CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

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TENTATIVE ORDER NO. R9-2026-0007
NPDES NO. CA0109223

WASTE DISCHARGE REQUIREMENTS FOR THE CHANNELSIDE WATER RESOURCES LP CLAUDE "BUD" LEWIS CARLSBAD DESALINATION PLANT DISCHARGE TO THE PACIFIC OCEAN

The following discharger is subject to waste discharge requirements (WDRs) set forth in this Order:

Discharger:	Channelside Water Resources LP (Discharger)
Facility:	Claude "Bud" Lewis Carlsbad Desalination Plant
Facility Address:	4590 Carlsbad Boulevard, Suite 201 Carlsbad, California 92008

Table 1. Discharge Location

Discharge Point No.	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Reverse osmosis concentrate, filter backwash, potable water, and bypassed seawater	33˚ 8' 17" N	117˚ 20' 25" W	Pacific Ocean

This Order was adopted on:	December 9, 2026
This Order will become effective on:	February 1, 2027
This Order will expire on:	January 31, 2032

The Discharger must file a Report of Waste Discharge as an application for reissuance of WDRs in accordance with title 23 of the California Code of Regulations (CCR), and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit in accordance with title 40 of the Code of Federal Regulations (40 CFR) section 122.21(d)(2), no later than 180 days prior to the Order expiration date. The United States Environmental Protection Agency (USEPA) and the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) have classified this discharge as follows: **Major**

I, David W. Gibson, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the San Diego Water Board on the date indicated above.

TENTATIVE
David W. Gibson, Executive Officer

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1. Facility Information

Information describing the Claude “Bud” Lewis Carlsbad Desalination Plant (Facility) is summarized in Table 1 and in Fact Sheet sections 1 and 2 (Attachment F). Fact Sheet section 1 contains more detailed information regarding the Facility and the Discharger’s permit application.

2. Findings

The San Diego Water Board finds:

2.1. Legal Authorities

This Order serves as WDRs pursuant to article 4, chapter 4, division 7 of the California Water Code (Water Code), commencing with section 13260. This Order is also issued pursuant to section 402 of the Clean Water Act (CWA) and implements regulations adopted by the USEPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). This Order serves as an NPDES permit authorizing the discharge of waste into waters of the United States (U.S.) at the location described in Table 1, which is subject to the WDRs in this Order. This Order also retains and makes non-substantive modifications to the existing Water Code section 13142.5, subdivision (b) (hereafter Water Code section 13142.5(b)) determination for the Facility (2019 Determination). Staff prepared the 2019 Determination to support the development and adoption of Order R9-2019-0003, NPDES No. CA0109223, *Waste Discharge Requirements for the Poseidon Resources (Channelside) LP Claude “Bud” Lewis Carlsbad Desalination Plant Discharge to the Pacific Order*, as amended (2019 Order).

2.2. Background and Rationale for Requirements

The San Diego Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet, which contains background information and rationale for the requirements in this Order, is incorporated into and constitutes Findings for this Order. Attachments A through E, G, and H are also incorporated into this Order.

2.3. Provisions and Requirements Implementing State Law

The provisions/requirements in subsections 2.4, 4.3, 5.1, and 6.3.2 are included to implement State law only. These provisions and requirements are not required or authorized under the CWA. Therefore, violations of these provisions and requirements are not subject to the enforcement remedies that are available for NPDES violations.

2.4. **Water Code Section 13142.5(b) Determination.** Water Code section 13142.5(b) requires that each new or expanded coastal power plant or other industrial installation using seawater for cooling, heating, or industrial processing must use the best available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life. Chapter

III.M of the *Water Quality Control Plan for Ocean Waters of California*, *California Ocean Plan* (Ocean Plan) provides the implementation provisions for desalination facilities to comply with Water Code section 13142.5(b). San Diego Water Board staff conducted the 2019 Determination assessment during development of the 2019 Order (see Attachments H.1 and H.2, which may also be collectively referred to as Attachment H) for Facility stand-alone operations,[1] in accordance with the Ocean Plan requirements. San Diego Water Board staff evaluated a range of alternatives proposed by the Discharger for the best available site, design, technology, and mitigation measures to minimize intake and mortality of all forms of marine life when making the 2019 Determination. Following that evaluation, San Diego Water Board staff determined that the Discharger's proposed design was the best combination of feasible alternatives.

The Discharger submitted a request on December 22, 2021, for an amendment to the 2019 Order to allow for a modified intake design and location. The San Diego Water Board released a tentative letter for public comment regarding the modified intake design on June 28, 2022, stating the San Diego Water Board's determination that the modified intake design would not require an amendment. The modified intake and design did not require an amendment because it would not increase the intake and mortality of marine life beyond that approved in the 2019 Determination and 2019 Order. The San Diego Water Board Executive Officer approved the modified intake design by letter dated August 4, 2022. The Discharger completed construction of the new intake structure using the modified design in December 2024. The new intake structure consists of a floating debris barrier, a large organism exclusion device, and 1.0 millimeter (mm) dual flow traveling screens with an intake velocity designed for 0.5 feet per second (ft/sec) or less. More information is included in the Fact Sheet.

A new Water Code section 13142.5(b) determination is not necessary for adoption of this Order because there have been no changes to the Facility's design or operation which will increase the intake and mortality of marine life beyond that approved in the 2019 Order and Determination. The 2019 Determination was incorporated into Attachments H.1 and H.2 with some minor non-substantive changes.

Any potential future expansion, including any design change or operational change to the Facility that could increase the intake or mortality of all forms of marine life beyond what is approved under this Order will require a new Water Code section 13142.5(b) determination in accordance with the Ocean Plan requirements.

2.5. **California Environmental Quality Act (CEQA).** The action to adopt an NPDES permit is exempt from the provisions of the CEQA (Public Resources Code Section 21100, et seq.) in accordance with section 13389 of the Water Code.

[1] The term "stand-alone operations" is defined in Attachment A.

The Water Code section 13142.5(b) determination in Attachments H.1 and H.2 is issued under state law authority only and is a discretionary approval subject to compliance with CEQA.

In August 2016, the San Diego County Water Authority (SDCWA) certified the *Final Supplement to the Precise Development Plan and Desalination Plant Project Final Environmental Impact Report* (EIR 03-05; State Clearinghouse No. 2004041081) (Final SEIR). Since the certification of the Final SEIR, the SDCWA finalized the seventh addendum to the Final SEIR in May 2022. San Diego Water Board staff considered the environmental effects of the project as described in the 2006 EIR, the 2016 Supplemental EIR, and addenda. Details of CEQA compliance are described in the Fact Sheet.

2.6. **Executive Officer Delegation of Authority.** The San Diego Water Board has delegated all matters that may legally be delegated to its Executive Officer to act on its behalf in accordance with Water Code section 13223. Therefore, the Executive Officer may act on the San Diego Water Board's behalf consistent with San Diego Water Board resolutions and Water Code section 13223.

2.7. **Notification of Interested Parties.** The San Diego Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and provided them with an opportunity to submit their written comments. The San Diego Water Board also provided an opportunity for the Discharger and interested agencies and persons to submit oral comments at a public hearing. Details of the notification are provided in the Fact Sheet.

2.8. **Consideration of Public Comment.** The San Diego Water Board, in a public meeting, heard and considered all comments pertaining to the tentative WDRs. Details of the public hearing are provided in the Fact Sheet.

THEREFORE, IT IS ORDERED, that this Order supersedes Order No. R9-2019-0003 as amended by Order Nos. R9-2020-0004 and R9-2023-0137, except for enforcement purposes; and in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and to meet the provisions of the CWA and regulations and guidelines adopted thereunder. The Discharger must comply with the requirements in this Order. The Discharger is hereby authorized to discharge waste in accordance with the WDRs in this Order at the discharge location described in Table 1. This action in no way prevents the San Diego Water Board from taking enforcement action for violations of the previous Orders.

3. Discharge Prohibitions

3.1. The discharge of waste from the Facility to a location other than Discharge Point No. 001, unless specifically regulated by this Order or separate WDRs, is prohibited.

3.2. The Discharger must comply with Discharge Prohibitions contained in the Ocean Plan. All such prohibitions are incorporated into this Order as if fully set forth herein and summarized in Attachment G, *Ocean Plan Prohibitions*, as a condition of this Order.

3.3. The discharge of waste containing trash or material that is floatable or will become floatable upon discharge is prohibited.

3.4. The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste into the ocean is prohibited.

3.5. The discharge of sludge or sludge digester supernatant is prohibited.

4. Effluent Limitations, Performance Goals, Intake Specifications, and Discharge Specifications

4.1. Effluent Limitations

4.1.1. The Discharger must maintain compliance with the effluent limitations in Table 2. The Discharger must measure compliance at either Monitoring Location M-001 or M-002, as specified in Table 2 and described in the Monitoring and Reporting Program (MRP, Attachment E). The Discharger must report the monitoring for these periods separately consistent with the effluent monitoring provisions in MRP section 3.2. San Diego Water Board staff will determine compliance with these effluent limitations separately for when the Facility is discharging brine and when the Facility is not discharging brine.

Table 2. Effluent Limitations[1]

Parameter	Monitoring Location	Units[2]	Average Monthly	Average Weekly	Average Daily	6-Month Median	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Suspended Solids (TSS)	M-001	milligram per liter (mg/L)	60	–	–	–	–	–	–
TSS	M-001	pounds per day (lbs/day)	119,095	–	–	–	–	–	–
pH	M-001	standard units	–	–	–	–	–	6.0	9.0
Oil and Grease	M-001	mg/L	25	40	–	–	–	–	75
Oil and Grease	M-001	lbs/day	49,623	79,397	–	–	–	–	148,869
Settleable Solids	M-001	milliliter per liter (ml/L)	1.0	1.5	–	–	–	–	3.0
Turbidity	M-001	nephelometric turbidity units (NTU)	75	100	–	–	–	–	225
Total Chlorine Residual	M-001	µg/L	–	–	–	45.7	183	–	1,370
Total Chlorine Residual	M-001	lbs/day	–	–	–	90.6	363	–	2,720
Salinity	M-002	parts per thousand	–	–	42.0	–	–	–	–
Chronic Toxicity[3,4]	M-002	“Pass”/”Fail”, Percent Effect	–	–	–	–	“Pass”	–	–

Notes for Table 2:
1. See Attachment A for definitions, abbreviations, and a glossary of common terms.

2. The mass emission rate limitation (MER) is calculated using the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the flowrate of 238 million gallons per day (MGD) and C is the concentration in mg/L. A discharge flowrate of 238 MGD is an operational constraint of the Facility modeled with the highest concentration of brine discharged, 60 MGD, with the minimum amount of dilution water 178 MGD, that is necessary to meet the salinity effluent limitation.
3. As specified in MRP section 3.3.
4. The chronic toxicity final effluent limitation is protective of both the numeric acute and chronic toxicity Ocean Plan water quality objectives. The final effluent limitation will be implemented using *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to the West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, 1995), current USEPA guidance in the *National Pollutant Discharge Elimination System Test of Significant Toxicity implementation Document* (EPA 833-R-10-003, June 2010) (https://www.epa.gov/system/files/documents/2024-07/national-pollutant-discharge-elimination-system-test-of-significant-toxicity-implementation-document.pdf) and *EPA Regions 8, 9, and 10, Toxicity Training Tool* (January 2010).

4.1.2. The Discharger must maintain compliance with the flow limitations in Table 3 with compliance measured at Monitoring Location M-001, as described in the MRP.

Table 3. Permitted Discharge Flows[1] at Monitoring Location M-001

Wastewater	Maximum Daily Flow Rate in MGD	Annual Average Flow Rate in MGD
Media Filtration Backwash	–	7
Reverse Osmosis (RO) Concentrate	–	60
Combined Discharge of Media Filtration Backwash and Reverse Osmosis Concentrate	67	–

Notes for Table 3:

1. The Discharger may temporarily discharge start-up maintenance flows, product water, and off-specification water to the Pacific Ocean during plant start-up, during or after plant maintenance, or at other times when the Facility is not delivering potable water to the regional water system. Temporarily discharging such water to the Pacific Ocean does not apply to the maximum daily flow rate of 67 MGD which applies solely to the combined discharge of backwash and RO concentrate and does not constitute a “bypass” as defined in Attachment A and Attachment D, section 1.7.1.1 (Standard Provisions). All limitations and requirements, including monitoring, specified in this Order remain applicable during these temporary discharges.

4.2. Performance Goals

The Discharger must report all exceedances of the performance goals listed in Table 4 to the San Diego Water Board by including all performance goal exceedances in the cover letter of the applicable self-monitoring report (SMR). The performance goals apply at Monitoring Location M-001. See Fact Sheet section 4.5 for additional information.

The Discharger must submit a written Performance Goal Exceedance Investigation Work Plan to the San Diego Water Board after three successive exceedances of a performance goal for the same parameter. The Discharger must submit the Performance Goal Exceedance Investigation Work Plan within 30 days of becoming aware of the third successive performance goal exceedance. The Performance Goal Exceedance Investigation Work Plan must outline the investigative steps the Discharger will take to identify the cause of the exceedance, whether the Discharger will use outside technical expertise to assist in the investigation, and the proposed schedule the Discharger will use for completing a Performance Goal Exceedance Report. The Performance Goal Exceedance Report must include a description of the nature of the exceedance(s), the results of the investigation including the cause of the exceedance(s), the corrective actions taken, any proposed corrective measures, and a schedule for implementation, if necessary. The San Diego Water Board may reopen this Order to include effluent limitations for parameters that exceed performance goal.

