C.11. Mercury Controls

The 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. The purpose of this provision is to implement the urban runoff requirements of the mercury TMDL and reduce mercury loads to make substantial progress toward achieving the urban runoff mercury load allocation. The Permittees may comply with any requirement of this provision through a collaborative effort.

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

i. Task Description – The 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 – The Permittees shall report on these efforts in their Annual Report~~s~~, including an estimate of the mass of mercury collected.

C.11.b. Monitor Methylmercury

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

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

iii. Reporting – The Permittees shall report monitoring results annually beginning with their 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. Task Description – The Permittees shall investigate and abate mercury sources in or to their storm drain systems in conjunction with the Water Board and other appropriate regulatory agencies with investigation and cleanup authorities. The purpose of this task is to implement and evaluate the benefit of a suite of abatement measures at five pilot project locations. The Permittees shall document the knowledge and experience gained through pilot implementation, and this documentation will provide a basis for determining the scope of abatement implementation in subsequent permit terms. The Permittees shall also quantify and report the amount of mercury loads abated resulting from implementation of these measures.

ii. **Implementation Level** – Reducing loads of PCBs is the main pilot location selection factor for this Provision, and reducing loads of mercury ~~load reductions~~ is a secondary criterion. Accordingly, for PCB~~s~~ pilot project locations selected as part of Provision C.12.c, the Permittees shall conduct reconnaissance in the pilot project drainage areas. The Permittees shall test sediments in storm drains and conveyances to characterize the extent and magnitude of mercury concentrations. They shall evaluate monitoring data and determine if a mercury sediment abatement program would reduce mercury loading significantly. If so determined, the Permittees shall cause abatement activities to be conducted at those sites under Permittee jurisdiction with identified remedial activities. When contamination is located on private property, a Permittee~~s~~ must either exercise ~~ensure that cleanup occurs either by exercising~~ direct authority to require cleanup or ~~by~~ notify~~ing~~ and request other appropriate authorities to exercise their cleanup authority~~ensure that oversight is established~~. The Permittees are responsible for contaminants located on public rights-of-way and the stormwater conveyance system.

iii. **Reporting** – Report on mercury-related aspects of work and loads abated as part of reporting requirements for Provision C.12.c.

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

i. **Task Description** – The Permittees shall jointly evaluate ways to enhance mercury load reduction benefits of operation and maintenance actives that remove or manage sediment. The purpose of this task is to implement these management practices at the pilot scale in five drainages during this permit term. The knowledge and experience gained through pilot implementation will be used to determine the implementation scope of enhanced sediment removal and management practices in subsequent permit terms. The Permittees shall document the knowledge and experience gained through pilot implementation, and this documentation will provide a basis for determining the implementation scope of enhanced sediment removal management practices in subsequent permit terms. The Permittees shall also quantify and report the amount of mercury loads removed or avoided resulting from implementation of these measures.

ii. **Implementation Level** – In all pilot program drainages selected as part of Provision C.12.c, the Permittees shall jointly evaluate ways to enhance existing sediment removal and management practices such as municipal street sweeping, ~~including~~ curb ~~b~~ 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 (in coordination and consultation with local sanitary sewer agencies~~y~~) as a potential enhanced management practice in coordination and consultation with local sanitary sewer agencies~~y~~.

Beginning July 1, 2011, the Permittees shall implement pilot studies for the most potentially effective measures(s) based on the evaluation of Provision C.11.d.ii~~.~~ in all drainages for which PCB pilot projects are being conducted.

iii. Reporting

(1) The Permittees shall present a progress report on the results of the evaluation in their 2010 Annual Report and the final evaluation results in their 2011 Annual Report.

(2) In their 2013 Annual Report, the Permittees shall report the effectiveness of enhanced practices pilot implementation, report estimates of loads reduced, and present a plan and schedule for possible expanded implementation for subsequent permit terms.

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

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

ii. Implementation Level – The Permittees, working collaboratively, shall identify at least ten~~10~~ locations throughout the Permittees' jurisdictions that present opportunities to install and evaluate[1] on-site treatment systems (e.g., detention basins, bioretention units, sand filters, infiltration basins, treatment wetlands) and shall assess best treatment options for those locations. Every county (San Mateo, Contra Costa, Alameda, Santa Clara, and Solano) should have at least one location. This effort shall identify potential locations draining a variety of land uses; evaluate technical feasibility; and discuss economical feasibility. The pilot locations may be the same as those chosen for Provision C.12.e, but consideration should be given to areas of elevated mercury concentrations.

On the basis of the Provision C.11.e.ii~~.~~ report, the Permittees shall select sites to perform pilot studies and shall conduct pilot studies in ten~~10~~ selected locations. Pilot studies shall span treatment types and drainage characteristics.

iii. Reporting –

(1) In their ~~2010~~ 2011 Annual Report, the Permittees shall report on candidate locations and types of treatment retrofit for each location. The report shall include assessment of at least ~~10~~ ten locations.

[1] Permittees may evaluate a maximum of two pre-existing treatment systems of the ten total required systems to be evaluated provided that these existing treatment systems are applicable to the intent of this provision..

(2) In their 2013 Annual Report, the Permittees shall report status, results, mercury removal effectiveness, and lessons learned from the ten~~10~~ pilot studies and their plan for implementing this type of treatment on an expanded basis throughout their jurisdictions ~~region~~ during the next permit term.

