

**California Regional Water Quality Control Board  
San Francisco Bay Region**

**RESPONSE TO WRITTEN COMMENTS**

On the Tentative Order for  
Martinez Refining Company, LLC.

The Regional Water Board received written comments from San Francisco Baykeeper (Baykeeper) on a tentative order distributed for public comment. The comments are summarized below in *italics* (paraphrased for brevity) and followed by a staff response. For the full content and context of the comments, please refer to the comment letter. To request a copy of the comment letter, see the contact information provided in Fact Sheet section 8.7 of the Revised Tentative Order.

Revisions are shown with ~~strike through~~ for deletions and underline for additions.

***Comment 1:*** *Baykeeper indicates that two recently published studies by the U.S. Geological Survey demonstrate that current selenium loads in San Francisco Bay are harming fish, especially in areas closest to petroleum refineries, and that the Water Board's current approach for regulating selenium is inadequate. Baykeeper requests that the Board reject the Tentative Order to give Water Board staff an opportunity to better address selenium pollution from petroleum refineries.*

**Response**

We made no changes in response to this comment. The Tentative Order implements the North San Francisco Bay Selenium Total Maximum Daily Load (TMDL), which establishes the basis for implementing selenium effluent limits in NPDES permits. To change our permitting approach, the TMDL would first need to be revised.

Nevertheless, the Tentative Order would reduce selenium discharges by requiring Martinez Refining Company, LLC (MRC) to replace its old biotreater (Pond 7) with a new unit, which will improve overall treatment, including selenium removal. Rejecting the Tentative Order would allow MRC to operate under its existing order (R2-2017-0039) and would not reduce selenium loads discharged to San Francisco Bay.

***Comment 2:*** *Baykeeper asserts that the limits in the existing order and Tentative Order do not properly implement the requirements of the North San Francisco Bay Selenium TMDL. Baykeeper asserts that the 1.1 kilogram per day limit the TMDL established equates to 401 kilograms per year, which is more than the 244 kilograms per year wasteload allocation. Additionally, Baykeeper indicates that MRC frequently exceeds its daily effluent limit for selenium and discharges at least 251 kilograms per year.*

**Response**

We disagree. The selenium effluent limits were calculated using the methods described in the North San Francisco Bay Selenium TMDL: "Wasteload allocations for the five

North Bay petroleum refineries shall be implemented through NPDES permits with performance-based mass limits expressed as kg/day. The mass limit shall be calculated as the 95<sup>th</sup> percentile of the daily loads based on representative effluent data collected during the period of 2000 through 2012.” The 1.1 kilograms per day value is calculated in the TMDL staff report. It reflects the 95<sup>th</sup> percentile and accounts for observed variability in flow and selenium concentrations resulting from different crude oils received and processed. MRC would not discharge the 95<sup>th</sup> percentile of its performance every day and thus would not reach Baykeeper’s estimate of 401 kilograms per year. Instead, MRC’s long-term average performance would need to be much lower to ensure that it meets the effluent limitation. Otherwise, frequent exceedances of the 95<sup>th</sup> percentile might suggest that MRC’s performance has significantly changed, and we could need to revise our approach in that circumstance.

During the previous order term, MRC discharged an average annual selenium load of 240 kilograms per year. Although this load is close to MRC’s wasteload allocation, MRC has not had any daily exceedances, as Baykeeper suggests. The 1.1 kilograms per day limit is an average monthly limit. With an average monthly limit, a single daily value may exceed the monthly average, but compliance is evaluated using the average of all the data collected during the month. MRC has come close to exceeding its 1.1 kilograms per day monthly average limit but has not violated it since January 2017.

***Comment 3:*** *Baykeeper indicates that, for the last ten years, the Water Board has failed to encourage, require, or facilitate the reduction of selenium from refineries in the North Bay. From 2012 to 2017, refineries have not been asked to reduce selenium loads. They have only been asked not to exceed limits that were designed not to be exceeded. From 2017 to present, refineries have been allowed to discharge the same amount of selenium they did from 2000 to 2012. Baykeeper asserts that the Water Board should require MRC to reduce its selenium discharges.*

**Response**

We mostly disagree, but we did make changes in response to this comment. The North San Francisco Bay Selenium TMDL requires petroleum refineries to maintain their selenium loads. The effluent limit in the Tentative Order is designed in accordance with the TMDL wasteload allocations to ensure that MRC maintains its current selenium loads and does not allow MRC to increase its selenium loads to San Francisco Bay.

