

**STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

STAFF REPORT FOR REGULAR MEETING OF DECEMBER 12-13, 2019

Prepared on November 19, 2019

ITEM NUMBER: 12

SUBJECT: Revision of Waste Discharge Requirements, Reissuance of National Pollutant Discharge Elimination System Permit No. CA0048143 for the City of Santa Barbara El Estero Water Resource Center, Santa Barbara County, Order No. R3-2019-0046

STAFF CONTACTS:

Peter von Langen (805) 549-3688 peter.vonlangen@waterboards.ca.gov

ACTION: Adopt Order No. R3-2019-0046

SUMMARY

This agenda item proposes reissuance of an existing NPDES permit. The proposed order regulates the discharge of secondary treated wastewater and desalination brine to the Pacific Ocean. The proposed order also regulates the production of tertiary treated wastewater for recycling and thus includes language terminating the previous water reclamation requirements. The proposed order includes additional monitoring to account for changes to the California Ocean Plan for discharges of desalination brine and salinity limitations. It also implements new 2019 California Ocean Plan bacteria standards. Additionally, the proposed order includes requirements related to climate change. The Fact Sheet, Attachment F of the proposed order, includes the legal requirements and technical rationale that serve as the basis for the requirements of the order. Central Coast Water Board staff recommends adoption of the proposed order.

KEY INFORMATION

Location: 520 East Yanonali Street, Santa Barbara County

Place ID: 222443

Type of Discharge: Secondary treated wastewater and desalination discharges.

Permitted Flow: 11 million gallons per day (MGD) of treated wastewater and 12.5 MGD of desalination brine.

Water Reclamation: This proposed order covers the production of tertiary treated water for recycling and rescinds Water Reclamation Requirements Order No. 97-44. The distribution and use of recycled water for irrigation are regulated separately by State Water Resources Control Board

(State Water Board) General Water Reclamation Requirements for Recycled Water Use (Order WQ 2016-0068-DDW).

Type of Treatment: Wastewater treatment for ocean outfall discharge is accomplished by secondary treatment that includes screening and grinding, aerated grit removal, primary sedimentation, activated sludge stabilization, secondary clarification, disinfection (with sodium hypochlorite), and dechlorination (with sodium bisulfite). Prior to disinfection, a portion of the secondary treated effluent is diverted to a newly modified tertiary membrane filtration system for non-potable water reuse applications (e.g., landscape irrigation, construction for dust control and soil compaction, toilet flushing, and the facility's process water). The secondary treated effluent is pretreated before passing through the tertiary membrane filtration system. The tertiary membrane filtration system includes feed pumps, automatic strainers, microfiltration/ ultrafiltration membranes, and a filtrate tank. After filtration, the effluent is chlorinated in a chlorine contact basin prior to non-potable water reuse applications.

Disposal Method: Treated wastewater is discharged through an 8,720-foot ocean outfall at a depth of approximately 70 feet. When the desalination facility is operational, brine is comingled with wastewater and discharged through the same outfall.

Solid Wastes: Biosolids are processed by gravity thickening, dissolved air floatation thickening, anaerobic digestion, and belt press dewatering. Dewatered solids are transported off-site for disposal.

Existing Orders: Waste Discharge Requirements (WDR) Order No. R3-2010-0011, as amended, covers the existing discharge to the Pacific Ocean. Statewide General WDR for Sanitary Sewer Systems (State Water Board Order No. 2006-0003-DWQ) regulates the sewage collection system. The distribution and reuse of recycled water is regulated by State Water Board General Water Reclamation Requirements for Recycled Water Use (currently Order WQ 2016-0068-DDW). Production and reuse of recycled water at the facility is currently also regulated separately under Water Reclamation Requirements Order No. 97-44.

Action: Adoption of Order No. R3-2019-0046, including termination of Water Reclamation Requirements Order No. 97-44.

DISCUSSION

The City of Santa Barbara (hereinafter discharger) is the owner and operator of the El Estero Water Resource Center (facility). The facility was formerly called the "El Estero Wastewater Treatment Facility and Charles Meyer Desalination Plant." The facility

currently treats domestic, commercial, and industrial wastewaters from a population of approximately 98,818, in the city of Santa Barbara and portions of Santa Barbara County. The desalination facility was operational for a short time in 1994 and was placed in standby mode in 1996 until it became operational again in 2017 to address drought-related water supply shortages. Depending on the desalination facility's freshwater production rate, waste brine and other supplemental desalination flows are discharged to the ocean outfall at flow rates of about 1.2 to 12.5 MGD with and without mixing with El Estero secondary effluent.

The minimum initial dilution ratio of the outfall/diffuser system is 120 to 1 (seawater to effluent) when no brine discharge occurs. When brine discharge does occur, the minimum initial dilution ratio is 44 to 1 (seawater to effluent). The hydraulic capacity of the outfall is 28 MGD. The discharger conducted a hydrodynamic analysis in 2014 (updated in 2016 based upon the final design) titled: *Hydrodynamic Modeling of Brine Dilution and Dispersion from the El Estero Wastewater Treatment Plant Outfall, Santa Barbara, CA*. This study confirms that the waste brine and commingled brine and secondary treated effluent discharges at the outfall will satisfy NPDES permit requirements. The study also specifies that the present outfall design is capable of satisfying the initial dilution requirements under varying effluent flow rate conditions, with the least mixing resulting from low flow and brine only (i.e., no secondary effluent) discharge.

