an ongoing basis during regular conveyance system inspections may be credited toward this requirement. Make maps of the MS4 publicly available, either electronically or in hard copy by July 1, 2009. The public 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** – Annually report a summary of problems found during collection system screening. Include map and list of strategic checkpoints with the October, 2009 Annual Report. Report the electronic or physical means of MS4 public map availability and describe the means to publicize the map availability in the October, 2009 Annual Report.

C.5.e. 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 and dumping complaint tracking and follow-up database system by November 30, 2008.
- iii. Reporting**

In the each Annual Report, Permittees shall report a cases/investigations conducted including types of violations and enforcement actions, through problem resolution as set forth in the Annual Report Template (Attachment L.). If the case is ongoing, report the status and ongoing activities with dates.

C.5.f. Illicit Discharge Control Plan

- i. Task Description**

On the basis of an assessment of the previous year's illicit discharge activities information in the Annual Report, describe illicit discharge control plan for next year based on lessons learned, particularly detailing the following:

 - (1) Any changes to ERP; and
 - (2) Focus on illicit discharge categories and/or geographic areas for additional inspections and collection system screening. There may be repetition in annual focus.
- ii. Implementation Level**

Complete assessment and report illicit discharge control plan for the next year in Annual Report.

iii. Reporting

Report assessment and illicit discharge control plan for the fiscal year in the each Annual Report.

C.5.g. Staff Training

- i. Task Description** – Permittees shall conduct an individual program or Regionwide inspector training once per year or conduct inspector’s networking meetings three times per year.
- ii. Implementation Level** – Annual training shall consist of either of the following options:
 - Training event (by Permittee, countywide program, regionwide, or outside provider) once per year, or
 - An inspector’s networking meeting (countywide or regionwide) to meet 3 times per year.
- iii. Reporting** – Each Annual Report shall include information on the training topics covered, the dates of training, and the percentage of Permittee inspectors attending.

C.6. Construction Site Control

Each Permittee shall implement a construction site inspection and control program at all construction sites, with adequate follow-up and enforcement consistent with an Enforcement Response Plan (ERP) defined in Provision C.6.b., to prevent construction site discharges of pollutants and impacts on beneficial uses of receiving waters. Inspections shall confirm implementation by construction site operators/developers of erosion and other pollutant controls through appropriate BMPs.

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

- i. **Task Description** – Permittees shall have sufficient legal enforcement authority to require effective stormwater pollutant control on all construction sites. This legal authority shall include the ability to impose fines, the ability to issue a stop work order, and the ability to seek reimbursement from a site operator if the Permittee must perform cleanup or other discharge abatement activities.
- ii. **Implementation Level**
 - (1) Permittees shall establish the legal authority to oversee and require effective erosion control at all construction sites, regardless of size, through all phases of grading, building, and finishing of lots.
 - (2) Permittees shall be legally able to require effective erosion control, sediment control, and source control for non-sediment pollutants
 - (3) Permittees shall have legal authority to impose fines and/or stop work at construction sites causing pollution. This authority shall be available by November 30, 2008.
 - (4) Permittees shall have adequate legal authority to require construction site erosion control year round.
- iii. **Reporting** – In the October, 2009 Annual Report, each Permittee shall certify adequacy of legal authority.

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

- i. **Task Description** – Permittees shall develop and employ an ERP that ensures effective site management by operators.
- ii. **Implementation Level** – Each Permittee shall have an ERP, such that the Permittee can correct violations timely and effectively. With repeat violations, Permittees shall take progressively stricter responses as needed to achieve compliance.

The ERP shall contain the following elements:

- (1) **Verbal Warnings:** shall be primarily consultative in nature, and specify the nature of violation and required corrective action.
- (2) **Written Notices:** shall describe the nature of alleged violation and required corrective action, with timeline. Each Permittee shall have the legal ability

to employ any combination of the enforcement actions below (or their functional equivalent).

- (3) **Citations (with Fines) and other Administrative actions:** Permittees shall be able to levy citations with civil penalties, which may include monetary fines.
- (4) **Stop Work Orders or Withholding of Inspections:** Permittees shall be able to require that construction activities be halted, except for those activities directed at cleaning up and abating discharge, and installing appropriate BMPs.
- (5) **Additional Measures:** The Permittee may also use other escalated measures provided under local legal authorities. The Permittee may perform work necessary to improve erosion control measures and collect the funds from the responsible party in an appropriate manner, such as collecting against the project's bond, or directly billing the responsible party to pay for work and materials.
- (6) **Referral:** Where the construction operator/developer fails to respond to appropriate Permittee enforcement actions, the Permittee may refer the case to the district attorney, Water Board, or other appropriate regulatory agency, such as the Department of Fish and Game.
- (7) The ERP shall be implemented by November 30, 2008.

iii. Reporting – Permittees will provide a copy of the ERP in the October, 2009 Annual Report. Each Permittee will include summaries of enforcement actions and follow-up to resolution, excluding verbal warnings in each Annual Report.

C.6.c. Minimum Required Management Practices

- i. Task Description** – Permittees shall designate a minimum set of BMPs and other measures to be implemented by construction site operators/developers at construction sites. 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.
- ii. Implementation Level** - Permittees shall designate, reference, or otherwise identify a minimum set of BMPs to be implemented by construction site operators/developers for all construction sites that shall include:
 - (1) **General Site Management**
 - (a) Development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) which is maintained on site (required of sites with over one acre of disturbed soil, Permittees may require of smaller sites at their discretion);
 - (b) Minimization of areas that are cleared and graded to only the portion of the site that is necessary for active construction;
 - (c) Minimization of exposure time of disturbed soil areas;

- (d) Minimization of grading during the wet season and scheduling of grading during seasonal dry weather periods to the extent feasible;
 - (e) Temporary stabilization and reseeded of disturbed soil areas as rapidly as feasible;
 - (f) Preservation and protection of natural hydrologic features, riparian buffers, and corridors; unless impacts are explicitly permitted by all appropriate regulatory agencies;
 - (g) Maintenance of all BMPs, until removed; and
 - (h) Control through pollution prevention, and proper containment of all potential pollutant discharges on-site. Potential pollutant discharges that must be properly controlled include leaks of oil and other fluids from vehicles, cement, adhesive and paint wash and rinse waters, runoff and leakage from stored material and fuel, construction site trash, litter and debris, and other construction materials or wastes that may pollute stormwater runoff, or create a polluted non-stormwater discharge.
- (2) Erosion and Sediment Controls
- (a) Erosion prevention, to be used as the most important measure for keeping sediment on-site during construction, but never as the single method;
 - (b) Sediment controls, such as detention basins and flocculation treatment and filtration, to be used as a supplement to erosion prevention for keeping sediment on-site during construction (see Provision C.6.c.ii.3. below);
 - (c) Slope stabilization on all inactive slopes during the rainy season and during rain events in the dry season;
 - (d) Slope stabilization on all active slopes during rain events regardless of the season; and
 - (e) Permanent revegetation or landscaping as early as feasible.
- (3) Each Permittee, shall require implementation of advanced treatment for sediment removal, including flocculation with additives, settling and filtration, if necessary, at construction sites that are determined by the Permittee to be an exceptional threat to water quality. In evaluating the threat to water quality, the Permittee shall consider the following factors:
- (a) Soil erosion potential or soil type;
 - (b) The site's slopes;
 - (c) Project size and type;
 - (d) Sensitivity of receiving waterbodies;
 - (e) Proximity to receiving waterbodies;
 - (f) Non-stormwater discharges;
 - (g) Ineffectiveness of other BMPs; and
 - (h) Other relevant factors.

- (4) Each Permittee shall implement, or require that construction site operators/developers implement, the designated minimum BMPs and any additional measures necessary to comply with this Permit at each construction site within its jurisdiction. BMP implementation requirements can vary by wet and dry seasons; however, appropriate erosion and sediment control materials must be present to respond to rain events in the dry season.

iii. Reporting – In the October, 2009 Annual Report, each Permittee shall include a copy of the designated minimum management practices to be implemented by construction site operators/developers for all sites greater than one acre of disturbed area, or provide a reference/citation to the minimum designated management practices. Report any annual updates or revisions in each annual report thereafter.

C.6.d. Plan Approval Process

- i. Task Description** – Permittees shall review erosion control plans for consistency with local minimum required management practices before issuance of grading and construction permits for projects and verify that sites disturbing land over one acre obtain coverage under the State Board's General NPDES Permit for Stormwater Discharges Associated With Construction Activities, (hereinafter General Construction Permit) .
- ii. Implementation Level** – Before approval and issuance of local construction and grading permits, each Permittee shall perform the following:
 - (1) Require and review the site operator's/developer's erosion control plan to verify compliance with the Permittee's grading ordinance, other local requirements, and the minimum required management practices designated by the Permittee under Provision C.6.c.;
 - (2) Verify that site operators/developers subject to the General Construction Permit have filed an NOI for permit coverage; and
 - (3) Provide construction stormwater management educational materials to site operators/developers, as appropriate.
- iii. Reporting** – Permittees shall report in the October, 2009 Annual Report what measures have been taken to include sufficient erosion control planning in the grading and construction permit process.

C.6.e. Type/Contents of Inspections

- i. Task Description** – Permittees shall conduct screening level, wet season, and stormwater specific inspections to determine adequacy of erosion control and other pollutant prevention at construction sites, and to correct any actual or potential problems observed.
- ii. Implementation Level**
 - (1) **Screening Level Inspection:** Screening level inspections shall be completed during routine inspections for other purposes such as grading, building, and

public works inspections. These inspections are not typically comprehensive with respect to stormwater but shall recognize obvious problems such as failure to meet the minimum required management practices (as required pursuant to Provision C.6.c above). Inspectors shall follow the ERP if a violation is noted in a screening level inspection and document the violation.

- (2) **Initial Wet Season Inspection:** Inspections shall determine whether adequate preparations for wet season erosion control have been implemented by looking for presence of minimum required management practices at all construction sites prior to the onset of the wet season.
- (3) **Stormwater-Specific Inspection:** This is a focused construction stormwater inspection, primarily determining the presence and adequacy of minimum required management practices. Stormwater-specific inspections of construction sites shall include, but not be limited to, the following:
 - (a) Assessment of compliance with Permittee ordinances and permits related to urban runoff, including the implementation and maintenance of designated minimum BMPs over the entire site;
 - (b) For sites one acre or greater of disturbed area, check for coverage under the General Construction Permit;
 - (c) Assessment of BMP effectiveness, and that exposed soil is minimized;
 - (d) Visual observations for non-stormwater discharges, potential illicit connections, and potential discharge of pollutants in stormwater runoff;
 - (e) Education on stormwater pollution prevention, as needed; and
 - (f) Creation of a written or electronic inspection report.

iii. Reporting – Permittees shall track in an electronic database or equivalent system all wet season, stormwater-specific, and screening level inspections that document a violation of local requirements. The frequency and types of stormwater inspections shall be included in each Annual Report as set forth in the Annual Report Form (Attachment L.).

C.6.f. Frequency of Inspections

i. Task Description – Each Permittee shall conduct construction site inspections for compliance with its local ordinances (grading, stormwater) and the minimum required management practices designated by the Permittee under Provision C.6.c.

ii. Implementation Level

- (1) **High Priority Construction Sites** – During the wet season, each Permittee shall inspect with both screening inspections and stormwater specific inspections, at least biweekly (every two weeks), all construction sites within its jurisdiction meeting the following criteria:
 - (a) All sites 50 acres or more in size with grading to occur during the wet season;

- (b) Other sites determined by the Permittee or the Water Board 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 of receiving waterbodies;
 - (v) Proximity to receiving waterbodies;
 - (vi) Non-stormwater discharges; and
 - (vii) Any other relevant factors.
 - (2) **Normal Priority Construction Sites** – During the wet season, each Permittee shall conduct stormwater specific inspections at least monthly at all construction sites with one acre or more of soil disturbance not meeting the criteria specified above in Provision C.6.f.ii.1.
 - (a) By September 1st of each year, each Permittee shall send a pre-wet season inspection notification reminder letter or inspect all sites one acre or more of disturbed are per Provision C.6.f.ii.4 below.
 - (b) By October 15th of each year, each Permittee shall conduct pre-wet season inspections of all active construction sites with one acre or more of disturbed area.
 - (3) **Small Construction Sites** – During the wet season, each Permittee shall inspect, during screening inspections as part of building or grading inspections and as needed, construction sites with less than one acre of disturbed area.
 - (4) **Dry Season** – Each Permittee shall inspect all construction sites during screening inspections as needed during the dry season.
 - (5) Each Permittee shall track the number of inspections for construction sites of one acre or more of disturbed area and any sites determined by the Permittee or Water Board to be a significant threat to water quality.
- iii. Reporting** – The results of construction inspection tracking, enforcement, and follow-up activities shall be reported in each Annual Report as set forth in Attachment L.

C.6.g. 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. The training will cover updated information on BMPs' proper installation and maintenance, and implementation of ERP.

- iii. Reporting** – Each Annual Report shall include information on training topics covered, dates of training, and the percentage of Permittee inspectors attending.

C.6.h. Tracking and Reporting

- i. Task Description** – Each Permittee shall record stormwater inspection summaries, and track problems discovered, and violations through followup and problem resolution, including enforcement if necessary.
- ii. Implementation Level**
- (1) Use an inspection form or equivalent electronic documentation for initial-wet season inspections, stormwater-specific inspections, and numerically track all violations.
 - (2) Use electronic database or equivalent system to track stormwater-specific Inspections, all violations of local requirements (regardless of which type of inspection), threatened or actual discharges of pollutants, enforcement actions, and follow-up. Note whether compliance with local requirements has been achieved.
- iii. Reporting** – Permittees shall record in an electronic database or equivalent system the number of active sites, number of inspections completed, a summary of types of violations of local requirements, number of written enforcement actions, and followup through achievement of compliance with local requirements. This information shall be reported in summary form to the Water Board in each Annual Report as set forth in Attachment L.

