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Staff Report	1/24/2025

STAFF REPORT: REGULAR CALENDAR

Consistency Certification No.: **CC-0002-24**

Applicant: **City of San Diego**

Location: The ocean outfall discharge for E.W. Blom Point Loma Wastewater Treatment Plant (PLWTP), 4.5 miles offshore of Point Loma, San Diego County.

Project Description: Continued discharge of treated wastewater through the ocean outfall pipe located 4.5 miles offshore of Point Loma. This federal consistency review addresses the reissuance of a secondary treatment waiver for a National Pollutant Discharge Elimination Systems (NPDES) Permit by the U.S Environmental Protection Agency.

Staff Recommendation: Conditional Concurrence

SUMMARY OF STAFF RECOMMENDATION

The City of San Diego (City) has submitted a consistency certification for the reissuance of a secondary treatment waiver by the U.S. Environmental Protection Agency (EPA) for municipal discharges from the Point Loma Wastewater Treatment Plant (PLWTP). The reissuance would extend roughly until 2030 (i.e., five years after the permit is issued) and would be needed to allow the City to continue to discharge wastewater and effluent receiving less than full secondary treatment in terms of two key water quality indicators: total suspended solids (TSS) and biochemical oxygen demand (BOD). (A waiver for pH

standards is not being requested). If no waiver were granted, the City would need to implement upgrades to the PLWTP so that discharged wastewater can meet the Clean Water Act's secondary treatment requirements, including removal of 85% of both TSS and BOD from discharged wastewater. With a waiver, the City would be required to meet a lesser water quality standard and only remove 80% of TSS and 58% of BOD.

While other coastal municipalities that had historically sought similar waivers from secondary treatment requirements have now upgraded their wastewater treatment facilities to achieve secondary treatment standards, the City has been pursuing a different approach for the past decade. As an alternative to upgrading the PLWTP, the City has been working to reduce wastewater flows *to* its plant, through water recycling and reuse, which then reduces discharges (and pollutant loads) going into the ocean. The City has sought public support of its alternative approach and resolution of past lawsuits filed through, among other things, agreements with stakeholders.

On December 9, 2014, in a Cooperative Agreement with San Diego Coastkeeper, the San Diego Chapter of Surfrider Foundation, the Coastal Environmental Rights Foundation, and the San Diego Audubon Society, the City expanded and updated its previous commitments to aggressively pursue water reuse. This agreement spelled out the agreed-upon alternative approach, and in it the City committed to a compliance schedule for initially implementing at least 15 million gallons per day (MGD) of potable water reuse by the end of 2023, at least 30 MGD by the end of 2027, and ultimately achieving at least 83 MGD of wastewater reuse by the end of 2035, under a program called "Pure Water San Diego." When fully implemented, the projected reductions in flows to the PLWTP would enable the facility to achieve "secondary equivalency"[1] status for TSS discharges, as discussed in that agreement. When the Commission considered a consistency certification for the City's last secondary treatment waiver in 2017 (CC-0002-17), it heavily relied on the City's commitment to implement its Pure Water San Deigo project on the timeline in the Cooperative Agreement to concur that the consistency certification was consistent with the California Coastal Management Program (CCMP).

However, due to legal challenges, construction, planning and supply chain problems during the COVID pandemic, and other issues including unanticipated groundwater infiltration problems at the City's Morena Pump Station, the City was unable to meet the timeline committed to in the Cooperative Agreement and relied on by the Commission in its consistency certification concurrence. Rather than completed and achieving over 15 MGD of potable water reuse, Phase 1 of the Pure Water project is still under construction today and is approximately 70% complete. Potable water production is now anticipated to begin in mid-2026 with 7.5 MGD of potable water reuse and to achieve full capacity of 30 MGD of potable reuse by the end of 2027. The City has remained in coordination with key stakeholders and those involved with the Cooperative Agreement

[1] Secondary equivalency, as defined in the Cooperative Agreement (Exhibit 4), would occur when the annual mass of TSS discharged to the ocean is equivalent to the annual mass of TSS that would be discharged if PLWTP were operating at full permitted capacity (240 MGD) and treating to secondary standards.

over the past several years and those parties continue to support the City's approach and progress made on the Pure Water project, despite its timing setbacks. Moreover, the City still anticipates completing Pure Water Phase 2 and achieving the full 83 MGD of potable reuse in 2035.

In addition, EPA and the San Diego Regional Water Quality Control Board (RWQCB) have carried out continual assessment of the City's ocean discharge monitoring program and the results it has generated since the last secondary treatment waiver was issued and have not identified any significant new concerns or compliance issues. EPA's most recent independent Technical Decision Document determined that San Diego's discharges continue to meet the applicable Clean Water Act standards for a secondary treatment waiver. On March 1, 2024, the EPA and RWQCB jointly released a Tentative Order which, if adopted, would approve a modified NPDES permit for the City and authorize its secondary treatment waiver. The Tentative Order incorporates the City's commitments to continue to pursue and implement its Pure Water Program for converting wastewater into potable water, as well as its ongoing and robust water quality monitoring requirements.

Since the Commission's last concurrence in 2017, new scientific research has emerged about the potential for wastewater discharges to contribute to both local and regional water quality issues, and in particular to nutrient enrichment in the Southern California Bight. These excess nutrients may stimulate primary productivity and cause eutrophication, harmful algal blooms, and/or contribute to ocean acidification. At present, however, there is no strong evidence linking wastewater discharges from PLWTP to nutrient enrichment or other such regional-scale issues, nor to the more localized shoreline water quality problems (e.g., high bacterial counts) that have led to persistent closures of southern San Diego County beaches. Further, under a 2022 amendment to its NPDES permit, the City is required to monitor nutrient discharges from PLWTP and conduct studies to evaluate whether these discharges have the potential to stimulate phytoplankton productivity, including harmful algal blooms. The City's preliminary study suggests that the discharge, occurring at depths of over 300 feet, is generally separated from the euphotic zone (the light-rich surface ocean where photosynthesis can occur) by physical stratification, which may limit the potential for the discharge to fuel productivity or algal blooms. These questions will be revisited as more data become available and will be considered by the EPA, Regional Board and Commission as part of future reviews. Implementation of the Pure Water project is expected to benefit coastal water quality, however, as it would have the ancillary benefit of reducing a key nutrient discharge (nitrogen) from the treatment plant by 9% after Phase 1 and 20% after Phase 2.

Given the importance of the Pure Water Program for the ongoing protection and enhancement of marine resources and coastal water quality in the project area, and the need to ensure continued progress in implementing this program, the City has agreed to provide an interim status report to the Commission on the construction, planning and implementation of Pure Water Phases 1 and 2 before the end of 2027. This commitment is memorialized as **Condition 1**.

In conclusion, based on (1) analyses by the EPA and Regional Board establishing that the proposed discharges would continue to meet applicable Clean Water Act and California Ocean Plan standards; (2) the NPDES permit's compliance schedule discussion and table which incorporate the City's ongoing commitments to pursue and achieve significant levels of water reuse in coming years; (3) the existing evidence that demonstrates that the discharges are not adversely affecting water quality or marine species; (4) the City's past performance in implementing water reuse programs, and its plans for numerous ancillary water quality improvement projects during the permit term; and (5) its ongoing pursuit of significant future reductions in wastewater flow to the WWTP, including the expected completion of Pure Water Phase 1 during the permit term and progress update to the Commission through the inclusion of **Condition 1**, Commission staff recommends the Commission find that the discharges over the life of the proposed 5-Year NPDES permit term would be consistent with the applicable marine resources, water quality, fishing, and public coastal access and recreation policies of the CCMP (Sections 30230, 30231, 30234, 30234.5, 30213, and 30220 of the Coastal Act).

The Commission staff therefore recommends that the Commission **conditionally concur** with CC-0002-24. The **motion** to implement this recommendation is found on **Page 6**.

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EXHIBITS

I. APPLICANT'S CONSISTENCY CERTIFICATION

The City of San Diego has certified that the proposed activity (CC-0002-24) complies with the California Coastal Management Program (CCMP) and will be conducted in a manner consistent with that program.

II. MOTION AND RESOLUTION

Motion:

> I move that the Commission conditionally concur with consistency certification CC-0002-24 on the grounds that, if modified in accordance with the condition recommended by staff, the project described therein would be consistent with the enforceable policies of the California Coastal Management Program (CCMP)

Staff recommends a **YES** vote on the motion. Passage of this motion will result in conditional concurrence with the certification and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

Resolution:

> The Commission hereby **conditionally concurs** with consistency certification CC-0002-24 by the City of San Diego on the grounds that, if modified in accordance with the condition recommended by staff, the project described therein would be consistent with the enforceable policies of the CCMP.

III. CONDITION

1. **Interim Report to the Commission.** Between February and December of 2027, the City of San Diego shall provide to the California Coastal Commission, at one of its monthly public meetings, an oral interim status report on the construction and implementation progress of Phase 1 of its Pure Water San Diego Program and on progress in planning and funding Phase 2 of its Pure Water San Diego Program 2.

IV. FINDINGS AND DECLARATIONS

A. Project Description

The City of San Diego (City) has submitted a consistency certification for the reissuance of a secondary treatment waiver (ORDER NO. R9-2024-0004, NPDES NO. CA0107409) for the municipal wastewater discharge from the E.W. Blom Point Loma Wastewater Treatment Plant (PLWTP), located on the Point Loma peninsula near its southern tip (**Exhibits 1**, **2**). The National Pollutant Discharge Elimination System

(NPDES) permit implementing the waiver would be valid for five years[2] but is subject to revision should new information indicate adverse impacts are occurring to the marine environment from the less-than-secondary treated discharge.

The PLWTP treats water from the 450 square mile Metropolitan San Diego area (**Exhibit 1**), which includes the City and 12 other participating agencies. Every day, the City's PLWTP treats an average of 140 million gallons of wastewater from the region's approximately 2.2 million residents. The PLWTP has a maximum permitted capacity of 240 million gallons per day (MGD) annual average dry weather flow and 432 MGD peak wet weather flow, making it one of the largest wastewater treatment plants in California. Chemically enhanced primary treated wastewater from PLWTP is discharged 4.5 miles offshore of Point Loma through the Point Loma Ocean Outfall (PLOO) (**Exhibit 2**). The PLWTP and PLOO are one of five groups of facilities that compose the San Diego Metropolitan Sewage System (Metro System). The other facilities include wastewater conveyance infrastructure, the North City Water Reclamation Plant, the Metro Biosolids Center and sludge conveyance facilities, and the South Bay Water Reclamation Plant and ocean outfall. **Exhibit 3** shows the connection between Metro System facilities.

Most of the wastewater coming into the Metro System facilities is directed to two pump stations (Pump Station 1 and 2) where chemical addition occurs to enhance subsequent solids removal at the PLWTP. Virtually all the inflow to PLWTP is conveyed by Pump Station 2. Once wastewater enters the PLWTP, it goes through a 0.6-inch traveling screen, aerated grit removal, chemically assisted sedimentation, final screening, and is disinfected using sodium hypochlorite and polymer. This chemically enhanced primary treatment water then flows out into the Pacific Ocean through the PLOO. The PLOO discharges wastewater to the ocean through a Y-shape diffuser at a water depth of approximately 100 m (310 feet). Each diffuser leg is roughly 2,500 feet long and has 208 discharge ports (**Exhibit 2**).