Table 4. Performance Goals at Monitoring Location M-001[1]

Parameter	Units[2]	6-Month Median[3]	Maximum Daily[3]	Instantaneous Maximum[3]	Average Monthly[3]
Ammonia (as Nitrogen)	µg/L	1.37E+04	5.48E+04	1.37E+05	–
Ammonia (as Nitrogen)	lbs/day	2.72E+04	1.09E+05	2.72E+05	–
Arsenic, Total Recoverable	µg/L	1.17E+02	6.65E+02	1.76E+03	–
Arsenic, Total Recoverable	lbs/day	2.33E+02	1.32E+03	3.50E+03	–
Cadmium, Total Recoverable	µg/L	2.28E+01	9.13E+01	2.28E+02	–
Cadmium, Total Recoverable	lbs/day	4.53E+01	1.81E+02	4.53E+02	–
Chlorinated Phenolics	µg/L	2.28E+01	9.13E+01	2.28E+02	–
Chlorinated Phenolics	lbs/day	4.53E+01	1.81E+02	4.53E+02	–
Non-Chlorinated Phenolic Compounds	µg/L	6.85E+02	2.74E+03	6.85E+03	–
Non-Chlorinated Phenolic Compounds	lbs/day	1.36E+03	5.44E+03	1.36+04	–
Chromium-6[4]	µg/L	4.57E+01	1.83E+02	4.57E+02	–

Parameter	Units[2]	6-Month Median[3]	Maximum Daily[3]	Instantaneous Maximum[3]	Average Monthly[3]
Chromium-6[4]	lbs/day	9.06E+01	3.63E+02	9.06E+02	–
Copper, Total Recoverable	µg/L	2.48E+01	2.30E+02	6.41E+02	–
Copper, Total Recoverable	lbs/day	4.93E+01	4.57E+02	1.27E+03	–
Cyanide, Total Recoverable[5]	µg/L	2.28E+01	9.13E+01	2.28E+02	–
Cyanide, Total Recoverable[5]	lbs/day	4.53E+01	1.81E+02	4.53E+02	–
Endosulfan	µg/L	2.05E-01	4.11E-01	6.16E-01	–
Endosulfan	lbs/day	4.08E-01	8.16E-01	1.22E+00	–
Endrin	µg/L	4.57E-02	9.13E-02	1.37E-01	–
Endrin	lbs/day	9.06E-02	1.81E-01	2.72E-01	–
HCH	µg/L	9.13E-02	1.83E-01	2.74E-01	–
HCH	lbs/day	1.81E-01	3.63E-01	5.44E-01	–
Lead, Total Recoverable	µg/L	4.57E+01	1.83E+02	4.57E+02	–
Lead, Total Recoverable	lbs/day	9.06E+01	3.63E+02	9.06E+02	–
Mercury, Total Recoverable	µg/L	9.02E-01	3.64E+00	9.12E+00	–
Mercury, Total Recoverable	lbs/day	1.79E+00	7.23E+00	1.81E+01	–
Nickel, Total Recoverable	µg/L	1.14E+02	4.57E+02	1.14E+03	–
Nickel, Total Recoverable	lbs/day	2.27E+02	9.06E+02	2.27E+03	–
Selenium, Total Recoverable	µg/L	3.42E+02	1.37E+03	3.42E+03	–
Selenium, Total Recoverable	lbs/day	6.80E+02	2.72E+03	6.80E+03	–
Silver, Total Recoverable	µg/L	1.25E+01	6.04E+01	1.56E+02	–
Silver, Total Recoverable	lbs/day	2.48E+01	1.20E+02	3.10E+02	–
Zinc, Total Recoverable	µg/L	2.82E+02	1.65E+03	4.39E+03	–
Zinc, Total Recoverable	lbs/day	5.60E+02	3.28E+03	8.72E+03	–
Radioactivity	picocuries per liter (pCi/L)	Not to exceed limits specified in title 17, division 1, chapter 5, subchapter 4, group 3, article 3, section 30253 of the CCR. Reference to section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.			
Acrolein	µg/L	–	–	–	5.02E+03

Parameter	Units[2]	6-Month Median[3]	Maximum Daily[3]	Instantaneous Maximum[3]	Average Monthly[3]
Acrolein	lbs/day	–	–	–	9.97E+03
Acrylonitrile	µg/L	–	–	–	2.28E+00
Acrylonitrile	lbs/day	–	–	–	4.53E+00
Aldrin	µg/L	–	–	–	5.02E-04
Aldrin	lbs/day	–	–	–	9.97E-04
Antimony	µg/L	–	–	–	2.74E+04
Antimony	lbs/day	–	–	–	5.44E+04
Benzene	µg/L	–	–	–	1.35E+02
Benzene	lbs/day	–	–	–	2.67E+02
Benzidine	µg/L	–	–	–	1.58E-03
Benzidine	lbs/day	–	–	–	3.13E-03
Beryllium	µg/L	–	–	–	7.53E-01
Beryllium	lbs/day	–	–	–	1.50E+00
Bis(2-chloroethoxy) Methane	µg/L	–	–	–	1.00E+02
Bis(2-chloroethoxy) Methane	lbs/day	–	–	–	1.99E+02
Bis(2-chloroethyl) Ether	µg/L	–	–	–	1.03E+00
Bis(2-chloroethyl) Ether	lbs/day	–	–	–	2.04E+00
Bis(2-ethylhexyl) Phthalate	µg/L	–	–	–	7.99E+01
Bis(2-ethylhexyl) Phthalate	lbs/day	–	–	–	1.59E+02
Bis(2-chloroisopropyl) Ether	µg/L	–	–	–	2.74E+04
Bis(2-chloroisopropyl) Ether	lbs/day	–	–	–	5.44E+04
Carbon Tetrachloride	µg/L	–	–	–	2.05E+01
Carbon Tetrachloride	lbs/day	–	–	–	4.08E+01
Chlordane	µg/L	–	–	–	5.25E-04
Chlordane	lbs/day	–	–	–	1.04E-03
Chlorobenzene	µg/L	–	–	–	1.30E+04
Chlorobenzene	lbs/day	–	–	–	2.58E+04
Chlorodibromomethane	µg/L	–	–	–	1.96E+02

Parameter	Units[2]	6-Month Median[3]	Maximum Daily[3]	Instantaneous Maximum[3]	Average Monthly[3]
Chlorodibromomethane	lbs/day	–	–	–	3.90E+02
Chloroform	µg/L	–	–	–	2.97E+03
Chloroform	lbs/day	–	–	–	5.89E+03
Chromium-3	µg/L	–	–	–	4.34E+06
Chromium-3	lbs/day	–	–	–	8.61E+06
Di-n-butyl Phthalate	µg/L	–	–	–	7.99E+04
Di-n-butyl Phthalate	lbs/day	–	–	–	1.59E+05
Dichlorobenzenes	µg/L	–	–	–	1.16E+05
Dichlorobenzenes	lbs/day	–	–	–	2.31E+05
1,4-dichlorobenzene	µg/L	–	–	–	4.11E+02
1,4-dichlorobenzene	lbs/day	–	–	–	8.16E+02
3,3'-dichlorobenzidine	µg/L	–	–	–	1.85E-01
3,3'-dichlorobenzidine	lbs/day	–	–	–	3.67E-01
Dichlorobromomethane	µg/L	–	–	–	1.42E+02
Dichlorobromomethane	lbs/day	–	–	–	2.81E+02
1,2-dichloroethane	µg/L	–	–	–	6.39E+02
1,2-dichloroethane	lbs/day	–	–	–	1.27E+03
1,1-dichloroethylene	µg/L	–	–	–	2.05E+01
1,1-dichloroethylene	lbs/day	–	–	–	4.08E+01
Dichloromethane	µg/L	–	–	–	1.03E+04
Dichloromethane	lbs/day	–	–	–	2.04E+04
1,3-dichloropropene	µg/L	–	–	–	2.03E+02
1,3-dichloropropene	lbs/day	–	–	–	4.03+E02
DDT	µg/L	–	–	–	3.88E-03
DDT	lbs/day	–	–	–	7.70E-03
Dieldrin	µg/L	–	–	–	9.13E-04
Dieldrin	lbs/day	–	–	–	1.81E-03
Diethyl Phthalate	µg/L	–	–	–	7.53E+05

Parameter	Units[2]	6-Month Median[3]	Maximum Daily[3]	Instantaneous Maximum[3]	Average Monthly[3]
Diethyl Phthalate	lbs/day	–	–	–	1.50E+06
Dimethyl Phthalate	µg/L	–	–	–	1.87E+07
Dimethyl Phthalate	lbs/day	–	–	–	3.72E+07
4,6-dinitro-2-methylphenol	µg/L	–	–	–	5.02E+03
4,6-dinitro-2-methylphenol	lbs/day	–	–	–	9.97E+03
2,4-dinitrophenol	µg/L	–	–	–	9.13E+01
2,4-dinitrophenol	lbs/day	–	–	–	1.81E+02
2,4-dinitrotoluene	µg/L	–	–	–	5.94E+01
2,4-dinitrotoluene	lbs/day	–	–	–	1.18E+02
1,2-diphenylhydrazine	µg/L	–	–	–	3.65E+00
1,2-diphenylhydrazine	lbs/day	–	–	–	7.25E+00
Ethylbenzene	µg/L	–	–	–	9.36E+04
Ethylbenzene	lbs/day	–	–	–	1.86E+05
Fluoranthene	µg/L	–	–	–	3.42E+02
Fluoranthene	lbs/day	–	–	–	6.80E+02
Halomethanes	µg/L	–	–	–	2.97E+03
Halomethanes	lbs/day	–	–	–	5.89E+03
Heptachlor	µg/L	–	–	–	1.14E-03
Heptachlor	lbs/day	–	–	–	2.27E-03
Heptachlor Epoxide	µg/L	–	–	–	4.57E-04
Heptachlor Epoxide	lbs/day	–	–	–	9.06E-04
Hexachlorobenzene	µg/L	–	–	–	4.79E-03
Hexachlorobenzene	lbs/day	–	–	–	9.52E-03
Hexachlorobutadiene	µg/L	–	–	–	3.20E+02
Hexachlorobutadiene	lbs/day	–	–	–	6.34E+02
Hexachlorocyclopentadiene	µg/L	–	–	–	1.32E+03
Hexachlorocyclopentadiene	lbs/day	–	–	–	2.63E+03
Hexachloroethane	µg/L	–	–	–	5.71E+01

Parameter	Units[2]	6-Month Median[3]	Maximum Daily[3]	Instantaneous Maximum[3]	Average Monthly[3]
Hexachloroethane	lbs/day	–	–	–	1.13E+02
Isphorone	µg/L	–	–	–	1.67E+04
Isphorone	lbs/day	–	–	–	3.31E+04
Nitrobenzene	µg/L	–	–	–	1.12E+02
Nitrobenzene	lbs/day	–	–	–	2.22E+02
N-nitrosodimethylamine	µg/L	–	–	–	1.67E+02
N-nitrosodimethylamine	lbs/day	–	–	–	3.31E+02
N-nitrosodiphenylamine	µg/L	–	–	–	5.71E+01
N-nitrosodiphenylamine	lbs/day	–	–	–	1.13E+02
N-nitrosodi-N-proplyamine	µg/L	–	–	–	8.68E+00
N-nitrosodi-N-proplyamine	lbs/day	–	–	–	1.72E+01
PAHs	µg/L	–	–	–	2.01E-01
PAHs	lbs/day	–	–	–	3.99E-01
PCBs	µg/L	–	–	–	4.34E-04
PCBs	lbs/day	–	–	–	8.61E-04
TCDD equivalents	µg/L	–	–	–	8.90E-08
TCDD equivalents	lbs/day	–	–	–	1.77E-07
1,1,2,2-tetrachloroethane	µg/L	–	–	–	5.25E+01
1,1,2,2-tetrachloroethane	lbs/day	–	–	–	1.04E+02
Tetrachloroethylene	µg/L	–	–	–	4.57E+01
Tetrachloroethylene	lbs/day	–	–	–	9.06E+01
Thallium, Total Recoverable	µg/L	–	–	–	4.57E+01
Thallium, Total Recoverable	lbs/day	–	–	–	9.06E+01
Toluene	µg/L	–	–	–	1.94E+06
Toluene	lbs/day	–	–	–	3.85E+06
Tributyltin	µg/L	–	–	–	3.20E-02
Tributyltin	lbs/day	–	–	–	6.34E-02
1,1,1-trichloroethane	µg/L	–	–	–	1.23E+07

Parameter	Units[2]	6-Month Median[3]	Maximum Daily[3]	Instantaneous Maximum[3]	Average Monthly[3]
1,1,1-trichloroethane	lbs/day	–	–	–	2.45E+07
1,1,2-trichloroethane	µg/L	–	–	–	2.15E+02
1,1,2-trichloroethane	lbs/day	–	–	–	4.26E+02
Trichloroethylene	µg/L	–	–	–	6.16E+02
Trichloroethylene	lbs/day	–	–	–	1.22E+03
2,4,6-trichlorophenol	µg/L	–	–	–	6.62E+00
2,4,6-trichlorophenol	lbs/day	–	–	–	1.31E+01
Toxaphene	µg/L	–	–	–	4.79E-03
Toxaphene	lbs/day	–	–	–	9.52E-03
Vinyl Chloride	µg/L	–	–	–	8.22E+02
Vinyl Chloride	lbs/day	–	–	–	1.63E+03

Notes for Table 4:

1. See Attachment A for definitions, abbreviations, and a glossary of common terms.
2. The MER is calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is a flow rate of 238 MGD and C is the concentration in mg/L. A discharge flow rate of 238 MGD is an operational constraint of the Facility modeled with the highest concentration of brine discharged, 60 MGD, with the minimum amount of dilution water, 178 MGD, that is necessary to meet the salinity effluent limitation.
3. Scientific "E" notation is used to express certain values. In scientific "E" notation, the number following the "E" indicates that position of the decimal point in the value. Negative numbers after the "E" indicate that the value is less than 1, and positive numbers after the "E" indicate that the value is greater than 1. In this notation a value of 6.1E-02 represents 6.1 x 10^{-2} or 0.061, 6.1E+02 represents 6.1 x 10^{2} or 610, and 6.1E+00 represents 6.1 x 1 or 6.1.
4. The Discharger may, at their option, apply this performance goal as a total chromium performance goal.
5. If the Discharger can demonstrate to the satisfaction of the San Diego Water Board that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, performance goals may be evaluated with the combined measurement of free cyanide, simple alkali metals cyanides, and weakly complexed organometallic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in 40 CFR part 136, as amended.

4.3. Intake Specifications

The Discharger must comply with the following specifications for the intake of seawater from Agua Hedionda Lagoon:

4.3.1. The intake of seawater must not exceed 299 MGD.

4.3.2. Surface water intakes must be screened at the onset of the intake of seawater. Intake screens must be functional while the Facility is withdrawing seawater from Agua Hedionda Lagoon.

4.3.3. To reduce entrainment of marine life, all surface water intakes must be screened with a 1.0 mm (0.04 inch) or smaller slot size screen when the Facility is withdrawing seawater.

4.3.4. To minimize impingement of marine life, the through-screen velocity at the onset of the surface water intake must not exceed 0.15 meters per second (0.5 ft/sec) at all times.

4.3.5. The intake of seawater must be the minimum volume necessary to maintain Facility operations.

4.3.6. In-plant recycling of waste streams must be maximized where feasible before intaking additional seawater.

4.3.7. The Discharger must cease intake of seawater except when the intake of seawater is necessary to maintain Facility operations or to comply with this Order.

4.3.8. The Discharger must not use heat treatment on the intake system.

4.3.9. Pump operations for the intake of seawater must minimize abrupt changes in flow velocity.

4.4. Land Discharge Specifications – Not Applicable

4.5. Recycling Specifications – Not Applicable

5. Receiving Water Limitations

5.1. Salinity

The discharge of waste from the Facility must not cause or contribute to an exceedance of 2.0 parts per thousand (ppt) above natural background salinity throughout the water column, measured at a point 200 meters (656 feet) from the end of the discharge channel.

Natural background salinity, as measured at a reference location that is representative of the salinity resulting from natural processes without human

influence at the discharge location, will be used to evaluate compliance with the salinity receiving water limitation. The reference location must be without human influence including wastewater outfalls and brine discharges. The reference location is the automated shore station at the end of Scripps Pier operated by Scripps Institution of Oceanography. Historical salinity data has been collected continuously at this location since February 10, 2005. If this reference location becomes unavailable in the future, the Discharger must submit for the San Diego Water Board's review and acceptance a proposed alternative reference location representative of natural background salinity.

6. Provisions

6.1. Standard Provisions

6.1.1. **Federal Standard Provisions.** The Discharger must comply with all Standard Provisions included in Attachment D.

6.1.2. **San Diego Water Board Standard Provisions.** The Discharger must comply with the following provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision will apply.

6.1.2.1. This Order expires on January 31, 2032. After that date, the terms and conditions of this Order are automatically continued pending issuance of a new Order, provided that all requirements of USEPA's NPDES regulations in 40 CFR part 122.6 and State regulations in CCR title 23, section 2235.4 regarding the continuation of expired permits and WDRs are met.

6.1.2.2. The Water Code section 13142.5(b) determination described in Attachment H does not expire and will remain in effect unless the Discharger proposes a change in design or operation of the Facility in a manner that could increase intake or mortality of all forms of marine life, consistent with the Ocean Plan definition of an expanded facility. Such a proposed change will require a new Water Code section 13142.5(b) determination for an expanded facility as required by the Ocean Plan chapter III.M.1.b.(3).

6.1.2.3. The Discharger must maintain a hard copy of this Order at the Facility. In lieu of maintaining a hard copy of the Order, the Discharger can ensure that an electronic copy of the Order is accessible in electronic format at the Facility. A copy of the Order must be available to site personnel, San Diego Water Board, State Water Resources Control Board (State Water Board), and USEPA or their authorized representative at all times.