C.7. Public Information and Outreach

C.7.a. Storm Drain Inlet Marking

- i. **Task Description** – At least 90 percent of municipally-maintained storm drain inlets shall be marked with an appropriate stormwater pollution prevention message, such as “No dumping, drains to Bay” or equivalent. All existing storm drain inlet markings shall be inspected and maintained at least once per 5-year permit cycle, consistent with Provision C.7.a.ii.. 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, verified at least once during the permit term. For privately maintained streets that were not marked upon construction but discharge stormwater to the Permittee’s MS4, inlet marking retrofit shall be required of the entity responsible for street maintenance by July 1, 2012.
- ii. **Implementation Level** – Inspect and maintain markings of at least 90 percent of municipally maintained inlets to ensure they are legibly labeled with a no dumping message or equivalent once per permit cycle. For the Permittees San Jose and Oakland, 80 percent of inlet markings shall be inspected and maintained.
- iii. **Reporting** – In the October, 2012 Annual Report, report the percentage of municipally maintained inlet markings inspected and maintained as legible with a no dumping message or equivalent once per permit cycle.

C.7.b. Advertising Campaign

- i. **Task Description** – Participate in or contribute to an advertising campaign with the goal of significantly increasing overall awareness of stormwater runoff pollution prevention messages and behavior changes in target audience.
- ii. **Implementation Level** – Advertising campaigns/media buys, which may be coordinated regionally, shall target the two pollutants of concern, trash/litter in waterways and pesticides, with two separate media campaigns to target a broad audience. Permittees shall conduct survey assessments to measure the overall population awareness of the message and behavior change achieved by the two pollutants of concern media campaigns. The two survey assessments shall each consist of a pre-campaign survey, and one post-campaign survey. Surveys may be done regionally.
- iii. **Reporting** – Results shall be reported in the Annual Report following completion of each survey.

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

- i. **Task Description** – 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 countywide, program, and/or regional level.
- iii. **Reporting** – In each Annual Report, 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.
- iii. **Reporting** – Describe in each Annual Report how this point of contact is publicized and maintained.

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

Table 7.1 Public Outreach Events¹⁰

Permittee Population	Number of Outreach Events
< 10,000	2
10,001–40,000	3
40,001–100,000	4
100,000–175,000	5
175,000–250,000	6
> 250,000	8
Non-population-based permittees	6 ¹¹

- iii. **Reporting** – Annual Reports shall state the number of events 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, post-event survey results, quantity/volume materials cleaned up and comparisons to previous efforts).

¹⁰ Permittees may claim individual credit for events in which their Countywide Program or BASMAA participates, supports, and/or hosts for up to half of their required events.

¹¹ For Vallejo, Fairfield-Suisun, and Alameda County Flood Control Zone 7, the number of events shall be 2. For Contra Costa Flood Control and Water Conservation District, Alameda County Flood Control and Water Conservation District, and Santa Clara Valley Water District, the number of events shall be 6.

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, beginning October, 2009, state the level of effort; describe the support given; state what efforts were undertaken and the results of these efforts. Evaluate 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-a-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 participate and/or host the number of citizen involvement events according to its population, as shown in the table below:

Table 7.2 Community Involvement Events¹²

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

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

¹² Permittees can claim credit for events sponsored by their Area wide Program or BASMAA if such activity occurs within Permittee jurisdiction.

C.7.h. School-Age Children Outreach

- i. Task Description** – Permittees shall individually or collectively implement outreach activities designed to change specific behaviors and/or increase awareness in school-age children (K through 12), with the objective of significantly increasing their overall awareness of stormwater and/or watershed message(s) and to cause behavior change(s).
- ii. Implementation Level** – Implement annually and demonstrate effectiveness of efforts through assessment.
- iii. Reporting** – In each Annual Report, starting October, 2009, state the level of effort, spectrum of children reached, methods, and an evaluation of the effectiveness of these efforts.

C.7.i. General Outreach Materials

- i. Task Description** – Prepare and use outreach materials, such as printed materials, newsletter/journal articles, videos, other. As needed, develop or acquire and use materials that contribute to an increase in overall awareness of stormwater quality issues. Provide information through a variety of means.
- ii. Implementation Level** – As needed to support goals.
- iii. Reporting** – Annually report what materials were used, which materials seem to be most effective, and which materials could be modified or discontinued in the upcoming year(s).

C.7.j. Commercial/Industrial/Illicit Discharge-Related Outreach

- i. Task Description** – Permittees shall conduct, or enhance existing, outreach to at least one of the following or similar categories each year, based on the most prevalent type of activities and discharges within their jurisdiction:
 - Contracting, concrete work, painting, remodeling/lot finishing activities
 - Washing activities, such as vehicle and pavement washing
 - Community car washes (fundraisers)
 - Dumping (roadside or directly to waterbody)
 - Mobile washers (including carpet cleaners, vent hood filter cleaners)
 - Restaurants
 - Door Hangers in areas where unidentified illicit discharges have occurredIt is acceptable but not required for activities targeting the above areas to be organized on a countywide or regional level.
- ii. Implementation Level** – Focus on one polluting illicit activity or targeted industrial/commercial activity per year for proactive outreach.
- iii. Reporting** – In each Annual Report, beginning October, 2009 state the focus area, describe actions taken, and evaluation of effectiveness.

C.7.k. 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** – In the Annual Reports, state the level of effort.

C.7.1. Research Surveys, Studies, Focus Groups

- i. **Task Description** – As part of the implementation of **Provision C.7.b** advertising campaigns for trash abatement and pesticide use reduction described above, identify and quantify the following:
 - Audiences
 - Knowledge
 - Trends
 - Attitudes and/or practices
- ii. **Implementation Level** – In conjunction with implementing the advertising campaign required by Provision C.7.b, Permittees shall individually or collectively undertake research to identify and quantify audiences, knowledge, attitudes, practices, and trends (as compared to previous research).
- iii. **Reporting** – In the Annual Reports following the fiscal years the campaigns are implemented, report results and use the results to do the following:
 - Plan/update outreach strategies;
 - Evaluate activities; and
 - Measure behavior change and changes in awareness.

C.8. Water Quality Monitoring

C.8.a. Compliance Options

- i. **Regional Collaboration** – Permittees may comply with any requirement of this Provision (including status monitoring, long-term trends monitoring; monitoring projects; and pollutants of concern monitoring) through a collaborative effort to conduct or cause to be conducted the required monitoring in their jurisdictions. Where all or significant 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. Monitoring data collected through collaborative efforts must be, at a minimum, the types, quantities, and quality of data required within this Provision.
- ii. **Implementation Schedule** – Monitoring conducted through a regional monitoring collaborative shall commence data collection in 2009. All other Permittee monitoring efforts shall commence data collection in 2008.
- 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 fulfill requirements of this Provision 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.h. 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) by a year or less 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 these questions: Are conditions in San Francisco Bay supportive of or likely to be supportive of beneficial uses? Are conditions in San Francisco Bay getting better or worse?

Permittees shall participate in implementing an Estuary monitoring program, at least 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

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?

- i. **Parameters, Methods, Frequencies** – Permittees shall conduct Status Monitoring of the parameters, methods, frequencies, and intervals described in Table 8.1. Table 8.1 also states the minimum number of locations/sites and/or stream miles at which each parameter must be sampled in a given year.
- ii. **Locations** – Permittees shall conduct sampling pursuant to Table 8.1 in a manner which is sufficient to characterize the waterbodies that form the main receiving water for each of their major watersheds, as set forth below. Samples shall be collected in reaches where the contributing catchment area is 60 percent or more urban or suburban land use. Exceptions to this catchment land use requirement may be made on a case-by-case basis subject to the Executive Officer's approval. Permittees shall determine exact sampling locations on the basis of waterbody conditions, likelihood of urban runoff impacts, access, existence of other or previously collected data, and similar considerations.

Except for Fairfield-Suisun and Vallejo, Permittees organized on a county basis shall annually select one major waterbody from the applicable county list below and monitor the selected waterbody, rotating through the county list during the Permit term. Where waterbodies are grouped under one bullet, Permittees may select one waterbody from the group to sample. Selection of waterbodies shall be on the basis of a lack of existing data or similar considerations.

Fairfield-Suisun and Vallejo Permittees shall jointly select two waterbodies from their list and jointly monitor the selected waterbodies during the Permit term¹³ (i.e., conduct Status Monitoring during any 2 years of the Permit term).

Alameda Permittees' major waterbodies:

- Arroyo Valle (below Livermore or lower) or Arroyo Mocho
- Tassajara Creek or Alamo Creek or Arroyo de la Laguna
- Alameda Creek at Fremont or below, or San Lorenzo Creek or San Leandro Creek
- Creeks in Oakland, Berkeley, or Albany

Contra Costa Permittees' major waterbodies:

¹³ If Fairfield-Suisun and Vallejo Permittees chose not to conduct Status Monitoring jointly or through a regional collaborative effort, the Fairfield-Suisun and Vallejo Permittees shall each conduct Status Monitoring on one major waterbody in their own jurisdictions twice during the Permit term.

- Kirker Creek (at Pittsburg or below)
- Mt. Diablo Creek (at Concord or below)
- Walnut Creek (below confluence of Lafayette Creek)
- Rodeo or Pinole or San Pablo or Wildcat Creeks

Fairfield-Suisun and Vallejo Permittees' major waterbodies:

- Laurel Creek or Rindler Creek or Blue Rock Springs Creek or Lake Chabot or Hiddenbrook Creek or Sulphur Springs Creek

San Mateo Permittees' major waterbodies:

- San Mateo Creek and waterbodies to the north
- San Francisquito Creek and northward to San Mateo Creek
- Waterbodies draining Daly City and San Pedro Creek urban reaches
- Pilarcitos Creek, from City of Half Moon Bay to Ocean

Santa Clara Permittees' major waterbodies:

- Coyote Creek and tributaries
- Guadalupe River and tributaries
- Saratoga or Calabazas Creeks
- Permanente or Matadero or Adobe Creeks

Table 8.1 Status Monitoring Elements

Status Monitoring Parameter	Method¹⁴	Minimum Sampling Frequency¹⁵	Duration of Sampling	Minimum # Sample Sites to Monitor/Yr¹⁶ Santa Clara & Alameda Permittees/ Contra Costa & San Mateo Permittees/Fairfield-Suisun & Vallejo Permittees	Result(s) that Trigger a Stressor Identification Monitoring Project in Provision C.8.e.i.
Biological Assessment (Includes Physical Habitat Assessment and General Water Quality Parameters ¹⁷)	SWAMP procedure ¹⁸	1/yr (Spring Sampling)	Grab sample	Spring 25 / 15 / 5	Metrics that indicate substantially degraded community as per Appendix G, Table G-1
Chlorine (Free and Total)	USEPA Std. Method 4500 Cl F ¹⁹	In conjunction with Biological Assessments	Grab sample	Spring 25 / 15 / 5 Dry 3 / 2 / 1	After immediate resampling, concentrations remain > 0.08 mg/L

¹⁴ Refers to field protocol, instrumentation and/or laboratory protocol.

¹⁵ Refers to the number of sampling events at a specific site in a given year.

¹⁶ 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.

¹⁷ Includes dissolved oxygen, temperature, conductivity, pH and stream depth.

¹⁸ Ode, P.R. 2007. Standard Operating Procedures for Collecting 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. Biological assessments shall include benthic macroinvertebrates and periphyton. For periphyton, include mass (ash-free dry weight) and chlorophyll *a*, or SWAMP comparable method. Physical Habitat (PHab) Assessment shall include the SWAMP basic method plus 1) depth and pebble count + CPOM, 2) cobble embeddedness, and 3) discharge measurements. PHab Assessment form is at http://www.waterboards.ca.gov/swamp/docs/reports/fieldforms_fullversion071007.pdf. Macroinvertebrates shall be identified according to the Standard Taxonomic Effort Level I of the Southwestern Association of Freshwater Invertebrate Taxonomists.

¹⁹ 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).

Status Monitoring Parameter	Method ¹⁴	Minimum Sampling Frequency ¹⁵	Duration of Sampling	Minimum # Sample Sites to Monitor/Yr ¹⁶ Santa Clara & Alameda Permittees/ Contra Costa & San Mateo Permittees/Fairfield-Suisun & Vallejo Permittees	Result(s) that Trigger a Stressor Identification Monitoring Project in Provision C.8.e.i.
Nutrients (total phosphorus, orthophosphate, total nitrogen, nitrate, ammonia, calculate ammonium)	Applicable SWAMP comparable method	3/yr in conjunction with biological assessments & water column toxicity	Grab sample	Storm event 3 / 2 / 1 Spring 25 / 15 / 5 Dry 3 / 2 / 1	Water repeatedly exceeds one or more water quality standard or established threshold
General Water Quality ²⁰	Multi-Parameter Probe	1/yr (During June-Sept.)	15-minute intervals for 1-2 weeks	3 / 2 / 1	Water repeatedly ²¹ exceeds one or more water quality standard or established threshold
Temperature	Digital Temperature Logger	15-minute intervals (one-hour intervals allowed if equipment limits greater frequency)	15-minute intervals (unless equipment-limited) April through Nov.	9 / 6 / 3	Water consistently or repeatedly exceeds applicable temperature threshold ²²
Toxicity & Diazinon and Chlorpyrifos–Water Column ²³	Applicable SWAMP Comparable Method	2/yr (1/Dry Season & 1 Storm Event)	Grab or composite sample	3 / 2 / 1	If toxicity test results < 50% of control results, repeat sample. If 2 nd sample also <50% of control, do TIE ²⁴

²⁰ Includes dissolved oxygen, temperature, conductivity, pH and stream depth.

²¹ For example, if dissolved oxygen repeatedly falls below threshold or declines with no obvious natural explanation.

²² If temperatures exceed applicable threshold (e.g., Maximum Weekly Average Temperature, Sullivan K., Martin, D.J., Cardwell, R.D., Toll, J.E., Duke, S. 2000. *An Analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria*, Sustainable Ecosystem Institute) or spike with no obvious natural explanation observed.

