

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

RESPONSE TO WRITTEN COMMENTS

On the Tentative Order for
Chevron Products Company, Richmond Refinery

The Regional Water Board received written comments from Chevron Products Company (Chevron) and 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 staff responses. For the full content and context of the comments, please refer to the comment letters. To request copies of the comment letters, see the contact information provided in Fact Sheet section 8.7 of the Revised Tentative Order.

Revisions are shown with ~~strikethrough~~ for deletions and underline for additions.

Chevron Comment 1

Chevron requests that we revise the Tentative Order to allow laboratory staff to sample stormwater from valve-controlled stormwater basins before or within 30 minutes of discharge.

Response

We agree that Chevron should be able to sample and analyze pollutants in stormwater basins prior to discharge to ensure that laboratory staff have time to conduct the analysis of representative stormwater samples. We revised Monitoring and Reporting Program (MRP) Table E-6, Footnote 2, as follows:

The Discharger shall collect samples representative of first flush conditions if feasible. For locations with valve-controlled discharge, at least one sample shall be collected prior to or within the first 30 minutes of discharge.

We revised MRP Table E-7, Footnote 1, and Table E-8, Footnote 1, as follows:

The Discharger shall collect at least one grab sample prior to or within the first 30 minutes of discharge.

Baykeeper Comment 1

Baykeeper indicates that, in response to its comments on the Martinez Refining Company (MRC) tentative order in October 2022, the Board added a provision to that order that requires MRC to complete tasks and submit a report on how it will maintain its selenium treatment performance. Baykeeper points out that the Chevron tentative order does not include a similar provision and asserts that the Board should require all refineries that discharge selenium into San Francisco Bay to review their processes, as well as other effective and existing technologies to reduce selenium loads.

Response

We disagree. Chevron's discharge and compliance history does not warrant including a provision to maintain its selenium treatment performance. Table 1, below, compares the recent performance of each refinery in the San Francisco Bay Region, from 2018 through 2022, with their performance when the North San Francisco Bay Selenium Total Maximum Daily Load (TMDL) was adopted. Chevron discharges selenium at a lower concentration than the other petroleum refineries (Tesoro converted to renewable diesel in 2021), and its selenium loads from 2018 through 2022 met the average annual TMDL allocation. In contrast, MRC discharges significantly more selenium, and at a higher concentration, than the other four refineries. We are concerned that MRC's performance may be deteriorating because selenium concentrations in the discharge have increased since TMDL adoption, and MRC's selenium loads from 2018 through 2022 exceeded its average annual TMDL allocation.

Table 1: Average Selenium Discharges Relative to TMDL

Refinery	Concentration used to calculate TMDL allocation (µg/L)	2018-2022 concentration (µg/L)	TMDL allocation (kg/day)	2018-2022 loading (kg/day)
Chevron	12	13	111	111 ^[1]
MRC	29	34	244	254
Phillips 66	25	24	93	83
Tesoro	8.6	4.9	60	20
Valero	22	16	63	56
Total			571	524

^[1] Baykeeper calculated an average annual loading of 113 kg/day. This discrepancy is due to Baykeeper using the rounded daily loading value for selenium listed in Fact Sheet Table F-3.

Although MRC's discharge may, individually, be cause for concern, the TMDL is designed to maintain the performance of all the refineries. Table 1 shows that, collectively, the refineries discharged about 10 percent less selenium than their combined TMDL allocations.

Baykeeper 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 0.68 kilogram per day limit the TMDL established equates to 248 kilograms per year, which is more than the 111 kilograms per year wasteload allocation. Additionally, Baykeeper asserts that, based on the daily average selenium discharge of 0.31 kg/day (or 113 kg/year) indicated in Fast Sheet Table F-3 (page F-12), Chevron has exceeded the TMDL allocation for the past seven years. To

be protective, Baykeeper indicates that the Tentative Order should require stricter selenium limitations so Chevron outperforms its TMDL allocation, rather than exceeds it.