The City's projected flows for planning (which are significantly higher than observed flows) range from 156 MGD in 2025 to 158 MGD in 2027. In 2028, annual discharge is expected to decrease to 129 MGD due to the implementation of Phase 1 of the Pure Water potable reuse program (see below). The project area and facilities are described in further detail on pages 14 to 18 of the EPA's Tentative Decision Document: https://www.epa.gov/system/files/documents/2024-02/tdd-cwa-301h-waiver-san-diego-point-loma-wwtp-2024-02-27.pdf

During the next five-year permit term, and as a component of the San Deigo Regional Water Quality Control Board (RWQCB) Order and NPDES permit, the City has committed to implementing a set of planned system upgrades and a comprehensive

[2] While permit terms are five years, review and revision of renewal requests may take two to three additional years, effectively placing the permit on a seven- to eight-year year renewal schedule since the prior permit remains in effect during the review period.

water recycling program. The City's plans are detailed in Section IV Appendix B of its NPDES permit application[3]. The planned upgrades include:

- Upgraded grit removal at the PLWTP
- Upgrading equipment at Pump Station 2
- Implementing refinements to the system-wide chemical addition program

In addition to the system upgrades, the City has committed to reducing flows and pollutant loads discharged at the PLOO through the implementation of the Pure Water San Diego Program (Pure Water). At full build-out, the Pure Water Program could treat 83 MGD of wastewater for potable reuse (approximately half of the City of San Diego potable water demand) and is projected to significantly reduce effluent volumes and mass loadings of pollutants of concern discharged at the PLOO. A similar commitment by the City to reduce wastewater and pollutant discharges through water reuse was a central part of the Commission's concurrence with the City's previous consistency certification (CC-0002-17) in 2017; however, as discussed in more detail below, the project has been significantly delayed and the commitment to begin active water reuse by 2023 was not met. At present, Phase 1 of the Pure Water program is under construction, and is anticipated to be complete in 2027. The planned completion for Phase 2 of the Pure Water program is 2035.

The RWQCB's tentative order and NPDES permit includes a compliance schedule for implementing the above commitments and has been incorporated into the City's consistency certification.

B. Background

Secondary Treatment

The Clean Water Act divides pollutants into three categories for purposes of water quality protection and regulation, as follows: (Category 1): conventional pollutants, consisting of total suspended solids (TSS); biochemical oxygen demand (BOD, a measure of the amount of oxygen consumed during degradation of waste); pH; fecal coliform bacteria; and oil and grease; (Category 2): toxic pollutants, including heavy metals and organic chemicals; and (Category 3): non-conventional pollutants (a "catch-all" category for other substances warranting regulation (e.g., nitrogen and phosphorus, chlorine, and fluoride)).

These three categories are typically regulated in the Clean Water Act through the establishment of numerical standards that must not be exceeded. In municipal wastewater facilities, compliance with those numerical standards is accomplished through the application of mechanical and biological processes, often divided into primary treatment and secondary treatment. In wastewater treatment, "primary treatment" refers to the initial stage where large solid particles are removed from wastewater through physical processes like sedimentation, while "secondary treatment"

[3] Point Loma Wastewater Treatment Plant | City of San Diego Official Website

is the subsequent stage where dissolved organic matter is further removed using biological processes like aeration and bacterial decomposition, significantly improving water quality by breaking down organic pollutants. Numerical thresholds have been developed for each of these stages of treatment to establish success and efficacy metrics.

For ocean discharges, guidelines adopted under Section 403 of the Clean Water Act (40 CFR Part 125.120-124, Subpart M, "Ocean Discharge Criteria") specify that beyond an initial mixing zone, commonly referred to as the zone of initial dilution (ZID), the applicable water quality standards must be met. The ZID boundary denotes the area outside of which the discharge plume achieves neutral buoyancy (i.e., its density is equivalent to that of the surrounding water) and first begins to spread horizontally. Discharged sewage is mostly freshwater, so it creates a buoyant plume that moves upward toward the sea surface, entraining ambient seawater in the process. At the PLOO, the ZID has been defined to extend 307 feet on either side of the diffuser legs.

Clean Water Act standards for publicly owned treatment works (POTWs) that do not qualify for or request waivers must comply with the following effluent quality parameters for total suspended solids (TSS), BOD and pH (also referred to as secondary treatment standards):

TSS: (1) The 30-day average shall not exceed 30 mg/l.
(2) The 7-day average shall not exceed 45 mg/l.
(3) The 30-day average percent removal shall not be less than 85 percent.

BOD: (1) The 30-day average shall not exceed 30 mg/l.
(2) The 7-day average shall not exceed 45 mg/l.
(3) The 30-day average percent removal shall not be less than 85 percent.

pH: At all times, shall be maintained within the limits of 6.0 to 9.0 units.

State water quality standards (i.e., the California Ocean Plan) require removal of 75% of TSS. The California Ocean Plan (Ocean Plan) does not have an effluent limitation for BOD; the comparable standard is for dissolved oxygen, which is measured in the receiving water column rather than the discharge. The Ocean Plan requires that "dissolved oxygen shall not at any time be depressed more than 10% from that which occurs naturally as a result of the discharge of oxygen-demanding waste materials."

Because its Point Loma Wastewater Treatment Plant is not currently designed to meet all of these standards, the City is requesting a waiver of the TSS and BOD components of the secondary treatment standards. No waiver is requested for pH. The modified limits would be:

TSS: (1) The monthly average system-wide removal shall not be less than 80%.
(2) The monthly average effluent concentration shall not be more than 60 mg/l.

(3) The annual treatment plant loading to the ocean shall not be more than 11,999 metric tons per year during years one through four of the permit, and not more than 11,998 metric tons per year during year five of the permit.

BOD: The annual average system-wide removal shall not be less than 58%.

Clean Water Act Section 301(h) Secondary Treatment Waivers

Based on the understanding that marine discharges into the open ocean receive greater dispersion and mixing that most (i.e., non-ocean) municipal discharges, Congress amended the Clean Water Act in 1977 to add Section 301(h), often referred to as the ocean waiver provision (or 301(h) waiver). This provision authorizes EPA to issue NPDES permits for POTW discharges meeting the nine waiver requirements listed below. To qualify for a waiver, dischargers needed to apply for eligibility within a specified time period; however, while it initially complied with the eligibility requirements by applying in 1979, San Diego later fell out of compliance and withdrew from the program (in 1987) but received special Congressional authorization to apply for a secondary treatment waiver in 1994.

Section 301(h) requires the following tests to be met for EPA to grant a secondary treatment waiver:

(1) there is an applicable water quality standard specific to the pollutant for which the modification is requested, which has been identified under section 304(a)(6) of this Act;

(2) such modified requirements will not interfere, alone or in combination with pollutants from other sources, with the attainment or maintenance of that water quality which assures protection of public water supplies and the protection and propagation of a balanced, indigenous population (BIP) of shellfish, fish and wildlife, and allows recreational activities, in and on the water;

(3) the applicant has established a system for monitoring the impact of such discharge on a representative sample of aquatic biota, to the extent practicable, and the scope of the monitoring is limited to include only those scientific investigations which are necessary to study the effects of the proposed discharge;

(4) such modified requirements will not result in any additional requirements on any other point or nonpoint source;

(5) all applicable pretreatment requirements for sources introducing waste into such treatment works will be enforced;

(6) in the case of any treatment works serving a population of 50,000 or more, with respect to any toxic pollutant introduced into such works by an industrial discharger for which pollutant there is no applicable pretreatment requirement in effect, sources introducing waste into such works are in

> compliance with all applicable pretreatment requirements, the applicant will enforce such requirements, and the applicant has in effect a pretreatment program which, in combination with the treatment of discharges from such works, removes the same amount of such pollutant as would be removed if such works were to apply secondary treatment to discharges and if such works had no pretreatment program with respect to such pollutant;
>
> (7) to the extent practicable, the applicant has established a schedule of activities designed to eliminate the entrance of toxic pollutants from nonindustrial sources into such treatment works;
>
> (8) there will be no new or substantially increased discharges from the point source of the pollutant to which the modification applies above that volume of discharge specified in the permit;
>
> (9) the applicant at the time such modification becomes effective will be discharging effluent which has received at least primary or equivalent treatment and which meets the criteria established under section 304(a)(1) of the Clean Water Act after initial mixing in the waters surrounding or adjacent to the point at which such effluent is discharged.

In addition, under the Ocean Pollution Reduction Act of 1994, 33 U.S.C. section 1311(j)(5)(B) and (C):

> (B) Application. — An application under this paragraph shall include a commitment by the applicant to implement a waste water reclamation program that, at minimum, will –
>
> > (i) achieve a system capacity of 45,000,000 gallons of reclaimed waste water per day by January 1, 2010; and
> >
> > (ii) result in a reduction in the quantity of suspended solids discharged by the applicant into the marine environment during the period of the modification.
>
> (C) Additional conditions. — The Administrator may not grant a modification pursuant to an application submitted under this paragraph unless the Administrator determines that such modification <u>will result in removal of not less than 58 percent of the biological oxygen demand (on an annual average) and not less than 80 percent of total suspended solids</u> (on a monthly average) in the discharge to which the application applies. [emphasis added]

The effect of subpart (C) above is to establish minimum standards that must be met even when a discharger qualifies for and obtains a waiver. These are the standards the City has been achieving under its current 301(h) waiver and that it proposes to continue meeting under the waiver it is again requesting from EPA. EPA evaluates (and where appropriate, clarifies) these tests in a Tentative Decision Document (TDD). EPA's TDD for the City's current request, dated February 27, 2024. EPA's conclusions are

summarized in pages 24-29 below. Additional Clean Water Act (Section 301(j)) tests applicable only to the City are discussed in the following section.

History of Waivers and Commission Actions for The City of San Diego

Since the City first received special Congressional authorization to apply for a secondary treatment waiver in 1994, the Coastal Commission has reviewed the City's waiver reissuance requests on multiple occasions, including consistency certifications in 2002 (CC-10-02 and resubmitted CC-028-02), 2009 (CC-043-09), and 2017 (CC-0002-17).[4] At the foundation of the Commission's 2009 and 2017 concurrences was a recognition of the high cost (estimated at approximately $ 2.1 billion in 2014) associated with upgrading the PLWTP to achieve secondary treatment standards, as well as the significant water supply challenges facing the San Diego region and the need to develop sustainable, local sources. As framed at the time, the City's finite monetary resources could be spent to update PLWTP to secondary treatment standards or, alternatively, to implement a large-scale water recycling program with the dual benefits of reducing wastewater flows and pollutant loads and providing a reliable source of potable water for the residents of San Diego. The Commission agreed that water reuse was the preferred path forward. Thus, the Commission's continued concurrence with the City's consistency certifications for secondary treatment waivers is tied inextricably to the progress and success of its Pure Water San Diego Program.

As summarized in the adopted findings for CC-0002-2017, the Commission's concurrence was based on:

> (1) EPA's and the RWQCB's analyses establishing that the discharges meet the applicable Clean Water Act and California Ocean Plan standards, (2) the NPDES permit's compliance schedule discussion and table which incorporate the City's commitments to pursue water reuse, (3) the lack of evidence that the discharges are adversely affecting water quality or marine species (despite the stringent monitoring required under CWA Section 301(h)), (4) the City's past performance in implementing water reuse programs, and (5) the accelerated pursuit of significant future reductions in wastewater flow to the WWTP…

At the time of the 2017 concurrence, the City had committed to aggressively pursuing water reuse in a Cooperative Agreement with San Diego Coastkeeper, the San Diego Chapter of Surfrider Foundation, the Coastal Environmental Rights Foundation, and the San Diego Audubon Society (**Exhibit 4**). This agreement detailed water reuse as an agreed-upon alternative approach to implementing secondary treatment. In this agreement, the City committed to a compliance schedule for initially implementing at least 15 MGD of potable water reuse by the end of 2023, at least 30 MGD by the end of 2027, and ultimately achieving at least 83 MGD of wastewater reuse by the end of 2035. As a result of these reductions in flows to the PLWTP, the annual TSS discharged could achieve "secondary equivalency". Secondary equivalency, as defined in the

[4] For a detailed discussion of the Commission's prior actions on the City's secondary treatment waiver, see the staff report for CC-0002-17: W15a-5-2017-report.pdf

agreement, would occur when the annual mass of TSS discharged to the ocean is equivalent to the annual mass of TSS that would be discharged if PLWTP were operating at full permitted capacity (240 MGD) and treating to secondary standards.

After that agreement was signed, the City committed to a more aggressive schedule for interim implementation and committed to providing at least 30 MGD of water reuse by the end of 2022. For reasons discussed below, the City was unable to meet the accelerated timeline committed to in the Cooperative Agreement, and relied on by the Commission in its concurrence with CC-0002-17. However, Phase 1 of the Pure Water project is now under construction and is anticipated to be completed and producing 30 mgd of potable water by the end of 2027. While the City has missed its initial milestone for 2023, this current target of 30 MGD by the end of 2027 is the same as that included in the Cooperative Agreement.