²³ Three species toxicity tests: *Selenastrum* growth and *Ceriodaphnia* and *Pimephales* with acute endpoint only.

²⁴ 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

Status Monitoring Parameter	Method ¹⁴	Minimum Sampling Frequency ¹⁵	Duration of Sampling	Minimum # Sample Sites to Monitor/Yr ¹⁶ Santa Clara & Alameda Permittees/ Contra Costa & San Mateo Permittees/Fairfield-Suisun & Vallejo Permittees	Result(s) that Trigger a Stressor Identification Monitoring Project in Provision C.8.e.i.
Toxicity– Bedded Sediment, Fine-grained	Applicable SWAMP Comparable Method	1/yr (Spring or Fall Sampling, coordinate with SWAMP)	Grab sample	6 / 4 / 1 At Biological Assessment sampling locations	See Appendix G, Table G-1
Pollutants – Bedded Sediment, ²⁵ fine-grained	Applicable SWAMP Comparable Method Inc. grain size	1/yr (Spring or Fall Sampling, coordinate with SWAMP)	Grab sample	6 / 4 / 1 At Biological Assessment sampling locations	See Appendix G, Table G-1
Pathogen Indicators ²⁶	Applicable SWAMP Comparable Method	1/yr (During Summer)	Follow USEPA protocol	5 / 5 / * *Fairfield & Vallejo Permittees: 5 sites twice in permit period	Exceedance of USEPA or Basin Plan criteria

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.

²⁵ 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) as well as other contaminants of interest, including pyrethroids. Coordinate with TMDL Provision requirements as applicable.

²⁶ Includes fecal coliform and *E. Coli*.

Status Monitoring Parameter	Method ¹⁴	Minimum Sampling Frequency ¹⁵	Duration of Sampling	Minimum # Sample Sites to Monitor/Yr ¹⁶ Santa Clara & Alameda Permittees/ Contra Costa & San Mateo Permittees/Fairfield-Suisun & Vallejo Permittees	Result(s) that Trigger a Stressor Identification Monitoring Project in Provision C.8.e.i.
Trash Assessment – Baseline & Trends as specified in Provision C.10.	SCURTA ²⁷ or SWAMP RTA Version 8	2/yr (Spring and Fall)	As stated in method used	Immediately downstream of Enhanced Trash Management Control Catchments as specified in Provision C.10.a. and additionally at the Toxicity and Pollutants in Bedded Sediment 6/4/1 sites.	See Provision C.10. for triggered actions
Stream Survey (stream walk & mapping)	USA ²⁸ or equivalent	1 waterbody/yr	N/A	9 / 6 / 3 stream miles/year	N/A

²⁷ Santa Clara Urban Rapid Trash Assessment

²⁸ Center for Watershed Protection, Manual 10: *Unified Stream Assessment: A User's Manual*, February 2005.

C.8.d. Long-Term Trends 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, 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.

- i. Locations** – Permittees shall participate in a program to sample and monitor one long-term monitoring station per county, and the Fairfield-Suisun and Vallejo Permittees shall jointly sample one long-term station. Permittees shall use the long-term monitoring locations shown in Table 8.2. Upon approval by the Executive Officer and with input from the Water Board SWAMP, Permittees may use alternative long-term monitoring locations, which must meet the following criteria:
- Creeks for which the surrounding land uses consist primarily of industrial, commercial, and urban land use;
 - Locations with established records of previous monitoring data;
 - Locations with existing structural monitoring facilities, such as protective equipment enclosures, automated sampling equipment, protective conduits for sampling tubes and/or sensor cables, and rain gauges;
 - Sites that are safely accessible by field crews; and
 - Sites that are above the elevation of tidal influence.

Table 8.2. Long-Term Trends Monitoring Locations

Stormwater Countywide Program	Long-Term Trends Monitoring Location
Alameda Permittees	Lower San Leandro Creek near Empire Road
Contra Costa Permittees	Kirker Creek at <i>Floodway</i> station
Fairfield-Suisun & Vallejo Permittees	Lower Green Valley Creek
Santa Clara Permittees	Guadalupe River at USGS gauging station ~ 100 m U.S. Hwy 101
San Mateo Permittees	San Mateo Creek at Gateway Park

- ii. Parameters, Methods, Frequencies** – Permittees shall conduct sampling pursuant to Table 8.3. Samples shall be wet weather flow-weighted composite samples, collected during storm events that produce rainfall of at least 0.10 inch and are separated by 21 days of dry weather. Long-term monitoring shall be conducted biennially, in conjunction with Pollutants of Concern Monitoring and/or SWAMP monitoring where possible. In the event that toxicity is detected and confirmed, a Toxicity Identification Evaluation will be performed according to the specifications in Table 8.3.

Table 8.3. Long-Term Trends Monitoring Elements

Long-Term Monitoring Parameter	Sampling &/or Analytical Method	Minimum Sampling Frequency	Result(s) that Trigger Monitoring Project
- All Long-Term Monitoring is conducted every second year (biennially) -			
Dissolved & Total Metals ²⁹	Applicable SWAMP Comparable Method	Average of 4 wet weather events/year	If applicable water quality objective is exceeded, repeat sample. If 2 nd sample also exceeds WQO, do stressor identification project
Organics	Method 8260		
Suspended Sediment Concentration	Applicable SWAMP Comparable Method	Average of 4 wet weather events/year	Not applicable
Toxicity – Water Column	Applicable SWAMP Comparable Method	One storm event	If <i>Ceriodaphnia</i> or <i>Pimephales</i> survival or <i>Selenastrum</i> growth is < 50% of control results, repeat sample. If 2 nd sample also < 50% of control, do TIE ³⁰
Toxicity – Bedded Sediment, fine-grained			
Pollutants – Bedded Sediment, fine-grained		Once, in Spring or Fall, coordinate with SWAMP	See Appendix G, Table G-1

C.8.e. Monitoring Projects

Permittees shall conduct the Monitoring Projects listed below:

- i. **Stressor Identification** – When Status or Trends monitoring results trigger a followup action as indicated in Table 8.1., Permittees shall take the following actions, in a step-wise progression. The first followup 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.

²⁹ 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.

³⁰ 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.

- (1) Conduct monitoring to investigate likely significant sources of the trigger. If the trigger source is already known, proceed directly to step 2, followup action, as required in Provision C.1.
 - (2) Identify, evaluate, and take followup actions with increased BMPs/control measures as required in Provision C.1.
 - (3) Stressor Identification Project Cap: Permittees who conduct this monitoring through a regional collaborative shall be required to initiate no more than ten stressor identification projects during the Permit term in total. If conducted through a stormwater countywide program, the Santa Clara and Alameda Permittees shall be required to initiate no more than five; the Contra Costa and San Mateo Permittees shall be required to initiate no more than three; and the Fairfield-Suisun and Vallejo Permittees shall be required to initiate no more than one stressor identification project(s) during the Permit term.
- ii. BMP Effectiveness Investigation** – Investigate the effectiveness of one BMP for stormwater treatment or HM control.
- iii. Dry Weather Discharges & First Flush Investigations** – Conduct the following investigations:
- (1) To identify the pump stations that are the most significant sources of dry weather pollutants, Permittees with pump stations listed in Table 8.4 shall collect grab samples from these stations listed in Table 8.4 in early summer (5 daily samples for a week) and early fall (5 daily samples for a week) of 2009. Samples shall be analyzed for pH, dissolved oxygen, coliform, and conductivity. For each of the analytes, rank the stations from *worst to best* (i.e., most to least polluting) and select the 10 worst stations for investigation by July 1, 2009.

Table 8.4. Pump Stations for Year 1 Investigation

Name	Operating Agency	Address/Location	City
BS	ACFC&WCD	Behind Pepsi Plant	Emeryville
D-1	ACFC&WCD	Farallon Dr.	San Leandro
ET	ACFC&WCD	Ettie St.	Oakland
ID	ACFC&WCD	Crocker/Santana	Hayward
Bayport	City of Alameda	Tinker Ave.	Alameda
Marina Village	City of Alameda	Marina Village Parkway	Alameda
3	City of Fremont	South Grimmer/Osgood	Fremont
	City of Hayward	Old Harder Road Underpass (East)	Hayward
	City of Livermore	Isabel/Stamley	Livermore

Name	Operating Agency	Address/Location	City
SD4	City of Pleasanton	Valley Avenue	Pleasanton
SL1	City of San Leandro	Washington Av	San Leandro
MPS	FSURMP	Marina Cir	Suisun City
MSPS	FSURMP	Sacramento St	Suisun City
Pulgas	City of Pacifica	Industrial	San Carlos
		7th Avenue	San Bruno
Storm pumps Area "A"		RWS PKWY - Near Pico	Redwood City
Shaw Road		Shaw Road	South San Francisco
South Canal		South Canal St.	South San Francisco
McCarthy Ranch		McCarthy Blvd	Milpitas
Wrigley-Ford		Marylinn Drive	Milpitas
Bellew		Murphy Ranch Road	Milpitas
Oak Creek		McCarthy Blvd	Milpitas
Golden Wheel		Oakland Rd	San Jose
Oakmead		Lisa Lane	San Jose
Rincon		N/S Montague Expressway w/o N. 1st Street	San Jose
Rincon 2		N/S Trimble Road	San Jose
River Oaks		River Oaks Place	San Jose
Amphitheatre Pump Station		Amphitheatre Parkway on Permanente Creek	Mountain View
Matadero		Colorado Ave	Palo Alto
Adobe		East Meadow	Palo Alto
Pump Station # 1 (West)		Borregas and Carl Rd	Sunnyvale
Pump Station # 2 (East)		Baylands Park	Sunnyvale
East Side Retention Basin		Lafayette (South of 237)	Santa Clara
Fairway Glen		Lick Mill Blvd.	Santa Clara
Laurelwood		Victor St.	Santa Clara
Lick Mill		Montague Expwy	Santa Clara
Nelo/Victor		Victor St.	Santa Clara
County of		Oregon Expwy	Palo Alto

Name	Operating Agency	Address/Location	City
Santa Clara Oregon/Alma			
County of Santa Clara Central/Fair Oaks		Central Expwy	Sunnyvale

- (2) During the summer to fall of 2010, to determine whether the pump stations are significant sources of dry weather pollutants and pollutants of concern, collect grab samples from the 10 worst stations (as identified in the Year 1 investigation ending July 1, 2009) in early summer (5 daily samples) and early fall (5 daily samples). Analyze each sample for BOD, TSS, TDS, coliform, oil & grease, hydrocarbons, metals (As, Cd, Cr, Cu, Pb, Ni, Ag, Zn), acute toxicity (*Ceriodaphnia*), NH₃-N, NO₃, phosphate, and flow (pump duration times capacity is acceptable). In addition, for these same ten stations, review available information on land use and rank the stations from *most likely to least likely* to receive runoff exposed to potential sources of mercury and PCB pollutants. Select the five *most likely* stations for by July 1, 2010.
- (3) Within both the third and fourth years of the permit, fiscal years 2010-2011 and 2011-2012, to determine if first flush runoff is a significant source of impairing and other pollutants, collect grab samples from each of the five *most likely* stations. The samples must be collected from two storm events per year for two years. One of the two storm events shall be the first wet-weather storm event that produces rainfall of at least 0.10 inch and is preceded by six weeks of dry weather. Analyze each sample for mercury, PCBs, BOD, TSS, TDS, coliform, oil & grease, gasoline and diesel hydrocarbons, metals (As, Cd, Cr, Cu, Pb, Ni, Ag, Zn), acute toxicity (*Ceriodaphnia* only), NH₃-N, NO₃, phosphate, and flow (pump duration multiplied by pump capacity is an acceptable flow measurement).

iv. 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 flows and 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:

- (1) Gather geomorphic data to support the efforts of a local watershed partnership³¹ to improve creek conditions; or
- (2) Inventory locations for potential retrofit projects in which decentralized, landscape-based stormwater retention units can be installed; or

³¹ A list of local watershed partnerships may be obtained from Water Board staff.

- (3) Conduct a geomorphic study which will help in development of regional curves which help estimate equilibrium channel conditions for different-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; and
 - Best available information on average annual rainfall in the study area.

Permittees shall complete the selected geomorphic project by June 30, 2012 so that project results are reported in the Integrated Monitoring Report (see Provision C.8.h.iii.).

- v. **Monitoring Project Reports** – Permittees shall report on the status of their Monitoring Projects in each annual Urban Creeks Monitoring Report required per Provision C.8.h.ii. Within 6 months of completing data collection for a Monitoring Project, Permittees shall submit a report for that project that includes, at a minimum, the following: a description of the project; map(s) of all monitoring locations; data tables; graphical summaries of the data; discussion of data quality; identification of potential sources of water quality problems; and identification of management measures to address water quality problems. Reporting shall be in SWAMP-comparable electronic formats, where applicable.

C.8.f. 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 achieving WLAs for TMDLs and help resolve uncertainties associated with loading estimates for these pollutants. Permittees shall implement the following monitoring components:

- i. **Locations** – Permittees shall conduct pollutant of concern load monitoring at stations listed below. Upon approval by the Executive Officer, and after conferring with the Regional SWAMP program, Permittees may use alternate pollutant of concern monitoring locations. Load monitoring stations established under the RMP and/or SWAMP may be substituted for the stations listed below on a one-to-one basis.
- Castro Valley Creek S3 at USGS gauging station in Castro Valley
 - Guadalupe River
 - Zone 4 Line A at Chabot Road in Hayward
 - Rheem Creek at Giant Road in Richmond
 - Walnut Creek at a downstream location

- Calabazas Creek at Lakeside Drive in Sunnyvale, at border with Santa Clara
- San Mateo Creek at downstream location
- Laurel Creek at Laurie Meadows park, off Casanova Drive in City of San Mateo

ii. Parameters and Frequencies – Parameters that shall be monitored at each station and associated minimum sampling frequencies and intervals are presented in Table 8.5. Table 8.5 shows monitoring frequency for two categories of pollutants. Category 1 pollutants are those for which the Water Board has active water quality attainment strategies (WQAS) such as a 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, loads sampling and analysis protocols shall be consistent with 40 CFR 122.21(g)(7)(ii) and with USEPA's *Storm Water Sampling Guidance Document* (EPA 833-B-92-001). If practicable, the protocols for loading sampling and analysis should be SWAMP comparable. If the loading sampling and analysis are determined to be impracticable with the SWAMP monitoring protocols, the Permittees shall provide explanation in the subsequent Urban Creeks Monitoring Report.

iv. Methods – For a rainfall event of a magnitude of 0.20 inch or greater, collect flow-weighted composite samples for the duration of the runoff event, where practical. Where such monitoring is not practical, such as for large watersheds with significant groundwater recharge flows, composites shall be collected at a minimum during the first 3 hours of rainfall event related flow.

