

## C.11. Mercury Controls

The Permittees shall implement the following control program for mercury. The Permittees shall perform the control measures (source control, treatment control, and pollution prevention strategies) and report on those control measures according to the provisions below. The provisions implement the urban runoff requirements of the San Francisco Bay and Guadalupe River Watershed mercury TMDLs and reduce mercury loads to make substantial progress toward achieving the urban runoff mercury load allocations established for the TMDLs. The aggregate, regionwide, urban runoff wasteload allocation from the San Francisco Bay mercury TMDL is 82 kg/yr. The TMDL implementation plan calls for attainment of the allocation by February 2028 and, as a way to measure progress, attainment of an interim loading milestone by February 2018 of 120 kg/yr, halfway between the 2003 estimated load, 160 kg/yr, and the aggregate allocation. The Permittees may comply with any requirement of this provision through a collaborative effort.

### C.11.a. Implement Control Measures to Achieve Mercury Load Reductions

- i. **Task Description** – Permittees shall implement mercury source and treatment control measures and pollution prevention strategies to reduce mercury loads throughout the area covered by this Permit (permit-area).
- ii. **Implementation level** – To comply with this provision element, Permittees shall:
  - (1) Identify the watersheds or portions of watersheds (management areas) in which mercury control measures are currently being implemented and those in which new control measures will be implemented during the term of this Permit (many or most may be the same watersheds as those identified for C.12.a.ii(1));
  - (2) Identify the control measures that are currently being implemented and those that will be implemented in each watershed and management area (may be the same as those identified for C.12.a.ii(2));
  - (3) Submit a schedule of control measure implementation; and
  - (4) Implement mercury source and treatment control measures and pollution prevention strategies and quantify mercury load reductions achieved by using the accounting methods established according to provision C.11.b.
- iii. **Reporting**
  - (1) The Permittees shall report by April 1, 2016, progress toward developing a list of the watersheds and management areas where mercury control measures are currently being implemented and those in which control measures will be implemented (C.11.a.ii(1)) during the term of this Permit as well as the monitoring data and other information used to select these watersheds and management areas.

- (2) The Permittees shall report in their 2016 Annual Report the list of watersheds and management areas where control measures are currently being implemented or will be implemented during the term of the Permit (C.11.a.ii(1)) along with the specific control measures (C.11.a.ii(2)) that are currently being implemented and those that will be implemented in these watersheds and management areas and an implementation schedule (C.11.a.ii(3)) for these control measures. In addition to the list of watersheds and management areas, this report shall include:
  - a. The number, type, and locations and/or frequency (if applicable) of control measures;
  - b. The description, scope, and start date of pollution prevention measures;
  - c. For each structural control and non-structural BMP, interim implementation progress milestones (e.g., construction milestones for structural BMPs or other relevant implementation milestones for structural and non-structural BMPs) and a schedule for milestone achievement; and
  - d. Clear statements of the roles and responsibilities of each participating Permittee for implementation of pollution prevention or control measures identified under C.11.a.ii(2).
- (3) Beginning with the 2017 Annual Report and continuing in all Annual Reports, Permittees shall update all the information required under C.11.a.iii(2) as necessary to account for new control measures implemented, but not described, in the 2016 Annual Report.

#### **C.11.b. Assess Mercury Load Reductions from Stormwater**

- i. **Task Description** – The Permittees shall develop and implement an assessment methodology and data collection program to quantify in a technically sound manner mercury loads reduced through implementation of pollution prevention, source control, and treatment control measures, including mercury source control, stormwater treatment, green infrastructure, and other measures. The Permittees shall use the assessment methodology to demonstrate progress toward achieving the load reductions required in this Permit term and the program area wasteload allocations.

A reasonable and technically sound load reduction accounting system is described in the Fact Sheet and is based on information submitted by the Permittees in the January 2014 Integrated Monitoring Report. This task consists of documenting the method described in the Fact Sheet or any alternative methodology, updating and refining the accounting system to account for new information, justifying assumptions, analytical methods, sampling schemes and parameters used to quantify the load reduction for each type of control measure, and indicating what information will be collected and submitted to confirm the calculated load reduction for each control measure implemented.