Pure Water San Diego Program

The Pure Water program will divert wastewater flows that would have gone to the PLWTP to water reclamation facilities that will produce potable drinking water to augment the City's groundwater supply. When both parts of the two-phase program are completed, the Pure Water program is expected to meet 50% of San Diego's potable water demand. Phase 1 of Pure Water is projected to be completed during the renewed permit period, by the end of 2027. Additionally, planning and scoping for Phase 2 of Pure Water will occur during the renewed permit period (Table 1, below).

Table 1 Anticipated schedule of Pure Water milestones expected to occur during the period of the renewed permit. Table provided in the City's NPDES permit application, Vol II Part 1-6.

Pure Water San Diego Potable Reuse Tasks for the Period of 2022-2028

Category	Task	Implementation Date[1,2,3]
Pure Water Phase 1 North City Pure Water Project[4]	Complete construction for North City potable reuse facility and pipelines	June 30, 2027
	Produce a cumulative total of at least 30 mgd of potable reuse	December 31, 2027
Pure Water Phase 2 Central Area Project[5,6]	Complete design of a central area small-scale facility at the PLWTP	June 30, 2023
	Begin Central Area Small-Scale Facility Operation[7]	June 30, 2025
	Issue Notices to Proceed (NTPs) for pre-design of potable reuse facility and pipelines[7]	June 30, 2025
	Issue Notice of Preparation for Central Area Project EIR[7]	December 31, 2026
	Issue NTPs for full design of potable reuse facility and pipelines[7]	June 30, 2027

Table Notes:
1. Listed milestones are those expected to occur during the anticipated effective period of the permit (end of 2028)
2. This schedule is based on current progress as of the date of permit renewal application submittal.
3. Task completion dates may require future modification based on issues related to: regulatory approval schedule, environmental review, supply chain interruptions, legal challenges or other unforeseen circumstances.
4. Phase 1 Pure Water implements an ultimate average daily production of 30 mgd of water suitable for potable reuse

5. Phase 2 Pure Water implements an ultimate average daily production of an additional 53 mgd of potable water, for a cumulative total of 83 mgd. Tasks in Table 2 are the work necessary during the permit renewal period to allow for the production of 83 mgd of water suitable for potable reuse by December 31, 2025.
6. Future permit applications may also a schedule of tasks necessary to complete Phase 2 by December 31, 2025.
7. These tasks are dependent upon future approval by the Mayor and City Council of San Diego.

Phase 1: North City Pure Water Project

Construction for Phase 1 of Pure Water is approximately 70% complete and expected to be operating at full capacity by December 31, 2027. When fully operational, Phase 1 will divert 52 MGD from the influent to PLWTP and produce 30 MGD of advanced purified water for potable use and up to 12 MGD of recycled water for irrigation and other approved uses (NPDES Application, Section IV). The advanced purified water would be delivered to the Miramar potable water reservoir for storage and subsequent distribution to municipal drinking water.

A fraction of the wastewater diverted to reuse for potable treatment would return to PLWTP as reverse osmosis brine. Diverting influent from PLWTP to the potable water treatment plant will decrease both the volume of wastewater and the masses of pollutants discharged through the PLOO to the ocean (Table 2, below). When Phase 1 of Pure Water is complete, the volume of wastewater discharged annually would decrease 20%, and the discharge of TSS and BOD would decrease by 17% and 18%, respectively (**Exhibit 5**)**.** The City also projects a 9% reduction in the discharge of total nitrogen. According to the City's application, the mass loading rate for TSS following the completion of Pure Water Phase 1 would reach "secondary equivalency" as defined in the Cooperative Agreement and would fall below 9,942 metric tons per year. As stated above, this secondary equivalence threshold is the TSS mass loading rate that would occur if the PLWTP were to be operated at its 240 MGD capacity while achieving the secondary treatment effluent concentration of 30 milligrams per liter (mg/L). It should be noted, however, that PLWTP seldom operates at its full permitted capacity, and thus while Phase 1 implementation may enable secondary equivalency for TSS under the Cooperative Agreement, the concentration of TSS in the wastewater would not meet the secondary treatment standard under the Clean Water Act, and the concentrations of both TSS and BOD in the discharge at the PLOO are projected to remain elevated above these secondary treatment standards, requiring the City to continue to seek and receive secondary treatment waivers.

Phase 2: Central Area Project

Phase 2 of the Pure Water Program remains in the planning stages and will not be completed during the term of this NPDES permit renewal. Key planning milestones yet to be completed include environmental review, facilities siting and design, and construction of a pilot facility. Phase 2 is expected to produce an additional 53 MGD of purified, potable water, with a target implementation date of December 31, 2035. The diversion of influent flows to Phase 2 of the Pure Water project would further decrease the volume and total mass of pollutants discharged through PLOO to the ocean. In contrast to Phase 1, Phase 2 is also expected to reduce the concentrations (mg/L) of TSS and BOD in the effluent (Table 2). When both Phases of the Pure Water Program are complete, effluent volume discharged at the PLOO is projected to decrease by 50%,

the annual mass loadings of TSS and BOD are projected to decrease by 54% and 57%, respectively and the annual mass loading of total nitrogen is projected to decrease by 20% (**Exhibit 5**).

Table 2 Flows and load projections for the PLOO discharge. (Source: City of San Diego)

Actual Measured Values[4]									
Year	**Total Metro System[5]**	**PLOO Discharge[6]**							
	Flow[3] (mgd)	Flow[3] (mgd)		Annual TSS Mass Emissions Rate (MER)[3] (mt/yr)		TSS Concentration[3] (milligrams per liter (mg/L))		Biochemical Oxygen Demand – 5 day (BOD_5) Concentration[3] (mg/L)	
2017	163.3	139.3		7,112		37		124	
2018	163.1	139.0		7,293		38		133	
2019	168.1	143.9		8,155		41		131	
2020	168.6	144.3		6,744		34		132	
2021[3]	163.7	139.7		6,371		33		137	
Projected Values[4,7]									
Year	**Total Metro System[5]**	**PLOO Discharge[6]**							
	Flow[3] (mgd)	Flow[3] (mgd)		Annual TSS MER[3] (mt/yr)		TSS Concentration[3] (mg/L)		BOD_5 Concentration[3] (mg/L)	
		Facilities Planning Based[7]	Most Probable[8]	Facilities Planning Based[7]	Most Probable[8]	Facilities Planning Based[7]	Most Probable[8]	Facilities Planning Based[7]	Most Probable[8]
2021	178.4	154.0	140.0	9,853	7,159	46	37	142	132
2022	179.2	154.7	140.6	9,944	7,192	46	37	143	133
2023	180.0	155.4	144.2	10,035	7,415	47	38	144	134
2024	180.8	156.1	141.8	10,126	7,447	47	38	145	135
2025	181.7	156.8	142.4	10,217	7,664	47	38	145	135
2026	182.5	157.7	143.3	10,308	7,691	47	38	145	135
2027	183.5	158.5	144	10399	7,761	48	39	146	137
2028[9]	184.5	**128.8[9]**	**114.3[9]**	**8,668[9]**	**6,161[9]**	49	39	149	140
2029	185.5	129.7	115.1	8,754	6,204	49	39	149	140
2030	186.4	130.6	115.8	8,841	6,241	49	39	150	141
2031	187.3	131.4	116.6	8,927	6,285	49	39	150	141
2032	188.3	132.3	117.4	9,014	6,490	50	40	151	142
2033	189.3	133.0	118.4	9,100	6,545	50	40	151	141
2034	190.3	134.0	119.0	9,187	6,578	50	40	152	142
2035	191.3	134.9	119.8	9,273	6,623	50	40	152	142
2036[10]	191.8	**81.8[10]**	**66.8[10]**	**5,151[10]**	**3,323[10]**	46	36	130	120
2037	192.4	82.3	67.2	5,199	3,343	46	36	130	120
2038	193.0	82.9	67.7	5,247	3,368	46	36	131	121
2039	193.6	83.4	68.1	5,295	3,383	46	36	131	121
2040	194.3	84.0	68.6	5,343	3,413	46	36	132	122
2041	194.9	84.5	69.0	5,391	3,433	46	36	132	122

Current Status of Pure Water Program & Updates since 2017

The City faced several challenges in the construction of its Phase 1 Pure Water project and was unable to achieve its commitment to provide 30 MGD of purified water by the end of 2022. In its consistency certification, the City lists the following hurdles that delayed the project:

> **Legal Challenges**: The City faced legal challenges early in the Phase 1 construction process. The lawsuits delayed advertisement of construction contracts and resulted in restructuring of construction packages which added complexity to the planning efforts and ultimately caused delays to the overall project timeline.
>
> **Supply Chain Impacts**: The effects of the COVID pandemic and the war in Ukraine on construction include supply chain disruption, which delayed material delivery times, impacting productivity and contractor schedules. Some materials were prohibitively delayed requiring some project teams to create alternate designs and materials. This, in turn, triggered building permit construction changes that took time to get approved by the building official.
>
> **System-wide Commissioning**: Commissioning of the Phase 1 projects is challenging, as multiple construction packages make up a single interconnected operating system with each project filling a critical role in delivering purified water to the Miramar Reservoir. An integration period is specified to allow all construction packages to be completed and ready for system-wide operation and acceptance testing. A delay on any of the individual construction packages could ultimately delay system-wide commissioning. This interdependency requires constant communication and very active construction and project management.
>
> To date, the most significant delay is due to **unanticipated groundwater infiltration** at the Morena Pump Station Project. The project has resulted in a delay of more than one year, and the full extent of the delay is still being determined. The City is actively working through this challenge and has developed a new commissioning strategy referred to as Partial Flow Commissioning, which will mitigate Morena Pump Station's impact on the Phase 1 timeline for producing 30 MGD of purified water. Purified water delivery to Miramar will start at 7.5 MGD and may be increased upon Division of Drinking Water approval.

In a December 20, 2024, update to Commission staff, City staff indicated that Pure Water Phase 1 is approximately 70% complete and the Morena Pump station is no longer an impediment to the project moving forward. Water reuse is anticipated to begin in late 2026 with the plant operating at full capacity (30 MGD) by the end of 2027. The City still anticipates completing Phase 2 of the program by the end of 2035.

Milestone	Target from 2017 CC	Updated Target
30 MGD potable reuse	Dec. 31, 2022	Dec. 31, 2027
Additional 53 MGD of potable reuse (Phase 2)	Dec. 31, 2035	Dec. 31, 2035

While the City remains committed to implementing Phase 2 of Pure Water, reporting from The San Diego Union-Tribune in April of 2024[5] suggests there may be significant changes to the project. The article indicates that the City may scale-back or scrap some pieces of the Phase 2 project based on reevaluation of changes in population, wastewater flows, water demand and regulation changes since the conception of the original plan in 2011. A later article reports that inflation and construction challenges have added significant cost (approximately $130 million) to the project[6]. The Pure Water Program is one piece of San Diego's potable water supply, and at present serves as a supplement to other sources, including water imported from the Colorado River and produced from saltwater desalination. The construction and implementation of the Pure Water Program is intended to make the City more self-sufficient by decreasing the City's need to import water by providing a reliable, and sustainable water supply.