Table 8.5 Loads Monitoring Parameters, Intervals and Frequencies

Category/Parameter	Sampling Years	Minimum Sampling Frequency	Sampling Interval
<u>Category 1</u> • Total and Dissolved Copper • Total Mercury³² • Methyl Mercury • Total PCBs³³ • 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

³² 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.

³³ 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.

Category/Parameter	Sampling Years	Minimum Sampling Frequency	Sampling Interval
<u>Category 2</u> • Total and Dissolved Selenium • Total PBDEs • Total PAHs • Chlordane • DDTs • Dieldrin • Nitrate as N • Total and Dissolved Phosphorus	Year 2 (7/1/09-7/1/10) and Year 4 (7/1/11 - 7/1/12)	2 times per year	Flow-weighted composite

- 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. Reporting** – Permittees shall annually report on the status of the Pollutants of Concern monitoring and available results from the previously completed monitoring season in their Urban Creeks Monitoring Report. In the Integrated Monitoring Report (see Provision C.8.h.), Permittees shall report on methods, data, calculations, load estimates, and source estimates for each Pollutant of Concern monitoring element. Reporting shall be in SWAMP-comparable electronic formats, where practicable.
- vii. Emerging Pollutants** – Permittees shall develop a work plan and schedule for initial loading estimates and source analyses for emerging pollutants: pyrethroids, endocrine-disrupting compounds, PFOs/PFAs (perfluorocompounds—related to Teflon products), and NP/NPEs (nonylphenols—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.h.).

C.8.g. 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.h. Reporting

- i. **Status & Trends Electronic Reporting** – Permittees shall submit an Electronic Status & Trends Data Report no later than November 30 of each year, reporting on all data collected during the foregoing July 1–June 30 period, with the initial report due November 30, 2009, unless the Permittees choose to monitor through a regional collaborative, in which case the due date is November 30, 2010. Electronic Status & Trends Data Reports shall be in a format compatible with the SWAMP database.³⁴
- ii. **Urban Creeks Monitoring Report** – Permittees shall submit a comprehensive Urban Creeks Monitoring Report no later than November 30 of each year, reporting on all data collected during the foregoing July 1–June 30 period, with the initial report due November 30, 2009, unless the Permittees choose to monitor through a regional collaborative, in which case the due date is November 30, 2010. Each Urban Creeks Monitoring Report shall contain summaries of Status, Trends, Monitoring Projects, and Pollutants of Concern Monitoring including, as appropriate, the following:
 - (1) Maps and descriptions of all monitoring locations.
 - (2) Data tables, discussion of data quality, and graphical data summaries.
 - (3) An analysis of the data/findings, which shall include the following:
 - Calculate the metrics and compare mean biological and habitat assessment metric values between stations and to identify year-to-year trends;
 - Evaluate the effectiveness of existing control measures;
 - Develop hypotheses to investigate regarding pollutant sources, trends, and BMP effectiveness;
 - Identify and prioritize water quality problems;
 - For diazinon monitoring results, discuss the management questions listed on page 2 of the Urban Creeks Monitoring Plan;³⁵
 - Identify potential sources of the water quality problems;
 - Describe follow-up TIE analysis and/or monitoring projects; and
 - Identify Program activities to address water quality problems.
 - (4) Identification and analysis of any long-term trends in stormwater or receiving water quality.
 - (5) A discussion of the data for each monitoring program component 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. Constituents that exceed

³⁴ See <http://mpsl.mlml.calstate.edu/swdataformats.htm> and <http://www.waterboards.ca.gov/swamp/datamgmt.html>.

³⁵ CEP Urban Creeks Monitoring Plan, prepared by Armand Ruby, Consulting Environmental Scientist for the Clean Estuary Partnership, October 2004.

applicable water quality standards shall be highlighted. When data indicate that stormwater runoff or dry weather non-stormwater 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 monitoring report and a Receiving Water Limitations Compliance Report (see Provision C.1), including proposed enhanced management measures, shall be submitted with the subsequent Annual Report.

iii. Integrated Monitoring Report – No later than November 30, 2012, 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.³⁶ 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 a budget summary for each monitoring requirement and recommendations for future monitoring. This report will be part of the next Report of Waste Discharge for the reissuance of this Permit.

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

- State the purpose of the monitoring and briefly describe the study design rationale;
- Summarize Quality Assurance/Quality Control 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;
- Exhibition of 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;
- Identification and prioritization of water quality problems;
- Identification and description of the nature and magnitude of potential sources of the water quality problems within each waterbody;
- A checklist of follow-up actions, including monitoring projects and recommended changes in management actions and/or BMPs; and

³⁶ 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.

- A signed certification statement.

v. 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.

C.8.i. Monitoring Protocols and Data Quality

All 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 Management Plan 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. Data unaccompanied by statements on their quality, and whether they are acceptable, will be included in evaluations only with acknowledgement of unknown uncertainty.

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 use of pesticides that pose a threat to water quality and the use of such pesticides by other sources within their jurisdictions that have the potential to enter the municipal conveyance system. They may coordinate with BASMAA, the Urban Pesticide Pollution Prevention Project, the Urban Pesticide Committee, and other agencies and organizations.

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

- i. **Task Description** – Permittees shall include provisions to minimize reliance on pesticides that threaten water quality and require the use of IPM in municipal operations and on municipal property in their IPM policies or ordinances.
- ii. **Implementation** – If not already in place, Permittees shall adopt appropriate IPM policies or ordinances no later than July 1, 2009.
- iii. **Reporting** – Permittees shall submit a copy of ordinances or policies to the Water Board in the October 2009 Annual Report after adoption of the IPM policy or ordinance.

C.9.b. Implement IPM Policy or Ordinance

- i. Permittees shall establish written standard operating procedures for pesticide use that ensure implementation of the IPM.
- ii. Permittees shall require municipal employees and contractors to adhere to the standard operating procedures.
- iii. **Reporting**
 - (1) Permittees shall report in their Annual Reports on IPM policy implementation and evaluate effectiveness and status and trends of quantity and type of pesticide use, and provide reasons for increases in use of pesticides that threaten water quality;
 - (2) Permittees shall maintain pesticide application standard operating procedures available upon request.

C.9.c. Training of Municipal Employees

- i. Permittees shall ensure that all municipal employees who, within the scope of their duties, apply pesticides which threaten water quality (including over-the-counter pesticides) are appropriately oriented and/or trained in IPM practices and the Permittee's IPM policy.
- ii. **Reporting**
 - (1) Permittees shall report the percentage of municipal employees who apply pesticides who have been trained in IPM policy and IPM standard operating procedures.

- (2) Permittees shall submit training materials upon request.

C.9.d. Require Contractors to Implement IPM

- i. Permittees shall hire IPM-certified contractors or include contract specifications requiring contractors to implement the IPM no later than November 30, 2009.
- ii. **Reporting** – In Annual Reports, Permittees shall submit documentation to confirm compliance.

C.9.e. Track and Participate in Relevant Regulatory Processes (may be done jointly with other Permittees, such as through CASQA or BASMAA)

- 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 reregistration, reevaluation and other actions relating to pesticides of concern for water quality.
- ii. **Reporting** – In the Annual Reports, Permittees shall list participation efforts, information submitted and how regulatory actions were affected.

C.9.f. Interface with County Agricultural Commissioners

- i. Permittees shall maintain regular communications with county agricultural commissioners to get input and assistance on urban pest management practices and use of pesticides and to inform them of water quality issues related to pesticides and violations of pesticide regulations.
- ii. **Reporting** – Permittees shall report violations of pesticides regulations (e.g., illegal handling) associated with stormwater management to county agricultural commissioners (or other appropriate State and/or local agencies) and report follow-up actions to correct violations in Annual Reports.

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

- i. Permittees shall study 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 effective actions to be taken with a time schedule.
- ii. **Reporting** – In the October, 2012 Annual Report, Permittees shall report the evaluation results to the Water Board.

C.9.h. Public Outreach

- i. Permittees shall conduct outreach to consumers at the point of purchase. They shall provide targeted information on proper pesticide use and disposal, potential adverse impacts on water quality, and less toxic methods of pest prevention and control. Participate in and provide resources for the “Our Water, Our World” program or a functionally equivalent pesticide use reduction outreach program.
- ii. **Reporting** – In Annual Reports throughout the permit term, Permittees shall report activities completed, quantity of outreach materials distributed, number of attendees at trainings/workshops. Permittees shall document and report any measurable awareness and behavior changes resulting from outreach.
- iii. Permittees shall conduct outreach to residents who use or contract for structural or landscape pest control. They shall 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. Incorporate IPM messages into general outreach. Provide information to residents about “Our Water, Our World” or functionally equivalent program. Provide information to residents about EcoWise or functionally equivalent certification program. Coordinate with household hazardous-waste programs to facilitate appropriate pesticide waste disposal, conduct education and outreach, and promote appropriate disposal.
- iv. **Reporting** – Permittees shall document effectiveness of these actions in the October 15, 2012 Annual Report. This documentation may include percentages of residents hiring certified IPM providers and the change in this percentage.
- v. 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, the Bio-integral Resource Center and others to promote IPM to PCOs and landscapers.
- vi. **Reporting** – In Annual Reports throughout the permit term, Permittees shall document percentages of PCOs and landscapers reached and reductions in reported pesticide use.

C.10. Trash Reduction**C.10.a. Implement Pilot Enhanced Trash Control at High Trash Impact Storm Drain Catchments using Enhanced Trash Management Controls and Full Trash Capture Device Installations**

- i. Permittees shall identify high trash and litter (trash) impact catchments totaling at least 10 percent of the Urban and Suburban Land Area within their jurisdictions, which discharge trash and litter to downstream waterways and the Bay, and implement trash control actions to reduce the impacts of trash on the beneficial uses of receiving waters. Urban and Suburban Land Area is defined as the entire land area of a Permittee's jurisdiction, less natural resources protection areas, golf courses, cemeteries, and estate residential development areas. 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". The two trash control actions consist of implementation of Enhanced Trash Management Controls and installation of Full Trash Capture Devices as provided in Provision C.10.b. below.
- ii. Selection of catchments: Permittees shall select high trash impact storm drain catchments on the basis of the following criteria:
 - (1) These catchments shall, to the extent possible, be in the lower reaches or upstream tidal reaches of major tributaries flowing through the Permittees' urbanized watersheds;
 - (2) The selected catchments should be impacted by trash via direct dumping and littering or other transport from high trash or litter generation areas (such as shopping malls, streets, fast food restaurant areas, schools, major event locations, and sports venues), areas of intensive public access (such as parks, trails, road crossings and homeless encampments) and other high traffic and litter areas; and
 - (3) The Permittees shall prioritize catchments previously identified through past efforts or maintenance experience as stream segments with high trash impact, transport or accumulation.

C.10.b. Implementation and Assessment

- i. Implement enhanced trash management control by July 1, 2009 and install full trash capture devices by July 1, 2012. Half or more of the total catchment area to be addressed as described in Provision C.10.a.i., must be managed through installation of full trash capture devices. Full trash capture systems are defined as any device or series of devices that trap all particles retained by a 5mm mesh screen and 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). Non-population-based Permittees, such

as county flood control districts, shall address 1 percent of the Urban and Suburban Land Area of their service area.

- (1) **Enhanced Trash Management Control Measures** shall consist of the following, at a minimum within the target catchment: increased street sweeping effectiveness (with enforceable parking restrictions to clear vehicles from the curbs on sweeping days) and increased frequency (a minimum of weekly sweeping frequency), enhanced inlet inspection and cleaning (a minimum of 4 times per year), increased inspection and cleanup of illegal trash dumping incidents, maintenance of adequate litter receptacles in high traffic areas, and increased public outreach on litter and trash control, particularly noting the impacts on creeks and the Bay in the outreach message.
- (2) **Installation of Full Trash Capture Devices** – For the catchments that shall be addressed with full trash capture device installation, either pump-station based, inlet-based, storm drain-based, or creek-based, installation and operation shall be completed by July 1, 2012, with design completed and funding committed by the Permittees by July 1, 2011. Credit can be claimed for trash removal devices meeting the full capture definition installed and maintained by the Permittees within the past 10 years before July 1, 2008. The catchments targeted for full trash capture device installation will also be addressed with enhanced trash management controls in the interim before installation, beginning July 1, 2009. Installation may include the following devices singly or in any combination: vortex and screen separators, storm drain inlet filter systems, screens, floating trash capture booms or sea curtains, and other systems that meet the definition of a full trash capture device with adequate inspection and maintenance trash removal to avoid flooding and to prevent trash loss from the capture device. Inlet screens or inlet-based capture systems will be installed in entire catchments and maintained adequately to prevent flooding. Floating trash capture booms and sea curtains do not meet the full trash capture device definition, but are effective for trash removal. These devices will be credited with controlling $\frac{1}{4}$ of the catchment land area tributary. Non-tidal booms must be maintained a minimum of monthly and tidal trash booms and sea curtains must be maintained at least weekly. Both must also be maintained immediately after the first major storm of the wet season, and the first storms after 3 week dry weather periods.

ii. Assessment and Reporting

Permittees shall assess trash in streams immediately downstream of enhanced trash management control catchments using the SWAMP Rapid Trash Assessment, Version 8 (SWAMP RTA v8) (Attachment I) or the SCVURPPP Urban Rapid Trash Assessment (Urban RTA) (Attachment J), a modification of the Swamp RTA. Once a trash assessment method is chosen, it may not be changed for the Permit term. If there is no practical location for trash assessment downstream of the managed catchment, the total annual volume of trash collected by all enhanced management measures shall be reported instead. These

assessments shall occur in the spring and fall of each year beginning a year after enhanced management controls are implemented. Assessment of full trash capture device effectiveness shall consist of documenting and reporting volume of trash removed from these devices on an annual basis.