Response

We disagree. Effluent limitations in a permit must be consistent with the assumptions and requirements of wasteload allocations established in TMDLs. (40 C.F.R. § 122.44(d)(1)(vii)(B).) The North San Francisco Bay Selenium TMDL establishes the basis for the selenium effluent limits in the permit and was based on the best available science at the time. The Tentative Order implements the TMDL as written. The selenium effluent limits were calculated using the method described in the 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 95th percentile of the daily loads based on representative effluent data collected during the period of 2000 through 2012.” The 0.68 kilograms per day value is calculated in the TMDL staff report as detailed above. It is a performance-based mass limit and accounts for observed variability in flow and selenium concentrations resulting from different crude oils received and processed. To set performance-based limits, the TMDL established a performance curve for Chevron based on the variability of the monitoring data. The long-term average was 111 kg/year; however, the monthly loading allowed to maintain that long-term average is based on a 95th percentile occurrence probability. This is consistent with how average monthly effluent limits are established in *State Implementation Policy* (SIP) section 1.4.

Since the TMDL was approved in May 2016, Chevron’s selenium discharges during the seven years from June 2016 through July 2023 have averaged 0.305 kg/day, or 111 kg/year, which equals the TMDL allocation. Contrary to Baykeeper’s assertion, Chevron has not exceeded the allocation for the past seven years, and Chevron has not exceeded the monthly mass load limit. The monthly load limit has ensured that Chevron achieves the TMDL allocation.

Baykeeper 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. Furthermore, because the daily load limit is based on the 95th percentile of discharges from 2000 to 2012, the Water Board only demands that Chevron do better every day in 2023 than on its worst 15 days a year from 2000 to 2012. Baykeeper asks that the Board require Chevron to reduce its selenium discharges.

Response

We did not make changes in response to this comment. The TMDL is designed to maintain the refinery performance; it does not call for reductions. The Regional and State Water Board considered and responded to comments from Baykeeper and others prior to TMDL adoption. The effluent limit in the Tentative Order is in accordance with

the TMDL allocation and ensures that Chevron does not increase its selenium loads. To change our approach to selenium effluent limits, the TMDL would first need to be revised. See our response to Baykeeper Comment 2.

Baykeeper Comment 4

Baykeeper indicates that the Water Board’s current approach to selenium pollution is inadequate. 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 harm fish and wildlife. Baykeeper refers to research published in 2019 demonstrating that deformities resulting from selenium toxicity were observed in Sacramento Splittail in the San Francisco Bay estuary, especially near the refineries. Baykeeper also points to research published in 2020 that found 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 green and white sturgeon, which need additional protections due to the catastrophic mortality event they suffered during the harmful algal bloom in the summer of 2022. Therefore, selenium loads to North San Francisco Bay need to be reduced.

Response

We did not make changes in response to this comment. The Revised Tentative Order implements the TMDL adopted in 2016 by the Regional Water Board and approved in accordance with State and federal laws and regulations. See our responses to Baykeeper Comments 2, 3, and 5.

Baykeeper Comment 5:

Baykeeper reminds Water Board members and staff of their statements regarding the importance of remaining “well-informed” on selenium reduction technologies and to “help in further evaluation or consideration of selenium criteria and in any future considerations of the TMDL,” and the Board Chair’s desire to “keep a close eye” on this issue.

Response:

We did not make changes in response to this comment. Nevertheless, we are taking steps to remain well informed. To ensure that we are able to base future decisions on the best available science, on July 12, 2023, we required MRC to investigate the impacts of refinery selenium discharges on aquatic life. We imposed the requirement on MRC because, as shown in Table 1, it discharges significantly more selenium to San Francisco Bay than the other four refineries. The study requires, in part, that MRC collect and analyze sturgeon muscle tissue samples and splittail egg-ovary tissue samples within two miles of its discharge point. Once complete, this study will provide additional information to evaluate whether existing loads are protective or changes to the North San Francisco Bay Selenium TMDL are warranted.

Baykeeper Comment 6:

Baykeeper reiterates its earlier comments that the Tentative Order (1) will not limit selenium emissions to a level consistent with protection of fish and wildlife or public

health, (2) allows Chevron to discharge selenium above the loads allocated in the TMDL, (3) should be amended so it is based on the most accurate and current science-based evidence about selenium pollution near the North Bay refineries, (4) should require that Chevron study its current practices as well as best available technology to reduce selenium loads, and (5) should require Chevron to reduce selenium loads because current selenium discharge concentrations are not protective.

Response:

See our responses to Baykeeper Comments 1, 2, 3, and 4.