The City provided the following update to the Commission on January 17, 2025, on the current cost and funding for the Pure Water Program:

> Phase 1 of the Pure Water Program will cost approximately 1.5 billion dollars for planning, design, and construction. To maintain Pure Water San Diego as a cost-effective investment, the City has secured nearly 1.4 billion dollars in federal and state funding, including low-interest U.S. EPA and State Revolving Fund loans. From the U.S. EPA Water Infrastructure Finance and Innovation Act (WIFIA) program, the City has secured two loans, totaling 733.5 million dollars for Pure Water Phase 1 projects. Through the Clean Water and Drinking Water State Revolving Fund Loans, the City has secured additional low-interest loans totaling 665.1 million dollars from the State Water Resources Control Board.
>
> The City has also received more than 100 million dollars in grants, which do not need to be repaid, from federal and state sources.
>
> In addition, through an agreement with the Metropolitan Water District of Southern California, the City will receive a $340 credit for every acre-foot of water produced in the Pure Water Program for 25 years. This corresponds to a credit of 285.6 million dollars over the life of the agreement.
>
> Remaining funding needed for the project is expected to be financed with City bonds and any additional grant funding the City is awarded. The City is in the

[5] https://www.sandiegouniontribune.com/2024/04/21/san-diego-may-scale-back-its-ambitious-pure-water-sewage-purification-plans-or-scrap-some-entirely/

[6] https://www.sandiegouniontribune.com/2024/09/15/billion-dollar-pure-water-project-stares-down-130m-in-cost-overruns-for-pipelines-plants-and-pumps/

process of applying for a large water recycling grant from the federal government.

The plan for funding Pure Water Phase 2 will be completed after the project proceeds far enough through design to meet state and federal requirements to apply for funding. We expect to again pursue WIFIA funding, along with State Revolving Loan funds, grants, and City bonds.

While there are both foreseeable challenges and uncertainties related to the implementation of Pure Water Phase 2, both City staff and representatives from organizations party to the 2014 Cooperative Agreement (**Exhibit 4**) have confirmed that open discussions and planning to further Phase 2 are ongoing, and that all parties remain committed to its eventual implementation. As stated previously, the increased water security and decrease in wastewater discharges to the Pacific Ocean resulting from Pure Water have and will continue to be key considerations in the Commission's review of the City's consistency certifications for secondary treatment waivers.

C. Commission Jurisdiction and Standard of Review

Because EPA retains permitting authority for Section 301(h) waivers, and because EPA NPDES permits are "listed" permits under the CCMP, they are subject to the Commission's federal consistency review. The California Coastal Management Program (CCMP) incorporates the standards set forth in Chapter 3 of the Coastal Act ("Chapter 3"), Cal. Pub. Res. Code Sections 30200-30265.5. Thus, in general, the standard of review for the Commission's assessment of consistency with the CCMP is whether an activity is consistent with the policies set forth in Chapter 3. In the context of activities involving the discharge of pollutants into waters of the United States, specifically including the territorial seas, that standard of review is expanded by Section 307(f) of the federal CZMA (16 USC § 1456(f)), which specifically incorporates all Clean Water Act-based requirements into the California Coastal Management Program (CCMP). Thus, in reviewing the impacts of the proposed discharges on water quality, the Commission considers not only the marine resource and water quality policies in Chapter 3, but also all of the applicable federal and state requirements established by or pursuant to the Clean Water Act, the California Ocean Plan, and California Water Code Section 13142.5, as well as the directive in Chapter 5 (Section 30412(a)) of the Coastal Act to coordinate with and rely on determinations of the RWQCBs and SWRCB. Employing that standard, the Commission concurs with this consistency certification based on its finding that the project authorized by the federal permit is consistent with the policies set forth in Chapter 3, as well as these additional Clean Water Act-based requirements.

D. Consultations and Other Agency Approvals

U.S. Environmental Protection Agency and San Diego Regional Water Quality Control Board

Implementation of the Clean Water Act in California has, for the most part, been delegated to the applicable RWQCB for issuance of NPDES permits for discharges into State waters. For discharges occurring in federal waters beyond the three nautical mile

State waters limit, EPA has primary regulatory responsibility. However, under a May 1984 Memorandum of Understanding between EPA and the State of California, NPDES permits for secondary treatment waivers (regardless of location) are issued jointly by EPA and the applicable RWQCB. Under California's Porter-Cologne Water Quality Control Act, the Regional Water Boards issue waste discharge requirements which serve as NPDES permits. The joint issuance of a 301(h)-modified NPDES permit for the Point Loma WTP discharge which incorporates both the federal 301(h) variance and State waste discharge requirements will serve as the State's concurrence, pursuant to 40 CFR 124.54.

EPA has conducted an independent technical evaluation analyzing the City's compliance with the Clean Water Act, California Ocean Plan and other requirements. This evaluation is contained in a Tentative Decision Document (TDD) dated February 27, 2024[7]. Soon after, on March 1, 2024, the EPA and RWQCB jointly released for public review and comment Tentative Order No. R9-2024-0004[8] (NPDES Permit No. CA0107409), Waste Discharge Requirements and NPDES Permit for the City of San Diego E.W. Blom Point Loma Wastewater Treatment Plant Discharge to the Pacific Ocean through the Point Loma Ocean Outfall. Though not yet approved by the San Diego RWQCB and subject to changes based on public comments, if adopted the Order/NPDES Permit would approve the City's request for a waiver from secondary treatment requirements pursuant to Clean Water Act section 301(h).

Key changes and additions to the 2024 Draft NPDES permit include:

- Requires a minimum discharge initial dilution of 204:1;
- TSS mass emission limits reduced to 11,999 mt/yr for years 1 – 4, and to 11,998 mt/year in year 5 of reissued permit;
- Requires a work plan to investigate the cause of any discharge exceedance, corrective actions taken, and proposed measures if exceedances persist across three consecutive monitoring events;
- Requires studies related to impacts of Pure Water Phase 1 on discharge plume behaviors, climate change action planning, and phytoplankton and euphotic zone dynamics;
- Requires additional monitoring of nutrient forms and loading, flame retardants, and PFAS.

U.S. National Marine Fisheries Service and U.S. Fish and Wildlife Service

The waiver is subject to review by the NOAA National Marine Fisheries Service (NMFS) for consistency with the federal Endangered Species Act (ESA). NMFS also reviews the waiver under the Magnuson-Stevens Fishery Conservation and Management Act.

[7] https://www.epa.gov/system/files/documents/2024-02/tdd-cwa-301h-waiver-san-diego-point-loma-wwtp-2024-02-27.pdf

[8] https://www.waterboards.ca.gov/sandiego/board_info/agendas/2024/mar/item6/item6_sd1_to.pdf

In a letter dated July 30, 2024[9], NMFS responded to the EPA's request for consultation on the Biological Evaluation and Essential Fish Habitat Assessment (BE/EFHA) that the EPA had submitted to NMFS on April 4, 2024. This letter reaffirms and updates the findings included in the March 2022 NMFS Biological Opinion[10] and consultation on essential fish habitat by reiterating the recommendations for monitoring of flame retardants, nutrients and the formation of harmful algal blooms. The letter also recommends continued monitoring of contaminants of emerging concern, nutrient inputs, and the potential for the formation of Harmful Algal Blooms.

EPA made "no effect" determinations on the species under USFWS jurisdiction (i.e., California Least Tern, Coastal California Gnatcatcher, Hawaiian Petrel, Least Bell's vireo, Short-tailed Albatross, Southwestern Willow Flycatcher, and Western Snowy Plover, Pacific Pocket Mouse, Monarch Butterfly, and 4 Flowering Plants). The USFWS regional office had no objection to this determination therefore ESA consultation with USFWS was not required.

Tribal Governments

As part of the Commission's review process agency staff reached out to representatives, from a list obtained from the Native American Heritage Commission, of 13 California Tribes understood to have current and/or historic connections to the project area and received no comments or concerns:

- Barona Group of the Capitan Grande
- Campo Band of Diegueno Mission Indians
- Ewiiaapaayp Band of Kumeyaay Indians
- Iipay Nation of Santa Ysabel
- Inaja-Cosmit Band of Indians
- Jamul Indian Village
- Kwaaymii Laguna Band of Mission Indians
- La Posta Band of Diegueno Mission Indians
- Manzanita Band of Kumeyaay Nation
- Mesa Grande Band of Diegueno Mission Indians
- San Pasqual Band of Diegueno Mission Indians
- Sycuan Band of the Kumeyaay Nation
- Viejas Band of Kumeyaay Indians

E. Marine Resources and Water Quality

As indicated above, in reviewing the impacts of the proposed discharges on marine resources and water quality, the Commission considers not only the marine resource and water quality policies of Chapter 3, but also all of the applicable federal and state requirements established by or pursuant to the Clean Water Act, the California Ocean Plan, California Water Code Section 13142.5, as well as the directive in Chapter 5

[9] https://repository.library.noaa.gov/view/noaa/66255/noaa_66255_DS1.pdf

[10] https://repository.library.noaa.gov/view/noaa/37544/noaa_37544_DS1.pdf

(Section 30412(a)) of the Coastal Act to coordinate with and rely on determinations of the EPA and Water Board.

Section 30230 of the Coastal Act states:

> Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231 of the Coastal Act states:

> The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Sections 30412(a) and (b) of the Coastal Act state:

> (a) In addition to Section 13142.5 of the Water Code, this section shall apply to the commission and the State Water Resources Control Board and the California regional water quality control boards.
>
> (b) The State Water Resources Control Board and the California regional water quality control boards are the state agencies with primary responsibility for the coordination and control of water quality. The State Water Resources Control Board has primary responsibility for the administration of water rights pursuant to applicable law. The commission shall assure that proposed development and local coastal programs shall not frustrate this section. The commission shall not, except as provided in subdivision (c), modify, adopt conditions, or take any action in conflict with any determination by the State Water Resources Control Board or any California regional water quality control board in matters relating to water quality or the administration of water rights.
>
> Except as provided in this section, nothing herein shall be interpreted in any way either as prohibiting or limiting the commission, local government, or port governing body from exercising the regulatory controls over development pursuant to this division in a manner necessary to carry out this division.

Section 13142.5(a) of the Water Code (referenced in Section 30412) states:

> In addition to any other policies established pursuant to this division, the policies of the state with respect to water quality as it relates to the coastal marine environment are that:
>
> (a) Waste water discharges shall be treated to protect present and future beneficial uses, and, where feasible, to restore past beneficial uses of the receiving waters. Highest priority shall be given to improving or eliminating discharges that adversely affect any of the following:
>
> (1) Wetlands, estuaries, and other biologically sensitive sites.
> (2) Areas important for water contact sports.
> (3) Areas that produce shellfish for human consumption.
> (4) Ocean areas subject to massive waste discharge.
>
> Ocean chemistry and mixing processes, marine life conditions, other present or proposed outfalls in the vicinity, and relevant aspects of areawide waste treatment management plans and programs, but not of convenience to the discharger, shall for the purposes of this section, be considered in determining the effects of such discharges ...

The California Ocean Plan was originally adopted by the SWRCB and approved by the EPA in June 1972 and is reviewed every three years. The current Ocean Plan is dated 2019 and can be found online.[11] Ocean Plan requirements include both general resource protection policies and objectives, as well as numerical standards, monitoring requirements, and prohibitions. The Ocean Plan standards are designed to protect beneficial uses of the marine environment, establish water contact standards, and protect shellfish harvesting.

The discharging of wastewater to the ocean can affect ocean productivity and health in several ways. The continued influx of organic material (in both solid and dissolved forms) and nutrients can fuel bacteria and phytoplankton growth that can deplete oxygen as organisms consume the organic material. Wastewater can also contain toxic substances, like heavy metals, pesticides and flame retardants, that can affect the health and viability of resident populations of marine organisms.

EPA's Evaluation of PLWTP Recent Performance

EPA's February 27, 2024, Tentative Decision Document (TDD) contains its independent technical evaluation of the City's compliance with the Clean Water Act (CWA), California Ocean Plan, and other requirements. EPA's tentative conclusion (TDD, p. 13) is that the discharges comply with the CWA and other applicable statutory requirements. The paragraphs below summarize the information and conclusions in the TDD concerning TSS and BOD removal rates in recent years, compliance with other water quality standards over this period, and system improvements implemented and/or planned. As this information shows: (1) the City is close to achieving secondary treatment standards for TSS and should, through water reuse commitments, be able to achieve "secondary equivalency" for TSS in the foreseeable future; (2) TSS levels meet CWA Section

[11] https://www.waterboards.ca.gov/water_issues/programs/ocean/docs/oceanplan2019.pdf

301(h) and (j) requirements; (3) BOD levels comply with Ocean Plan standards outside the zone of initial dilution (ZID) (and comply with 301(h) and (j) requirements); (4) mass emission levels meet the "reduced mass emissions" requirement of Section 301(j); and (5) the discharges comply with other regulatory requirements.