Additional trash assessment monitoring shall occur at status monitoring locations (Provision C.8, Table 8.1).

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

The Permittees, acting individually or collectively, shall create a trash management plan to prevent trash impacts on beneficial uses within their jurisdictions with the goal of no impacts on beneficial uses from trash by 2023. This plan for achieving this 15-year, no-trash-impact goal will be submitted with the October , 2012 Annual Report.

C.10.d. Reporting

October, 2009 Annual Report – Permittees shall report selected enhanced trash control catchment areas, include map delineation, basis for selection, and type of controls to be implemented. Permittees shall report 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 on street sweeping days, waste recycling, waste reduction, and displacement of creek-side homeless encampment.

October, 2010 Annual Report: Permittees shall report implemented enhanced trash management controls using the C.10. Annual Reporting Form for applicable municipal maintenance actions. Report steps toward establishing pilot full trash capture device installations. 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.

October, 2011 Annual Report: Permittees shall continue reporting using the C.10. Annual Reporting Form.

October, 2012 Annual Report – Permittees shall continue reporting using the C.10. Annual Reporting Form, include reporting on design and funding for full trash capture device installation. The Long-Term Plan for Trash Abatement (C.10.d.) shall be submitted.

October, 2013 Annual Report – Permittees shall continue reporting using the C.10. Annual Reporting Form. Permittees shall report compliance with full trash capture device installation requirement and documentation of annual volume of collected trash. Permittees shall report compliance with the trash control catchments totaling at least 10 percent of the Urban and Suburban Land area within their jurisdiction. For non-population-based Permittees, they shall report compliance with the trash control

catchments totaling at least 1 percent of the Urban and Suburban Land area within their service area.

C.11. Mercury Controls

Permittees shall implement the following control programs for mercury. The Permittees shall perform the control measures and provide reporting on those control measures according to the provisions below.

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

- i. 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** – Report on these efforts in Annual Reports, including an estimate of the mass of mercury collected.

C.11.b. Monitor Methylmercury

- i. Permittees shall analyze aqueous grab samples already being collected for total mercury analysis for methylmercury as specified in Provision C.8.f. 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. **Reporting** – Permittees shall report monitoring results annually beginning with the October, 2010, Annual Report.

C.11.c. Pilot Projects To Investigate and Abate Mercury Sources in Drainages, Including Private Property, Public Rights-Of-Way, and Stormwater Conveyances with Accumulated Sediment that Contains Elevated Mercury Concentrations.

- i. For PCB pilot project locations selected as part of Provision C.12.c, Permittees shall conduct reconnaissance in the drainage area of the sampling location. 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 determined so, the Permittees shall cause abatement activities to be conducted at those sites under Permittee jurisdiction with identified remedial activities.
- ii. **Reporting** – In the October, 2011, Annual Report, Permittees shall report on the spatial extent, concentrations, and storm drain characteristics for the pilot sites. This report shall provide recommendations for which sites require further characterization work or abatement. For those sites requiring abatement, Permittees shall report on proposed remedial activities, funding sources, responsible parties, and an appropriate agency oversight scheme.

- iii. **Reporting** – In the October, 2012, Annual Report, Permittees shall report results of the pilot abatement program effectiveness and lessons learned. They shall identify future abatement efforts at additional sites.

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

- i. In all pilot program drainages selected as part of Provision C.12.c, Permittees shall jointly evaluate ways to enhance existing municipal street sweeping 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 for the control of mercury. This evaluation shall also include consideration of street flushing and capture, collection, or routing to the sanitary sewer as a potential enhanced management practice.
- ii. Beginning July 1, 2011, Permittees shall implement the most potentially effective measures(s) based on the evaluation of Provision C.11.d.i. in all drainages for which PCB pilot projects are being conducted.
- iii. **Reporting** – Permittees shall present the results of the evaluation (Provision C.11.d.i.) in the October, 2010, Annual Report. Permittees shall evaluate the effectiveness of enhanced practices pilot implementation and present this evaluation in the October, 2012, Annual Report.

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

- i. Permittees, working collaboratively, shall identify at least 10 locations evenly distributed 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 best treatment option for those locations. This effort shall identify potential locations draining a variety of land uses; evaluate technical feasibility; and discuss economical feasibility. Additional consideration shall be given to areas of elevated mercury concentrations.
- ii. **Reporting** – In the October, 2009, Annual Report, Permittees shall report on candidate locations and types of treatment retrofit for each location. The report shall include assessment of at least 10 locations.
- iii. On the basis of the Provision C.11.e.ii. report, Permittees shall select sites to perform pilot studies and shall conduct pilot studies in 10 selected locations distributed throughout the Permittees' counties. Pilot studies shall span treatment types and drainage characteristics.
- iv. **Reporting** – In the 2012, Annual Report, Permittees shall report status, results, and lessons learned from the 10 pilot studies and their plan for implementing this type of treatment on an expanded basis throughout the region during the next permit term.

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

- i. Permittees shall select 20% of the existing stormwater pump stations distributed throughout the Permittees' county areas and evaluate drainage characteristics and the feasibility of diverting flows to the sanitary sewers to be treated by the local POTWs. Permittees must work with the local POTW on a watershed, county, or regional level on the feasibility and cost sharing agreements. The feasibility 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. This evaluation shall be integrated with pump stations for which Dry Weather Discharges monitoring is conducted (Provision C.8.e.iii.) where feasible. From this evaluation, Permittees shall select 5 pump stations for pilot diversion studies.
- ii. **Reporting** – Permittees shall submit the feasibility results, the 5 candidate pump stations for pilot studies, and time schedules for conducting pilot studies in the October, 2010, Annual Report.
- iii. Permittees shall implement flow diversion to the sanitary sewer at the 5 pilot pump stations that represent a range of conditions and land uses. As part of the pilot studies, Permittees shall monitor and measure mercury load reduction, as well as a proposed method for how to distribute the reduced mercury load to wastewater agencies and Permittees.
- iv. **Reporting** – Permittees shall report annually the status of the pilot studies. They shall report the final results and the pilot program effectiveness in the October, 2012 Annual Report.

C.11.g. Monitor Stormwater Mercury Pollutant Loads and Loads Reduced

- i. Permittees shall develop and implement a monitoring program to quantify mercury loads and loads reduced through source control, treatment and other management measures as required in Provision C.8.f.
- ii. 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 controls;
 - (2) Quantify the mercury load as a rolling 5-year annual average using data on flow and water column mercury concentrations;
 - (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; and
 - (4) During this Permit term, Permittees shall demonstrate progress toward achieving a 25 percent load reduction of 20 kg/year. This is based on the Basin Plan load reduction milestone of 50 percent in 10 years (2017).

iii. Reporting

- (1) Permittees shall report in the October, 2010 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 October, 2012 Annual Report results of chosen monitoring/measurement approach concerning loads assessment and estimation of loads reduced.

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

- i. 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. **Reporting** – Permittees shall submit in the October, 2009, 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 in the October, 2012, 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.

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

- i. Permittees shall take actions to manage human health risks from mercury in Bay fish consumed by humans. The Permittees may coordinate with Bay Region wastewater dischargers in this effort. This requirement may be satisfied by a combination of related efforts through the RMP or other similar collaborative efforts.
- ii. **Reporting** – In the October, 2009, Annual Report, Permittees shall report the actions to be taken with a schedule. Permittees shall report the findings and results of human health risk reduction efforts completed, planned, or in progress as well as potential efforts for future Permit cycles in the October, 2012 Annual Report.

C.12. PCB 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.

C.12.a. Implement Project throughout Region to Incorporate PCBs and PCB-Containing Equipment Identification into Existing Industrial Inspections

- i. 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.
- ii. Permittees shall incorporate such PCB identification into industrial inspection programs.
- iii. Where inspectors identify during inspections PCBs or PCB-containing equipment, Permittees shall document incident in inspection report and refer to appropriate regulatory agencies as necessary.
- iv. **Reporting** – Permittees shall report the results of training and inspection for PCB identification in the October, 2010, and following Annual Reports.

C.12.b. Conduct Pilot Projects to Evaluate Managing PCB-Containing Materials and Wastes during Building Demolition and Renovation (e.g., Window Replacement) Activities

- i. 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.
- ii. 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).
- iii. Permittees shall implement a sampling and analysis plan at a minimum of 10 sites distributed evenly throughout the Permittees' county areas.
- iv. 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.
- v. Permittees shall develop model ordinances or policies, train and deploy inspectors, and pilot test BMPs at 5 sites.
- vi. **Reporting** – In the October, 2009, Annual Report, Permittees shall submit the results of the evaluation (C.12.b.i.) of current regulations, level of implementation, and regulatory gaps as well as the sampling and analysis plan (of C.12.b.ii.). In the October, 2010, Annual Report, Permittees shall submit the sampling results and recommendations for next steps. In the October, 2011, Annual Report, Permittees shall submit the list of appropriate BMPs, BMP training program, and model ordinances and policies to prevent PCB discharges from building demolition and

improvement activities. In the October, 2012, Annual Report, Permittees shall submit the results of pilot program effectiveness evaluation.

C.12.c. Pilot Projects to Investigate and Abate On-land Locations with Elevated PCB Concentrations, Including Private Property, Public Rights-of-way, and Stormwater Conveyances with Accumulated Sediments with Elevated PCBs Concentrations.

- i. Permittees shall interview municipal staff and review municipal databases, 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.
- ii. Permittees shall conduct surveys of the drainage along with 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.
- iii. 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.

- iv. 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.
- v. Permittees shall conduct an abatement program in portions of drainages under their jurisdiction.
- vi. **Reporting** – Permittees shall report on suspect locations (Provision C.12.c.i and ii) in the October, 2009, Annual Report. Permittees shall report sampling and chemical analysis results at pilot locations (Provision C.12.c.iii.) in the October, 2010, and October, 2011, Annual Reports. Permittees shall report on proposed abatement opportunities and activities (Provision C.12.c.iv and v), responsible parties, funding, agency oversight, and schedules in the October, 2012, Annual Report. Permittees shall report results of abatement program effectiveness in the October, 2012, Annual Report.

C.12.d. Conduct Pilot Projects to Evaluate and Enhance Municipal Sediment Removal and Management Practices

- i. In all pilot program drainages selected as part of Provision C.12.c, Permittees shall jointly evaluate ways to enhance existing municipal street sweeping 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.
- ii. Permittees shall 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 followup studies to be conducted.
- iii. **Reporting** – Permittees shall submit the results of these two evaluations in the October, 2010, Annual Report.
- iv. Beginning July 1, 2011, Permittees shall implement the most potentially effective measure(s) based on the evaluation of Provision C.12.d.i. and ii. throughout the region.
- v. **Reporting** – Permittees shall report effectiveness of enhanced practices pilot implementation in the October, 2012, Annual Report, and their plan for implementing enhanced practices in the next permit term.

C.12.e. Conduct Pilot Projects to Evaluate On-Site Stormwater Treatment via Retrofit

- i. Permittees, working collaboratively, shall identify at least 10 locations evenly distributed 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. This assessment shall identify potential locations draining a variety of land uses, discuss technical feasibility, and discuss economical feasibility. Permittees shall give additional consideration to areas of elevated PCBs concentrations.
- ii. **Reporting** – In the October, 2009, Annual Report, Permittees shall report on candidate locations with types of treatment retrofit. The report shall include assessment of at least 10 locations.
- iii. 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. Pilots shall span treatment types and drainage characteristics.
- iv. **Reporting** – In the October, 2012 Annual Report, Permittees shall report status, results, 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.

C.12.f. Diversion of Dry Weather and First Flush Flows to POTWs

- i. Permittees shall select 20% of the existing stormwater pump stations in their jurisdictions and evaluate drainage characteristics and the feasibility of diverting flows to sanitary sewers to be treated by the local POTWs. Permittees must work with the local POTW on a watershed, program, or regional level on the feasibility and cost sharing agreements. The feasibility 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. This evaluation shall be integrated with the 5 pump stations for which pollutant of concern monitoring is conducted. From this evaluation, Permittees shall select 5 pump stations for pilot diversion studies.
- ii. **Reporting** – Permittees shall submit the feasibility results, the 5 candidate pump stations for pilot studies, and time schedules for conducting pilot studies in the October, 2009, Annual Report
- iii. Permittees shall implement the 5 pilot studies that represent a range of conditions and land uses. As part of the pilot studies, they shall monitor and measure PCBs load reduction as well as a proposed method for how to distribute the reduced PCBs load to wastewater agencies and Permittees.
- iv. **Reporting** – Permittees shall report annually the status of the pilot studies. They shall report the final results and effectiveness evaluation in the October, 2012, Annual Report.

C.12.g. 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 through source control, treatment and other management measures.

C.12.h. Fate and Transport Study of PCBs in Urban Runoff

- i. 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.
- ii. **Reporting** – Permittees shall submit in the October, 2009 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 as well as implications of studies on potential control measures to be investigated, piloted or implemented in future permit cycles in the October, 2012 Annual Report.

C.12.i. Development of a Risk Reduction Program Implemented throughout the Region

- i. Permittees shall take actions to manage human health risks from PCBs in Bay fish consumed by humans. The Permittees may coordinate with Bay Region

wastewater dischargers in this effort. This requirement may be satisfied by a combination of related efforts through the RMP or other similar collaborative efforts.

