



GAVIN NEWSOM
GOVERNOR



JARED BLUMENFELD
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Los Angeles Regional Water Quality Control Board

March 4, 2020

Mr. Ted Semaan, PE
Public Works Director
City of Redondo Beach
415 Diamond Street
Redondo Beach, CA 90277

RESPONSE TO REQUEST TO MODIFY EFFLUENT LIMITATIONS FOR TOTAL RESIDUAL CHLORINE INCLUDED IN THE 2017 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT CA0064297 FOR THE CITY OF REDONDO BEACH, SEASIDE LAGOON, ORDER NUMBER R4-2017-0178

Dear Mr. Semaan:

On September 18, 2019, the Los Angeles Regional Water Quality Control Board (Regional Water Board) received your request to modify the final effluent limitation for total residual chlorine included in NPDES Permit CA0064297 and Waste Discharge Requirements (WDRs) Order Number R4-2017-0178 (Permit).¹ Specifically, the City of Redondo Beach is requesting that the total residual chlorine effluent limitations of 2 micrograms per liter ($\mu\text{g/L}$) for the average monthly effluent limitation (AMEL) and 8 $\mu\text{g/L}$ for the maximum daily effluent limitation (MDEL) be modified to 100 $\mu\text{g/L}$ or 0.1 milligrams/liter (mg/L) as the MDEL, based on the Water Quality Control Plan for the Los Angeles Region (Basin Plan).

The effluent limitations in the current Permit are based in part on Table 3, Objectives for Protection of Marine Aquatic Life, of the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) in order to implement the narrative water quality objective in the Basin Plan, "Chlorine residual shall not persist in receiving waters at any concentration that causes impairment of beneficial uses".

In a letter dated May 26, 2000, the United States Environmental Protection Agency (U.S. EPA) concluded that the 0.1 mg/L "discharge limitation" included in the Basin Plan was not sufficiently stringent to ensure the protection of aquatic life beneficial uses in regional waters (see attached). The first permit for Seaside Lagoon that incorporated the limits at issue here (2 $\mu\text{g/L}$ as the AMEL and 8 $\mu\text{g/L}$ as the MDEL) was adopted in June, 1999.

¹ The WDRs were adopted by the Regional Water Board on September 7, 2017 along with Time Schedule Order No. R4-2017-0179 that provided interim effluent limitations for copper, selenium, silver, thallium and zinc.

IRMA MUÑOZ, CHAIR | RENEE PURDY, EXECUTIVE OFFICER

In this case, the Regional Water Board has determined that the discharge limitation in the Basin Plan cannot be relied on to protect aquatic life in King Harbor, the receiving water for discharges from the City of Redondo Beach's Seaside Lagoon. The water quality objectives from the Ocean Plan were developed to protect marine aquatic life and other beneficial uses of ocean waters. The beneficial uses of King Harbor include marine habitat (MAR) as well as rare, threatened, or endangered species (RARE) among others. Based on applicable policy and guidance, and the data and evidence in its files for this discharge stretching back over twenty years, the Regional Water Board has determined that the request to modify the permit to include the 0.1 mg/L total residual chlorine discharge limitation in the Basin Plan may result in the discharge of total residual chlorine at concentrations that are not protective of marine aquatic life in King Harbor. Therefore, the total residual chlorine effluent limitations in the permit will not be modified.

This letter summarizes the Regional Water Board's rationale in reaching this decision as set forth in the following sections:

- Background
- Basin Plan
- NPDES Permit History
- Conclusion

Background

The Seaside Lagoon (Lagoon) was constructed in 1962 and it is open to the public for swimming from Memorial Day to Labor Day (Regular Season) each year. The City may allow use of the lagoon and nearby facilities for social functions on dates outside of the Regular Season. The surface area of the water in the Lagoon is approximately 1.2 acres with a maximum depth of 7 feet and a volume of approximately 1.4 million gallons.

Water to the Lagoon is supplied from the AES Redondo Beach, LLC, Power Plant when it is operating. The once through cooling water discharge from the Redondo Beach Power Plant provides warm saltwater to the Lagoon via the cooling water discharge outfall line. When the Redondo Beach Power Plant is not operating, the City of Redondo Beach uses pumps to direct standing water from the discharge outfall pipe and any water that siphons back from King Harbor into the Lagoon.

Chlorine in the form of sodium hypochlorite solution is injected into the supply line to meet the Los Angeles County Department of Health Services requirements. The Permit indicates that continuous chlorination at 1 milligram per liter is required to kill coliform in the Lagoon. The Lagoon is equipped with a dechlorination system consisting of a chemical tank and a metering pump. Per the City, the dechlorination chemical solution is injected into the Lagoon discharge conduit about 60 feet before the discharge point. Discharges from the Lagoon enter King Harbor at the shoreline.