The discharger constructed a brine disposal facility in 2018, where brine originating from a local water conditioning facility (Rayne of Santa Barbara, Inc.) is trucked in and discharged through the facility's existing outfall. This discharge is covered by the General Permit for Discharges with Low Threat to Water Quality (Order No. R3 2017-0042, CAG993001). During the previous permit term, the discharger also upgraded various components of the brine discharge structure.

The proposed order also regulates the production of recycled wastewater and supersedes regulatory coverage under Water Reclamation Requirements Order No. 97-44. The distribution and uses of the recycled water are covered by State Water Resources Control Board General Water Reclamation Requirements (WRRs) for Recycled Water Use, Order WQ 2016-0068-DDW. With the upgraded recycling facility the City has been able to consistently produce 1.5 MGD over the summer to meet peak demand. The new facility was designed with a potential maximum net capacity of 2.8 MGD and the City plans on meeting this production capacity.

CHANGES FROM THE EXISTING ORDER

The proposed order is structured in accordance with the State Water Board's NPDES permit template. The proposed order includes the following changes and modifications to the existing order:

- The proposed order allows for and regulates production of recycled water.
- The proposed order incorporates new State Water Board volume reporting limits for wastewater and recycled water.

- An updated reasonable potential analysis found that the facility did not have reasonable potential to cause an exceedance of water quality standards for ammonia, antimony, arsenic, acute toxicity, chlorinated phenolics, non-chlorinated phenolic compounds, chloroform, copper, lead, nickel, n-nitrosidomethylamine, selenium, tributyltin, and zinc in the discharge when not discharging desalination brine and for ammonia and copper in the commingled discharge when discharging desalination brine. As such, the proposed order has no effluent requirements for these pollutants.
- The updated reasonable potential analysis found a reasonable potential to cause an exceedance of water quality standards for silver, total chlorine residual, chronic toxicity, heptachlor, and heptachlor epoxide when not discharging desalination brine and for selenium, total chlorine residual, and acute toxicity in the commingled discharge when discharging desalination brine. As such, the proposed order includes effluent requirements for these pollutants.
- The previous order's effluent limitations have also been updated to be consistent with mathematical calculations for the significant figures presented in the 2019 *Water Quality Control Plan for the Ocean Waters of California* (Ocean Plan) water quality objectives (i.e., two significant figures).
- The proposed order requires additional monitoring to account for changes to the Ocean Plan for discharges of desalination brine and salinity limitations.
- The proposed order implements the 2019 Ocean Plan bacterial objectives.
- The proposed order updates the CIWQS reporting schedule.
- The proposed order includes provisions that ensure adaptation strategies are implemented for climate change.

COMPLIANCE HISTORY

A summary of the discharger's violations of effluent limitations and facility incidents during the term of the previous order is in the Fact Sheet on page F-13. The discharger has reported 50 effluent violations and facility incidents during the previous order term. Most of the exceedances were for coliform, total suspended solids (TSS), and settleable solids between July 2011 and March of 2012. The majority of these exceedances were caused by a filamentous bacteria upset in the secondary clarifiers. The discharger implemented corrective actions to prevent further recurrences. These effluent violations met the criteria for assessing mandatory minimum penalties, and the discharger paid a \$96,000 penalty in 2013. Another effluent violation for TSS in August 2017 met the criteria for assessing mandatory minimum penalties, and a penalty of \$3,000 was assessed and paid in 2019. At the beginning of 2019, the secondary process system improvement project was commissioned. The newly configured secondary treatment process enables the system to produce high quality effluent, limiting or eliminating such violations from occurring again. Of the remaining violations, five were for deficient monitoring and one was for an unauthorized discharge. The discharger has taken several precautions to prevent future occurrences of untreated wastewater discharges and has implemented laboratory procedures to ensure monitoring is conducted as required by the order.

COMMENTS

The Central Coast Water Board notified the discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and provided an opportunity for the submittal of written comments and recommendations. Notification was provided through publication in the Santa Barbara News Press on September 9, 2019, posting on the Central Coast Water Board's website, and posting at the facility and Post Office. Written comments were due at the Central Coast Water Board office by 5:00 p.m. on October 9, 2019. A comment was received on October 8, 2019, from the discharger requesting that the order clarify that the desalination brine discharge also occasionally includes seawater, potable water, and filter backwash. Central Coast Water Board staff added this clarification to the proposed order.

RECOMMENDATION

Adopt Order No. R3-2019-0046, as proposed.

ATTACHMENTS

For copies, please refer to the Central Coast Water Board's internet website at: http://www.waterboards.ca.gov/centralcoast/board_info/agendas/2019/2019_agendas.shtml

1. Proposed Order No. R3-2019-0046, including the following associated attachments:

- Attachment A – Definitions
- Attachment B – Map
- Attachment C – Flow Schematic
- Attachment D – Standard Provisions
- Attachment E – Monitoring and Reporting Program (MRP)
- Attachment F – Fact Sheet

CW-222433

R:\RB3\Shared\NPDES\Facilities\Santa Barbara\Santa Barbara\2019_NPDES Permit\After public notice\EI_Estero_staff_Report_ADA.docx