6.2. Monitoring and Reporting Program Requirements

6.2.1. The Discharger must comply with the MRP, and future revisions of the MRP, in Attachment E.

6.2.2. Notifications required to be provided to the San Diego Water Board by this Order must be made to:

Email – SanDiego@waterboards.ca.gov
Telephone – (619) 516-1990
Facsimile – (619) 516-1994

6.3. Special Provisions

6.3.1. Reopener Provisions

6.3.1.1. This Order may be reopened to modify provisions governing compliance with Water Code section 13142.5(b) and the Ocean Plan if:

- A new Water Code section 13142.5(b) determination is required by the terms of this Order, or
- The Discharger proposes a change in design or operation of the Facility in a manner that could increase intake or mortality of all forms of marine life, consistent with the Ocean Plan definition of an expanded facility, beyond that which is approved in the Water Code section 13142.5(b) determination.

6.3.1.2. This Order may be reopened at any time for modification of provisions governing compliance with the receiving water limitation for salinity specified in Ocean Plan section III.M.3.

6.3.1.3. This Order may be reopened for modification of the MRP requirements or special studies requirements at the discretion of the San Diego Water Board. Such modifications may include, but are not limited to, the following:

6.3.1.3.1. Implementation of recommendations from the Southern California Coastal Water Research Project (SCCWRP);

6.3.1.3.2. Development, refinement, implementation, and/or coordination of a regional monitoring program;

6.3.1.3.3. Development and implementation of improved monitoring and assessment programs in keeping with San Diego Water Board Resolution No. R9 2012-0069, *Resolution in Support of a Regional Monitoring Framework*; and/or

6.3.1.3.4. Addition of provisions to require the Discharger to evaluate and provide information on cost and values of the MRP.

6.3.1.4. This Order may be reopened or revised to require design modifications to the Facility's brine discharge technology system if the Discharger's Brine Discharge Technology Empirical Study Final Report shows that flow

augmentation results in more intake and mortality than multiport diffusers.[2] If the Brine Discharge Technology Empirical Study Final Report shows that the flow augmentation choice for brine discharge technology does result in more intake and mortality of marine life than multiport diffusers, then the Discharger must also submit a proposed schedule with the Brine Discharge Technology Empirical Study Final Report to either:

6.3.1.4.1. Cease using flow augmentation and install and use wastewater dilution or multiport diffusers to discharge brine waste; or

6.3.1.4.2. Re-design the flow augmentation system to minimize intake and mortality of all forms of marine life to a level that is comparable with wastewater dilution if wastewater is available or multiport diffusers if wastewater is unavailable, subject to San Diego Water Board approval.

6.3.1.5. This Order may be modified, revoked and reissued, or terminated for cause in accordance with the provisions of the Water Code and 40 CFR sections 122.44, 122.62 to 122.64, 124, and 125.62 at any time prior to its expiration including, but not limited to, the following circumstances:

6.3.1.5.1. The violation of any terms or conditions of this Order (Water Code section 13381(a));

6.3.1.5.2. The obtainment of this Order by misrepresentation or failure to disclose fully all relevant facts (Water Code section 13381(b));

6.3.1.5.3. The change of any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge (Water Code section 13381(c));

6.3.1.5.4. The filing of a request by the Discharger for modifications, revocation and reissuance, or termination of this Order does not stay any condition of this Order. Notification by the Discharger of planned operational or Facility changes or anticipated noncompliance with this Order does not stay any condition of this Order (40 CFR section 122.41(f));

6.3.1.5.5. The new proclamation of any applicable toxic effluent standard or prohibition, including any schedule of compliance specified in such effluent standard or prohibition, under section 307(a) of the CWA for a toxic pollutant. The San Diego Water Board may institute proceedings under these regulations to modify or revoke and reissue this Order to conform to the toxic effluent standard or prohibition if that standard or prohibition is

[2] The 2019 Order included a requirement for the Discharger to complete a Brine Discharge Technology Empirical Study following a Multiport Diffuser Analysis to determine if flow augmentation had a comparable impact on marine life and mortality to multiport diffusers.

more stringent than any limitation on the pollutant in this Order (40 CFR section 122.44(b)(1));

6.3.1.5.6. The amendment of the Ocean Plan, Basin Plan, and/or other statewide Water Quality Control Plan; or the adoption of a total maximum daily load for the receiving water (40 CFR section 122.62(a)(2));

6.3.1.5.7. The submission by the Discharger of adequate information, as evaluated by San Diego Water Board staff, to provide for dilution credits or a mixing zone, as may be appropriate (40 CFR section 122.62(a)(2));

6.3.1.5.8 The adoption or passing of any new Water Quality Control Plan, policy, law, or regulation (40 CFR section 122.62(a)(3));

6.3.1.5.9. The incorporation of effluent limitations or the modification of the performance goals (40 CFR sections 122.62 and 124.5); and

6.3.1.5.10. The endangerment of human health or the environment through the permitted activity (40 CFR 122.64).

6.3.2. Special Studies, Technical Reports, and Additional Monitoring Requirements

6.3.2.1. Brine Discharge Technology Empirical Study Final Report

The Discharger must submit a Brine Discharge Technology Empirical Study Final Report (Final Report) to the San Diego Water Board by March 1, 2027. The Final Report must be consistent with the Discharger's July 22, 2024, Brine Discharge Technology Empirical Study Work Plan. The Final Report must include:

- The results of the Brine Discharge Technology Empirical Study.
- The results of the Multiport Diffuser Analysis of projected marine life impacts caused by brine discharged through theoretical multiport diffusers.
- A discussion, evaluation, and interpretation of the data supporting the conclusions reached by the Study and Multiport Diffuser Analysis. Data presented in the Final Report must be arranged in a tabular format.

If the Final Report shows that the flow augmentation choice for brine discharge technology results in more intake and mortality of marine life than if the Discharger used multiport diffusers as described in Attachment H.1 Finding 31, then the Discharger must also submit with the Final Report a proposed schedule to either:

(1) Cease using the alternative brine discharge technology and install and use wastewater dilution or multiport diffusers to discharge brine waste; or

(2) Re-design the alternative brine discharge technology system to minimize intake and mortality of all forms of marine life to a level that is comparable with wastewater dilution if wastewater is available or multiport diffusers if wastewater is unavailable, subject to San Diego Water Board approval.

San Diego Water Board staff will review the Final Report in consultation with staff from other state agencies involved in the permitting of the Facility including, but not limited to, the State Water Board, the California Coastal Commission (CCC), the California State Lands Commission, and the California Department of Fish and Wildlife.

6.3.2.2. Updated Marine Life Mitigation Plan (MLMP)

The Discharger must provide and maintain 68.432 acres of mitigation to compensate for marine life impacts associated with the Facility's construction and operation through implementation of the approved Otay River Estuary Restoration Project (ORERP). The ORERP must provide full mitigation for the operational lifetime of the Facility and account for temporal loss of fish productivity during the time between the start of operations of the Facility and when the ORERP begins to meet performance standards. The Discharger must implement the ORERP in accordance with specific steps and measures in its updated MLMP.

6.3.2.2.1. The Discharger must revise the March 4, 2024, MLMP[3] and submit an updated MLMP no later than six months following the effective date of this Order. The updated MLMP must include the following additional elements:

6.3.2.2.1.1. A list of the four reference sites approved by the CCC, a map showing the location of the reference sites, and a description of the reference sites including the characteristics that make the reference sites appropriate to determine the success of the ORERP.[4]

6.3.2.2.1.2. An updated schedule that shows the anticipated timeline for finishing construction activities, implementing the approved ORERP, and meeting

[3] Section VI.C.2.d of the 2019 Order required the Discharger to submit an updated MLMP to establish the specific steps and methods necessary to provide adequate mitigation to offset marine life and habitat impacts attributable to the construction and operation of the Facility.

[4] In a June 30, 2025, memorandum, the CCC defined references sites as "relatively undisturbed, natural tidal wetlands within the Southern California Bight". The reference sites will be used to assess the restoration of the Otay River Floodplain and Pond 15 sites through the methods established in the Scientific Advisory Panel's Monitoring Plan. The four reference sites approved by the CCC in the June 30, 2025, memorandum are Sweetwater Marsh, Los Peñasquitos Lagoon, Mugu Lagoon, and Carpinteria Salt Marsh.

performance metrics. The Discharger must also propose interim goals with deadlines within the updated schedule to indicate the anticipated completion of milestones throughout the project.

6.3.2.2.2 The Discharger must implement the updated MLMP upon approval by the San Diego Water Board. San Diego Water Board staff will review the updated MLMP in consultation with staff from the State Water Board, the CCC, and other state agencies having authority to condition the approval of the project and require mitigation.

6.3.2.2.3. The Discharger must continue to submit quarterly progress reports to the San Diego Water Board and State Water Board that describe progress towards constructing and implementing the ORERP and meeting the associated project schedule. The quarterly progress reports must also describe any critical path issues that may cause delays in constructing the ORERP. The quarterly progress reports must be uploaded to the California Integrated Water Quality System (CIWQS) database by the due dates specified in Table 5:

Table 5. Due Dates for Submitting Quarterly Progress Reports

Reporting Period	Due Date
January 1 through March 31	May 1
April 1 through June 30	August 1
July 1 through September 30	November 1
October 1 through December 31	February 1

6.3.2.3. Spill Prevention and Response Plan

For purposes of this section of this Order, a spill includes, but is not limited to, an unauthorized discharge in violation of this Order's Discharge Prohibitions, or a discharge or release of seawater, brine, or other waste due to system overflow, flow stoppage, system leaks and breaks, operational failure, infrastructure failure, etc. The Discharger must maintain and implement a Spill Prevention and Response Plan (SPRP) for the Facility.

6.3.2.3.1. The SPRP must describe site-specific procedures and best management practices to prevent spills. The SPRP must include, but may not be limited to, a detailed schedule for routinely reviewing all Facility systems and components, material storage areas, stormwater runoff areas, transfer and material handling areas, and waste disposal areas.

6.3.2.3.2. The SPRP must describe site-specific procedures and best management practices (BMPs) to be implemented in the event of an unforeseen spill or unauthorized release of waste.

6.3.2.3.3. The Discharger must review the SPRP and amend the SPRP as appropriate whenever there is (1) a change in the design, construction,

operations, or maintenance of the Facility, which materially affects the (a) potential for spills, and (b) response for potential spills, and (2) whenever there is a spill from the Facility.

6.3.2.3.4. The Discharger must routinely review all Facility components and systems, including but not limited to material storage areas, plant site-runoff, in-plant transfer, process and material handling areas, loading and unloading operations, spillage or leaks, and waste disposal areas, where pollutants are used, manufactured, stored or handled to evaluate the potential for the release of significant amounts of pollutants to waters of the U.S. or State.

The SPRP and any amendments to it will be subject to the approval of the San Diego Water Board and must be modified as directed by the San Diego Water Board. The Discharger must submit the SPRP and any amendments to the SPRP to the San Diego Water Board upon request. The Discharger must ensure that the current SPRP is always readily available to the Facility's personnel and that the Facility personnel are familiar with it.

6.3.2.3.1. Spill Reporting Requirements

The Discharger must report spills in accordance with the following procedures:

6.3.2.3.1.1. If a spill results in a discharge to a drainage channel, storm drain, or surface water the Discharger must:

- Report the spill to the San Diego Water Board by email at SanDiego@waterboards.ca.gov within 24 hours from the time the Discharger become aware of the spill. If email communication is not possible, report the spill by telephone (619-516-1990) within 24 hours from the time the Discharger becomes aware of the spill. The report must include a description of the spill and its cause; the spill material; the duration of the spill including exact dates and times; the estimated spill volume and its destination; if the spill has not been terminated, the anticipated time it is expected to continue; and steps taken or planned to reduce or eliminate the spill.
- Submit a written report by email to SanDiego@waterboards.ca.gov, as well as any additional pertinent information, to the San Diego Water Board no later than five days from the time the Discharger become aware of the spill. The written report must be signed and certified as required by Attachment D, section 5.2 (Standard Provisions).
- San Diego Water Board staff may waive the above-required written report under this provision on a case-by-case basis if the email or oral report has been received within 24 hours.

6.3.2.3.1.2. If a spill results in a discharge that does not reach a drainage channel, storm drain, or surface waters, the Discharger is not required to notify the San Diego Water Board within 24 hours or provide a 5-day written report.

6.3.2.3.1.3. If a spill consists of waste materials other than seawater, which may endanger human health or the environment, the Discharger must:

- Notify the San Diego Water Board by email at SanDiego@waterboards.ca.gov within 24 hours from the time the Discharger become aware of the spill. If email communication is not possible, report the spill by telephone (619-516-1990) within 24 hours from the time the Discharger becomes aware of the spill. The report must include a description of the spill and its cause; the spill material; the duration of the spill including exact dates and times; the estimated spill volume and its destination; if the spill has not been terminated, the anticipated time it is expected to continue; and steps taken or planned to reduce and/or eliminate the spill.
- Submit a written report by email at SanDiego@waterboards.ca.gov, as well as any additional pertinent information, to the San Diego Water Board no later than five days from the time the Discharger becomes aware of the spill. The written report must be signed and certified as required by Attachment D, section 5.2 (Standard Provisions).
- San Diego Water Board staff may waive the above-required written report under this provision on a case-by-case basis if the email or oral report has been received within 24 hours.

6.3.2.3.1.4. For all spills, the Discharger must include a detailed summary of spills in the monthly SMR for the month in which the spill occurred. If no spills occurred during the calendar month, the Discharger must state so in the monthly SMR for that calendar month.

6.3.2.3.1.5. The spill reporting requirements contained in this Order do not relieve the Discharger of responsibilities to report spills to other agencies, such as the California Office of Emergency Services and the County of San Diego Department of Environmental Health and Quality.

6.3.2.4. **Special Assessment of Violation and Noncompliance**

In the event of a violation of any effluent limitations or noncompliance with any permit conditions (e.g., discharge prohibitions) established within this Order, the San Diego Water Board may require the Discharger to perform a special assessment to investigate the nature and cause of the violation or noncompliance. The assessment must identify measures needed to ensure future compliance with requirements or conditions of this Order. The Discharger must submit the required assessment to the San Diego Water

Board within 90 days of receipt of the San Diego Water Board's notification to perform the assessment. The assessment must include:

- A description of the nature of the violation/noncompliance;
- The results of the investigation, including the cause of the violation/noncompliance;
- The corrective actions taken;
- Any proposed corrective measures; and
- A schedule for implementation, if necessary.

The Discharger may submit a written request for an extension of the deadline to complete the special assessment for review and written approval by the San Diego Water Board Executive Officer. The written request must include the reason(s) for the request, a proposed schedule to complete the assessment, and a proposed final deadline for submitting the assessment.

6.3.2.5. **Pollution Minimization Program (PMP)**

The goal of the PMP is to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The San Diego Water Board may consider cost-effectiveness when establishing the requirements of a PMP. The San Diego Water Board will consider the Discharger's completion and implementation of a Pollution Prevention Plan (PPP), if required pursuant to Water Code section 13263.3(d), as fulfilling the PMP requirements.

6.3.2.5.1. Reporting protocols in the MRP describe sample results that are to be reported as: detected, but not quantified (DNQ), or not detected (ND). Definitions for a reported: minimum level (ML) and method detection limit (MDL) are provided in the Ocean Plan and in Attachment A of this Order. These reporting protocols and definitions are used in determining the need to conduct a PMP, as follows:

6.3.2.5.1.1. The Discharger must develop and conduct a PMP, in accordance with the requirements of Ocean Plan chapter III.C.9, if all the following conditions are true:

- The calculated effluent limitation is less than the reported ML;
- The concentration of the pollutant is reported as DNQ; and
- There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation.

6.3.2.5.1.2. Alternatively, the Discharger must develop and conduct a PMP if all the following conditions are true:

- The calculated effluent limitation is less than the MDL;
- The concentration of the pollutant is reported as ND; and
- There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation.