**ii. Implementation Level** – The Permittees shall adequately quantify the mercury load reductions achieved through implementing pollution prevention, source control, and treatment control efforts.

**iii. Reporting**

- (1) In their 2016 Annual Report the Permittees shall submit, for Executive Officer approval, the assessment methodology and data collection program required in C.11.b.i.
- (2) Beginning with the 2017 Annual Report, Permittees shall report annually the loads reduced using the default (from Fact Sheet) or alternative approved assessment methodology to demonstrate cumulative mercury load reduced from each control measure implemented since the beginning of the Permit term. Permittees shall submit all supporting data and information necessary to substantiate the load reduction estimates, including appropriate reference to the control measures described in the reporting required under C.11.a.
- (3) In their 2018 and subsequent Annual Reports, the Permittees shall submit, for Executive Officer approval, any refinements, if necessary, to the measurement and estimation methodologies to assess mercury load reductions in the subsequent permit.

**C.11.c. Plan and Implement Green Infrastructure to reduce mercury loads**

**i. Task Description** – Permittees shall implement green infrastructure projects during the term of the Permit to achieve the mercury load reductions performance criteria in Table 11.1. Green infrastructure projects on both public and private land can serve to achieve this load reduction requirement. Additionally, Permittees shall prepare a reasonable assurance analysis (see below and Fact Sheet) to demonstrate quantitatively that mercury load reductions of at least 10 kg/yr will be achieved by 2040 through implementation of green infrastructure throughout the permit-area.

**ii. Implementation Level**

- (1) The Permittees shall implement sufficient green infrastructure projects so that mercury loads are collectively reduced by 48 g/yr by June 30, 2020, which shall be extended to December 31, 2020, if the Permittees provide documentation that control measures that will attain the load reduction will be implemented by December 31, 2020. Permittees shall demonstrate achievement of these load reductions by using the accounting methods approved under provision C.11.b.iii(1). Load reductions from green infrastructure projects implemented prior to the effective date of this Permit may be counted toward the required green infrastructure reductions of this Permit term if these projects were established and implemented during the Previous Permit term, but load reductions from the activity were not realized or credited during the Previous Permit term.

The Permittees may meet the load reduction as a group. The load reduction requirements summed over all Permittees within each county are set forth in Table 11.1. If neither the permit-area-wide total load reduction nor the county-specific load reduction is achieved, Permittees shall achieve load reductions consistent with their share of the county total. The individual Permittee share of the county load reduction is the proportion of county population in each municipality.

If all the Permittees in a county wish to use an alternative method of distributing the county load reductions, these Permittees shall report through their countywide stormwater programs on their alternative method (if different from default population-based method) for assigning Permittee-specific load fractions in the 2017 Annual Report. This can be determined by the Permittees within the counties and may be different from one county to the next, but all Permittees within a county shall use the same method of distributing the county load reductions. Any acceptable alternative load reduction criteria must be approved through an amendment of this Permit.

**Table 11.1 Mercury Load Reduction Performance Criteria via Green Infrastructure Implementation by County**

<b>County Permittees</b>	<b>Mercury Load Reduction (g/yr) by June 30, 2020, through green infrastructure</b>
Alameda Permittees	15
Contra Costa Permittees	9
San Mateo Permittees	6
Santa Clara Permittees	16
Solano Permittees: Suisun City, Vallejo, Fairfield	2
<b>Totals</b>	<b>48</b>

- (2) Permittees shall prepare a reasonable assurance analysis of future mercury load reductions by doing the following:
  - a. Quantify the relationship between areal extent of green infrastructure implementation and mercury load reductions. This quantification should take into consideration the scale of contamination of the treated area as well as the pollutant removal effectiveness of likely green infrastructure strategies.
  - b. Estimate the amount and characteristics of land area that will be treated through green infrastructure by 2020, 2030, and 2040.
  - c. Estimate the amount of mercury load reductions that will result from green infrastructure implementation by 2020, 2030, and 2040.