- ii. **Reporting** –Permittees shall submit in the October, 2009, 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 as well as implications of studies on potential control measures to be investigated, piloted or implemented in future permit cycles in the October, 2012 Annual Report.

C.13. Copper Controls

The control program for copper is detailed below. Permittees shall perform the control measures and accomplish the reporting on those control measures according to the provisions below.

C.13.a. Manage Waste Generated from Cleaning and Treating of Copper Architectural Features, Including Copper Roofs, during Construction and Post-Construction.

- i.** Permittees shall ensure that local ordinance authority is established to prohibit the discharge of waste to storm drains from the installation, cleaning, treating, and washing of the surface of copper architectural features, including copper roofs to storm drains.
- ii.** Permittees shall develop BMPs on how to manage the waste during and post-construction
- iii.** Permittees shall require use of appropriate BMPs when issuing building permits.
- iv.** Permittees shall educate installers and operators on appropriate BMPs.
- v.** Permittees shall enforce against noncompliance.
- vi. Reporting**
 - (1) If a new ordinance is developed, Permittees shall submit the ordinance language with adopting schedule in the October, 2010, Annual Report and the adopted ordinance and BMPs in the October, 2011, Annual Report.
 - (2) Alternatively, Permittees shall report on the existing legal authority to prohibit such discharges and to ensure compliance.
 - (3) Permittees shall report annually thereafter on training, permitting and enforcement activities.
 - (4) In the October, 2012, Annual Report, Permittees shall evaluate the effectiveness of these measures, including BMP implementation and propose any additional measures to address this source.

C.13.b. Manage Discharges from Pools, Spas, and Fountains that Contain Copper-Based Chemicals

- i.** By adopting local ordinances, Permittees shall prohibit discharges to storm drains from pools, spas, and fountains that contain copper-based chemicals.
- ii.** Permittees shall 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.
- iii. Reporting**
 - (1) **If an ordinance needs to be developed**

Permittees shall submit model ordinance language with an adoption schedule in the October, 2010, Annual Report. This can be one regional product. Permittees shall report on the adopted ordinance in the October, 2011, Annual Report.

Permittees shall report on implementation and enforcement of the ordinance in the October, 2012, Annual Reports.

(2) **If an ordinance does not need to be developed**

Permittees shall certify that legal authority already exists to prohibit such discharges by submitting the necessary documentation with a plan and schedule to implement and enforce the existing authority in the October, 2010, Annual Report. Permittees shall report on implementation and enforcement of the existing legal authority in Annual Reports thereafter including additional or revised management measures.

C.13.c. Vehicle Brake Pads

- i. Permittees shall participate in the Brake Pad Partnership (BPP) process and track the upcoming decision point regarding brake pad copper content at the conclusion of the Prop. 13 study.
- ii. Reporting – Depending upon progress of the BPP project, Permittees shall report on its outcome in Annual Report after decision point in this project. In the October, 2012, Annual Report, Permittees shall assess status of copper water quality issues and recommend actions for inclusion in subsequent permits if needed.
- iii. Permittees shall conduct desktop study to evaluate the implementation of enhanced treatment system design, operation and maintenance efforts. The purpose of the study is to determine to what extent enhanced system design, operation, and maintenance efforts can minimize the amount of brake pad-associated copper reaching the Bay. The desktop evaluation shall consider pilot tests and may involve retrofits, street sweeping, cleanouts, and such. Pilot tests shall be performed from July 1, 2010 to July 1, 2012.
- iv. Reporting:
Permittees shall report on the desktop study results in the October, 2012, Annual Report.

C.13.d. Industrial Sources

- i. Permittees shall educate industrial inspectors on industrial facilities likely to use copper (e.g., plating facilities, metal finishers, auto dismantlers).
- ii. 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
 - (1) Permittees shall highlight results in the industrial inspection component of Annual Reports.
 - (2) Permittees shall report on BMP implementation, compliance, and enforcement for next permit term.

C.13.e. Studies to Reduce Copper Pollutant Impact Uncertainties

- i. Permittees shall conduct or cause to be conducted technical studies to investigate possible copper sediment toxicity and technical studies to investigate sublethal effects on salmonids.
- ii. Permittees shall submit in the October, 2009 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 October, 2012, Annual Report.

C.14. Polybrominated Diphenyl Ethers (PBDE), Legacy Pesticides and Selenium

C.14.a. Control Program for PBDEs, Legacy Pesticides, and Selenium.

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 Region 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.

The PBDEs/Legacy Pesticides/Selenium Plan shall include actions to do the following:

- i.** Characterize the representative distribution of PBDEs, legacy pesticides, and selenium in the urban areas of the entire Bay Region 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.
- ii.** Submit in the October, 2010, Annual Report a report with the results of the characterization of PBDEs, legacy pesticides, and selenium in urban areas throughout the Bay Region.
- iii.** Provide information to allow calculation of PBDEs, legacy pesticides, and selenium loads to San Francisco Bay from urban runoff conveyance systems.
- iv.** Submit in the October, 2011, Annual Report a report with the information required to compute such loads to San Francisco Bay of PBDEs, legacy pesticides, and selenium from urban runoff conveyance systems throughout the Bay.
- v.** Identify control measures and/or management practices to eliminate or reduce discharges of PBDEs, legacy pesticides, or selenium conveyed by urban runoff conveyance systems.
- vi.** Submit in the October, 2012, Annual Report a report identifying such control measures/management practices.

C.15. Exempted and Conditionally Exempted Discharges

C.15.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.15.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, is identified as sources of pollutants to receiving waters, such categories or sources shall be addressed as conditionally exempted discharges in accordance with Provision C.15.b below.

C.15.b. Conditionally Exempted Non-Stormwater Discharges:

The following non-stormwater discharges are also exempt from Discharge Prohibition A 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 the tasks and implementation levels of each category of Provision C.15.b.i–vii below.

- 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 properly 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) Permittees shall report new discharges of uncontaminated groundwater at flows 10,000 gallons/day or more to the Water Board and appropriate local agencies before being discharged to storm drains.
 - (c) The discharge types in this provision shall 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.

- (d) Permittees shall require that water samples from these discharge types be analyzed 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 8260 or equivalent for volatile organic compounds; and (d) USEPA Method 3005 for metals.
- (e) Permittees shall require that 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.
- (f) Permittees shall require 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.
- (g) Permittees shall require that the pH of discharged water be maintained within the range of 6.5 to 8.5.
- (h) Discharges from dewatering activities shall be allowed only to storm drain collection systems if there are no other feasible disposal alternatives (e.g., disposal to sanitary sewer).
- (i) Discharges of unpolluted or treated groundwater 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.
- (j) 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 maintain records that these discharges, BMPs implemented, and any monitoring data collected demonstrate that the discharges meet the unprohibited criteria.

ii. Discharge Type – Air Conditioning Condensate

(1) Required BMPs/Control Measures –

- (a) Where feasible, discharges of condensate shall be to the ground. Discharges to storm drain collection systems shall not be allowed if the condensate has been treated with any algae inhibitors, corrosion control chemicals, or other additives.

- (b) Discharges from new small commercial and industrial air conditioning units shall be allowed only to storm drain collection systems if there are no other feasible disposal alternatives (e.g., disposal to sanitary sewer or landscaped areas). If discharges are allowed to the storm drain collection system, a pipe or trough is required to direct the flow. These discharges shall not be allowed to run across parking lots or other paved surfaces where it could come in contact with pollutants before reaching the storm drain.
- (c) For new large commercial and industrial air conditioning units, condensate shall be directed as wastewater to the sanitary sewer. Direct discharges of such condensate to storm drains shall be prohibited unless adequate treatment measures are in place to meet water quality standards.

iii. Discharge Types: Planned,³⁷ Unplanned,³⁸ 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 BMPs³⁹ – 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.
 - (b) Notification and Reporting 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 of 250,000 gallons per day or more of potable water. Permittees shall 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.
 - (ii) Permittees shall report monthly or require that potable water dischargers report monthly via electronic summary reports and

³⁷ 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.

³⁸ Unplanned discharges are the result of accidents or incidents that cannot be scheduled or planned for in advance.

³⁹ 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.

annual self-audit summary reports for all Potable Water Planned Discharges.

- (iii) Reporting content may 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 (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 and point of discharge, and (11) description of implemented BMPs or corrective actions.

(c) Monitoring Requirements

- (i) Permittees shall monitor or require monitoring of Planned Discharges for pH, chlorine residual, and the turbidity (NTU) of both the discharges and receiving waters to confirm effectiveness of the employed BMPs.

- (ii) The following discharge benchmarks shall apply to 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; and
- Turbidity ranges not to increase above background levels by more than the following:

<u>Receiving Water Background</u>	<u>Incremental Increase</u>
< 50 units (NTU)	5 units, maximum
50–100 units	10 units, maximum
> 100 units maximum	10% of background

- (2) **Unplanned Discharge** – Permittees shall address nonroutine water line breaks, leaks, overflows, fire hydrant shearing, and emergency flushing as follows:

- (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 and Reporting Requirements
- (i) Permittees shall report or require reporting to Water Board staff, by telephone within 24 hours from when the Permittees or the potable water dischargers become 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, or when the discharge might endanger health or environment. The Permittees shall provide or require the potable water dischargers to provide Water Board staff with a written report within 5 working days after the 24-hour telephone report.

- (ii) The Permittee shall document or require that the potable water discharger documents complaint responses and reports such as discharges and corrective actions to Water Board staff and other interested parties within 5 working days after the 24-hour telephone report.
- (iii) The Permittee shall require that the potable water discharger submit monthly reports of all unplanned discharges electronically and shall submit an annual self-audit summary report.
- (iv) Reporting format shall be as described in Provision C.15.b.iv.(1)(b)(iii) of the Planned Discharges above.

(d) **Monitoring Requirements**

- (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 turbidity.
- (ii) After the implementation of appropriate BMPs, the discharge pH, chlorine residual, and turbidity shall be consistent with Provision C.15.b.iv.(1)(c) of the Planned Discharges above.

- (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 BMPs that 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 – Individual Residential Car Washing

- (1) Permittees shall discourage through outreach efforts individual residential car washing within their jurisdictional areas that discharges directly to the MS4. Outreach messages can encourage discharge to landscaped areas, use of as little detergent as necessary, etc.
- (2) Permittees shall encourage individual car washing at commercial car facilities by promoting targeted public outreach activities.

v. Discharge Type - Swimming Pool, Hot Tub, Spa, and Fountain Water Discharges

- (1) **Required BMPs and Implementation Levels** are as follows:
 - (a) Filter backwash discharge to the storm drain is prohibited. Filter backwash from operations of pools and spas shall 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 if it is properly dechlorinated to non-detectable levels of chlorine consistent with water quality standards.
 - (c) Permittees shall require that new or remodeled swimming pools, hot tubs, spas and fountains within their jurisdiction be connected to the sanitary sewer.
 - (d) Permittees shall prohibit discharge of water that contains chlorine residual, copper algicide, filter backwash or other pollutants to storm drain collection systems or to waterbodies.
 - (e) Permittees shall improve their public outreach and educational efforts and ensure implementation of the required BMPs and compliance in commercial, municipal, and residential facilities.
- (2) **Reporting** – Dischargers/Permittees shall report a summary of authorized major discharges ($\geq 5,000$ gallons) of dechlorinated pool, spa and fountain water, including BMPs employed, to the Water Board.

vi. Discharge Type - Irrigation Water, Landscape Irrigation, Lawn or Garden Watering

- (1) **Required BMPs:** Permittees shall promote measures that minimize runoff and pollutant loading from excess irrigation 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; 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.

vii. Additional Discharge Types –Permittees shall identify and describe additional types and categories of discharges not yet listed in Provisions C.15.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.

viii. 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 to comply with the control measures pursuant to Provision C.15.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.
- (3) The Permittees may propose, as part of their annual updates consistent with the requirements of Provision C.15.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.

C.16. Modifications to this Order

This Order may be modified, or alternatively, revoked or reissued, before the expiration date as follows:

- 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;
- b. To incorporate applicable requirements of Statewide water quality control plans adopted by the State Board or amendments to the Basin Plan approved by the State Board; or
- c. To comply with any applicable requirements, guidelines, or regulations issued or approved under section 402(p) of the CWA, if the requirement, guideline, or regulation so issued or approved contains different conditions or additional requirements not provided for in this Order. The Order as modified or reissued under this paragraph shall also contain any other requirements of the CWA then applicable.

C.17. Each of the Permittees shall comply with all parts of the Standard Provisions contained in Attachment K of this Order.

C.18. This Order expires on XXX, 2013, 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.

C.19. Order Nos. 99-058, 99-059, 01-024, R2-2003-0021, and R2-2003-0034 are hereby rescinded.

C.20. Permittees shall submit Annual Reports electronically by October 15 of each year as specified in Attachment L, Annual Report Form. The first Annual Report shall be submitted October 15, 2009, containing reporting from the 2008-2009 fiscal year beginning July 1, 2008 and ending June 30, 2009. All annual reporting shall conform to the format and content requirements set forth in Attachment L. Any reference to annual reporting in this permit shall be a reference to the required reporting format set forth in Attachment L. The Annual Report Form or format contained in Attachment L may be changed to more accurately reflect the reporting requirements of the Provisions C.1 – C.15, and as this is not a change in permit requirements, but a minor modification of the permit, these changes can be proposed by the Permittees for Executive Officer approval. Changes to the Annual Report Form, Attachment L, once approved, shall apply to all Permittees.

C.21. The Effective Date of this Order and Permit shall be July 1, 2008, 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 XXX, 2008.