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

i. Task Description – The Permittees shall evaluate the reduced loads of mercury from diversion of dry weather and first flush stormwater flows to sanitary sewers. The Permittees shall document the knowledge and experience gained through pilot implementation, and this documentation will provide a basis for determining the implementation scope of ~~dry weather~~urban runoff diversion projects in subsequent permit terms. The Permittees shall also quantify and report the amount of mercury loads removed or avoided resulting from implementation of these measures.

ii. Implementation Level – The Permittees shall implement pilot projects to divert dry weather and first flush flows to POTWs to address these flows as a source of PCBs and mercury to receiving waters. The Permittees are strongly encouraged to make use of stormwater pump stations in this effort because pump station characterization work performed pursuant to~~for~~ Provisions C.2 and C.10, addressing dissolved oxygen depletion and trash impacts, may be efficiently leveraged for the initial phase of these diversion pilot projects. The objectives of this P~~p~~rovision are~~:~~ to: implement five pilot projects for ~~dry weather~~urban runoff diversion from stormwater pump stations to POTWs; evaluate the reduced loads of mercury and PCBs resulting from each~~the~~ diversion; and gather information to guide the selection of additional diversion projects in future permits. Collectively, the Permittees shall select five~~5~~ stormwater pump stations and five~~5~~ alternates by evaluating drainage characteristics and the feasibility of diverting flows to the sanitary sewer.

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

(2) From this feasibility evaluation, the Permittees shall select five~~5~~ pump stations and five~~5~~ alternates for pilot diversion studies. At least one ~~dry weather~~urban runoff diversion pilot project shall be implemented in each of the five counties (San Mateo, Contra Costa, Alameda, Santa Clara, and Solano). The pilot and alternate locations should be located in industrially-dominated catchments where elevated PCB concentrations are documented.

(3) The Permittees shall implement flow diversion to the sanitary sewer at five~~5~~ pilot pump stations. As part of the pilot studies, the Permittees shall monitor, measure, and report mercury load reduction.

iii. Reporting

(1) The Permittees shall summarize the results of the feasibility evaluation in their 2010 Annual Report, including:

- Selection criteria leading to the identification of the five~~5~~ candidate and five~~5~~ alternate pump stations for pilot studies.
- Time schedules for conducting the pilot studies.
- A proposed method for distributing mercury load reductions to participating wastewater and stormwater agencies.

(2) The Permittees shall report annually on the status of the pilot studies in each subsequent A~~a~~nnual R~~r~~eport.

(3) The Permittes ~~2013 Annual Report~~ shall include in their 2013 Annual Report:

- Evaluation of pilot program effectiveness.
- Mercury loads reduced.
- Updated feasibility evaluation procedures to guide future diversion project selection.

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

i. Task Description – The 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. Implementation Level – The Permittees shall demonstrate progress toward (a) the interim loading milestones, or (b) attainment of the p~~P~~rogram area allocations, by using the following methods:

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

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

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

iii. Reporting

(1) The Permittees shall report in their 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) The Permittees shall report in their 2013 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. Task Description – The Permittees shall conduct or cause to be conducted studies aimed at better understanding the fate, transport, and biological uptake of mercury discharged in urban runoff to San Francisco Bay and tidal areas.

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

iii. Reporting – The Permittees shall submit in their 2010 Annual Report a work plan describing the specific manner in which these information needs will be accomplished and describing the studies to be performed with a schedule. The Permittees shall report on status of these studies in their 2010, 2011, and 2012 Annual Reports. In the 2013 Annual Report, the 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 p~~P~~ermit cycles.

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

i. Task Description – The Permittees shall develop and implement or participate in effective programs to reduce mercury-related risks to humans and quantify the resulting risk reductions from these activities.

ii. Implementation Level – The risk reduction activities shall include investigating ways to address public health impacts of mercury in San Francisco Bay/Delta fish, including activities that reduce actual and potential exposure of health impacts to those people and communities most likely to be affected by mercury in San Francisco Bay-caught fish, such as subsistence fishers and their families. Such strategies should include public participation in developing effective programs in order to ensure their effectiveness. The ~~Dischargers~~ Permittees may include studies needed to establish effective exposure reduction activities and risk communication messages as part of their planning. The risk reduction activities may be performed by a third party if the Permittees wish to provide funding for this purpose. This requirement may be satisfied by a combination of related efforts through the Regional Monitoring Program or other similar collaborative efforts.

iii. Reporting – The Permittees shall submit in their 2010 Annual Report the specific manner in which these risk reduction activities will be accomplished and describe the studies to be performed with a schedule. The Permittees shall report on the status of the risk reduction efforts in their 2011~~,~~ and 2012 Annual Reports. The Permittees shall report the findings and results of the studies completed, planned, or in progress as well as the status of other risk reduction actions in their 2013 Annual Report.

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

i. Task Description – The wasteload allocations for urban stormwater developed through the San Francisco Bay mercury TMDL implicitly include California Department of Transportation (Caltrans) roadway and non-roadway facilities within the geographic boundaries of urban runoff management agencies. Consistent with the TMDL, the Permittees are required to develop an equitable mercury allocation-sharing scheme in consultation with Caltrans to address the~~se~~ Caltrans facilities in the program area, and report the details to the Water Board. Alternatively, Caltrans may choose to implement mercury load reduction actions on a watershed or regionwide basis in lieu of sharing a portion of an urban runoff management agencies' mercury allocation.~~,~~ In such a case, the Water Board will consider a separate allocation for Caltrans for which it~~they~~ may demonstrate progress toward attaining an allocation or load reduction in the same manner as municipal programs.

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