Recent Performance - TSS

Total suspended solids (TSS) are small particles that do not settle out of wastewater with gravity. TSS includes organic and inorganic particles, which can serve as carriers of toxic or harmful constituents (e.g., bacteria, metals or other pollutants). The measurement of TSS provides an indication of how much waste sludge and particles are being discharged that can affect water clarity and the health and productivity of the receiving waterbody, both directly and indirectly.

The EPA reviewed influent and effluent data for PLWTP for the six years covered in the prior permit, from 2017 – 2022, when the City submitted its NPDES renewal application. The City maintained compliance with established effluent limitations except for a period from March to June in 2022 (Tables 3 and 4, below). During this period, average TSS concentrations and removal percentages in the effluent exceeded the limits established in the 2017 NPDES permit because of two shutdowns at the North City Water Reclamation Plant (NCWRP) influent pump station and at the pipeline between the Metro Biosolids Center and NCWRP. The shutdowns were required for repairs and upgrades related to the North City Pure Water project. The EPA writes that the City implemented corrective actions to resume normal operations and has complied with all permit limits since.

Table 3 Monthly and annual average effluent concentrations (mg/L) for TSS with exceedances of the month average limit of 60 mg/L in red. From the EPA TDD, p. 28.

Month	2017	2018	2019	2020	2021	2022
January	30	35	48	34	34	42
February	34	35	41	40	34	45
March	30	35	42	34	30	84
April	32	34	42	33	30	128
May	34	36	38	32	30	118
June	39	45	38	33	33	80
July	39	39	39	33	31	41
August	42	38	38	34	37	41
September	33	38	39	32	34	42
October	34	38	46	32	31	43
November	37	40	44	36	34	39
December	52	45	33	36	38	38
Annual Average	36	38	41	34	33	62
Maximum Month	52	45	48	40	38	128
Minimum Month	30	34	33	32	30	38

As shown in the tables below, the monthly average concentration limit and percent removal of TSS met permit limits except during the NCWRP shutdown in 2022. The annual average TSS concentration was roughly 37 mg/L and meets the monthly average limit of 60 mg/L except in 2022 when the annual average was 62 mg/L. The percent removal of TSS met both federal primary treatment requirements of 30% TSS removal and California Ocean Plan Table 4 requirements of 75% TSS removal for the PLWTP, with two exceptions in April and May 2022. The monthly average system-wide percent removal of TSS was roughly 89% except for the period from March to June of 2022 (Table 4).

Table 4 Monthly and annual average system-side percent removals (%) for TSS, with instances of non-compliance with the permit limit and CWA section 301(j)(5) requirement of ≥80% in red. (TDD, p. 28).

Month	2017	2018	2019	2020	2021	2022
January	90	90	86	90	90	86
February	90	90	88	89	90	87
March	91	90	88	90	91	76
April	91	91	90	89	92	63
May	91	90	90	91	92	67
June	90	87	90	91	90	79
July	90	90	91	91	92	89
August	89	89	91	91	90	88
September	91	90	90	91	90	86
October	91	90	88	91	90	85
November	90	90	88	90	91	86
December	86	87	90	90	89	87
Annual Average	90	89	89	90	91	81
Maximum Month	91	91	91	91	92	89
Minimum Month	86	87	86	89	89	63

Recent Performance - BOD

Water with high BOD activity has the potential to decrease dissolved oxygen in the receiving water and sediment pore water near the outfall, with the potential to adversely affect marine organisms, that rely on dissolved oxygen for respiration. For this reason, secondary standards in the CWA require that the 30-day average BOD in the effluent not exceed 30 mg/l and the percent removal not fall below 85 percent. The California Ocean Plan does not contain BOD limits but rather requires that dissolved oxygen not fall below 10% of that which occurs naturally outside the ZID.

During the 2017 – 2022 period, BOD levels were not close to meeting secondary standards, although they did meet the Section 301(h) and (j) secondary treatment waiver standards as well as the “equivalent” California Ocean Plan test for dissolved oxygen. The monthly average concentration of BOD was around 130 mg/L (Table 5) and the average system-wide percent removal of BOD was around 62% (Table 6). The annual average system-wide percent removal of BOD met existing permit standards

except in 2022 due to the two Metro System shutdowns and associated operation issues. The EPA notes that this was the first time there was an exceedance of an annual average effluent limit since 1993. This represents an excellent record of compliance.

Table 5 Monthly and annual average effluent concentration (mg/L) for BOD. The NPDES secondary waiver treatment permit does not contain a BOD concentration standard. (TDD, p. 35)

Month	2017	2018	2019	2020	2021	2022
January	100	126	117	129	129	140
February	109	134	107	138	139	147
March	111	132	123	121	137	180
April	126	136	133	102	155	212
May	125	140	127	123	149	195
June	135	151	135	138	142	166
July	135	130	139	142	150	112
August	140	135	154	137	140	96
September	119	132	147	129	129	94
October	117	125	146	138	127	104
November	123	128	135	145	145	105
December	145	128	116	137	129	104
Annual Average	124	133	132	132	139	138
Maximum Month	145	151	154	145	155	212
Minimum Month	100	125	107	102	127	94

Table 6 Monthly and annual average system-wide percent removal (%) for BOD with instances of non-compliance with the permit limit and the CWA section 301(j)(5) requirements of >58% in red. (TDD, p. 36)

Month	2017	2018	2019	2020	2021	2022
January	65	61	61	63	64	58
February	65	61	57	61	63	58
March	66	63	62	62	63	46
April	65	63	62	64	63	38
May	64	62	63	65	64	43
June	62	61	62	63	62	54
July	61	65	61	64	66	69
August	61	62	61	64	65	69
September	64	63	62	65	64	66
October	65	63	60	64	62	61
November	64	64	62	62	64	62
December	59	60	64	64	62	61
Annual Average	**63**	**62**	**62**	**63**	**63**	**57**
Maximum Month	66	65	64	65	66	69
Minimum Month	59	60	57	61	62	38

The California Ocean Plan specifies that "[t]he dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste materials." EPA reviewed whether this standard was met, both within state waters and in federal waters outside the ZID. Based on modeling predictions that indicate a maximum of 5.9% dissolved oxygen reduction outside the ZID, and corroborated by City monitoring results showing similar dissolved oxygen concentrations both near the ZID and far field, the EPA concluded that dissolved oxygen is not currently nor likely to reduce dissolved oxygen more than 10% from that which occurs naturally.

Recent Performance - Mass Emissions

As shown in Table 7 (below), the total flows of wastewater and quantities (mass emissions) of suspended solids discharged to the ocean have decreased during the period that the City has requested secondary treatment waivers (i.e., 301(h) modification). Annual averages are at least partially dependent upon precipitation rates and user conservation measures. However, water recycling has also contributed to the decline in flow and mass emissions. The EPA finds that the City is in compliance with the CWA requirement to "implement a wastewater reclamation program that will result in the reduction of suspended solids discharged by the applicant into the marine environment." Since the initial waiver request in 1995, the City has brought online the 30 MGD North City and 15 MGD South Bay Water Reclamation Plants which together produce 12 MGD annual average of reclaimed water from treated wastewater for uses other than drinking. The past and projected flows and mass emissions of TSS are shown in Table 7 (below). Projected flows and mass TSS emissions are expected to decrease further with the implementation of Pure Water, Phase 1 by the end of 2027.

EPA states that the City will be able to meet the requirements of improved discharge by decreasing mass emissions through their water reclamation program and commitments to additional water recycling to reduce dry-weather flows to PLOO during the permit period (TDD p. 34)

Other Water Quality Standards and Criteria

In addition to regulating discharges of TSS and BOD from the PLOO, the Draft NPDES Permit[12] contains numerous discharge prohibitions, effluent and receiving water limitations, and performance goals necessary to comply with CWA, CWC and Ocean Plan standards, and which would protect ocean water quality, marine organisms and human health. For example, as noted previously, discharge at the PLOO is prohibited if it does not receive a minimum initial dilution of at least 204:1, is subject to effluent limitations on several parameters, including oil and grease, settleable solids, turbidity, pH, residual chlorine, that could cause or indicate degraded water quality, and must pass daily tests for toxicity to marine organisms.

[12] Draft NPDES Permit: https://www.epa.gov/system/files/documents/2024-03/order-r9-2024-0004-npdes-ca0107409-san-diego-ew-blom-wwtp-pt-loma-2024.pdf

Table 7 Actual and projected flows (MGD) and total suspended solids loadings (mt/year) using 'most probable' flow estimates. See TDD for footnote explanations. (TDD, p. 32)

Year	Actual Annual Average Discharge[1]	Actual TSS Mass Emissions[1]	Projected Annual Average Discharge[6,7,8,9]	Projected TSS Mass Emissions[6,7,8,9]
1995	188	11,060	---	---
1996	179	10,718	---	---
1997[2]	189	10,255	---	---
1998[3]	194	10,627	---	---
1999	175	9,130	---	---
2000[4]	174	9,036	---	---
2001	175	10,256	---	---
2002[5]	169	10,184	---	---
2003	170	9,862	---	---
2004	174	10,300	---	---
2005	183	10,229	---	---
2006	170	8,248	---	---
2007	161	7,588	---	---
2008	162	7,272	---	---
2009	153	6,658	---	---
2010	157	8,172	---	---
2011	156	8,848	---	---
2012	148	7,162	---	---
2013	144	6,674	---	---
2014	139	5,270	---	---
2015	132	5,466	---	---
2016	136	8,393	---	---
2017	139	7,112	---	---
2018	139	7,293	---	---
2019	144	8,155	---	---
2020	144	6,744	---	---
2021	140	6,371	---	---
2022	139	11,834[10]	---	---
2023	153	9,087	---	---
2024	---	---	141.8	7,447
2025	---	---	142.4	7,664
2026	---	---	143.3	7,691
2027	---	---	144.0	7,761
2028[7]	---	---	114.3	6,161
2029	---	---	115.1	6,204
2030	---	---	115.8	6,241
2031	---	---	116.6	6,285

Receiving water limitations in the Draft NPDES Permit are focused on maintaining low levels of bacteria (e.g., fecal coliform) indicative of human health concerns. The Draft NPDES Permit also contains performance goals and monitoring requirements for numerous chemical constituents, including heavy metals, ammonia and toxic organic compounds, to provide assurance that these contaminants are not being discharged at levels sufficient to degrade water quality or bioaccumulate in marine organisms to levels that would harm human health. While not considered effluent limitations, these performance goals are nonetheless required to be tracked via regular monitoring and are subject to remedial actions if exceeded.

With the limitations and other protections contained in the Draft NPDES Permit, EPA's TDD determined that: (1) the discharges would not significantly reduce light transmission outside the ZID; (2) pH would not be changed more than 0.2 units from naturally-occurring levels; (3) the discharges would meet applicable standards for toxics and whole effluent toxicity, and would, therefore, "allow for the attainment or maintenance of water quality which assures protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife"; and (4) the discharges would not significantly affect: (i) sediment quality, benthic grain size, benthic habitat, or concentrations of toxics; (ii) public water supplies; (iii) phytoplankton and benthic fauna; (iv) fish and shellfish richness and abundance; (v) recreation (including but not limited to swimming, diving, boating, fishing, and picnicking, and sports activities along shorelines and beaches).

RWQCB Evaluation

The San Diego RWQCB has also independently evaluated the discharges, in Tentative Order R9-2024-0004/NPDES Permit CA017409 (TO/NPDES Permit), which has not yet been adopted by the RWQCB. The RWQCB's documents, including EPA's and RWQCB's responses to public comments, are available at its website, at: https://www.waterboards.ca.gov/sandiego/board_decisions/tentative_orders. The NPDES Permit adopted by the RWQCB incorporates the applicable California Ocean Plan requirements, requires extensive monitoring, contains a "reopener" provision enabling it to respond to unexpected events or improvement capabilities in regional monitoring (e.g., implementing recommendations from the Southern California Coastal Water Research Project (SCCWRP)), and incorporates the City's proposed Pure Water San Diego Program water recycling goals, timetables, and tasks, as summarized in Table 8 (below).