Bruce H. Wolfe
Executive Officer

- Attachment A:** Provision C.3.e. Flowchart
- 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. SWAMP Rapid Trash Assessment Protocol, v.8
- Attachment J:** Provision C.10. SCVURPPP Urban Rapid Trash Assessment Protocol
- Attachment K:** Standard NPDES Permit Provisions
- Attachment L:** Annual Report Template

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	United 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.
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.
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.
Discharger	Any responsible party or site owner or operator within the Permittees' jurisdiction whose site discharges stormwater runoff, or a non-stormwater discharge
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) Operations and maintenance costs of the Regional Project
Equivalent Offsite Treatment	Hydraulically sized treatment (in accordance with Provision C.3.d.) 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 <i>illicit discharge</i> 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.
Infiltration Device	A stormwater treatment device that is specifically designed and that primarily functions to infiltrate or percolate stormwater into the underlying soil or geologic formation. These devices should always incorporate a relatively fine grain soil layer of two feet or more to remove dissolved pollutants prior to infiltration.
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.
Monitoring Project	A targeted water quality investigation intended to provide information including, but not limited to, the following: (1) Extent, magnitude, and sources of water quality impact and beneficial use problems indicated by Status or Trends monitoring results; (2) Best Management Practice effectiveness assessment; (3) Characterization of pollutant content of dry weather discharges and first flush discharges; and (4) Functional physical processes and habitat characteristics in waterbodies that are impacted by urban runoff.
New Infill Development Project	Any property development project that will be built on previously undeveloped vacant land within existing urban areas that are already largely developed.

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).
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.
New Infill Development Project	A development project that will be built on previously undeveloped vacant land within existing urban areas that are already largely developed.
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	July 1, 2008 or 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.
Redevelopment	Land-disturbing activity that results in the creation, addition, or replacement of exterior impervious surface area on a previously developed site.
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 Projects do.

All projects fitting the category descriptions listed below:

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 on public or private land, which fall under the planning and building authority of the Permittees.

- (1) Auto service facilities, described by the following Standard Industrial Classification (SIC) Codes: 5013, 5014, 5541, 7532-7534, and 7536-7539;
- (2) Retail gasoline outlets;
- (3) Restaurants; or
- (4) Parking lots that are stand-alone or part of any other development project.

Beginning in two years after the Permit Effective Date, all references to 10,000 square feet in 1.(a) above change to 5,000 square feet.

- (b) For redevelopment projects, specific exclusions to this category are:

- Interior remodels; and
- Routine maintenance or repair such as:
 - roof or exterior wall surface replacement,
 - pavement resurfacing within the existing footprint.

- (c) Where 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).

- (d) Where 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).

2. 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.

3. Other Redevelopment Projects

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).
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.
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	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 7am to 10 am (inclusive) and 3pm to 7pm (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; 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; (c) For retail, no more than 2.0 parking spaces for 1000 square feet. Sharing of parking between uses within these maximums is allowed. Carshare and bicycle parking spaces are not subject to these maximums.
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. Figures 2-2 through 2-9 and Table 2-1 of the Water Board's Basin Plan show and list, respectively, the major waterbodies within these hydrologic units. For the purposes of Provision C.3, Regional or off-site stormwater treatment projects that discharge "into the same watershed" means that these projects discharge treated stormwater into the same major waterbody (as delineated in the Basin Plan) as the Regulated Project.
Wet Season	October 1 through April 30 of each year

APPENDIX I

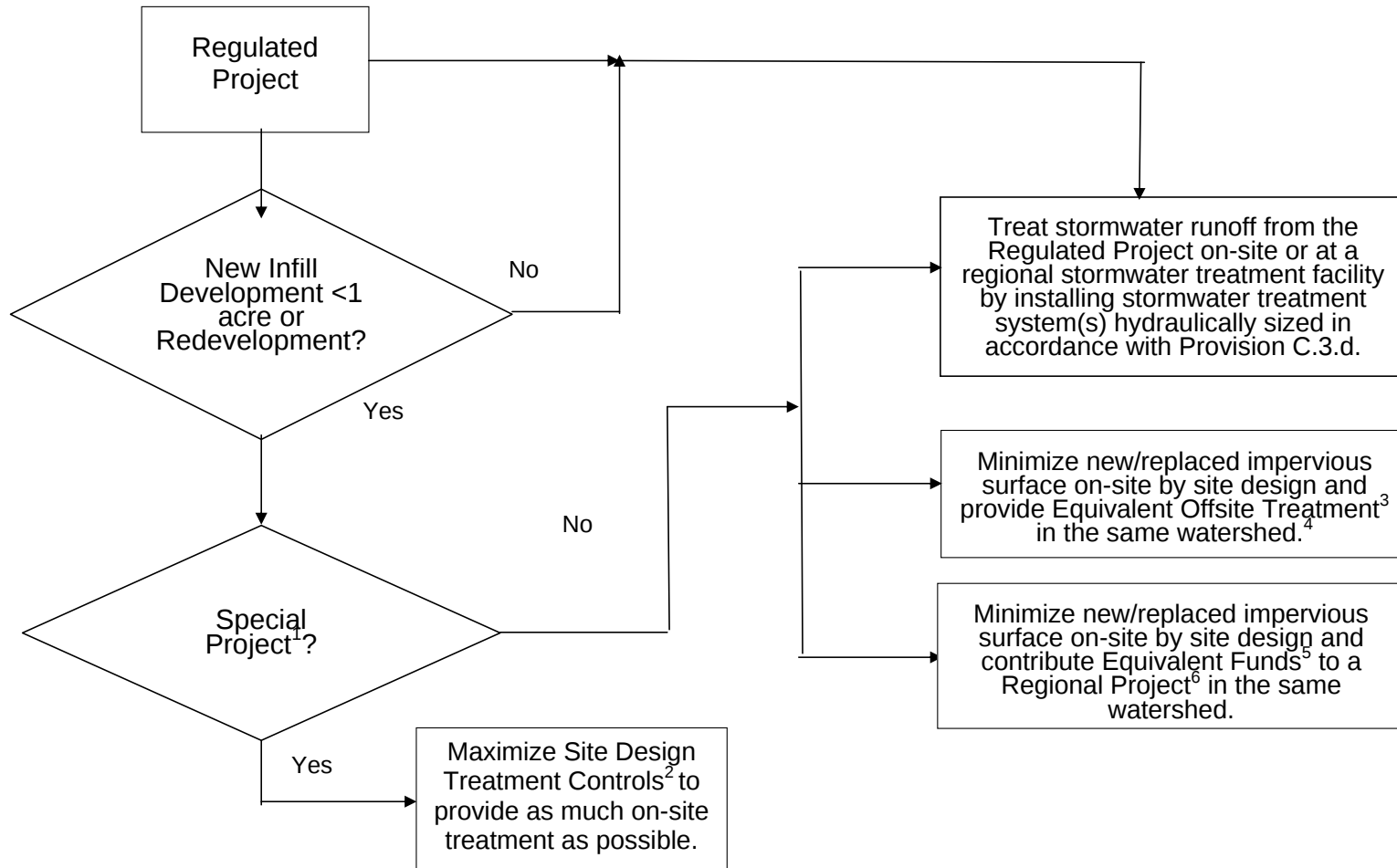
MUNICIPAL REGIONAL STORMWATER PERMIT

FACT SHEET

ATTACHMENT A

Provision C.3.e. Flowchart Alternative Compliance with Provisions C.3.b. and d.

Municipal Regional Stormwater Permit, Provision C.3.e. Flowchart Alternative Compliance with Provisions C.3.b. and d.



1

Special Projects:

- 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;
 - b. Low-income housing as defined under Government Code section 65589.5(h)(3) , but limited to, the actual low-income , or 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 –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 7am to 10 am (inclusive) and 3pm to 7pm (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; 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;
 - (c) For retail, no more than 2.0 parking spaces for 1000 square feet.
- Sharing of parking between uses within these maximums is allowed. Carshare and bicycle parking spaces are not subject to these maximums.

Comment [jeff.stro1]:

2

Maximizing Site Design Treatment Controls is defined as including a minimum of one of the following specific site design and/or treatment measures:

- a. Diverting roof runoff to vegetated areas before discharge to storm drain;
- b. Directing surface runoff to vegetated areas before discharge to storm drain;
- c. Installing landscaped-based stormwater treatment measures (non-hydraulically-sized) such as tree wells or bioretention gardens; or
- d. Installing prefabricated/proprietary stormwater treatment controls (non-hydraulically-sized).

3

Equivalent Offsite Treatment – Hydraulically-sized treatment (in accordance with Provision C.3.d.) and associated operation and maintenance of:

- a. An equal area of new and/or replaced impervious 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.

Off-site projects must be completed by the end of construction of the Regulated Project.

4

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. Figures 2-2 through 2-9 and Table 2-1 of the Water Board's Basin Plan show and list, respectively, the major waterbodies within these hydrologic units. For the purposes of Provision C.3, Regional or off-site stormwater treatment projects that discharge "into the same watershed" means that these projects discharge treated stormwater into the same major waterbody (as delineated in the Basin Plan) as the Regulated Project.

5

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 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 quantify of runoff as that created by the Regulated Project; and
- b. Twenty years of operation and maintenance costs for the foregone onsite treatment system.

6

Regional Project – A regional or municipal stormwater treatment facility that discharges into the same watershed that the Regulated Project does. The Regional Project must be completed within three years after the end of construction of the Regulated Project.

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 flow⁴⁰ 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 Q_{cp} ⁴¹) 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 (BAHM⁴²) 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.⁴³ Permittees shall demonstrate to the satisfaction of the Executive Officer that any modifications of the BAHM made (per Finding 34) 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 model⁴⁴ 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-e above are met.

⁴⁰ Where referred to in this Order, the 2-year peak flow is determined using a flood frequency analysis that is based on USGS Bulletin 17 B to obtain the flow peak statistically expected to occur at 2-year intervals. In this analysis, the entire record of hourly rainfall data (e.g., 35–50 years of data) is run through a continuous simulation model (footnote 5), the annual peak flows are identified, rank ordered, and the 2-year flow is generated.

⁴¹ Q_{cp} 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.

⁴² *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

⁴³ *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

⁴⁴ Such models include US EPA's Hydrograph 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).

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 detain⁴⁵ 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;

⁴⁵ 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.

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-1.⁴⁶ 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 areas may be subject to additional agency reviews related to hydrologic, habitat or other watershed-specific concerns.

⁴⁶ The watercourses potentially susceptible to hydromodification impacts are identified based on an assessment approach developed by Balance Hydrologics (2003).

- 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 channels⁴⁷. 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 Guide⁴⁸ 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.⁴⁹ After the Program has collated its methods into a User Guide format, received approval of the User Guide from the Executive Officer,⁵⁰ 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.

⁴⁷ 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.

⁴⁸ The User Guide may be offered under a different title.

⁴⁹ The Program's HMP has undergone Water Board staff review and been subject to public notice and comment.

⁵⁰ 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 proponents of projects up to ten acres 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 Q_{5.5} to Q_{6.5}, 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*⁵¹ 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 geomorphologist⁵² 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

⁵¹ 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*.

⁵² 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.

- (c) An opinion and supporting analysis by one or more qualified environmental professionals that the expected environmental benefits of the mitigation 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 year⁵³ 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).

⁵³ 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 <i>all</i> reaches meet the <i>low risk</i> 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 <i>each</i> downstream reach between the project site and the Bay/Delta is either <i>medium risk</i> or <i>low risk</i> .	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 <i>medium risk</i> . The geomorphologist prepares a detailed report showing, for each reach, either: The particular reach should be reclassified as <i>low risk</i> . [No further action for that reach is required.] OR The particular reach is confirmed to be <i>medium risk</i> . 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 <i>low</i> nor <i>medium risk</i> 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.f 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 flow⁵⁴ 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 Q_{cp} ⁵⁵) 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 (BAHM⁵⁶) 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.⁵⁷ Permittees shall demonstrate to the satisfaction of the Executive Officer that any modifications of the BAHM made (per Finding 34) 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 model⁵⁸ 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 factors⁵⁹ to the allowable criteria, received approval of the modified sizing factors from the Executive

⁵⁴ Where referred to in this Order, the 2-year peak flow is determined using a flood flow frequency analysis that is based on USGS Bulletin 17 B to obtain the flow peak statistically expected to occur at 2-year intervals. In this analysis, the entire record of hourly rainfall data (e.g., 35–50 years of data) is run through a continuous simulation model (footnote 19), the annual peak flows are identified, rank ordered, and the 2-year flow is generated.

⁵⁵ Q_{cp} 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.

⁵⁶ See www.bayareahydrologymodel.org, Resources

⁵⁷ The Bay Area Hydrology Model User Manual is available at <http://www.bayareahydrologymodel.org/downloads.html>.

⁵⁸ Such models include USEPA's Hydrograph 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).

⁵⁹ Current sizing factors and design criteria are shown in Appendix D of the FSURMP HMP.

Officer,⁶⁰ 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 detain⁶¹ 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:

⁶⁰ 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.

⁶¹ 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.

- g. Site plans identifying impervious areas, surface flow directions for the entire site, and location(s) of HM measures;
- h. For projects using standard sizing charts, a summary of sizing calculations used;
- i. For projects using the BAHM, a listing of model inputs;
- j. 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);
- k. 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
- l. 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 Ledge wood 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.f 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 flow⁶² 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 Q_{cp} ⁶³) 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 (BAHM⁶⁴) 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.⁶⁵ Permittees shall demonstrate to the satisfaction of the Executive Officer that any modifications of the BAHM made (per Finding 34) 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 model⁶⁶ 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 regional HM control within a reasonable time frame, *and* where an in-stream measure is not

⁶² Where referred to in this Order, the 2-year peak flow is determined using a flood flow frequency analysis based on USGS Bulletin 17 B to obtain the flow peak statistically expected to occur at 2-year intervals. In this analysis, the entire record of hourly rainfall data (e.g., 35–50 years of data) is run through a continuous simulation model (footnote 27), the annual peak flows are identified, rank ordered, and the 2-year flow is generated.

⁶³ Q_{cp} 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.

⁶⁴ See www.bayareahydrologymodel.org, Resources

⁶⁵ The Bay Area Hydrology Model User Manual is available at <http://www.bayareahydrologymodel.org/downloads.html>

⁶⁶ Such models include USEPA's Hydrograph 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).

practicable, the project shall use (1) site design for hydrologic source control, *and* (2) stormwater treatment measures that collectively minimize, slow, and detain⁶⁷ 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);

⁶⁷ 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.