6.3.2.5.2. The PMP must include, but is not limited to, the following actions and submittals acceptable to the San Diego Water Board:

6.3.2.5.2.1. Annual review and semi-annual monitoring of potential sources of the reportable pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling;

6.3.2.5.2.2. Quarterly monitoring for the reportable pollutant(s) in the influent;

6.3.2.5.2.3. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable pollutant(s) in the effluent at or below the calculated effluent limitation;

6.3.2.5.2.4. Implementation of appropriate cost-effective control measures for the pollutant(s), consistent with the control strategy; and,

6.3.2.5.2.5. Annual status report sent to the San Diego Water Board including:

- All PMP monitoring results from the previous year;
- A list of potential sources of the reportable pollutant;
- A summary of all actions taken in accordance with the control strategy; and
- A description of actions to be taken in the following year.

6.3.3. Construction, Operation and Maintenance Specifications

6.3.3.1. **Asset Management Plan**

The Discharger must develop and submit an Asset Management Plan (AMP) to the San Diego Water Board within two years of the effective date of this Order to ensure proper operation and maintenance of the Facility. The Discharger may rely on existing documents to develop the AMP. The AMP must include the following elements:

6.3.3.1.1. **Rehabilitation and Replacement Plan**

The AMP must identify and prioritize upcoming asset rehabilitation and replacement projects costing greater than $40,000 and outline a proposed schedule for completion of each project.

6.3.3.1.2. **Maintenance Plan**

The AMP must identify individual or categories of maintenance activities and frequency with which they are performed. The Maintenance Plan must estimate ongoing and projected cost of maintenance activities.

6.3.3.1.3. **System Map**

A map of the seawater intake structure and the pipes, pumps, and other conveyances or structures used to collect and convey seawater to the Facility that must incorporate assets from the asset management inventory. The map must be color-coded to identify maintenance and rehabilitation priorities.

6.3.3.1.4. **Funding**

The AMP must create an accounting of current and projected funding sources, relevant expenses, and financial reserves. Expenses may include operational, administrative, interest, or capital expenses. Funding sources may include federal, State, local or private grants, loans, or bonds, as well as connection and user fees.

6.3.3.1.5. **System Projections**

The AMP must contain an evaluation of growth projections of the Facility over the next 30 years, which includes projected increases to treatment capacity, seawater intake flows, or waste discharge flows.

6.3.3.1.6. **Asset Resiliency Assessment**

The Asset Resiliency Assessment must include the following elements:

6.3.3.1.6.1. An analysis of potential projected extreme weather impacts and mitigation measures on the Facility and its ability to meet requirements in this Order. Impacts to be analyzed include, but are not limited to, the following:

- Increasing magnitude and frequency of large storms and subsequent flooding and erosion;
- Longer periods and intensity of drought;
- Higher sea levels, higher tides, and bigger storm surges;
- Increasing ocean temperatures;
- Rising air temperatures;
- Potential for increased harmful algal bloom formation; and
- Wildfire risks;

6.3.3.1.6.2. Impacts on process design parameters and effluent quality due to changing influent volumes and chemical concentrations;

6.3.3.1.6.3. Any vulnerabilities and/or threats to compliance with this Order identified during the Asset Resiliency Assessment must be accompanied by suggested adjustments to NPDES permit conditions and/or to the Discharger's pollution control program;

6.3.3.1.6.4. Any vulnerabilities and/or threats to compliance with this Order must be addressed by a plan that includes schedules of on-going risk assessments, planned mitigation measures, timing of implementation of mitigation measures, and funding needed to pay for planned actions. Schedules must also include updates to the AMP as more information on extreme weather and its effects become more available;

6.3.3.1.6.5. Gaps and uncertainty in scientific understanding of extreme weather events and associated impacts relevant to vulnerabilities to compliance with this Order and/or lack of available mitigation measures must be listed; and

6.3.3.1.6.6. Any other factors as appropriate.

6.3.3.1.7. **Asset Management Software**

The AMP must incorporate software to inventory all critical assets valued over $40,000 into a single database, automate work order production and tracking, and prioritize system maintenance and rehabilitation projects. Assets may include, but are not limited to, seawater intake structure, manholes, outfalls, pump stations, force mains, ponds, and desalination facility assets. Each entry must include:

- Name and identification number
- Location (Global Positioning System coordinate or equivalent identifier)
- Current performance/condition
- Purchase and installation date
- Purchase price
- Replacement cost
- Quantitative consequence of failure
- Quantitative likelihood of failure

6.3.3.1.8. The Discharger must implement the AMP within 60 days following submission to the San Diego Water Board, unless otherwise directed in writing by the San Diego Water Board Executive Officer.

6.3.3.2. The Facility must be protected against a 100-year storm event as defined by the San Diego County Flood Control District.

6.3.3.3. The Facility must be protected against erosion, overland runoff, and other impacts resulting from a 100-year, 24-hour storm event as defined by the

National Oceanic and Atmospheric Administration Atlas 14 Point Precipitation Frequency Estimates available at: https://hdsc.nws.noaa.gov/pfds/

6.3.3.4. The Facility must be protected against regional impacts of extreme weather conditions (e.g., rising sea levels, flooding, higher storm surges, changing water chemistry, changing hydrography, including more intense atmospheric rivers). Compliance with this requirement shall be implemented through development and implementation of applicable measures identified in the Asset Management Plan. Order section 6.3.3.1 requires the Discharger to submit an Asset Management which includes an asset resiliency assessment.

6.3.4. Special Provisions for Publicly Owned Treatment Works – Not Applicable

6.3.5. Other Special Provisions – Not Applicable

6.3.6. Compliance Schedules – Not Applicable

7. Compliance Determination

Compliance with the effluent limitations contained in Order section 4.1 will be determined as specified below:

7.1. Compliance with Average Monthly Effluent Limitation (AMEL)

If the average of daily discharges over a calendar month exceeds the AMEL for a given parameter, an alleged violation will be flagged. The Discharger will then be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of noncompliance in a 31-day month). The average of daily discharges over the calendar month that exceeds the AMEL for a parameter will be considered out of compliance for that month only. The Discharger will be considered out of compliance for the whole calendar month if only a single sample is taken during that calendar month and the analytical result for that sample exceeds the AMEL. No compliance determination can be made for a calendar month during which no sample (daily discharge) is taken.

7.2. Compliance with Average Weekly Effluent Limitation (AWEL)

If the average of daily discharges over a calendar week (Sunday through Saturday) exceeds the AWEL for a given parameter, an alleged violation will be flagged. The Discharger will then be considered out of compliance for each day of that week for that parameter, resulting in seven days of noncompliance. The average of daily discharges over the calendar week that exceeds the AWEL for a parameter will be considered out of compliance for that week only. The Discharger will be considered out of compliance for the whole calendar week if only a single sample is taken during the calendar week and the analytical result

for that sample exceeds the AWEL. No compliance determination can be made for a calendar week during which no sample is taken.

7.3. Compliance with Annual Average Effluent Limitation (AAEL)

If the average of daily discharge monitoring results over a calendar year exceeds the AAEL for a given parameter, an alleged violation will be flagged. The Discharger will then be considered out of compliance for each day of that year for that parameter (e.g., resulting in 365 days of noncompliance in a 365-day year). The average of daily discharge monitoring results over the calendar year that exceeds the AAEL for a parameter will be considered out of compliance for that year only. The Discharger is out of compliance for the whole calendar year if only a single sample is taken during the calendar year and the analytical result for that sample exceeds the AAEL. No compliance determination can be made for a calendar year during which no sample is taken.

7.4. Compliance with Maximum Daily Effluent Limitation (MDEL)

The MDEL applies to flow weighted 24-hour composite samples, or grab samples, as specified in the MRP. If a daily discharge exceeds the MDEL for a given parameter, an alleged violation will be flagged. The Discharger will then be considered out of compliance for that parameter for that one day only within the reporting period. No compliance determination can be made for a day during which no sample is taken.

7.5. Compliance with Instantaneous Minimum Effluent Limitation

The instantaneous minimum effluent limitation applies to grab sample analytical results. If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, an alleged violation will be flagged. The Discharger will then be considered out of compliance for that parameter for that single sample. Noncompliance for each sample will be considered separately (e.g., the results of two grab samples taken within the same calendar day that are both lower than the instantaneous minimum effluent limitation results in two instances of noncompliance with the instantaneous minimum effluent limitation).

7.6. Compliance with Instantaneous Maximum Effluent Limitation

The instantaneous maximum effluent limitation applies to grab sample determinations. If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, an alleged violation will be flagged. The Discharger will then be considered out of compliance for that parameter for that single sample. Noncompliance for each sample will be considered separately (e.g., the results of two grab samples taken within the same calendar day that both exceed the instantaneous maximum effluent limitation results in two instances of noncompliance with the instantaneous maximum effluent limitation).

7.7. Compliance with 6-Month Median Effluent Limitation

If the median monitoring result of daily discharges over any 180-day period exceeds the 6-month median effluent limitation for a given parameter, an alleged violation will be flagged. The Discharger will then be considered out of compliance for each day of that 180-day period for that parameter. The next assessment of compliance occurs after the next sample is taken. The Discharger is out of compliance for the whole 180-day period if only a single sample is taken during a given 180-day period and the analytical result for that sample exceeds the 6-month median. No compliance determination can be made for an 180-day period during which no sample is taken.

7.8. Mass and Concentration Limitations

Compliance with mass and concentration effluent limitations for the same parameter must be determined separately with their respective limitations. When the concentration of a constituent in an effluent sample is determined to be ND or DNQ, the corresponding MER determined from that sample concentration must also be reported as “ND” or “DNQ”.

7.9. Compliance With Single-Constituent Effluent Limitations

The Discharger is out of compliance with an effluent limitation or discharge specification if the monitoring result of the constituent in the sample is greater than the effluent limitation or discharge specification and is greater than or equal to the ML.

7.10. Compliance with Effluent Limitations Expressed as a Sum of Several Parameters

The Discharger is out of compliance with an effluent limitation that applies to the sum of a group of chemicals (e.g. polychlorinated biphenyls) if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as ND or DNQ.

7.11. Multiple Sample Data Reduction

The concentration of the pollutant in the effluent may be estimated from the result of a single sample analysis or by a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses when all sample results are quantifiable (i.e., greater than or equal to the reported ML). When one or more sample results are reported as ND or DNQ, the central tendency concentration of the pollutant is the median (middle) value of the multiple samples. If, in an even number of samples, one or both of the middle values is ND or DNQ, the median is the lower of the two middle values.

7.12. Bacterial Standards and Analysis

7.12.1. The geometric mean used for determining compliance with bacteriological standards is calculated with the following equation:

$$\text{Geometric Mean} = (C_1 \times C_2 \times \ldots \times C_n)/n$$

Where n is the number of days that samples were collected during the period and C is the density of bacteria (colony forming units, CFU/100mL) found on each day of sampling.

7.12.2. For all bacterial analyses, sample dilutions must be performed so the range of values extends from 2 to 16,000 CFU/100 mL. Sample dilutions for enterococci bacterial analyses shall range from 1 to 10,000 CFU/100 mL. The detection methods used for each analysis will be reported with the results of the analysis. Detection methods used for coliforms (total and fecal) will be those listed in 40 CFR part 136 or any improved method determined by the San Diego Water Board to be appropriate and approved by USEPA. Detection methods used for enterococci must be those presented in USEPA 600/4-85/076, *Test Methods for Escherichia coli and Enterococci in Water by Membrane Filter Procedure*, listed under 40 CFR part 136, and any other method approved by the San Diego Water Board.

7.13. Single Operational Upset (SOU)

A SOU that leads to simultaneous violations of more than one pollutant parameter must be treated as a single violation, and limits the Discharger's liability in accordance with the following conditions:

7.13.1. A SOU is broadly defined as a single unusual event that temporarily disrupts the usually satisfactory operation of a system in such a way that it results in violations of multiple pollutant parameters.

7.13.2. The Discharger may assert SOU to limit liability only for those violations which the Discharger submitted notice of the upset as required in Attachment D, section 1.8 (Standard Provisions).

7.13.3. For purposes outside of Water Code sections 13385(h) and (i), determination of compliance and civil liability (including any more specific definition of SOU), the requirements for the Discharger to assert the SOU limitation of liability, and the manner of counting violations, must be in accordance with the USEPA Memorandum *Issuance of Guidance Interpreting Single Operational Upset* (September 27, 1989).

7.13.4. For purposes of Water Code sections 13385(h) and (i), determination of compliance and civil liability (including any more specific definition of a SOU), the requirements for the Discharger to assert the SOU limitation of liability, and

the manner of counting violations must be in accordance with Water Code section 13385(f)(2).

7.14. Chronic Toxicity

The discharge is subject to determination of "Pass" or "Fail" from a chronic toxicity test using the Test of Significant Toxicity (TST) statistical t-test approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1, and Appendix B, Table B-1. The chronic toxicity WQBEL for Discharge Point 001 is expressed as a null hypothesis (H_o) and regulatory management decision (*b* value) of 0.75 for the chronic toxicity methods in Attachment E of this Order. The null hypothesis (H_o) for the TST statistical approach is:

H_o: Mean discharge 'in-stream" waste concentration (IWC) response ≤ 0.75 x mean control response.

A test result that rejects this null hypothesis is reported as "Pass". A test result that does not reject this null hypothesis is reported as "Fail." Percent effect shall be reported as:

"Percent Effect" (or Effect, in percent) = [(Control mean response – IWC mean response) ÷ Control mean response)] ×100

The MDEL for chronic toxicity is set at the IWC for the discharge (17.4 percent effluent[5] at M-002) and expressed in terms of the TST statistical approach ("Pass" or "Fail"). Monitoring for chronic toxicity at M-001 will be conducted as specified in the MRP and compared to the MDEL for informational purposes only using an IWC of 4.38 percent effluent for the discharge at that location. All monitoring for compliance with the chronic toxicity MDEL shall be reported using the 17.4 percent effluent concentration at M-002, 4.38 percent effluent concentration at M-001, and negative control, expressed in terms of the TST. The TST hypothesis (H_o) (see above) is statistically analyzed using the IWC and a negative control. Effluent toxicity tests shall be run using *Short-Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine Estuarine Organisms* (EPA/600/R-95/136, 1995).

[5] At M-001, IWC = 1/minimum initial dilution factor (D_m) = 1/22.83 = 0.0438 = 4.38 percent. At M-002, IWC = 1/(D_m) = 1/5.75 = 0.174 = 17.4 percent. Because chronic toxicity sampled at M-002 is following dilution from the flow augmentation water, the only remaining dilution available is from the ocean. Therefore, the IWC for chronic toxicity at M-002 is calculated only using dilution from the ocean, 5.75 parts water (i.e. dilution ratio of 1:4.75) and not the total dilution of 22.83 parts water, (i.e. dilution ratio of 1:21.83). For further information regarding the calculation of the dilution factor, please see Fact Sheet section 2.2.

San Diego Water Board staff's review of reported toxicity test results includes review of concentration-response patterns as appropriate (see section 4.3.6 of the Fact Sheet. As described in the laboratory audit directives to the San Jose Creek Water Quality Laboratory from the State Water Board dated August 07, 2014, and from USEPA dated December 24, 2013, the Percent Minimum Significant Difference (PMSD) criteria only apply to compliance reporting for the No Observed Effect Concentration (NOEC) and the sublethal statistical endpoints of the NOEC, and therefore are not used to interpret TST results. Standard operating procedures used by the toxicity testing laboratory to identify and report valid, invalid, anomalous, or inconclusive effluent (and receiving water) toxicity test measurement results from the TST statistical approach, including those that incorporate a consideration of concentration-response patterns, must be submitted to the San Diego Water Board (40 CFR section 122.41(h)). San Diego Water Board staff will make a final determination as to whether a toxicity test result is valid, and may consult with the Discharger, USEPA, the State Water Board's Quality Assurance (QA) Officer, or the State Water Board's Environmental Laboratory Accreditation Program (ELAP) as needed. The San Diego Water Board may consider results of any Toxicity Reduction Evaluation (TRE) / Toxicity Identification Evaluation (TIE) studies when considering an enforcement action.