Under this schedule, the City's Pure Water Program proposes to use advanced water purification technology to produce potable water from recycled water and provide a safe and reliable drinking water supply for the San Diego area. The City has committed to produce at least 83 MGD of potable reuse water by 2035 and reduce flows to the WWTP, which in turn would reduce wastewater flows and pollutant loads discharged to the ocean. The Program consists of the design and construction of new advanced water purification facilities and a new water reclamation plant; upgrades to existing water reclamation and wastewater treatment facilities; and design and construction of new pump stations and pipelines. The above schedule partially overlaps with the 5-year

permit period (through 2030) and states that the constructed facilities would have the ability to produce and deliver purified water to local reservoirs in volumes of at least 30 MGD by the end of 2027. The TO/NPDES (p. 44) also includes the City's committed to providing at least 83 MGD of potable water reuse by December 31, 2035, in collaboration with the other members of the Metro Wastewater Joint Powers Authority.

Table 8 City's proposed recycling goals, timetable and tasks as provided in Table 5 in TO/NPDES, p. 45.

Category	Task	Implementation[1,2,3,4]
Pure Water Phase 1: North City Pure Water Project[5]	Complete construction for North City potable reuse facility and pipelines.	June 30, 2027
Pure Water Phase 1: North City Pure Water Project[5]	Produce a cumulative total of at least 30 MGD of potable reuse.	December 31, 2027
Pure Water Phase 2: Central Area Project[4,6,7]	Complete design of a central area small-scale facility at the Facility.	Completed
Pure Water Phase 2: Central Area Project[4,6,7]	Begin Central Area Small-Scale Facility Operation.	June 30, 2026
Pure Water Phase 2: Central Area Project[4,6,7]	Issue Notices to Proceed (NTPs) for pre-design of potable reuse facility and pipelines.	June 30, 2025
Pure Water Phase 2: Central Area Project[4,6,7]	Issue Notice of Preparation for Central Area Project Environmental Impact Report (EIR).	December 31, 2026
Pure Water Phase 2: Central Area Project[4,6,7]	Issue NTPs for full design of potable reuse facility and pipelines	June 30, 2027

Notes for Table 8
1. The listed milestones are those that are expected to occur during the effective period of this Order/Permit.
2. This schedule is based on the current progress included in the Dischargers March 24, 2022, ROWD.
3. Task completion dates may require modification in the future based on issues related to the regulatory approval schedule, environmental review issues, supply chain interruptions, legal challenges to the proposed program or projects, or other unforeseen circumstances.
4. Phase 1 Pure Water implements an ultimate annual average daily production of 30 MGD of water suitable for potable reuse.
5. Phase 2 Pure Water implements an ultimate annual average daily production of an additional 53 MGD of water suitable for potable reuse resulting in a cumulative total of 83 MGD. The tasks listed in this table represent the work necessary during the renewed permit period to allow for the ultimate production of 83 MGD of water suitable for potable reuse by December 31, 2035.
6. Future permit applications prior to December 31, 2035, may also contain a schedule of tasks necessary to ensure completion and full operation of Phase 2 by December 31, 2035.
7. These tasks are dependent upon future approval by the Mayor and City Council of San Diego.

Concerning compliance with this schedule, the RWQCB proposes to adopt the following language (TO/NPDES p. 44):

> The Discharger has committed to implementing a comprehensive water reuse program called "Pure Water San Diego" (also referred to as Pure Water Program). To demonstrate the Discharger's continued commitment to regulators and stakeholders for moving forward with Pure Water San Diego plans, the Discharger proposed that the following schedule of tasks [Table 8] for implementation of Pure Water San Diego be incorporated into

this Order/Permit. These tasks and associated due dates are enforceable to the maximum extent allowed by law.

However, the RWQCB also notes (TO/NPDES p. 45) that "[t]ask completion dates may require modification in the future based on issues related to the regulatory approval schedule, environmental review issues, supply chain interruptions, legal challenges to the proposed program or projects, or other unforeseen circumstances." In recognition of the significant hurdles and uncertainties involved in implementing the Pure Water Program (especially the Phase 2 projects), compliance will also involve regular reporting and monitoring to show progress in implementing these tasks and timetables. The TO/NPDES (p. 45) requires regular Task Reports and Semiannual Progress Reports to be submitted to the RWQCB and EPA and acknowledges that since some of the compliance dates would extend to beyond the duration of the NPDES permit, they would be provided and described in subsequent Orders/Permits.

The Tentative Order and draft NPDES permit acknowledge the importance of Pure Water Project implementation for reducing the volume and improving the quality of wastewater discharges from PLWTP. From the Commission's perspective, this importance is amplified considering the plant's on-going lack of compliance with secondary treatment standards and reliance on waiver renewals. However, given the numerous uncertainties that could affect the progress of Pure Water Project implementation, and the likelihood that the compliance schedule included in the TO/NPDES permit will require modification, it is critical that the Commission remain informed of the status of Pure Water implementation in order to assess whether discharges from PLWTP and the secondary treatment waiver continue to be consistent with Coastal Act marine resources and water quality policies. As such, the City has agreed to provide an interim status report to the Commission on the construction, planning and implementation of Pure Water Phases 1 and 2 before the end of 2027. This commitment is memorialized here as **Condition 1**, and will serve to extend the reporting and status updates required in the TO/NPDES permit to the Commission.

Monitoring Program

To detect potential impacts to coastal and ocean resources (and as required under its NPDES Permit) the City conducts an extensive ocean monitoring program that includes influent and effluent monitoring, receiving water quality monitoring, sediment chemistry, toxicology, benthic species occurrence and distribution, and fish tissue monitoring at locations near the PLOO and at reference stations. Monitoring stations extend around the PLOO to the north and south, and from the open ocean to shore (**Exhibit 6**). The monitoring program has been designed to protect public health, maintain beneficial uses, and assure compliance with the Ocean Plan and Sections 301(h) and 301(j)(5) of the Clean Water Act. Monitoring results are publicly available on the City's website[13] (up to 2017), and the California Integrated Water Quality System Project (CIWQS)[14] and California Environmental Data Exchange Network (CEDEN)[9] websites.

[13] https://www.sandiego.gov/public-utilities/sustainability/ocean-monitoring/reports

[14] https://www.waterboards.ca.gov/water_issues/programs/ciwqs/

In a letter to Commission staff dated July 29, 2024, the City provided the following summary of the breadth, scope and timing of monitoring conducted to monitor the marine environment:

> **Point Loma Wastewater Treatment Plant: Receiving Waters Monitoring Program Overview**
>
> Ocean monitoring within the Point Loma Ocean Outfall (PLOO) region is conducted by the City in accordance with requirements set forth in the PLWTP NPDES permit (Order No. R9-2017-0007, as amended by Order No. R9-2022-0078), which includes a Monitoring and Reporting Program (MRP) that defines the requirements for monitoring ocean (receiving) waters surrounding the outfall. The MRP is designed to assess the impact of wastewater discharged through the PLOO on the coastal marine environment off San Diego. The main objectives of the program are to: (1) measure and document compliance with NPDES permit requirements and California Ocean Plan (Ocean Plan) water quality objectives and standards; (2) track movement and dispersion of the wastewater plume discharged via the outfall; and (3) assess any impact of wastewater discharge on the local marine ecosystem, including effects on coastal water quality, seafloor sediments, and marine life. All monitoring and reporting data are publicly accessible on the CIWQS and the California Environmental Exchange Network (CEDEN) websites[15].
>
> **Core Monitoring**
>
> Core receiving water monitoring requirements including frequency of the different sampling programs, the parameters assessed, and the samples collected are listed in [**Exhibit 7**], and station locations are depicted in [**Exhibit 6**]. Most components of the MRP, including microbiology, oceanographic conditions, sediment chemistry, benthic infauna, demersal fishes and megabenthic invertebrates, and bioaccumulation in fish tissues commenced in 1991 as pre-discharge sampling prior to the construction of the PLOO extension. Pre-discharge sampling continued through early 1994, as the PLOO was extended to its current length of 4.5 miles off the coast. In 1994, sampling transitioned to post-discharge monitoring at the same locations, with the same sampling frequency, until 2003. Effective August 1, 2003, Amendment No. 1 to Order No. R9-2002-0025 modified the frequency of sampling to incorporate recommendations of the Southern California Coastal Water Research Project's (SCCWRP) Model Monitoring Program for Large Ocean Discharges in Southern California. These recommendations formed the foundation of the current monitoring program.
>
> **Sediment Toxicity Monitoring**
>
> Sediment toxicity monitoring started in 2015 with a 3-year pilot study[16] implemented as a new regulatory requirement for the Point Loma Ocean Outfall

[15] https://ceden.org/

[16] https://www.sandiego.gov/sites/default/files/sedtoxworkplan.pdf

region. Findings for the 2016–2018 pilot study were summarized in a final project report[17] that included recommendations for continued sampling through 2023. Recommendations to continue the same level of sediment toxicity monitoring for another five years (2024-2029) have recently been submitted to the Regional Water Quality Control Board (RWQCB) and United States Environmental Protection Agency (USEPA).

Plume Dispersion Monitoring

Monitoring the fate of the PLWTP wastewater plume began with three special studies carried out in collaboration with the Scripps Institution of Oceanography (SIO). The first special study, the San Diego Moored Observation System Pilot Study[18], initiated in 2006, utilized moored temperature loggers (thermistor strings) to track the thermocline, and Acoustic Doppler Current Profilers (ADCPs) to determine major modes of ocean circulation near the outfall. The second special study, the Point Loma Ocean Outfall Plume Behavior Study[19], initiated in 2009, involved tracking the treated effluent plume using an autonomous underwater vehicle (AUV) whose daily track was based on telemetered buoy observations of currents and temperature structure at the end of the outfall. This study included modeling of near-field plume behavior off Point Loma, and observations of inner shelf bottom temperature and currents just offshore of the kelp forests. Finally, the Plume Tracking Monitoring Plan[20], initiated in 2015, incorporated aspects of both previous projects, including (1) the deployment of a real-time oceanographic mooring (RTOM) at the end of the PLOO; (2) continued use of the static moorings (thermistors and ADCPs); and (3) deployment of a remote operated towed vehicle with the goal of enhanced water quality monitoring and adaptive plume tracking. Plume tracking monitoring became a permit requirement in 2017.

Regional Monitoring

Regional monitoring requirements include participation in Aerial Kelp Bed Canopy Monitoring[21] as a member of the Region Nine Kelp Survey Consortium. This monitoring program utilizes aerial infrared photography to determine the maximum aerial extent on coastal kelp beds from the international boundary to the San Diego Region/Santa Ana region boundary since 1983. Additionally, the City is required to participate in the Southern California Bight Regional Monitoring Program[22]. Bight regional surveys started in 1994, occur every 4-5

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[17] https://www.sandiego.gov/sites/default/files/sedtoxfinalreport.pdf

[18] https://www.sandiego.gov/sites/default/files/mops_workplan.pdf

[19] https://www.sandiego.gov/sites/default/files/ploo_plumebehaviorstudy.pdf

[20] https://www.sandiego.gov/sites/default/files/ptmp_workplan.pdf

[21] https://www.sandiego.gov/public-utilities/sustainability/ocean-monitoring/reports/kelp-survey-report-archives

[22] https://www.sccwrp.org/about/research-areas/regional-monitoring/southern-california-bight-regional-monitoring-program/

years, and are conducted in coordination with up to 100 other agencies to cover the entire Southern California Bight.

Ongoing Special Studies

In addition to the above, the City conducts two ongoing special studies, the San Diego Coastal Kelp Forest Ecosystem Monitoring[23] and Ocean Monitoring via Satellite Imagery[24]. In 2002, the City partnered with SIO to continue ecological studies of the Point Loma and La Jolla kelp forests at some of the same sites established as part of earlier studies in the 1970s and 1980s. The main components of the current kelp forest monitoring program include estimation of (1) algal density, growth, reproductive condition and recruitment; (2) invertebrate densities; (3) sea urchin demography (size distributions to monitor for episodic recruitment); and (4) ocean bottom temperature (which is a proxy of ocean nutrient status). Also in 2002, the City partnered with Ocean Imaging, Inc. to utilize satellite and aerial imagery to better understand regional water quality conditions off San Diego. This project is focused on detecting and tracking the dispersion of wastewater plumes from the PLOO, and nearshore sediment plumes caused by stormwater runoff or outflows from local bays and rivers.