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 to Exempt Area** – If a proposed project subject to the HM Standard is in a drainage that is determined to flow only through a hardened channel or enclosed pipe along its entire length before emptying into a waterway in the exempt area, 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.f 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 flow⁶⁸ 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 Q_{cp} ⁶⁹) 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 (BAHM⁷⁰) 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.⁷¹ Permittees shall demonstrate to the satisfaction of the Executive Officer that any modifications of the BAHM made (per Finding 34) 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 model⁷² 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 - e above are met.

2. Impracticability Provision

⁶⁸ 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 (footnote 34), the annual peak flows are identified, rank ordered, and the 2-year peak flow is estimated.

⁶⁹ Q_{cp} 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.

⁷⁰ See www.bayareahydrologymodel.org, Resources.

⁷¹ The Bay Area Hydrology Model User Manual is available at <http://www.bayareahydrologymodel.org/downloads.html>.

⁷² Such models include USEPA's Hydrograph 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).

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 control⁷³ 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 detain⁷⁴ 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;

⁷³ *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.

⁷⁴ 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

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 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 Guide⁷⁵ 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

⁷⁵ The User Guide may be offered under a different title.

assessment methods that have been presented in the Program's HMP.⁷⁶ After the Program has collated its methods into User Guide format, received approval of the User Guide from the Executive Officer,⁷⁷ 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.

⁷⁶ The Program's HMP has undergone Water Board staff review and been subject to public notice and comment.

⁷⁷ 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 Trends Monitoring Follow-up Analysis and Actions

**Status and Trends Monitoring Follow-up Analysis and Actions
for Biological Assessment, Water Column Toxicity,
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 Results⁷⁸	Toxicity Results⁷⁹	Bioassessment Results⁸⁰	Action
No chemicals exceed Threshold Effect Concentrations (TEC), mean Probable Effects Concentrations (PEC) quotient < 0.5 and pyrethroids < 1.0 Toxicity Unit (TU) ⁸¹	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.
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 physical habitat disturbance. 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.

⁷⁸ 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.

⁷⁹ Toxicity is exhibited when *Hyallela* survival statistically different than and < 20 percent of control.

⁸⁰ Alterations are exhibited if metrics indicate substantially degraded community.

⁸¹ Toxicity Units (TU) are calculated as follows: TU = Actual concentration (organic carbon normalized) ÷ Reported *H. azteca* LC₅₀ 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 ⁷⁸	Toxicity Results ⁷⁹	Bioassessment Results ⁸⁰	Action
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. All sampling, sample preservation, and analyses must be conducted according to test procedures approved under 40 CFR part 136, unless other test procedures have been specified in the monitoring Provisions or approved by the Executive Officer. [40 CFR 122.41(j)(4)]
5. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Order shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than two years, or both. If a conviction 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)]
6. 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)]
7. 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.
8. 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.

9. 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)]
10. Monitoring shall be conducted according the USEPA test procedures approved under 40 CFR 136, "Guidelines Establishing Test Procedures for Analysis of Pollutants under the Clean Water Act" as amended, unless other test procedures have been specified in this Order or by the Executive Officer.
11. If the discharger monitors any pollutant more frequently than required by the Permit using test procedures approved under 40 CFR part 136, 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.
A Rapid Trash Assessment Protocol
Version 8
November 15, 2004

Surface Water Ambient Monitoring Program
California Regional Water Quality Control Board
San Francisco Bay Region

RAPID TRASH ASSESSMENT PROTOCOL**Surface Water Ambient Monitoring Program****California Regional Water Quality Control Board, San Francisco Bay Region**

Monitoring Design. The 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. Revisiting sites where trash was collected during previous assessments enables the determination of accumulation rates. This methodology was developed for sections of wadeable streams, but can be adapted to shorelines of lakes, beaches, or estuaries. Ultimately, the monitoring design will strongly affect the usefulness of any rapid trash assessment information.

Site Definition. Upon arrival at a designated monitoring site, a team of two people or more defines or verifies a 100-foot section of the stream or shoreline to analyze, associated with a sampling location or station. 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 survey 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 water body 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 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 revisited and re-assessed for impairment and usage patterns. 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 site 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. In one scenario of a team with two members, one team member begins walking along the bank or in the water (wear waders) 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. Keep in mind that the person tallying will not be able to pick up nearly as much trash as the other team members. All team members make sure to avoid injuries by using gloves. Avoid touching trash with unprotected hands!

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. It is important not to miss items that can affect human health such as diapers, fecal matter, and needles; these items can strongly affect the total score.

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. Be sure to complete the worksheets before leaving the site while everything is still fresh in the memory. 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 a given category, allowing for a range of conditions encountered in the field. For instance, 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. A site should be assessed several times in a given year, during different seasons, to characterize the variability and persistence of trash occurrence for water quality assessment purposes.

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 estimate actual

threat to water quality, and the last two parameters represent how trash enters the water body at a site, either through on-site activities or downstream accumulation.

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. No trash should be obviously visible at sites that score in the “optimal” range.
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 100 items have been tallied, assign the following scores: 5: 101-200 items; 4: 201-300 items; 3: 301-400 items; 2: 401-500 items; 1: 501-600 items; 0: over 600 items. Use similar guidelines to assign scores in other condition categories.

Sometimes items are broken into many pieces. Fragments with higher threat to aquatic life such as plastics should be individually counted, while paper and broken glass, with lower threat and/or mobility, should be counted based on the parent item(s). Broken glass that is 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, and 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.

3. **Threat to Aquatic Life.** 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. Some discarded debris may contain toxic substances. All of these factors are considered in the narrative descriptions in this assessment parameter.
4. **Threat to Human Health.** 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, such as mercury. The worst conditions have the potential for presence of dangerous bacteria or viruses, such as with medical waste, diapers, and human or pet waste.
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 exhibit significant threats to human health, such as discarded medical waste, human or pet waste, and broken glass. Also, some household and industrial wastes may contain toxic substances of concern to human health and wildlife, such as batteries, pesticide containers, and fluorescent light bulbs that contain mercury. 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.

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. For aquatic life, buoyant (floatable) elements tend to be more harmful than settleable elements, due to their ability to be transported throughout the waterbody and ultimately to the marine environment. Persistent elements such as plastics, synthetic rubber and synthetic cloth tend to be more harmful 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.

Trash in water bodies can threaten the health of people who use them for wading or swimming. Of particular concern are the bacteria and viruses associated with diapers, medical waste (e.g., used hypodermic needles and pipettes), and human or pet waste. Additionally, broken glass or sharp metal fragments in streams can cause puncture or laceration injuries. Such injuries can then expose a person’s bloodstream to microbes in the stream’s water that may cause illness. Also, some trash items such as containers or tires can pond water and support mosquito production and associated risks of diseases such as encephalitis and the West Nile virus.

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.

Rapid Trash Assessment Worksheet

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: _____ DATE/TIME: _____
 MONITORING GROUP, STAFF: _____ SAMPLE ID: _____
 SITE DESCRIPTION (Station Name, Number, etc.): _____

	CONDITION CATEGORY																				
Trash Assessment Parameter	Optimal					Sub optimal					Marginal					Poor					
1. Level of Trash	On first glance, no trash visible. Little or no trash (<10 pieces) evident when streambed and stream banks are closely examined for litter and debris, for instance by looking under leaves.					On first glance, little or no trash visible. After close inspection small levels of trash (10-50 pieces) evident in stream bank and streambed.					Trash is evident in low to medium levels (51-100 pieces) 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 (>100 pieces). 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 10 trash items found based on a trash assessment of a 100-foot stream reach.					11 to 50 trash items found based on a trash assessment of a 100-foot stream reach.					51 to 100 trash items found based on a trash assessment of a 100-foot stream reach.					Over 100 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. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.					Little or no (<10 pieces) transportable, persistent, buoyant litter such as: hard or soft plastics, Styrofoam, balloons, cigarette butts. Presence of settleable, degradable, and non-toxic debris such as glass or metal.					Medium prevalence (10-50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, Styrofoam, balloons, cigarette butts. Larger deposits (< 50 pieces) of settleable debris such as glass or metal. Any evidence of clumps of deposited yard waste or leaf litter.					Large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
4. Threat to Human Health	Trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste. No evidence of toxic substances such as chemical containers or batteries. No ponded water for mosquito production. No evidence of puncture and laceration hazards such as broken glass or metal debris.					No bacteria or virus hazards or sources of toxic substances, but small presence (<10 pieces) of puncture and laceration hazards such as broken glass and metal debris. No presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.					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 (mercury). Medium prevalence (10-50 pieces) of puncture hazards.					Presence of more than one of the items described in the marginal condition category, or high prevalence of any one item (e.g. greater than 50 puncture or laceration hazards).					

Rapid Trash Assessment Worksheet

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY																				
Trash Assessment Parameter	Optimal					Sub optimal					Marginal					Poor					
SCORE	20	19	18	17	16	15	14	13	12	11	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 (< 5 pieces) or carried downstream from another location.					L: Some evidence of litter within creek and banks originating from adjacent land uses (<10 pieces).					L: Prevalent (10-50 pieces) in-stream or shoreline littering that appears to originate from adjacent land uses.					L: Large amount (>50 pieces) 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 (<10 pieces) 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 (10 to 50 pieces) 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. Over 50 items of trash 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:

Rapid Trash Assessment Worksheet

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (•) if found above high water line, and (l) 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:	

Rapid Trash Assessment Worksheet

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

Dumped:

Downstream Accumulation:

SPECIFIC DESCRIPTION OF ITEMS FOUND: _____

ATTACHMENT J

Provision C.10. The Rapid Trash Assessment Methodology

SCVURPPP 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.

SCVURPPP Urban Rapid Trash Assessment Protocol Summary

Santa Clara Valley Urban Runoff Pollution Prevention Program

- 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.

SCVURPPP Urban Rapid Trash Assessment Protocol Summary
Santa Clara Valley Urban Runoff Pollution Prevention Program

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. 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.	B: No toxic substances, but small presence (2-10 pieces) of sharp objects such as broken glass and metal debris. A: Access is limited and site reach does not appear to be used by people. No trails down to creek.	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. 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.	Presence of more than one of the items described in the marginal condition category, and/or high prevalence of (> 50) sharp objects. 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.).
Site Accessibility				

Urban Rapid Trash Assessment Worksheet

Santa Clara Valley Urban Runoff Pollution Prevention Program

	CONDITION CATEGORY																							
Trash Assessment Parameter	Least Disturbed (Optimal Urban)			Sub optimal Urban			Marginal Urban			Poor														
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 (l) 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			Vehicle Batteries		
DEBRIS	# Above	# Below	Other (write-in)		
Concrete (not placed)			BIODEGRADABLE	# Above	# Below
Rebar			Paper		
Bricks			Cardboard		
Wood Debris			Food Waste		
Other (write-in)			Yard Waste (incl. trees)		
MISCELLANEOUS	# Above	# Below	GLASS	# Above	# Below
Synthetic Rubber			Glass bottles		
Foam Rubber			Glass pieces		
Balloons			FABRIC AND CLOTH	# Above	# Below
Ceramic pots/shards			Synthetic Fabric		
Hose Pieces			Natural Fabric (cotton, wool)		
Cigarette Butts			Other (write-in)		
Golf Balls					
Tennis Balls					
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 K

Standard NPDES Permit Provisions

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN FRANCISCO BAY REGION

August 1993

STANDARD PROVISIONS AND REPORTING REQUIREMENTS

For

NPDES SURFACE WATER DISCHARGE PERMITS

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. Bypass (the intentional diversion of waste streams from any portion of a treatment facility) is prohibited. The Board may take enforcement action against the discharger for plant bypass unless:

- a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.);
- b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment down time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
- c. The discharger submitted advance notice of the need for a bypass to the Board. If the discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass. The discharger shall submit notice of an unanticipated bypass as required by 40 CFR 122.41(l)(6) (24 hour notice), as required in paragraph E.6.d.

The discharger may allow a bypass to occur that does not cause effluent limitations to be exceeded, but only if it is for essential maintenance to assure efficient operation.

14. Availability

A copy of this permit shall be maintained at the discharge facility and be available at all times to operating personnel.

15. 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. This results of this review shall be reported in the annual report to the Board on October 1 of each year.

C. TREATMENT RELIABILITY

1. The discharger shall, at all times, properly operate and maintain all facilities and systems of treatment disposal and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with this order and permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. All of these procedures shall be described in an Operation and Maintenance Manual. The discharger shall keep in a state of readiness all systems necessary to achieve compliance with the conditions of this order and permit. All systems, both those in service and reserve, shall be inspected and maintained on a regular basis. Records shall be kept of the tests and made available to the Board. [40 CFR 122.41(e)]
2. Safeguard to electric power failure:
 - a. The discharger shall, within ninety (90) days of the effective date of this permit, submit to the Board for approval a description of the existing safeguards provided to assure that, should there be reduction, loss, or failure of electric power, the discharger shall comply with the terms and conditions of its Order. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past five years on effluent quality and on the capability of the discharger to comply with the

terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Regional Board.

- b. Should the Board not approve the existing safeguards, the discharger shall, within ninety (90) days of having been advised by the Board that the existing safeguards are inadequate, provide to the Board and the U.S. Environmental Protection Agency a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the permittee shall comply with the terms and conditions of this permit. The schedule of compliance shall, upon approval of the Board Executive Officer, become a condition of the Order.
- c. If the discharger already has approved plan(s), the plan shall be revised and updated as specified in the plan or whenever there has been a material change in design or operation. A revised plan shall be submitted to the Board within ninety (90) days of the material change.

D. 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(1)(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.

E. 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)]

F. 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:

$$C_d = \text{Average daily concentration} = \frac{1}{Q_t} \left(\sum_{i=1}^N Q_i C_i \right)$$

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. 'Q_t' 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 L

Annual Report Form for San Francisco Bay Region NPDES Municipal Regional Stormwater Permit