- d. Quantitatively demonstrate that mercury reductions of at least 10 kg/yr will be realized by 2040 through implementation of green infrastructure projects.
- e. Ensure that the calculation methods, models, model inputs, and modeling assumptions used to fulfill C.11.c.ii(2)(a-d) have been validated through a peer review process.

**iii. Reporting**

- (1) The Permittees shall submit in their 2018 Annual Report, as part of reporting for C.11.b.iii(2), the quantitative relationship between green infrastructure implementation and mercury load reductions. This submittal shall include all data used and a full description of models and model inputs relied on to establish this relationship.
- (2) The Permittees shall submit in their 2020 Annual Report an estimate of the amount and characteristics of land area that will be treated through green infrastructure implementation by 2020, 2030, and 2040. This submittal shall include all data used and a full description of models and model inputs relied on to generate this estimate.
- (3) The Permittees shall submit in their 2020 Annual Report a reasonable assurance analysis to demonstrate quantitatively that mercury reductions of at least 10 kg/yr will be realized by 2040 through implementation of green infrastructure projects. This submittal shall include all data used and a full description of models and model inputs relied on to make the demonstration and documentation of peer review of the reasonable assurance analysis.
- (4) The Permittees shall submit as part of reporting for C.11.b.iii(2), beginning with their 2019 Annual Report, an estimate of the amount of mercury load reductions resulting from green infrastructure implementation during the term of the Permit. This submittal shall include all data used and a full description of models and model inputs relied on to generate this estimate.
- (5) All Permittees in a county may submit, in the 2017 Annual Report, an alternative (different from the population-based default described in C.11.c.ii(1)) and supporting information to derive Permittee-specific proportions of load reduction criteria.

**C.11.d. Prepare Implementation Plan and Schedule to Achieve TMDL Allocations**

- i. **Task Description** – Permittees shall prepare a plan and schedule for mercury control measure implementation and reasonable assurance analysis demonstrating that sufficient control measures will be implemented to attain the mercury TMDL wasteload allocations by 2028. This plan may share many elements of a similar plan developed for PCBs according to Provision C.12.d.

**ii. Implementation level** – Permittees shall prepare a mercury control measure implementation plan and corresponding reasonable assurance analysis that demonstrates quantitatively that the plan will result in mercury load reductions sufficient to attain the mercury TMDL wasteload allocations by 2028. The plan must:

- (1) Identify all technically and economically feasible mercury control measures (including green infrastructure projects) to be implemented;
- (2) Include a schedule according to which these technically and economically feasible control measures will be fully implemented; and
- (3) Provide an evaluation and quantification of the mercury load reduction of such measures as well as an evaluation of costs, control measure efficiency and significant environmental impacts resulting from their implementation.

**iii. Reporting**

Permittees shall submit the plan and schedule in the 2020 Annual Report.

#### **C.11.e. Implement a Risk Reduction Program**

**i. Task Description** – The Permittees shall conduct an ongoing risk reduction program to address public health impacts of mercury in San Francisco Bay/Delta fish. The fish risk reduction program shall take actions to reduce actual and potential health risks in those people and communities most likely to consume San Francisco Bay-caught fish, such as subsistence fishers and their families. The risk reduction framework developed in the Previous Permit term, which funded community-based organizations to develop and deliver appropriate communications to appropriately targeted individuals and communities, is an appropriate approach.

**ii. Implementation Level**

- (1) At a minimum, Permittees shall conduct or cause to be conducted an ongoing risk reduction program with the potential to reach 3000 individuals annually who are likely consumers of San Francisco Bay-caught fish. Permittees are encouraged to collaborate with San Francisco Bay industrial and wastewater discharger agencies in meeting this requirement.
- (2) In year four of the permit term, Permittees shall evaluate the effectiveness of their risk reduction program.

**iii. Reporting** – The Permittees shall report on the status of the risk reduction program in each of their Annual Reports, including a brief description of actions taken, an estimate of the number of people reached, and why these people are deemed likely to consume Bay fish. The Permittees shall report the findings of the effectiveness evaluation of their risk reduction program in their 2020 Annual Report.