Basin Plan

The beneficial uses of King Harbor as set forth in the Basin Plan include industrial service supply, navigation, commercial and sport fishing, marine habitat, wildlife habitat, rare, threatened, or endangered species, and water contact recreation and non-contact water

recreation. Effluent limitations included in the permit must ensure that discharges to King Harbor do not adversely affect the beneficial uses.

The Basin Plan includes water quality objectives to protect inland surface waters, including enclosed bays and estuaries. The description of total residual chlorine included in the Basin Plan reads:

Disinfection of wastewaters with chlorine produces a chlorine residual. Chlorine and its reaction products are toxic to aquatic life.

Chlorine residual shall not be present in surface water discharges at concentrations that exceed 0.1 mg/L and shall not persist in receiving waters at any concentration that causes impairment of the beneficial uses.

In 2000, U.S. EPA reviewed several amendments to the Basin Plan, which were subject to the water quality standards approval authority of the U.S. EPA under Section 303(c) of the Clean Water Act.² The amendments reviewed were adopted on March 27, 1989, October 22, 1990, June 13, 1994, and January 27, 1997, and included amendments to incorporate water quality objectives for total residual chlorine. The "New Discharge Limitations" section, which begins at the top of Page 10 of the letter reads:

"The 1994 amendment adds the following technology based discharge limitation for Total Residual Chlorine to the Basin Plan: Chlorine residual shall not be present in surface water discharges at concentrations that exceed 0.1 mg/L... It is based primarily on a consideration of equipment reliability and monitoring limitations at sewage treatment plants. This discharge limitation is not sufficiently stringent to ensure the protection of aquatic life beneficial uses in Regional surface waters because it is not water quality based. To ensure that inland surface waters, enclosed bays, and estuaries are free from toxic concentrations of chlorine, in the next triennial review, the Regional Board should expand the existing narrative objective for total residual chlorine to include numeric objectives for the protection of aquatic life. These objectives should be based on a consideration of the EPA's national recommended water quality criteria for chlorine (see Ambient Water Quality Criteria for Chlorine – 1984, EPA 440/5-84-030, January 1985) ..."

The U.S. EPA letter goes on to state:

"In the interim, we believe that the narrative objective for total residual chlorine and NPDES permitting regulations at 40 CFR 122.44(d)(1) provide the legal basis for applying 304(a) criteria in the development of protective WQBELs for chlorine (expressed as total residual chlorine)."

NPDES Permit History

Order 99-057. The City of Redondo Beach first received an NPDES permit (Order 99-057) for operations at Seaside Lagoon on June 30, 1999. The numeric effluent limitations

² See, Letter from Alexis Strauss, dated May 26, 2000, to Edward C. Anton, Acting Executive Director, California State Water Resources Control Board (SWRCB).

included in the permit were 2 µg/L for the AMEL and 8 µg/L for the MDEL. In support of these limits, Order No. 99-057 contains several findings.

First, Order No. 99-057 includes findings documenting the date the facility was constructed, the source water for the facility, and the chlorination/dechlorination process used to ensure that the Lagoon is safe for water contact recreation and that discharges to King Harbor are protective of the Harbor's beneficial uses. The permit also includes a finding that states:

"Test results, submitted by the City, have indicated that the residual chlorine concentration at the overflow structures is practically non-detectable. However, to ensure meeting the residual chlorine requirements prescribed in this Order, the lagoon is equipped with a dechlorination system, consisting of a chemical tank and a metering pump. The dechlorination system is integrated with the hypochlorite generation system. If necessary, the dechlorination chemical solution (ascorbic acid or sulfur dioxide or sodium thiosulfate) would be injected into the lagoon discharge conduit (at the manhole) about 60 feet before the discharge point at King Harbor."

Finding 13 of this permit states:

"On July 23, 1997, the SWRCB adopted a revised Water Quality Control Plan for Ocean Waters of California (Ocean Plan). The revised plan contains water quality objectives for the coastal waters of California. This Order includes effluent and receiving water limitations, prohibitions, and provisions implementing the objectives of the Plan."

These permit findings document the protocol the City has in place for compliance with the total residual chlorine effluent limitations and that the Ocean Plan was used in some cases to develop the effluent limitations, receiving water limitations, prohibitions, and provisions for the Permit. The effluent limitations for total residual chlorine in this Permit were based on the Ocean Plan's water quality objectives. The 2 µg/L, 6-month median water quality objective included in the Ocean Plan was implemented as a monthly average in the Seaside Lagoon permit as the facility operates for less than 6 months of the year, from Memorial Day to Labor Day. The 8 µg/L daily maximum effluent limitation for total residual chlorine is the daily maximum water quality objective from the Ocean Plan.