Other City Water Quality Improvement Efforts

In addition to its on-going implementation of the Pure Water San Diego water reuse project, which will reduce wastewater and pollutant discharges from PLTWP, the City is advancing multiple projects through its Capital Improvements Program (CIP) that will benefit coastal water quality more broadly throughout the City and region. In an e-mail communication to Commission staff dated January 23, 2025, the City described its existing and planned water quality projects as follows:

> In June of last year, the City received a $32 million State Revolving Fund (SRF) loan from the State Water Resources Control Board in addition to a $5 million grant as part of President Biden's Bipartisan Infrastructure Law. This funding is in conjunction with a $733 million investment commitment received in September 2022 (with an associated 5-year implementation requirement) for San Diego's comprehensive stormwater upgrades through the EPA's Water Infrastructure Finance and Innovation Act (WIFIA) - a federal credit program designed to promote improved water infrastructure. The infusion of significant funding through the SRF and WIFIA programs will help modernize the City's aging stormwater system by investing in upgrades from pipeline replacements to pump station repairs, that will improve water quality and prevent pollution from entering the Pacific Ocean. The City has an estimated 100 projects that

[23] https://www.sandiego.gov/public-utilities/sustainability/ocean-monitoring/reports/kelp-monitoring-report-archives

[24] https://www.sandiego.gov/public-utilities/sustainability/ocean-monitoring/reports/ocean-imaging-report-archives

will qualify for the $733 million WIFIA investment. These eligible projects include but are not limited to:

- Replacing outdated corrugated metal pipes with reinforced concrete pipes;
- Installing green infrastructure features, such as biofiltration basins and rain gardens;
- Restoring waterways to reduce flooding concerns; and
- Upgrading a dozen aging pump stations to increase capacity and reduce flooding.

The $37 million SRF loan and $5 million grant will enable the City to upgrade storm drain infrastructure in South Mission Beach that dates to the 1940s and is inadequately sized, resulting in regular flooding in one of the City's most densely populated neighborhoods and in turn, subjecting beaches to contamination. Specifically, the South Mission Beach project will replace or upgrade existing drainage systems to reduce flood risk and improve water quality from Bonita Cove on the north end to South Mission Beach Park. Highlights include:

- A new storm drain backbone and inlets along Mission Boulevard;
- Sluice gates to prevent tidal waters from entering the storm drains;
- Water quality basins at the northern and southern ends of the project;
- Low-flow diversion systems to divert portions of runoff to the existing sewer system;
- Repaving Mission Boulevard to provide additional runoff capacity;
- Shoreline restoration in Bonita Cove and eelgrass planting; and
- New curb ramps and street repairs throughout the project.

Construction is expected to begin in spring 2025.

Other significant projects from the City's five-year CIP Plan include:

- **Chollas Creek Enhancement Program:** Restoring sections of Chollas Creek to natural conditions, improving water filtration, reducing flood risks, and providing recreational opportunities with new community trails.
- **Mission Bay Park Improvement Fund:** Includes wetlands restoration, water quality enhancements, and shoreline protection to safeguard sensitive habitats and improve water quality in Mission Bay.
- **Coastal Resilience Master Plan:** Targets sea-level rise and erosion at six high-priority sites, including La Jolla Shores and Mission Beach, through shoreline stabilization, habitat restoration, and public access improvements.
- **Trunk Sewers**: Trunk sewers are large diameter pipelines that convey wastewater from local collection systems to treatment facilities. Planned upgrades will address aging infrastructure by rehabilitating and

expanding the capacity of key trunk sewers, such as the Harbor Drive and Tecolote Canyon Projects, to accommodate future growth and reduce the risk of overflows.

- **Municipal Pump Stations**: The City's 78 municipal pump stations are critical in transporting wastewater from lower elevation areas to higher points within the City's sewer system, enabling efficient flow to treatment facilities. Upgrades across multiple pump stations will enhance system efficiency by improving energy use, replacing outdated components, and optimizing pump performance. Improvements will help prevent overflows, reduce maintenance needs, and support regulatory compliance**.**
- **Sewer Pipelines**: Sewer pipeline projects involve the repair, replacement, or rehabilitation of deteriorating pipes to prevent leaks and blockages. The City takes a proactive approach and prioritizes areas with high rates of maintenance or structural deficiencies. Water and sewer pipeline projects are combined to minimize community disruptions, with major improvements planned citywide.
- **Metro System Sewer Pump Stations:** Major investments are planned for two Metro System sewer pump stations, which transport significant volumes of wastewater to the Point Loma Wastewater Treatment Plant. Planned projects will include mechanical and electrical improvements, new pump installations, and the design of Pump Station 1 rehabilitation and Pump Station 2 modernization to extend facility service life and reduce the likelihood of service disruptions**.**
- **Wastewater Industrial Stormwater Diversion Structures:** There are four CIP projects in process for industrial stormwater diversion structures at each of the large wastewater treatment plants, including the Point Loma Wastewater Treatment Plant. These diversion structures will capture and divert industrial stormwater runoff that would otherwise be discharged to inland and coastal surface waters to the treatment plants for full treatment prior to discharge through the Point Loma and South Bay Ocean Outfalls. These innovative projects will improve stormwater discharge quality, reduce impacts to inland and coastal surface water quality, and reduce erosion and hydromodification at the discharge points, including Point Loma's sensitive coastal bluffs.

In addition to CIP projects, the City conducts environmental monitoring to ensure the effectiveness of our programs and safety of our water, including our coastal waters. The City's Stormwater Department serves as the lead on water quality improvement and proactively protects local streams, rivers, bays, and beaches from pollution by implementing programs and activities such as public education campaigns, water quality monitoring, pollutant source identification, code enforcement, illegal discharge investigations and abatement, and water

> quality improvement planning. The City's Public Utilities Department oversees our comprehensive Ocean Monitoring Program which serves as the cornerstone of compliance with our Point Loma National Pollutant Discharge Elimination System (NPDES) permit and monitors the health of the coastal waters surrounding the Point Loma and South Bay Ocean Outfalls.

Implementation of this suite of infrastructure and facility upgrades, and restoration efforts is likely to reduce the input of pollutants to the coastal ocean from stormwater runoff and other non-point sources, and may help to ameliorate some of the localized water quality problems and impacts (e.g., high levels of bacteria and beach closures) that have occurred along the San Diego shoreline.

Commission Analysis

Commission staff have reviewed the City's ocean monitoring reports and EPA and RWQCB analyses and concluded that the monitoring data does not indicate that the wastewater discharge from PLOO is negatively affecting biological productivity or the maintenance of healthy populations of all species of marine organisms. Monitoring data indicate that many of the parameters measured by the City, including fish abundance and species composition, concentrations of most heavy metals, and contaminant concentrations in fish tissues, show no geographic trends between near and far-field monitoring stations, suggesting that discharge from the PLOO is not adversely affecting marine resources on a broad scale. Some of the measured parameters indicate the discharge is altering the ocean environment and microbial activity in close proximity to the outfall (i.e., at stations E-14, E-17, E-11, **Exhibit 6**). Monitoring stations closest to the outfall show evidence of organic enrichment in the sediments, with increased sulfide and sediment BOD concentrations pointing to enhanced organic material degradation. Additionally, benthic infaunal communities nearest to the outfall (station E-14) contain a larger proportion of pollution tolerant species and higher values of benthic response index (BRI)[25] which suggests minor loss of species richness relative to far-field stations. The concentration of enterococcus, a fecal bacterial indicator, also shows geographic differences, with higher concentrations near the outfall at depths of 60 and 80 meters that diminish with distance away from the outfall termination. As noted below (Section F), the City's monitoring has also recorded high concentrations of enterococcus at shoreline stations that are almost certainly related to terrestrial runoff rather than the plume from the PLOO. In summary, while ocean monitoring data reveal some environmental responses to the discharge from PLOO, as would be expected given its volume and duration, relatively high species diversity and high concentrations of dissolved oxygen remain across the monitoring region, which indicate the observed environmental impacts are not adversely affecting the local marine ecosystem.

Nonetheless, Commission staff also note the potential for PLWTP to contribute to regional water quality issues. The PLWTP discharges into the southern end of the

[25] The benthic response index (BRI) is an abundance-weighted average pollution tolerance of species in a sample. Higher BRI values indicate the presence of more pollution tolerant species. https://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/1997AnnualReport/ar15.pdf

Southern California Bight off the coast of San Diego County. This region is biologically diverse and ecologically significant, hosting a high diversity of fish, invertebrates, marine mammals, and seabirds,[26] as well as numerous sensitive and protected marine and estuarine habitat areas, including the San Diego-Scripps Area of Special Biological Significance (ASBS), the Tijuana River National Estuarine Research Reserves (TRNERR), six State Marine Conservation Areas, and two State Marine Reserves. However, the coastal waters of the San Diego region are also negatively affected by anthropogenic pollution from a dense coastal population, including wastewater discharges (from PLWTP and other treatment plants), stormwater runoff and other non-point sources.

Of particular concern to the Commission is the severely contaminated Tijuana River that flows into the ocean in southern San Diego County, discharging untreated sewage, industrial waste, trash, sediment, and urban runoff due to inadequate wastewater treatment and diversion.[27] The nearshore pollution from the Tijuana River has created eutrophic and hypoxic conditions in its estuary, and has led to the long-term closure of South County beaches.[28,29,30] In contrast, monitoring of wastewater plume dynamics and ocean currents suggest that the wastewater discharged from the PLOO does not reach shoreline habitats either near Point Loma or elsewhere in the County, and thus is unlikely to contribute to or exacerbate the ongoing direct adverse impacts from the Tijuana River.

The potential for the large wastewater treatment plants in the Southern California Bight, including PLWTP, to drive coastal eutrophication through the discharge of nutrients (nitrogen, phosphorus, etc.) is a topic of emerging concern. Because nitrogen is a limiting nutrient in the Southern California Bight, the addition of anthropogenic nitrogen to the coast can fuel increased phytoplankton production and blooms. Issues arise when the blooms are composed of toxic species (harmful algal blooms) and/or when the organic matter created during a bloom decomposes, consuming dissolved oxygen and potentially contributing to hypoxia and ocean acidification.

The PLOO discharges water at a depth of roughly 100 m (300 feet) and the buoyant plume is typically trapped below temperature-stratified surface waters at depths of 40 to 60 meters. Nutrients (e.g., nitrogen) in the discharge plume may fuel phytoplankton

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[26] Schiff, K. C. (2000). Sediment Chemistry on the Mainland Shelf of the Southern California Bight. Marine Pollution Bulletin, 40(3), 268–276.