ATTACHMENT A – ABBREVIATIONS AND GLOSSARY

Part 1. – Abbreviations

For the abbreviations with an asterisk (*), see Part 2 of Attachment A (Glossary of Common Terms) for further definition.

Abbreviation	Definition
AAEL*	Average Annual Effluent Limitation
AMEL*	Average Monthly Effluent Limitation
APF*	Area Production Foregone
ASBS*	Areas of Special Biological Significance
AWEL*	Average Weekly Effluent Limitation
Basin Plan	Water Quality Control Plan for the San Diego Basin
BMP	Best Management Practices
BMZ*	Brine Mixing Zone
CCC	California Coastal Commission
CCR	California Code of Regulations
CDP	Carlsbad Desalination Plant
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CFU	Colony Forming Units
CTD	Conductivity, Temperature, and Depth
CWA	Clean Water Act
DDT*	Dichlorodiphenyltrichloroethane
DDW	State Water Resources Control Board Division of Drinking Water
Discharger	Channelside Water Resources LP
D_m*	Initial Dilution
DMR-QA	Discharge Monitoring Report Quality Assurance
DNQ*	Detected, but Not Quantified
EIR	Environmental Impact Report
ELAP	Environmental Laboratory Accreditation Program
ETM*	Empirical Transport Model
GM*	Geometric Mean
HCH*	Hexachlorocyclohexane
H_o	Null Hypothesis
IWC	Instream Waste Concentration
kg	Kilograms
lbs/day	Pounds per Day
µg	Microgram
µg/L	Microgram per Liter
mg/L	Milligram per Liter
ml/L	Milliliters per Liter
MDA	Multiport Diffuser Analysis
MDEL*	Maximum Daily Effluent Limitation
MDL*	Method Detection Limit

Abbreviation	Definition
MEC	Maximum Effluent Concentration
MER	Mass Emission Rate
MGD	Million Gallons per Day
ML*	Minimum Level
MLMP	Marine Life Mitigation Plan
MPN	Most Probable Number
MRP	Monitoring and Reporting Program
MSL	Mean Sea Level
ND*	Not Detected
NOEC	No Observed Effect Concentration
NR	Not Reported
NTU	Nephelometric Turbidity Unit
NPDES	National Pollutant Discharge Elimination System
Ocean Plan	Water Quality Control Plan Ocean Waters of California
ORERP	Otay River Estuary Restoration Project
PAH*	Polynuclear Aromatic Hydrocarbons
PCB*	Polychlorinated Biphenyls
PMP*	Pollutant Minimization Program
PMSD	Percent Minimum Significant Difference
P_m*	Proportional Mortality
ppt	Parts per Thousand
RL	Reporting Level
ROWD	Report of Waste Discharge
RPA	Reasonable Potential Analysis
San Diego Water Board	California Regional Water Quality Control Board, San Diego Region
SAP	Science Advisory Panel
SCCWRP	Southern California Coastal Waters Research Project
SMR	Self-Monitoring Report
SOU	Single Operational Upset
SPRP	Spill Prevention and Response Plan
State Water Board	State Water Resources Control Board
TIE*	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TRE*	Toxicity Reduction Evaluation
TSS	Total Suspended Solids
TST	Test of Significant Toxicity
USEPA	United States Environmental Protection Agency
U.S.	United States
U.S.C.	United States Code
Water Code	California Water Code
WDR	Waste Discharge Requirements
WET	Whole Effluent Toxicity

Abbreviation	Definition
ZID*	Zone of Initial Dilution

Part 2. – Glossary of Common Terms

All Forms of Marine Life
Includes all life stages of all marine species.

Antidegradation
Policies which ensure protection of water quality for a particular body where the water quality exceeds levels necessary to protect fish and wildlife propagation and recreation on and in the water. This also includes special protection of waters designated as outstanding natural resource waters.

Area Production Foregone
Also known as habitat production foregone, is an estimate of the area that is required to produce (replace) the same amount of larvae or propagules that are removed via entrainment at a desalination facilities intake(s). APF is calculated by multiplying the proportional mortality by the source water body, which are both determined using an empirical transport model. Also known as habitat production foregone.

Areas of Special Biological Significance
Those areas designated by the State Water Resources Control Board (State Water Board) as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable. All ASBS are also classified as a subset of State Water Quality Protection Areas.

Average Annual Effluent Limitation
The highest allowable average of daily discharges over a calendar year, calculated as the sum of all daily discharges measured during a calendar year divided by the number of daily discharges measured during that year.

Average Monthly Effluent Limitation
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation
The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Beneficial Uses
The uses of water necessary for the survival or wellbeing of man, plants, and wildlife. These uses of water serve to promote the tangible and intangible economic, social, and environmental goals. "Beneficial Uses" of the waters of the State of California that

may be protected against include, but are not limited to, domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. In the Basin Plan, existing beneficial uses are uses that were attained in the surface or ground water on or after November 28, 1975; and potential beneficial uses are uses that would probably develop in future years through the implementation of various control measures. “Beneficial Uses” are equivalent to "Designated Uses" under federal law. (Water Code section 13050(f)).

Brine
The byproduct of desalinated water having a salinity concentration greater than a desalination facility’s intake source water.

Brine Mixing Zone
The area where salinity may exceed 2.0 parts per thousand above natural background salinity, or the concentration of salinity approved as part of an alternative receiving water limitation. The standard brine mixing zone must not exceed 100 meters (328 feet) laterally from the point(s) of discharge and throughout the water column. An alternative brine mixing zone, if approved as described in the Ocean Plan chapter III.M.3.d, must not exceed 200 meters (656 feet) laterally from the point(s) of discharge and throughout the water column. The brine mixing zone is an allocated impact zone where there may be toxic effects on marine life due to elevated salinity.

Bypass
The intentional diversion of waste streams from any portion of a treatment facility. (40 CFR Part 122.41(m)(1)(i).)

Chlordane
The sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

Chronic Toxicity
Chronic toxicity is the measure of the sub-lethal effects of a discharge or ambient water sample (e.g. reduced growth or reproduction.). Certain chronic toxicity tests include an additional measurement of lethality. Compliance with the effluent limitation for chronic toxicity in this Order is demonstrated by conducting chronic toxicity tests for the effluent as described in Order section 7.15 and MRP section 3.3.

The chronic toxicity effluent limitation is “Pass” or “Fail” and “Percent Effect” as described in MRP section 3.3.

The discharge is subject to determination of “Pass” or “Fail” from a chronic toxicity test using the Test of Significant Toxicity (TST) statistical t-test approach described in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and

Table A-1, and Appendix B, Table B-1. The null hypothesis (H_o) for the TST statistical approach is:

Mean discharge IWC response ≤ 0.75 x Mean control response.

Chlorinated Phenolic Compounds
The sum of 4-chloro-3-methylphenol, 2-chlorophenol, pentachlorophenol, 2,4,5-trichlorophenol, and 2,4,6-trichlorophenol.

Concentration Factor
Concentration Factor refers to the ratio that indicates how much a pollutant or chemical becomes concentrated in a process compared to its original concentration. The Concentration Factor can be calculated using the following formula:

Concentration Factor = Final Concentration/Initial Concentration

Daily Discharge
For a constituent with limitations expressed in units of mass, daily discharge is defined as the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the Order). For a constituent with limitations expressed in other units of measurement (e.g., concentration), daily discharge is the unweighted arithmetic mean measurement of the constituent over the day.

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Degrade
Degradation must be determined by comparison of the waste field and reference site(s) for characteristic species diversity, population density, contamination, growth anomalies, debility, or supplanting of normal species by undesirable plant and animal species. Degradation occurs if there are significant differences in any of three major biotic groups, namely, demersal fish, benthic invertebrates, or attached algae. Other groups may be evaluated where benthic species are not affected or are not the only ones affected.

Desalination Facility
An industrial facility that processes water to remove salts and other components from the source water to produce water that is less saline than the source water.

Detected, but Not Quantified
Sample results that are less than the reported Minimum Level, but greater than or equal to the laboratory's Method Detection Limit. Sample results reported as DNQ are estimated concentrations.

Dichlorobenzenes
The sum of 1,2- and 1,3-dichlorobenzene.

Dichlorodiphenyltrichloroethane
The sum of 4,4'DDT, 2,4'DDT, 4,4' dichlorodiphenyldichloroethylene (DDE), 2,4'DDE, 4,4' dichlorodiphenyldichloroethane (DDD), and 2,4'DDD.

Dredged Material
Any material excavated or dredged from the navigable waters of the U.S., including material otherwise referred to as "spoil."

Eelgrass Beds
Aggregations of the aquatic plant species of the genus Zostera.

Empirical Transport Model
A methodology for determining the spatial area known as the source water body that contains the source water population, which are the organisms that are at risk of entrainment as determined by factors that may include but are not limited to biological, hydrodynamic, and oceanographic data. ETM can also be used to estimate proportional mortality, P_m. Guidance for performing an ETM is available in *Appendix E of the Staff Report for Amendment to the Water Quality Control Plan for Ocean Waters of California Addressing Desalination Facility Intakes, Brine Discharges, and the Incorporation of Other Non-substantive Changes*.

End of the Discharge Channel
Average seaward projection at mean sea level (MSL) of the two rock jetties that form the discharge channel.

Endosulfan
The sum of endosulfan-alpha and -beta and endosulfan sulfate.

Estuaries and Coastal Lagoons
Estuaries and coastal lagoons are waters at the mouths of streams that serve as mixing zones for fresh and ocean waters during a major portion of the year. Mouths of streams that are temporarily separated from the ocean by sandbars will be considered as estuaries. Estuarine waters will generally be considered to extend from a bay or the open ocean to the upstream limit of tidal action but may be considered to extend seaward if significant mixing of fresh and salt water occurs in the open coastal waters.

ETM/APF Approach or Analysis
For guidance on how to perform an ETM/APF analysis please see *Appendix E of the Staff Report for Amendment to the Water Quality Control Plan for Ocean Waters of California Addressing Desalination Facility Intakes, Brine Discharges, and the Incorporation of Other Non-substantive Changes*.

Facility
Claude “Bud” Lewis Carlsbad Desalination Plant.

Feasible
For the implementation of Ocean Plan section III.M, feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

Flow Augmentation
A type of in-plant dilution that occurs when a desalination facility withdraws additional source water for the specific purpose of diluting brine prior to discharge.

Geometric Mean
Geometric Mean is a type of mean or average that indicates the central tendency or typical value of a set of numbers by using the product of their values (as opposed to the arithmetic mean which uses their sum). The geometric mean is defined as the n^{th} root of the product of n numbers.

Halomethanes
The sum of bromoform, bromomethane (methyl bromide), and chloromethane (methyl chloride).

Hexachlorocyclohexane
The sum of the alpha, beta, gamma (lindane), and delta isomers of HCH.

Indicator Bacteria
Includes total coliform bacteria, fecal coliform bacteria (or E. coli), and/or Enterococcus bacteria.

In-kind Mitigation
When the habitat or species lost is the same as what is replaced through mitigation.

Initial Dilution
The process that results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this

case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and non-buoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the San Diego Water Board, whichever results in the lower estimate for initial dilution.

Instantaneous Maximum Effluent Limitation
The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation
The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Intake Credits
Intake credits refer to regulatory allowances given to facilities for pollutants that are already present in the water they withdraw (intake) before using it for industrial processes like cooling or production.

Interference
A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

(1) Inhibits or disrupts the Facility, its treatment processes or operations, or its sludge processes, use or disposal; and

(2) Therefore is a cause of a violation of any requirement of the Facility's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Kelp Beds
Kelp beds are aggregations of marine algae of the order Laminariales, including species in the genera Macrocystis, Nereocystis, and Pelagophycus. Kelp beds include the total foliage canopy throughout the water column.

Mariculture
The culture of plants and animals in marine waters independent of any pollution source.

Material
(a) In common usage: (1) the substance or substances of which a thing is made or composed (2) substantial; (b) For purposes of the Ocean Plan relating to waste disposal, dredging and the disposal of dredged material and fill, “material” means matter of any kind or description which is subject to regulation as waste, or any material dredged from the navigable waters of the United States. See also, “Dredged Material”.

Maximum Daily Effluent Limitation
The highest allowable daily discharge of a pollutant.

Method Detection Limit
The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR part 136, Attachment B.

Minimum Level
The concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mitigation
Mitigation is the replacement of all forms of marine life or habitat that is lost due to the construction and operation of a desalination facility after minimizing intake and mortality of all forms of marine life through best available site, design and technology.

Monthly Average
The arithmetic mean of pollutant parameter values of samples collected in a calendar month.

Multiport Diffusers
Linear structures consisting of spaced ports or nozzles that are installed on submerged marine outfalls and enable rapid mixing, dispersal, and dilution of brine within a relatively small area.

Natural Background Salinity
The salinity at a location that results from naturally occurring processes and is without apparent human influence. For purposes of determining natural background salinity, the San Diego Water Board may approve the use of:

(1) The mean monthly natural background salinity must be determined by averaging 20 years of historical salinity data in the proximity of the proposed discharge location and at the depth of the proposed discharge when feasible. When historical data is not available, natural background salinity must be determined by measuring salinity at depth of the proposed discharge for 3 years, on a weekly basis prior to a desalination facility discharging brine, and the mean monthly natural salinity may be used to determine natural background salinity; or

(2) The actual salinity at a reference location, or reference locations, that is representative of natural background salinity at the discharge location. The reference locations must be without apparent human influence, including wastewater outfalls and brine discharges.

Either method to establish natural background salinity may be used for the purpose of determining compliance with the receiving water limitation and the effluent limitation for salinity. If a reference location(s) is used for compliance monitoring, the permit should specify that historical data must be used if reference location data becomes unavailable. An owner or operator must submit to the regional water board all necessary information to establish natural background salinity.

Natural Light
Reduction of natural light may be determined by the San Diego Water Board by measurement of light transmissivity or total irradiance, or both, according to the monitoring needs of the San Diego Water Board.

Not Detected
Those sample results less than the laboratory's MDL.

Ocean Waters
The territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters.

Out-of-kind Mitigation
When the habitat or species lost is different than what is replaced through mitigation.

Pass Through
A discharge which exits the Facility into waters of the U.S. in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the Facility's NPDES permit (including an increase in the magnitude or duration of a violation).

Phenolic Compounds (non-chlorinated)
The sum of 2,4-dimethylphenol, 4,6-Dinitro-2-methylphenol, 2,3-dinitrophenol, 2-methylphenol, 4-methylphenol, 2-nitrophenol, 4-nitrophenol, and phenol.

Pollutant Minimization Program
A program to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, in order to maintain the effluent concentration at or below the effluent limitation.

Polynuclear Aromatic Hydrocarbons
The sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4 benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene, and pyrene.

Polychlorinated Biphenyls
The sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.

Propagules
Structures that are capable of propagating an organism to the next stage in its life cycle via dispersal. Dispersal is the movement of individuals from their birth site to their reproductive grounds.

Proportional Mortality
The percentage of larval organisms or propagules in the source water body that is expected to be entrained at a desalination facility's intake. It is assumed that all entrained larvae or propagules die as a result of entrainment.

Rehabilitation
Repair, renewal, and replacement of components to return the system to near-original condition and performance

Reported Minimum Level
The reported minimum level is the ML, and its associated analytical method, chosen by the Discharger for reporting and compliance determination from the MLs included in this Order, including an additional factor if applicable as discussed in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the San Diego Water Board either from Ocean Plan Appendix II in accordance with Ocean Plan section III.C.5.a, or established in accordance with Ocean Plan section III.C.5.b.

The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to

dilute the sample or sample aliquot by a factor of ten. In such cases, the additional factor must be applied to the ML in the computation of the reported ML.