Order No. 2005-0016. In the Report of Waste Discharge (ROWD) for the 2005 permit, the City of Redondo Beach requested a relaxation of the total residual chlorine limits because the City was having difficulty meeting the limits. The total residual chlorine data submitted in the ROWD ranged from non-detect at less than 10 micrograms per liter to 1,800 micrograms per liter. The City initiated an investigation to determine the cause of the exceedances. The City discovered that the cause was a leak in the slide gate valve located in the monitoring vault that closes off the bypass pipe. The City communicated that it was looking into the potential of using a sluice gate valve instead of the existing slide gate valve because the sluice gate valve withstands twice the back pressure of the slide gate and should eliminate chlorine leakage. Considering the data presented in the ROWD, the City's investigation and planned actions to address the exceedances, and the narrative water quality objective in the Basin Plan among other factors, the Regional Water Board did not revise the total residual chlorine limits. No written comments were

received from the City or others on the tentative requirements. This decision was appropriate given the May 2000 U.S. EPA letter, which concluded that the 0.1 mg/L total residual chlorine discharge limitation in the Basin Plan is not sufficiently protective of aquatic life.

Throughout the years after the first permit was adopted in 1999, the Regional Water Board has kept the limits for total residual chlorine the same for this reason. Both Order R4-2010-0185, adopted on October 7, 2010, and Order R4-2017-0178, adopted on September 7, 2017 include the same limits for total residual chlorine.

Of note, there is a typographical error in Order R4-2017-0178. The effluent limitation for total residual chlorine is incorrectly listed as "Chlorine, Total Recoverable" in Table 4 and Table F-11 of Order R4-2017-0178. Throughout the remainder of the document the parameter is appropriately referred to as total residual chlorine. This minor error will be corrected when the permit is updated.

Conclusion

In conclusion, NPDES Permit No. CA0064297 includes numeric effluent limitations based on the narrative water quality objective included in the Basin Plan and the numeric water quality objectives for protection of marine aquatic life included in the Ocean Plan. This is consistent with U.S. EPA's May 26, 2000 approval of amendments to the Basin Plan, which states that the technology based discharge limitation for total residual chlorine of 0.1 milligram per liter (100 µg/L) included in the Basin Plan is not sufficiently stringent to ensure the protection of aquatic life beneficial uses in the region's surface waters and to apply the Basin Plan narrative water quality objective and 40 CFR 122.44(d)(1) in the development of protective water quality based effluent limitations for total residual chlorine.

The Regional Water Board has concluded that a 0.1 mg/L effluent limitation for total residual chlorine for discharges from Seaside Lagoon would not be protective of marine aquatic life in King Harbor. The total residual chlorine water quality objectives included in the Ocean Plan are protective of marine aquatic life in King Harbor. Therefore, the Regional Water Board has included total residual chlorine effluent limitations based on the narrative water quality objective in the Basin Plan and the numeric water quality objectives included in the Ocean Plan. The Regional Water Board has reaffirmed this conclusion and approach on several occasions since 1999.

Therefore, the Regional Water Board has decided that it will not reopen the permit at this time to revise the total residual chlorine effluent limitations. The current order will expire on October 31, 2022; an updated permit will be prepared for public review and comment prior to the Regional Water Board's action to renew the permit.

Mr. Ted Semaan, PE
Seaside Lagoon

- 6 -

March 4, 2020

If you have any further questions, please contact Mazhar Ali at (213) 576-6652 or via email at Mazhar.Ali@waterboards.ca.gov or Cris Morris at (213) 620-2083 at Cris.Morris@waterboards.ca.gov.

Sincerely,



Renee Purdy
Executive Officer

Enclosures:

Request to Modify Effluent Limitations for Total Residual Chlorine
May 26, 2000, U.S.EPA Memorandum from Alexis Strauss

Mailing List (via Email only)

Elizabeth Sablad, Environmental Protection Agency, Region 9, Permits Branch (WTR-5)
Robyn Stuber, Environmental Protection Agency, Region 9, Permits Branch (WTR-5)
NPDES Wastewater Unit, State Water Resources Control Board, Division of Water Quality
Kenneth Wong, U.S. Army Corps of Engineers
Bryant Chesney, NOAA, National Marine Fisheries Service
Jeff Phillips, Department of Interior, U.S. Fish and Wildlife Service
William Paznokas, Department of Fish and Game, Region 5
Angelo Bellomo, Los Angeles County, Department of Health Services
Sarah Sikich, Heal the Bay
Bruce Reznik, Los Angeles Waterkeeper
Corinne Bell, Natural Resources Defense Council
Annelisa Moe, Heal the Bay
Geraldine Trivedi, City of Redondo Beach