[27] Stigler Granados, P. E., Sant, K. E., Quintana, P. J. E., Hoh, E., Oren, E., Lopez-Galvez, N., Zavala Perez, M. A., & Ni, Y. (2024). Tijuana River Contamination from Urban Runoff and Sewage: A Public Health Crisis at the Border. https://www.sdsu.edu/_files/tijuana-sewage-contamination-public-health-crisis-white-paper-021424.pdf

[28] Beach and Coastal Health. (2023). The Non-Profit Institute. https://www.sandiego.edu/soles/centers-and-institutes/nonprofit-institute/signature-programs/dashboard/water-quality.php

[29] Bograd, S. J., Castro, C. G., Di Lorenzo, E., Palacios, D. M., Bailey, H., Gilly, W., & Chavez, F. P. (2008). Oxygen declines and the shoaling of the hypoxic boundary in the California Current. Geophysical Research Letters, 35(12). https://doi.org/10.1029/2008GL034185

[30] San Onofre Nuclear Generating Station Mitigation Monitoring Program Unpublished Data. (2024).

growth seasonally, when the euphotic zone (sunlit portion of the surface ocean) is deep or when ocean mixing or upwelling entrains the plume in surface waters. It is important to note that increased phytoplankton production from wastewater nutrient addition may occur beyond the immediate area around the PLOO. The discharge of wastewater to the ocean, from the PLOO or other sources, contributes to deepwater nutrient pools that are subject to regional circulation and mixing dynamics over time. The Southern California Bight regularly receives large nutrient inputs from coastal upwelling. However, anthropogenic nutrient inputs can roughly double available nitrogen within coastal waters at scales relevant to phytoplankton bloom development.[31] Model simulations suggest the excess nitrogen exacerbates acidification and oxygen depletion despite ocean outfalls that are designed to prevent the emergence of wastewater into the euphotic zone.[32]

In its March 2022 biological opinion (BO), the National Marine Fisheries Service (NMFS) stated that increased nutrient loads could increase the risk of exposure of certain federally listed threatened or endangered marine species to harmful phytoplankton blooms as a result discharge through the PLOO. Based on the BO, the existing NPDES permit was modified in August 2022 to include additional monitoring. Under the August 2022 amendment, the City is required to monitor nutrient discharge from the PLOO and conduct a euphotic zone study and phytoplankton simulation study to determine the depth of the euphotic zone in the receiving water and evaluate whether nutrients from the discharge plume reach the euphotic zone and thereby potentially stimulate phytoplankton productivity, including harmful algal blooms. The City has completed the first phase of the Euphotic Zone study, which was a literature review of seasonal and long-term trends of euphotic zone depths near PLOO. The study found that the average euphotic zone depth, roughly 30 meters, was generally shallower than the top of the wastewater plume which peaks at depths between 40 and 60 meters. This suggests that the physical stratification of the water generally separates the nutrient rich outfall water from the sunlit surface where phytoplankton grow. Phase 2 of the Euphotic Zone Study will provide a work plan to assess the likelihood of PLOO water mixing in to the euphotic zone and potentially stimulating the formation of algal blooms.

While modeling studies suggest wastewater outfalls in the Southern California Bight contribute a substantial amount of nitrogen to coastal waters, it remains unclear the extent to which those nitrogen sources are contributing to increased algal growth and harmful algal blooms. The additional nutrient monitoring and phytoplankton studies included in the August 2022 NPDES permit amendment should provide clarity on the specific role of PLWTP to regional nutrient loading. The fundamental link between

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[31] Howard, M., Sutula, M., Caron, D. A., Chao, Y., Farrara, J. D., Frenzel, H., Jones, B., Robertson, G., McLaughlin, K., & Sengupta, A. (2014). Anthropogenic nutrient sources rival natural sources on small scales in the coastal waters of the Southern California Bight. Limnology and Oceanography, 59(1), 285–297. https://doi.org/10.4319/lo.2014.59.1.0285

[32] F. Kessouri, J.C. McWilliams, D. Bianchi, M. Sutula, L. Renault, C. Deutsch, R.A. Feely, K. McLaughlin, M. Ho, E.M. Howard, N. Bednaršek, P. Damien, J. Molemaker, S.B. Weisberg, Coastal eutrophication drives acidification, oxygen loss, and ecosystem change in a major oceanic upwelling system, Proc. Natl. Acad. Sci. U.S.A.118 (21) e2018856118, https://doi.org/10.1073/pnas.2018856118 (2021).

nitrogen availability and phytoplankton production indicates that ocean health and balanced productivity could be enhanced, and the potential for adverse impacts minimized, by reducing the mass of anthropogenic nitrogen discharged to the ocean. PLWTP's discharge is estimated to contribute between 8,610 and 14,760 metric tons per year of ammonia (a bioavailable nitrogen compound) to the coastal ocean (NMFS BO). While the effluent limitations and performance goals built into the renewed NPDES permit are expected to limit nitrogen loading from discharges at the PLOO to near current levels, implementation of the Pure Water Program would contribute to the *reductions* in nitrogen loading that are critical to avoiding impacts and enhancing marine resources in the Southern California Bight. Pure Water Phase 1 is projected to reduce nitrogen mass emissions at the PLOO by 9%; total nitrogen mass emissions are projected to decrease 20% following the implementation of Pure Water Phase 2. Pure Water implementation is also expected to decrease the mass emissions of TSS and BOD to the ocean, which is likely to decrease the organic load, bacteria signatures, and benthic community shifts around the outfall.

Given the importance of the Pure Water Program for the ongoing protection and enhancement of marine resources and coastal water quality in the project area, and the need to ensure continued progress in implementing this program, the City has agreed to provide an interim status report to the Commission on the construction, planning and implementation of Pure Water Phases 1 and 2 before the end of 2027. This commitment is memorialized here as **Condition 1**.

Conclusions

Previous Commission reviews (2009 and 2017) have found the issuance of waivers from secondary treatment to be consistent with the state's enforceable coastal policies in part because of the lack of evidence that the discharge is adversely affecting the marine environment and because flows and loads to the environment would improve with the implementation of water reuse programs.

In reviewing this consistency request, Commission staff reaffirm that the implementation of the Pure Water Program would contribute to maintaining marine resources and minimizing the potential for adverse effects of wastewater discharge. Reductions in the discharge of TSS, BOD and nitrogen could reduce localized environmental shifts related to organic matter enrichment or lowered dissolved oxygen, and, on a larger scale, reduce nutrient loading and its potential contributions to coastal eutrophication and harmful algal blooms.

Based on (1) analyses carried out by EPA and the RWQCB establishing that the discharges meet the applicable Clean Water Act and California Ocean Plan standards; (2) the NPDES permit's compliance schedule discussion and table which incorporate the City's commitments to pursue water reuse; (3) the current evidence that demonstrates the discharges are not adversely affecting water quality or marine species (despite the stringent monitoring required under CWA Section 301(h)); (4) the City's past performance in implementing water reuse programs and its planned implementation of numerous ancillary water quality improvement projects; and (5) the

ongoing pursuit of significant future reductions in wastewater flow to the PLWTP, including the expected completion of Pure Water Phase 1 during the permit term and progress update to the Commission through the inclusion of **Condition 1**, the Commission finds that the discharges over the life of the upcoming 5-Year NPDES permit waiver reissuance would be consistent with the applicable marine resources and water quality policies of the CCMP (Sections 30230 and 30231 of the Coastal Act) and all of the applicable federal and state requirements established by or pursuant to the Clean Water Act, the California Ocean Plan, California Water Code Section 13142.5, as well as the directive in Chapter 5 (Section 30412(a)) of the Coastal Act to coordinate with and rely on determinations of the EPA and Water Board.

F. Fishing, Coastal Access and Recreation

Section 30220 of the Coastal Act states:

> Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

Section 30230 of the Coastal Act includes a requirement that:

> Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

The Coastal Act also contains more specific policies protecting commercial and recreational fishing. Section 30234 provides:

> Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.

Section 30234.5 provides:

> The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.

The Coastal Act also protects public recreation (such as surfing and other water-contact recreation). Section 30213 provides, in part:

> Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided ...

Coastal recreation and fishing activities have the potential to be adversely affected by wastewater discharges and the pollutants they contain, including through declines in fish abundance and the accumulation of pollutants in fish tissues. Moreover, high bacteria loads associated with wastewater discharges can affect human health, cause beach closures and limit access to water-contact recreation activities.

EPA's TDD (pages 66-77) evaluated effects on both fishing and recreation, including analysis of effects from bioaccumulation of contaminants and effects on fish consumption, and on water contact recreation in state and federal waters, including but not limited to swimming, diving, boating, fishing, and picnicking, and sports activities along shorelines and beaches. As discussed in the previous section of this report, on-going water quality and biological monitoring has not detected evidence of adverse effects of the wastewater discharge on the health of commercial and recreational fish species. Concerning other types of recreation, in reviewing previous waiver reviews, the Commission has found recreational activities that are most likely to be affected by the discharges are centered around the Point Loma kelp beds and in nearshore waters. SCUBA diving is very popular in the offshore kelp beds. Only limited diving occurs outside the area of the kelp beds. EPA analyzed the City's plume modeling and bacteria indicator (enterococcus, fecal coliforms, and total coliforms) data for spatial and temporal occurrences and trends. For shoreline exceedances that have occurred, EPA states (TDD, p. 76):

> As shown in Table B-9, statistical threshold value enterococcus objectives at shoreline stations exhibit low exceedance rates (1.5 percent). As shown in Tables B-10, 6-week geometric mean enterococcus objectives at shoreline stations also exhibit low exceedance rates (2 percent). The applicant attributes these exceedances to surface runoff rather than the outfall plume. EPA agrees with this conclusion because of the lack of elevated concentrations at stations in the kelp bed and because modeling and monitoring results indicate that the outfall plume remains submerged in the offshore zone.

EPA further states (TDD, p. 77):

> Based on this review, EPA finds that the improved modified discharge, as defined at 40 CFR 125.58(i) will meet bacterial water quality standards in State waters. EPA also finds that federal waters are not required to achieve the 304(a)(1) water quality criteria for bacteria because federally-defined primary contact recreational activities are not occurring in waters beyond 3 nautical miles. The reissued permit will require the City to record and report any primary contact recreational activities observed in federal waters, during offshore water quality monitoring surveys. The Regional Water Board and EPA conduct routine reviews of the City's discharge monitoring reports to assess compliance with the existing permit and water quality standards. EPA concludes that the improved modified discharge will allow for the attainment or maintenance of water quality which allows for recreational activities beyond the zone of initial dilution, including,

without limitation, swimming, diving, picnicking, and sports activities along shorelines and beaches.

The excerpts above establish that while shoreline water quality standard exceedances do occur in the San Diego area, they are unlikely to be related to the City's outfall discharges and more likely to be from land based nonpoint source runoff. As discussed in the water quality/marine resource section above, the City's monitoring efforts over the past seven years have been sufficient to enable a determination that commercial/recreational fishing is protected and other recreational uses are not being adversely affected by the discharges and are not expected to be affected over the next five-year permit term.

Based on (1) EPA's and the RWQCB's analyses establishing that the discharges meet the applicable Clean Water Act and California Ocean Plan standards, (2) the NPDES permit's compliance schedule discussion and table which incorporate the City's commitments to pursue water reuse, (3) the existing evidence that demonstrates that the discharges are not adversely affecting commercial or recreational fishing or public health or recreational uses, and (4) the ongoing pursuit of significant future reductions in wastewater flow to the PLWTP, including through the expected completion of Pure Water Phase 1, and planned implementation of numerous ancillary water quality improvement projects during the upcoming permit term, the Commission concludes that, as conditioned, the discharges over the life of the upcoming 5-Year NPDES permit waiver reissuance would be consistent with the applicable commercial and recreational fishing and public access and recreation policies of the CCMP (Sections 30230, 30234, 30234.5, 30213, and 30220 of the Coastal Act).

V. APPENDIX A – SUBSTANTIVE FILE DOCUMENTS

1. RWQCB Tentative Order No. R9-2024-0004 and Draft NPDES Permit CA0107409; Waste Discharge Requirements and NPDES Permit for the City of San Diego E.W. Blom Point Loma Metropolitan Wastewater Treatment Plant Discharge to the Pacific Ocean through the Point Loma Ocean Outfall.

2. EPA Tentative Decision, City of San Diego WTP Outfall, Environmental Protection Agency, Region IX, dated/published: February 27, 2024

3. Application For Renewal of NPDES CA0107409 and 301(h) Modified Secondary Treatment Requirements, City of San Diego, March 2022.

4. NOAA National Marine Fisheries Service Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response. NMFS Consultation Number: WCRO-2021-03010. March 2022.

5. Consistency Certifications No. CC-0002-17, CC-056-09, CC-043-09, CC-28-02 and CC-010-02 (City of San Diego, secondary treatment waiver).

6. Settlement Agreement, City of San Diego, San Diego Coastkeeper and San Diego Chapter of the Surfrider Foundation, February 2009.

7. Cooperative Agreement in Support of Pure Water San Diego, City of San Diego, San Diego Coastkeeper, San Diego Chapter of Surfrider Foundation, Coastal Environmental Rights Foundation, and San Diego Audubon Society, October 2014 Stakeholders, signed December 9, 2014.