

## C.11. Mercury Controls

The Permittees shall implement the following control programs for mercury. The Permittees shall perform the control measures (source control, treatment control or pollution prevention strategies) and provide reporting on those control measures according to the provisions below. Many of the control measures may be chosen primarily for the purpose of achieving PCBs load reductions, but substantial mercury load reductions may result as a tangential benefit and should be accounted for.

The purpose of this provision is to implement the urban runoff requirements of the San Francisco Bay mercury TMDL and reduce mercury loads to make substantial progress toward achieving the urban runoff mercury load allocations established for the TMDL. The aggregate, regionwide, urban runoff wasteload load allocation 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 current 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 continue implementing existing or initiate new mercury source and treatment control measures and pollution prevention strategies to achieve mercury load reductions throughout the area covered by the permit.
- ii. Implementation level** – In order to comply with this provision element, Permittees shall:
  - (1) Identify the watersheds 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 (may be the same as those identified for C.12.a.ii(2)); and
  - (3) Submit a schedule of control measure implementation.
  - (4) Demonstrate achievement of load reductions by using the accounting methods established according to provision C.11.b.
- iii. Reporting**
  - (1) The Permittees shall report by February 1, 2016 a list of the watersheds (or portions therein) 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.

- (2) The Permittees shall report in their 2016 Annual Report the specific control measures (C.11.a.ii(2)) that are currently being implemented and those that will be implemented in watersheds identified under C.11.a.iii(1) and an implementation schedule (C.11.a.ii(3)) for these control measures. 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 responsibilities of each participating Permittee for implementation of pollution prevention or control measures.
- (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**

**Task Description** – The Permittees shall develop and implement an assessment methodology and data collection program to quantify mercury loads reduced through implementation of any and all pollution prevention, source control and treatment control efforts required by the provisions of this permit or load reductions achieved through other relevant efforts not explicitly required by the provisions of this permit. A reasonable foundation for the load reduction accounting system was submitted by Permittees in December 2013 in the Integrated Monitoring Report for the previous permit. This task element consists of updating the work from that document, justifying assumptions and selected parameters used to quantify the load reduction benefit for each type of control measure, and indicating what information will be collected and submitted to confirm the load reduction benefit for each unit of activity.

- i. Implementation Level** – The Permittees shall quantify the mercury load reductions achieved through implementing pollution prevention, source control and treatment control efforts required by the provisions of this permit as well as mercury load reductions achieved through other relevant efforts not explicitly required by the provisions of this permit.
- ii. Reporting**
  - (1) The Permittees shall submit, for Executive Officer approval, by April 1, 2016, a full description of the measurement and estimation methodology and rationale for the approaches used to assess mercury load reductions

achieved through mercury source control, stormwater treatment, green infrastructure projects, and other stormwater management measures implemented during the term of this permit.

For control measures that become operational at any time during year 5 of the permit term, the estimated load reduction credited to the Permittee for this control measure shall be the estimated mercury load removed during one full year of operation. For control measures requiring construction or installation of new infrastructure that are under construction but not fully operational as of the end of the permit term, one-half (50%) of the estimated mercury yearly load reduction shall be counted in year 5 with the remaining 50% load reduction credited during the future year that the infrastructure element is fully operational.

- (2) Beginning with the 2016 Annual Report, Permittees shall report annually the loads reduced using the approved estimation methodology to demonstrate cumulative mercury load reduced from each control measure implemented since the beginning of 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 updates, if necessary, to the measurement and estimation methodologies to assess mercury load reductions.

**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 mercury load reductions of 48 g/year over the final three years of the permit term. Additionally, Permittees shall provide reasonable assurance of mercury load reductions of at least 10 kg/yr throughout the Permit area by 2040 through implementation of green infrastructure plans required by provision C.3.j.
- ii. Implementation level** – Permittees shall:
  - (1) Implement sufficient green infrastructure projects to achieve county-specific load reductions shown in Table 11.1 and demonstrate achievement of these load reductions by using the accounting methods established according to provision C.11.b.ii(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 or implemented during the last permit term, but load reductions from the activity were not realized or credited during the last permit term.

For all Permittees combined these county-specific average annual mercury load reductions from green infrastructure projects total 48 g/yr during each

of the final three years of the permit. The Countywide Urban Runoff Programs are responsible for specific portions of these Permit area totals shown in Table 11.1 below. The total expected mercury load reductions and county-specific expected mercury load reductions from green infrastructure projects are derived from an expected number of green infrastructure projects for each county (see Fact Sheet).

**Table 11.1 Expected Mercury Load Reductions via Green Infrastructure Implementation by County**

<b>County Program</b>	<b>Mercury Load Reduction (g/year) for final 3 years of permit through green infrastructure implementation</b>
Alameda	13
Contra Costa	10
San Mateo	12
Santa Clara	11
Solano (unincorporated, Suisun City, Vallejo, Fairfield)	2
<b>Totals</b>	<b>48</b>

Permittees shall provide reasonable assurance of future mercury load reductions by doing the following:

- (1) 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.
- (2) Estimate the amount and characteristics of land area that will be treated through green infrastructure future years 2020, 2030, and 2040.
- (3) Estimate the amount of mercury load reductions that will result from green infrastructure implementation by future years 2020, 2030, and 2040.
- (4) Quantitatively demonstrate that mercury reductions of at least 10 kg/yr will be realized by 2040 through implementation of green infrastructure projects.
- (5) Ensure that the calculation methods, models, model inputs and modeling assumptions used to fulfill C.11.c.ii(1-4) have been validated through a peer review process.

**iii. Reporting**

- (1) The Permittees shall submit in their 2017 Annual Report (as part of reporting for C.11.b.ii(1)), 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 2019 Annual Report an estimate of the amount and characteristics of land area that will be treated through green infrastructure implementation by future years 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 2019 Annual Report a demonstration with reasonable assurance 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 demonstration.
- (4) The Permittees shall submit as part of reporting for C.11.b.ii(2), beginning with their 2019 Annual Report an estimate of the amount of mercury load reductions result from green infrastructure implementation during 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.

#### **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 provide reasonable assurance that sufficient control measures will be implemented to attain the mercury TMDL wasteload allocations. 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 measures implementation plan and provide reasonable assurance that the plan will result in mercury load reductions sufficient to attain the mercury TMDL wasteload allocations. The plan must:
  - (1) identify all technically and economically feasible mercury control measures (including green infrastructure projects) to be implemented; and
  - (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**
  - (1) Permittees shall submit the plan and schedule in the 2019 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 Annual Report on year four of the permit term.