The North San Francisco Bay Selenium TMDL does not require refineries to reduce selenium loads. However, because the five-year annual average of MRC’s selenium loads has threatened to exceed the 244 kilograms per year wasteload allocation, in September 2020 we required MRC to submit a report describing its efforts to reduce selenium loads. MRC’s October 29, 2020, report detailed measures it would take to reduce its selenium discharges, including installation of a sand filter downstream of its selenium processing unit. In 2021, MRC reported a decrease of 28 kilograms of selenium discharged compared to the load it reported in 2020.

During our inspection on August 17, 2021, we learned that MRC often removes its sand filter due to clogging issues. As a result, we required MRC to notify us with each

monthly self-monitoring report when the sand filter was in use. The Tentative Order (Attachment E section 7.2.2.1) retains this requirement. Since the 2021 inspection, MRC has not reported using its sand filter. Consequently, as of October 2022, MRC is again threatening to discharge selenium above its TMDL wasteload allocation due to its increased selenium loads. To ensure that MRC's selenium discharges do not exceed its wasteload allocation, we added Provision 6.3.4.10 to the Tentative Order:

**Measures to maintain selenium performance.** The Discharger shall complete the following tasks and submit a report by June 1, 2023:

- Assess the feasibility of using its sand filter downstream of the selenium processing unit. Evaluate when the sand filter can be used and describe situations when it cannot be used, such as high flows;
- Evaluate the selenium removal provided by the sand filter, including conditions when selenium removal could be optimized;
- Investigate alternatives to using the sand filter for selenium removal if using the sand filter is infeasible or the sand filter does not remove selenium;
- Investigate methods other refineries use to comply with selenium limits. Evaluate the feasibility of using these methods to decrease selenium discharges; and
- Describe alternative measures to be implemented to ensure selenium discharges comply with the wasteload allocation in the North San Francisco Bay Selenium TMDL.

We also revised the Fact Sheet by adding section 6.3.4.10:

**Measures to maintain selenium performance.** This provision is required to ensure that the Discharger remains below its wasteload allocation of 244 kilograms of selenium discharged per year over this permit term.

***Comment 4:*** Baykeeper indicates that the Water Board's implementation of the TMDL through NPDES permits assumes that current selenium loads only need to be maintained. Baykeeper says, if current selenium loads are protective, they must not be harmful to fish and wildlife. Baykeeper points to scientific literature indicating that current selenium discharges actually harm fish and wildlife. Baykeeper refers to research published in 2019 demonstrating that (1) deformities resulting from selenium toxicity were observed in Sacramento Splittail in the San Francisco Bay estuary, especially near refineries and Carquinez Strait; (2) selenium concentrations in liver and ovary tissues exceeded U.S. EPA's proposed selenium criteria; and (3) despite this selenium concentrations in muscle tissue did not exceed the proposed U.S. EPA criteria (thus the criteria are insufficiently protective). Baykeeper further states that organ tissue is a more reliable indicator of selenium's potential harm effects than muscle tissue.

*Additionally, Baykeeper says that research published in 2020 found that selenium bioaccumulates and can result in deformities to Sacramento Splittail through maternal transfer and juveniles feeding on contaminated prey. Baykeeper asserts that this research indicates that current selenium levels are harming Sacramento Splittail and that selenium loads to North San Francisco Bay need to be reduced. In fact, the selenium concentrations U.S. EPA proposes (which are lower than the concentrations used for the TMDL) will not protect Sacramento Splittail; therefore, current and proposed standards are inadequate.*

**Response**

We made no changes in response to this comment. Baykeeper says selenium loads should be reduced, but as of now, there is no regulatory basis for establishing more stringent selenium effluent limits. The Tentative Order implements the TMDL adopted in 2016 by the Regional Water Board and approved by the State Water Resources Control Board, the Office of Administrative Law, and U.S. EPA in accordance with State and federal laws and regulations. The Regional and State Water Boards considered and responded to comments from Baykeeper and others prior to TMDL adoption.

Comments regarding the stringency of U.S. EPA's proposed selenium criteria for San Francisco Bay should be directed to U.S. EPA.

**Comment 5:** *Baykeeper reiterates its earlier comments that (1) the Tentative Order allows MRC to discharge selenium above the loads prescribed in the TMDL, and (2) the Water Board should reject the Tentative Order and require MRC to reduce selenium loads because current selenium concentrations in Suisun Bay are not protective.*

**Response:**

See responses to Comments 2 and 4.