Salinity
A measure of the dissolved salts in a volume of water. Salinity must be measured using a standard method approved by the San Diego Water Board (e.g. Standard Method 2520 B, USEPA Method 120.1, USEPA Method 160.1) and reported in parts per thousand. For historical salinity data not recorded in parts per thousand, the San Diego Water Board may accept converted data at its discretion.

Seawater
Salt water that is in or from the ocean. For implementation of Ocean Plan section III.M, seawater includes tidally influenced waters in coastal estuaries and coastal lagoons and underground salt water beneath the seafloor, beach, or other contiguous land with hydrologic connectivity to the ocean.

Sensitive Habitats
Include kelp beds, rocky substrate, surfgrass beds, eelgrass beds, oyster beds, spawning grounds for State or federally managed species, market squid nurseries, or other habitats in need of special protection as determined by the San Diego Water Board.

Severe Property Damage
Substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR section 122.41(m)(1)(ii))

Shellfish
Organisms identified by the California Department of Public Health as shellfish for public health purposes (i.e., mussels, clams, and oysters).

Significant Difference
A statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level.

Single Sample Maximum
Single sample maximum is a maximum value not to be exceeded in any single sample.

Six-month Median Effluent Limitation
The highest allowable moving median of all daily discharges for any 180-day period.

Source Water Body

The spatial area that contains the organisms that are at risk of entrainment at a desalination facility as determined by factors that may include, but are not limited to, biological, hydrodynamic, and oceanographic data.

State Water Quality Protection Areas
Non-terrestrial marine or estuarine areas designated to protect marine species or biological communities from an undesirable alteration in natural water quality. All Areas of Special Biological Significance (ASBS) that were previously designated by the State Water Board in Resolutions No. 74-28, 74-32, and 75-61 are now also classified as a subset of State Water Quality Protection Areas and require special protections afforded by the Ocean Plan.

Statistical Threshold Value
Statistical Threshold Value for the bacteria water quality objective is a set value that approximates the 90th percentile of the water quality distribution of a bacterial population. The Statistical Threshold Value for the bacteria water quality objective is 110 CFU/100mL as set forth in Ocean Plan chapter II.B.1.a.

Subsurface Intake
For the purpose of implementing Ocean Plan chapter III.M, subsurface intake is an intake withdrawing seawater from the area beneath the ocean floor or beneath the surface of the earth inland from the ocean.

Surfgrass Beds
Aggregations of marine flowering plants of the genus Phyllospadix.

TCDD equivalents
The sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors, as shown in the table below:

Isomer Group	Toxicity Equivalency Factor
2,3,7,8-tetra CDD	1.0
2,3,7,8-penta CDD	0.5
2,3,7,8-hexa CDDs	0.1
2,3,7,8-hepta CDD	0.01
octa CDD	0.001
2,3,7,8 tetra CDF	0.1
1,2,3,7,8 penta CDF	0.05
2,3,4,7,8 penta CDF	0.5
2,3,7,8 hexa CDFs	0.1
2,3,7,8 hepta CDFs	0.01
octa CDF	0.001

Toxicity Identification Evaluation
A set of procedures conducted to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation), using aquatic organism toxicity tests.

Toxicity Reduction Evaluation
A study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A TIE may be required as part of the TRE, if appropriate.

Waste
As used in the Ocean Plan, waste includes a Discharger's total discharge, of whatever origin, i.e., gross, not net, discharge.

Water Quality Control Plans
There are two types of water quality control plans – Basin Plans and Statewide Plans. Regional Boards adopt Basin Plans for each region based upon surface water hydrologic basin boundaries. The Regional Basin Plans designates or describes (1) existing and potential beneficial uses of ground and surface water; (2) water quality objectives to protect the beneficial uses; (3) implementation programs to achieve these objectives; and (4) surveillance and monitoring activities to evaluate the effectiveness of the water quality control plan. The Statewide Plans address water quality concerns for surface waters that overlap Regional Board boundaries, are statewide in scope, or are otherwise considered significant and contain the same four elements. Statewide Water Quality Control Plans include the Ocean Plan, the Enclosed Bays and Estuaries Plan, the Inland Surface Waters Plan, and the Thermal Plan. A water quality control plan consists of a designation or establishment for the waters within a specified area of (1) beneficial uses to be protected, (2) water quality objectives, and (3) a program of implementation needed for achieving water quality objectives (Water Code section 13050(j)).

Water Quality Objectives
Numerical or narrative limits on constituents or characteristics of water designed to protect designated beneficial uses of the water (Water Code section 13050(h)). California's water quality objectives are established by the State and Regional Water Boards in the Water Quality Control Plans.

Water Quality Standards
Provisions of State or federal law which consist of a designated use or uses for waters of the United States and water quality criteria for such waters based upon such uses. Water quality standards are to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act (40 CFR section 131.3(i)).

Under State law, the Water Boards establish beneficial uses and water quality objectives in their water quality control plans or basin plans. Together with an antidegradation policy, these beneficial uses and water quality objectives serve as water quality standards under the Clean Water Act. In Clean Water Act parlance, state beneficial uses are called “designated uses” and state water quality objectives are called “criteria.” Throughout the Order, the relevant term is used depending on the statutory scheme.

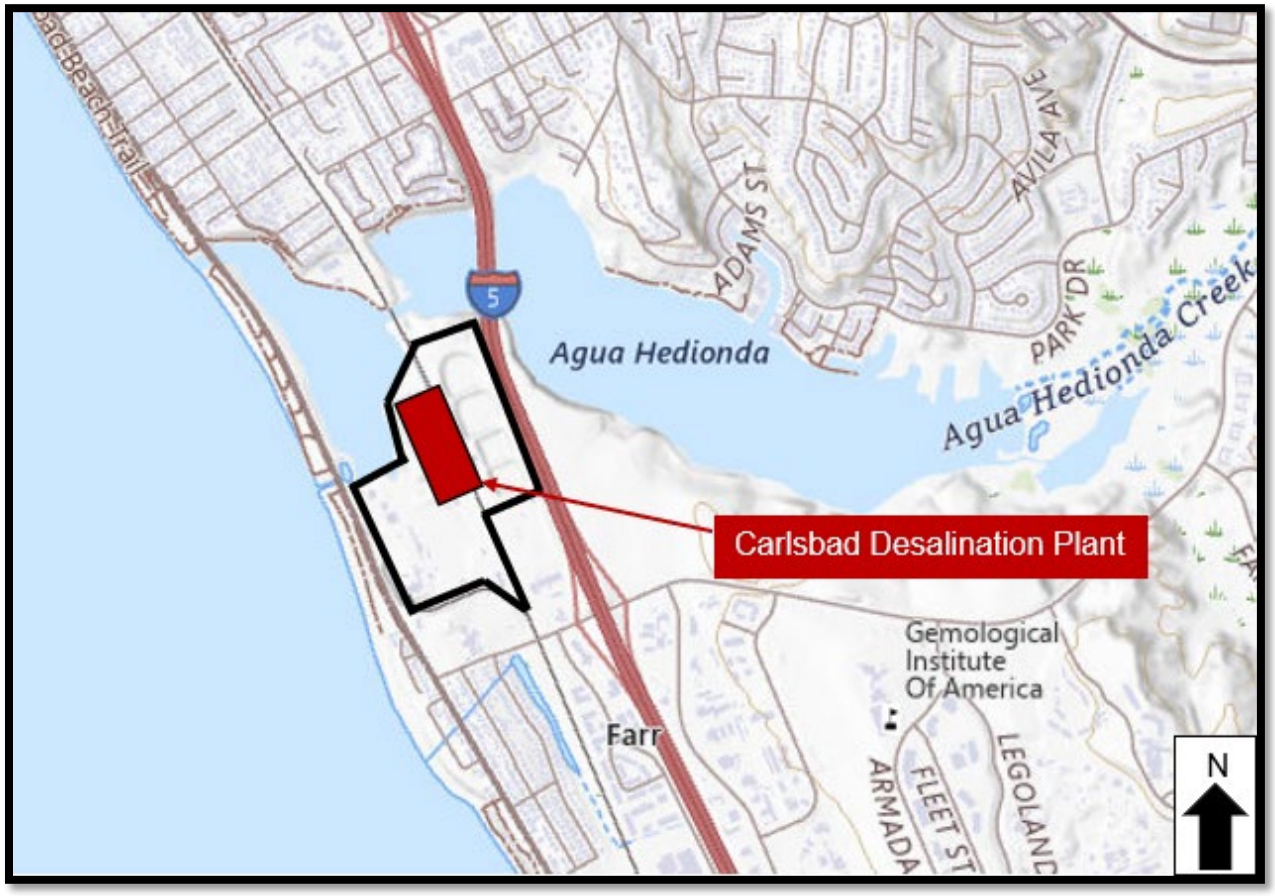
Zone of Initial Dilution

Zone of initial dilution is the area where an effluent discharge undergoes initial dilution and is extended to cover the secondary mixing in the ambient waterbody. A ZID is an allocated impact zone where water quality criteria can be exceeded as long as acutely toxic conditions are prevented. For the purposes of this Order the ZID and BMZ are two separately defined areas. The zone of initial dilution for this Order is set at 304.8 meters (1,000 feet) offshore of the end of the discharge channel, consistent with the 2019 Order.

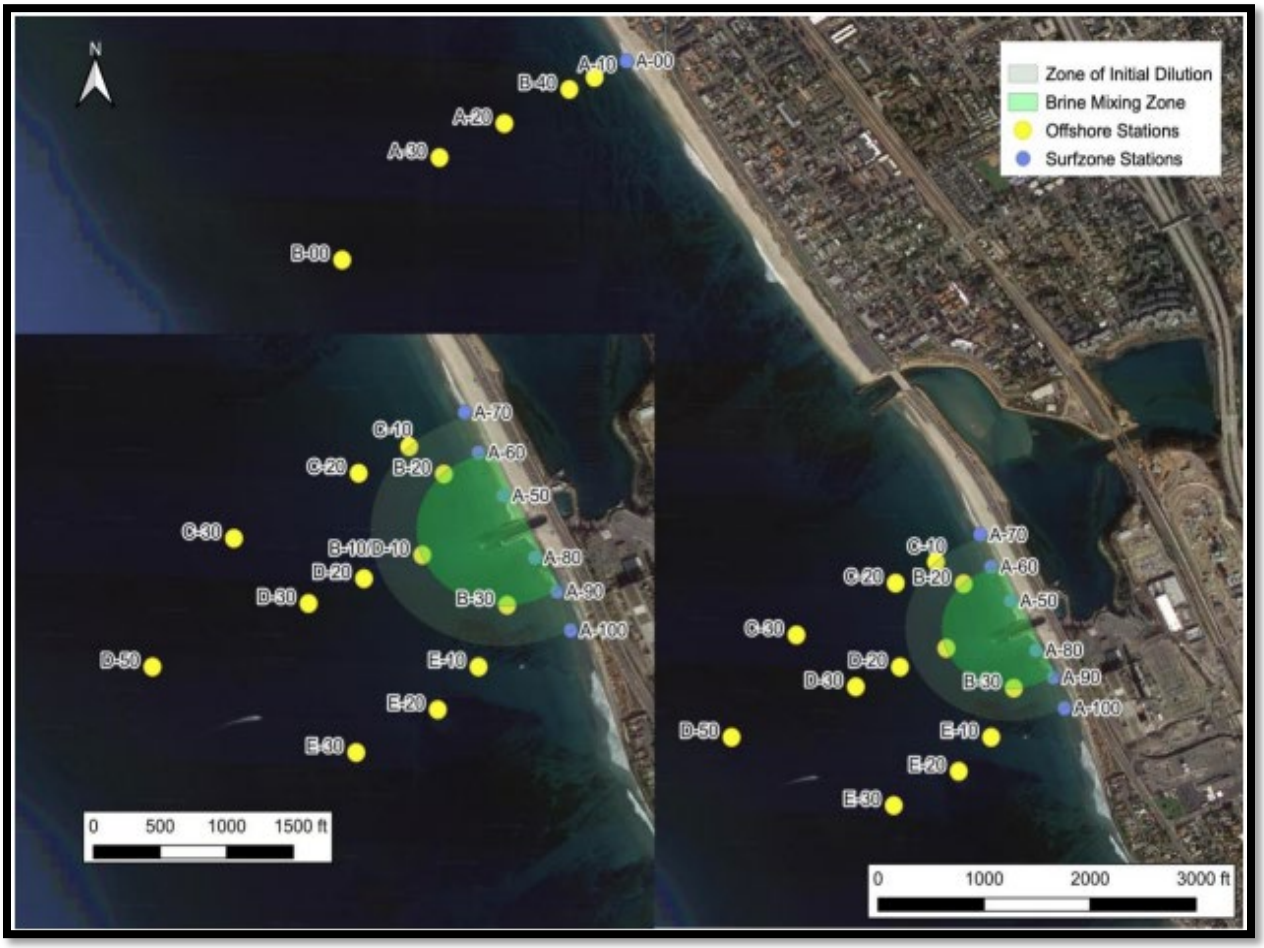
ATTACHMENT B – MAPS

Map B-1. Location Map

Map B-2. Vicinity Map



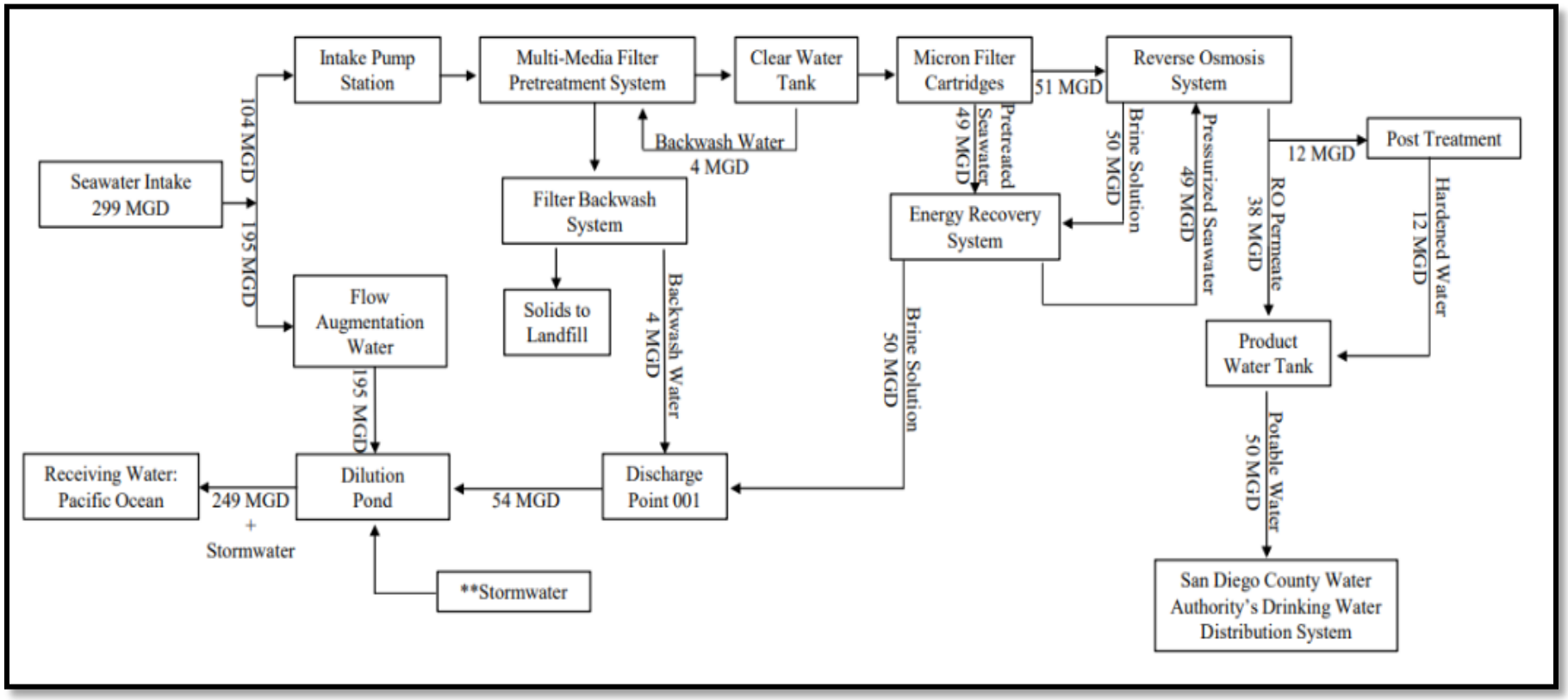
Map B-3. Surf Zone and Offshore Monitoring Locations



Map source: Channelside Annual Monitoring Report

ATTACHMENT C – FLOW SCHEMATIC

Figure C-1. Flow Schematic



Note: Figure C-1 shows theoretical process flows based on maximum seawater intake and process efficiency. Actual process flows are dependent on requested water production flow and other operational considerations.

ATTACHMENT D – STANDARD PROVISIONS

1. Standard Provisions – Permit Compliance

1.1. Duty to Comply

1.1.1. The Discharger must comply with all the terms, requirements, and conditions of this Order. Any noncompliance constitutes a violation of the federal Clean Water Act (CWA) and the California Water Code (Water Code) and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; denial of a permit renewal application; or a combination thereof. (title 40 of the Code of Federal Regulations (40 CFR) section 122.41(a); Water Code, sections 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)

1.1.2. The Discharger must comply with effluent standards or prohibitions established under Section 307(a) of the federal CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR section 122.41(a)(1).)

1.2. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Discharger to say in response to an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 CFR section 122.41(c).)

1.3. Duty to Mitigate

The Discharger must take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR section 122.41(d).)

1.4. Proper Operation and Maintenance

The Discharger must, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by the Discharger only when necessary to achieve compliance with the conditions of this Order. (40 CFR section 122.41(e).)

1.5. Property Rights

1.5.1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR section 122.41(g).)

1.5.2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations. (40 CFR section 122.5(c).)

1.6. Inspection and Entry

The Discharger must allow the San Diego Regional Water Quality Control Board (San Diego Water Board), State Water Resources Control Board (State Water Board), United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (33 United States Code (U.S.C.) section 1318(a)(4)(b); 40 CFR section 122.41(i); Water Code, sections 13267, 13383):

1.6.1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (33 U.S.C. section 1318(a)(4)(b)(i); 40 CFR section 122.41(i)(1); Water Code sections 13267 and 13383);

1.6.2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. section 1318(a)(4)(b)(ii); 40 CFR section 122.41(i)(2); Water Code, sections 13267, 13383);

1.6.3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C. section 1318(a)(4)(b)(ii); 40 CFR section 122.41(i)(3); Water Code, sections 13267, 13383); and

1.6.4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the federal CWA or the Water Code, any substances or parameters at any location. (33 U.S.C. section 1318(a)(4)(b); 40 CFR section 122.41(i)(4); Water Code, sections 13267, 13383.)

1.7. Bypass

1.7.1. Definitions

1.7.1.1. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR section 122.41(m)(1)(i).)

1.7.1.2. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR section 122.41(m)(1)(ii).)

1.7.2. **Bypass not exceeding limitations.** The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance 1.7.3, 1.7.4, and 1.7.5 below. (40 CFR section 122.41(m)(2).)

1.7.3. **Prohibition of bypass.** Bypass is prohibited, and the San Diego Water Board may take enforcement action against the Dischargers for bypass, unless (40 CFR section 122.41(m)(4)(i)):

1.7.3.1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR section 122.41(m)(4)(i)(A));

1.7.3.2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR section 122.41(m)(4)(i)(B)); and

1.7.3.3. The Discharger submitted notice to the San Diego Water Board as required under Standard Provisions – Permit Compliance 1.7.5 below. (40 CFR section 122.41(m)(4)(i)(C).)

1.7.4. The San Diego Water Board may approve an anticipated bypass, after considering its adverse effects, if the San Diego Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance 1.7.3 above. (40 CFR section 122.41(m)(4)(ii).)

1.7.5. Notice

1.7.5.1. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it must submit prior notice, if possible, at least 10 days before the date of the bypass. The notice must be sent to the San Diego Water Board. As of December 21, 2028, all notices submitted in compliance with this section must be submitted electronically by the Discharger to the San Diego Water Board and USEPA or initial recipient, as defined in 40 CFR section 127.2(b), in compliance with this section and 40 CFR part 3 (including, in all cases, subpart D to part 3), 40 CFR section 122.22, and 40 CFR part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of part 127, the Discharger may be required to report electronically if specified by a particular permit or if required to do so by State law. (40 CFR section 122.41(m)(3)(i).)

1.7.5.2. Unanticipated bypass. The Discharger must submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting 5.5

below (24-hour notice). The notice must be sent to the San Diego Water Board. As of December 21, 2028, all notices submitted in compliance with this section must be submitted electronically by the Discharger to the San Diego Water Board and USEPA or initial recipient, as defined in 40 CFR section127.2(b), in compliance with this section and 40 CFR part 3 (including, in all cases, subpart D to part 3), 40 CFR section 122.22, and 40 CFR part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of part 127, the Discharger may be required to report electronically if specified by a particular permit or if required to do so by State law. (40 CFR section 122.41(m)(3)(ii).)

1.8. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 CFR section 122.41(n)(1).)

1.8.1. **Effect of an upset.** An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance 1.8.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR section 122.41(n)(2).)

1.8.2. **Conditions necessary for a demonstration of upset.** The Discharger who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR section 122.41(n)(3)):

1.8.2.1. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR section 122.41(n)(3)(i));

1.8.2.2. The permitted facility was, at the time, being properly operated (40 CFR section 122.41(n)(3)(ii));

1.8.2.3. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting 5.5.2.2 below (24-hour notice) (40 CFR section 122.41(n)(3)(iii)); and

1.8.2.4. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance 1.3 above. (40 CFR section 122.41(n)(3)(iv).)

1.8.3. **Burden of proof.** The Discharger seeking to establish the occurrence of an upset has the burden of proof in any enforcement proceeding. (40 CFR section 122.41(n)(4).)

2. Standard Provisions – Permit Action

2.1. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 CFR section 122.41(f).)

2.2. Duty to Reapply

If the Discharger wishes to continue an activity regulated by the Order after the expiration date of the Order, the Discharger must apply for and obtain a new permit. (40 CFR section 122.41(b).)

2.3. Transfers

This Order is not transferable to any person except after notice to the San Diego Water Board. The San Diego Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the federal CWA and the Water Code. (40 CFR sections 122.41(l)(3), 122.61.)

3. Standard Provisions – Monitoring

3.1. Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity. (40 CFR section 122.41(j)(1).)

3.2. Monitoring must be conducted according to test procedures approved under 40 CFR part 136 for the analyses of pollutants. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 CFR part 136 for the analysis of pollutants or pollutant parameters. For the purposes of this paragraph, a method is sufficiently sensitive when:

3.2.1. The method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant or pollutant parameter, and either (1) the method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or the pollutant parameter or (2) the method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in the facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or

3.2.2. The method has the lowest ML of the analytical methods approved under 40 CFR part 136 for the measured pollutant or pollutant parameter.

In the case of pollutants or pollutant parameters for which there are no approved methods under 40 CFR part 136, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 CFR sections 122.21(e)(3),122.41(j)(4), 122.44(i)(1)(iv).)

4. Standard Provisions – Records

4.1. The Discharger must retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the San Diego Water Board Executive Officer at any time. (40 CFR section 122.41(j)(2).)

4.2. Records of monitoring information must include:

4.2.1. The date, exact place, and time of sampling or measurements (40 CFR section 122.41(j)(3)(i));

4.2.2. The individual(s) who performed the sampling or measurements (40 CFR section 122.41(j)(3)(ii));

4.2.3. The date(s) analyses were performed (40 CFR section 122.41(j)(3)(iii));

4.2.4. The individual(s) who performed the analyses (40 CFR section 122.41(j)(3)(iv));

4.2.5. The analytical techniques or methods used (40 CFR section 122.41(j)(3)(v)); and

4.2.6. The results of such analyses. (40 CFR section 122.41(j)(3)(vi).)

4.3. Claims of confidentiality for the following information will be denied (40 CFR section 122.7(b)):

4.3.1. The name and address of any permit applicant or the Discharger (40 CFR section 122.7(b)(1)); and

4.3.2. Permit applications and attachments, permits and effluent data. (40 CFR section 122.7(b)(2).)

5. Standard Provisions – Reporting

5.1. Duty to Provide Information

The Discharger must furnish to the San Diego Water Board, State Water Board, or USEPA within a reasonable time, any information which the San Diego Water

Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger must also furnish to the San Diego Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR section 122.41(h); Water Code, sections 13267, 13383.)

5.2. Signatory and Certification Requirements

5.2.1. All applications, reports, or information submitted to the San Diego Water Board, State Water Board, and/or USEPA must be signed and certified in accordance with Standard Provisions – Reporting 5.2.2, 5.2.3, 5.2.4, 5.2.5, and 5.2.6 below. (40 CFR section 122.41(k).)

5.2.2. All permit applications must be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR section 122.22(a)(3).)

5.2.3. All reports required by this Order and other information requested by the San Diego Water Board, State Water Board, or USEPA must be signed by a person described in Standard Provisions – Reporting 5.2.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

5.2.3.1. The authorization is made in writing by a person described in Standard Provisions – Reporting 5.2.2 above (40 CFR section 122.22(b)(1));

5.2.3.2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR section 122.22(b)(2)); and

5.2.3.3. The written authorization is submitted to the San Diego Water Board and State Water Board. (40 CFR section 122.22(b)(3).)

5.2.4. If an authorization under Standard Provisions – Reporting 5.2.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting 5.2.3 above must be submitted to the San Diego Water Board and State Water Board prior to or

together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR section 122.22(c).)

5.2.5. Any person signing a document under Standard Provisions – Reporting 5.2.2 or 5.2.3 above must make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 CFR section 122.22(d).)

5.2.6. Any person providing the electronic signature for documents described in Standard Provisions – 5.2.1, 5.2.2, or 5.2.3 that are submitted electronically must meet all relevant requirements of Standard Provisions – Reporting 5.2, and must ensure that all relevant requirements of 40 CFR part 3 (Cross-Media Electronic Reporting) and 40 CFR part 127 (National Pollutant Discharge Elimination System [NPDES] Electronic Reporting Requirements) are met for that submission. (40 CFR section 122.22(e).)

5.3. Monitoring Reports

5.3.1. Monitoring results must be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR section 122.41(l)(4).)

5.3.2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the San Diego Water Board or State Water Board. As of December 21, 2016, all reports and forms must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting 5.10 and comply with 40 CFR part 3, 40 CFR section 122.22, and 40 CFR part 127. (40 CFR section 122.41(l)(4)(i).)

5.3.3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR part 136, or another method required for an industry-specific waste stream under 40 CFR chapter 1, subchapter N, the results of such monitoring must be included in the calculation and reporting of the data submitted in the DMR or reporting form specified by the San Diego Water Board or State Water Board. (40 CFR section 122.41(l)(4)(ii).)

5.3.4. Calculations for all limitations, which require averaging of measurements, must utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR section 122.41(l)(4)(iii).)

5.4. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, must be submitted no later than 14 days following each schedule date. (40 CFR section 122.41(l)(5).)

5.5. Twenty-Four Hour Reporting

5.5.1. The Discharger must report any noncompliance which may endanger health or the environment. Any information must be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A report must also be provided within five (5) days of the time the Discharger become aware of the circumstances. The report must contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (i.e., combined sewer overflow, sanitary sewer overflow, or bypass event), type of overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volume untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the event, and whether the noncompliance was related to wet weather.

As of December 21, 2028, all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted to the San Diego Water Board and must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting 5.10. The reports must comply with 40 CFR part 3, 40 CFR section 122.22, and 40 CFR part 127. The San Diego Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 CFR section 122.41(l)(6)(i).)

5.5.2. The following must be included as information that must be reported within 24 hours:

5.5.2.1. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR section 122.41(l)(6)(ii)(A).)

5.5.2.2. Any upset that exceeds any effluent limitation in this Order. (40 CFR section 122.41(l)(6)(ii)(B).)

5.5.3. The San Diego Water Board may waive the above required written report on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR section 122.41(l)(6)(ii)(B).)

5.6. Planned Changes

The Discharger must give notice to the San Diego Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 CFR section 122.41(l)(1)):

5.6.1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR section 122.29(b) (40 CFR section 122.41(l)(1)(i)); or

5.6.2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR section 122.41(l)(1)(ii));

5.6.3. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under 40 CFR section 122.42(a)(1) (see Additional Provisions—Notification Levels 7.1.1). (40 CFR section 122.41(l)(1)(ii).)

5.7. Anticipated Noncompliance

The Discharger must give advance notice to the San Diego Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 CFR section 122.41(l)(2).)

5.8. Other Noncompliance

The Discharger must report all instances of noncompliance not reported under Standard Provisions – Reporting 5.3, 5.4, and 5.5 above at the time monitoring reports are submitted. The reports must contain the information listed in Standard Provision – Reporting 5.5 above. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must contain the information described in Standard Provision – Reporting 5.5 and the applicable required data in appendix A to 40 CFR part 127. The San Diego Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 CFR section 122.41(l)(7).)

5.9. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application

or in any report to the San Diego Water Board, State Water Board, or USEPA, the Discharger must promptly submit such facts or information. (40 CFR section 122.41(l)(8).)

5.10. Initial Recipient for Electronic Reporting Data

The owner, operator, or the duly authorized representative is required to electronically submit NPDES information specified in appendix A to 40 CFR part 127 to the initial recipient defined in 40 CFR section 127.2(b). USEPA will identify and publish the list of initial recipients on its website and in the Federal Register, by State and by NPDES data group (see 40 CFR section 127.2(c)). USEPA will update and maintain this listing. (40 CFR section 122.41(l)(9).)

6. Standard Provisions – Enforcement

The San Diego Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13268, 13385, 13386, and 13387.

7. Additional Provisions – Notification Levels

7.1. Publicly-Owned Treatment Works (POTWs) – Not Applicable

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

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MONITORING AND REPORTING PROGRAM (MRP)

Section 308 of the federal Clean Water Act (CWA) and sections 122.41(h), (j)-(l), 122.44(i), and 122.48 of title 40 of the Code of Federal Regulations (40 CFR) require that all National Pollutant Discharge Elimination System (NPDES) permits specify monitoring and reporting requirements. California Water Code (Water Code) section 13383 also authorizes the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. Pursuant to this authority, this MRP establishes conditions for Channelside Water Resources LP (Discharger) to conduct routine or episodic self-monitoring of the discharges regulated under this Order at specified influent, effluent, and receiving water monitoring locations. This MRP requires the Discharger to report monitoring results to the San Diego Water Board along with any information necessary to evaluate discharge characteristics and compliance status. While the San Diego Water Board is not required to consider MRP costs, it recognizes that monitoring and reporting costs can be a significant burden. The San Diego Water Board estimates that the burden and cost of compliance with this MRP may range from $350,000 to $400,000 per year. The San Diego Water Board has assessed this MRP to reduce and eliminate unnecessary or overlapping monitoring and reporting requirements where appropriate. This MRP is reasonable given the needs and benefits of the reports.

The purpose of this MRP is to determine and ensure compliance with effluent limitations and other requirements established in this Order, assess treatment efficiency, characterize effluents, and characterize the receiving water and the effects of the discharge on the receiving water. This MRP also specifies requirements concerning the proper use, maintenance, and installation of monitoring equipment and methods, and specifies monitoring intervals and frequencies necessary to yield data that is representative of the activities and discharges regulated under this Order.

Each monitoring section contains an introductory paragraph summarizing why the monitoring is needed and the key management questions the monitoring is designed to answer. In developing the list of key management questions, the San Diego Water Board considered four basic types of information for each question:

- Management Information Need – Why does the San Diego Water Board need to know the answer?
- Monitoring Criteria – What monitoring will be conducted for deriving an answer to the question?
- Expected Product – How should the answer be expressed and reported?
- Possible Management Actions – What actions will be potentially influenced by the answer?

The framework for this monitoring program has three components that comprise a range of spatial and temporal scales: core monitoring, regional monitoring, and special studies.

1. Core monitoring consists of the basic site-specific monitoring necessary to measure compliance with individual effluent limitations and/or impacts to receiving water quality. Core monitoring is typically conducted in the immediate vicinity of the discharge by examining local scale spatial effects.

2. Regional monitoring provides information necessary to make assessments over large areas and serves to evaluate cumulative effects of all anthropogenic inputs. Regional monitoring data also assists in the interpretation of core monitoring studies. In the event that a regional monitoring effort takes place during the permit cycle in which the MRP does not specifically address regional monitoring, the San Diego Water Board may allow relief from aspects of core monitoring components to encourage participation pursuant to MRP section 5.

3. Special studies are directed monitoring efforts designed in response to specific management or research questions identified through either core or regional monitoring programs. Often, they are used to help understand core or regional monitoring results where a specific environmental process is not well understood, or to address unique issues of local importance.

1. General Monitoring Provisions

1.1. The Discharger must take samples and measurements as required in this MRP. The samples and measurements must be representative of the volume and nature of the monitored discharge. The Discharger must take all samples at the monitoring points specified in section 2, Table E-1 and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring points must not be changed without notification of and approval of the San Diego Water Board.

1.2. The Discharger must properly maintain and calibrate all monitoring instruments and devices used to fulfill this MRP to ensure their continued accuracy. The Discharger must use appropriate flow measurement devices and methods consistent with accepted scientific practices to ensure the accuracy and reliability of measurements taken. The Discharger must install flow measurement devices and calibrate them at least once per year (i.e., no more than 12 months between calibrations) or more frequently and maintain them to ensure that the accuracy of the measurement is consistent with the accepted capability of that type of device. The flow measurement devices selected must be capable of measuring flows with a maximum deviation of less than ±5 percent from true discharge rates throughout the range of expected discharge volumes.

1.3. The Discharger must conduct monitoring according to U.S. Environmental Protection Agency (USEPA) test procedures approved at 40 CFR part 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act* as amended, or an alternative test procedure (ATP) approved

by USEPA, or by the San Diego Water Board when there are no methods specified for a pollutant at 40 CFR part 136.

1.4. The Discharger must use a laboratory accredited by the State Water Resources Control Board's Environmental Laboratory Accreditation Program (ELAP) to generate data and reports to be submitted pursuant to this Order. The laboratory must hold a valid certificate of accreditation for the analytical test method specified in 40 CFR 136, an ATP approved by USEPA, or by the San Diego Water Board when there are no methods specified for a pollutant at 40 CFR part 136. The laboratory must include quality assurance/quality control data in all data reports required by this Order and submit electronic data as required by the San Diego Water Board. Data generated using field tests is exempt pursuant to Water Code Section 13176. Additional information on ELAP can be accessed at: https://www.waterboards.ca.gov/drinking_water/certlic/labs/index.shtml.

1.5. The Discharger must include information required under Attachment D, section 4 (Standard Provision) in its records of monitoring information.

1.6. The Discharger must develop and implement an acceptable written quality assurance (QA) plan for laboratory analyses. The QA plan must at a minimum include the following:

- Objectives of the Discharger's monitoring program;
- Methods used for sample collection and handling;
- Field and laboratory measurement and analysis methods;
- Data management, validation, and recordkeeping (including proper chain of custody) procedures;
- QA and quality control requirements;
- A statement certifying the adequacy of the QA plan (plus the name of the author of the QA plan and the signature of person certifying the QA plan); and
- A description of personnel QA training.

1.7. The Discharger must conduct analyses for toxic pollutants, including chronic toxicity, with effluent limitations or performance goals based on water quality objectives and criteria of the *Water Quality Control Plan for the San Diego Basin* (Basin Plan) and the *Water Quality Control Plan for Ocean Waters of California, California Ocean Plan* (Ocean Plan) in accordance with procedures described in the Ocean Plan and restated in this MRP.

1.8. The Discharger must ensure that analytical procedures used to evaluate compliance with effluent limitations or performance goals established in this Order use minimum levels (ML) no greater than the applicable effluent limitations or performance goals and are consistent with the requirements of the Ocean Plan and 40 CFR part 136, or otherwise approved by USEPA and authorized by the San Diego Water Board. If no authorized ML value is below

the effluent limitation, then the method must achieve an ML no greater than the lowest ML value provided in the Ocean Plan and/or 40 CFR part 136.

2. Monitoring Locations

The Discharger must establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order. The north latitude and west longitude information in Table E-1 are approximate for administrative purposes.

Table E-1. Monitoring Station Locations

Monitoring Location Name	Monitoring Location Description[1]
M-INF	At a location upstream of all in-plant return flows where a representative influent sample can be obtained.
M-001	At a location downstream of all contributing flows to the Facility effluent, prior to combining with augmentation flow.
M-002	At the final effluent pond that contains Facility effluent, or Facility process flows and augmented dilution flows, prior to discharge to the ocean through the discharge channel.
A-00	7,000 feet upcoast (northerly) of the discharge channel in the surf zone at the surface (approximately: 33° 9' 16" N, 117° 21' 8" W)
A-50	328 feet upcoast (northerly) of the discharge channel in the surf zone at the surface (approximately: 33° 8' 20" N, 117° 20' 27" W)
A-60	656 feet upcoast (northerly) of the discharge channel in the surf zone at the surface (approximately: 33° 8' 23" N, 117° 20' 28" W)
A-70	1,000 feet upcoast (northerly) of the discharge channel in the surf zone at the surface (approximately: 33° 8' 27" N, 117° 20' 30" W)
A-80	328 feet downcoast (southerly) of the discharge channel in the surf zone at the surface (approximately: 33° 8' 15" N, 117° 20' 23" W)
A-90	656 feet downcoast (southerly) of the discharge channel in the surf zone at the surface (approximately: 33° 8' 12" N, 117° 20' 21" W)
A-100	1,000 feet downcoast (southerly) of the discharge channel in the surf zone at the surface (approximately: 33° 8' 9" N, 117° 20' 20" W)
A-10	7,000 feet upcoast (northerly) of the discharge channel at the 10-foot depth contour (at mean lower low water (MLLW))[2]
A-20	7,000 feet upcoast (northerly) of the discharge channel at the 20-foot depth contour (at MLLW)

Monitoring Location Name	Monitoring Location Description[1]
A-30	7,000 feet upcoast (northerly) of the discharge channel at the 30-foot depth contour (at MLLW)
B-00	7,000 feet upcoast (northerly) of the discharge channel, 3,400 feet offshore (approximately: 33° 8' 57" N, 117° 21' 42" W)
B-10/D-10	656 feet (200 meters) west off the end of the discharge channel (approximately: 33° 8' 14" N, 117° 20' 31" W)
B-20	656 feet upcoast (northerly) of the discharge channel, 656 feet off the end of the discharge channel (approximately: 33° 8' 19" N, 117° 20' 35" W)
B-30	656 feet downcoast (southerly) of the discharge channel, 656 feet off the end of the discharge channel (approximately: 33° 8' 8" N, 117° 20' 28" W)
B-40	7,000 feet upcoast (northerly) of the discharge channel, 656 feet off the end of the discharge channel (approximately: 33° 9' 13" N, 117° 21' 15" W)
C-10	1,000 feet upcoast (northerly) of the discharge channel, 521 feet offshore (approximately: 33° 8' 24" N, 117° 20' 35" W)
C-20	1,000 feet upcoast (northerly) of the discharge channel, 956 feet offshore (approximately: 33° 8' 22" N, 117° 20' 39" W)
C-30	1,000 feet upcoast (northerly) of the discharge channel, 2,000 feet offshore (approximately: 33° 8' 16" N, 117° 20' 50" W)
D-20	1,129 feet west off the end of the discharge channel (approximately: 33° 8' 11" N, 117° 20' 36" W)
D-30	1,600 feet west off the end of the discharge channel (approximately: 33° 8' 8" N, 117° 20' 40" W)
D-50	2,800 feet west off the end of the discharge channel (approximately: 33° 8' 1" N, 117° 20' 52" W)
E-10	1,000 feet downcoast (southerly) of the discharge channel, 652 feet offshore
E-20	1,000 feet downcoast (southerly) of the discharge channel, 1,086 feet offshore (approximately: 33° 8' 5" N, 117° 20' 26" W)
E-30	1,000 feet downcoast (southerly) of the discharge channel, 2,000 feet offshore (approximately: 33° 7' 58" N, 117° 20' 39" W)

Notes for Table E-1:

1. Latitude and Longitude are approximate values of the locations for administrative purposes.
2. Mean lower low water level is the average value of the lowest seawater levels at low tide as measured by the National Oceanic and Atmospheric Administration's (NOAA's) tidal gauges.

3. Core Monitoring Requirements

3.1. Influent Monitoring Requirements

The Discharger must monitor the influent at Monitoring Location M-INF. Influent samples must be collected on the same day as, and shortly before, effluent samples are collected. Influent must be monitored as described in Table E-2.

Table E-2. Influent Monitoring

Parameter	Units[1]	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	million gallons per day (MGD)	Recorder/Totalizer	Continuous	--
Salinity	parts per thousand (ppt)	Grab	1/Week	[2]
Temperature	degrees Fahrenheit (°F)	Grab	1/Week	[3]

Notes for Table E-2:
1. See Attachment A for definitions of abbreviations and a glossary of common terms.
2. Salinity must be measured using USEPA Standard Method 2520B.
3. As required under 40 CFR part 136.

3.2. Effluent Monitoring Requirements

The Discharger must monitor the effluent at the specified monitoring location when the Facility is discharging brine as described in Table E-3.

Table E-3. Effluent Monitoring When Discharging Brine

Parameter[1]	Monitoring Location	Units[2,3]	Sample Type	Minimum Sampling Frequency
Flow	M-001 & M-002	MGD	Recorder/ Totalizer	Continuous[4]
Total Suspended Solids (TSS)	M-001	milligrams per liter (mg/L)	Grab	1/Week
pH	M-001 & M-002	standard units	Grab	1/Week
Oil and Grease	M-001	mg/L	Grab	1/Week
Settleable Solids	M-001	milliliters per liter (ml/L)	Grab	1/Week

Parameter[1]	Monitoring Location	Units[2,3]	Sample Type	Minimum Sampling Frequency
Turbidity	M-001	nephelometric turbidity units (NTU)	Grab	1/Week
Salinity[5]	M-001 & M-002	ppt	Grab	1/Week
Temperature	M-001	°F	Grab	1/Week
Electrical Conductivity	M-002	deci-siemens per meter	Recorder/ Totalizer	Continuous
Total Chlorine Residual[6]	M-002	micrograms per liter (µg/L)	Grab	1/Week
Chronic Toxicity	M-001 & M-002	Pass/Fail; Percent Effect[7]	24-hr Composite	1/Month
Enterococcus	M-001 & M-002	colony forming units per 100 milliliters (CFU/100 mL)	Grab	1/Quarter
Total Coliform	M-001 & M-002	CFU/100 mL	Grab	1/Quarter
Arsenic, Total Recoverable	M-001	µg/L	Grab	1/Quarter
Cadmium, Total Recoverable	M-001	µg/L	Grab	1/Quarter
Chromium (VI)	M-001	µg/L	Grab	1/Quarter
Copper, Total Recoverable	M-001	µg/L	Grab	1/Quarter
Lead, Total Recoverable	M-001	µg/L	Grab	1/Quarter
Mercury, Total Recoverable	M-001	µg/L	Grab	1/Quarter
Nickel, Total Recoverable	M-001	µg/L	Grab	1/Quarter
Selenium, Total Recoverable	M-001	µg/L	Grab	1/Quarter
Silver, Total Recoverable	M-001	µg/L	Grab	1/Quarter
Zinc, Total Recoverable	M-001	µg/L	Grab	1/Quarter
Cyanide, Total[8]	M-001	µg/L	Grab	1/Quarter
Total Chlorine Residual[6]	M-001	µg/L	Grab	1/Quarter
Ammonia Nitrogen, Total (as N)	M-001	µg/L	Grab	1/Quarter

Parameter[1]	Monitoring Location	Units[2,3]	Sample Type	Minimum Sampling Frequency
Phenolic Compounds (non-chlorinated)[2]	M-001	µg/L	Grab	1/Quarter
Phenolic Compounds (chlorinated)[2]	M-001	µg/L	Grab	1/Quarter
Endosulfan	M-001	µg/L	Grab	1/Quarter
Endrin	M-001	µg/L	Grab	1/Quarter
HCH[1]	M-001	µg/L	Grab	1/Quarter
Radioactivity	M-001	picocuries per liter (pCi/L)	Grab	1/Quarter
Acrolein	M-001	µg/L	Grab	1/Quarter
Antimony, Total Recoverable	M-001	µg/L	Grab	1/Quarter
Bis (2-chloroethoxy) Methane	M-001	µg/L	Grab	1/Quarter
Bis (2-chloroisopropyl) Ether	M-001	µg/L	Grab	1/Quarter
Chlorobenzene	M-001	µg/L	Grab	1/Quarter
Chromium (III)	M-001	µg/L	Grab	1/Quarter
Di-n-butyl Phthalate	M-001	µg/L	Grab	1/Quarter
Dichlorobenzenes[1]	M-001	µg/L	Grab	1/Quarter
Diethyl Phthalate	M-001	µg/L	Grab	1/Quarter
Dimethyl Phthalate	M-001	µg/L	Grab	1/Quarter
4,6-dinitro-2-methylphenol	M-001	µg/L	Grab	1/Quarter
2,4-dinitrophenol	M-001	µg/L	Grab	1/Quarter
Ethylbenzene	M-001	µg/L	Grab	1/Quarter
Fluoranthene	M-001	µg/L	Grab	1/Quarter
Hexachlorocyclo-pentadiene	M-001	µg/L	Grab	1/Quarter
Nitrobenzene	M-001	µg/L	Grab	1/Quarter
Thallium, Total Recoverable	M-001	µg/L	Grab	1/Quarter
Toluene	M-001	µg/L	Grab	1/Quarter
Tributyltin	M-001	µg/L	Grab	1/Quarter
1,1,1-trichloroethane	M-001	µg/L	Grab	1/Quarter
Acrylonitrile	M-001	µg/L	Grab	1/Quarter
Aldrin	M-001	µg/L	Grab	1/Quarter
Benzene	M-001	µg/L	Grab	1/Quarter
Benzidine	M-001	µg/L	Grab	1/Quarter
Beryllium, Total Recoverable	M-001	µg/L	Grab	1/Quarter
Bis (2-chloroethyl) Ether	M-001	µg/L	Grab	1/Quarter

Parameter[1]	Monitoring Location	Units[2,3]	Sample Type	Minimum Sampling Frequency
Bis (2-ethylhexyl) Phthalate	M-001	µg/L	Grab	1/Quarter
Carbon Tetrachloride	M-001	µg/L	Grab	1/Quarter
Chlordane[1]	M-001	µg/L	Grab	1/Quarter
Chlorodibromomethane (dibromochloromethane)	M-001	µg/L	Grab	1/Quarter
Chloroform	M-001	µg/L	Grab	1/Quarter
DDT[1]	M-001	µg/L	Grab	1/Quarter
1,4-dichlorobenzene	M-001	µg/L	Grab	1/Quarter
3,3'-dechlorobenzidine	M-001	µg/L	Grab	1/Quarter
1,2-dichloroethane	M-001	µg/L	Grab	1/Quarter
1,1-dichloroethylene	M-001	µg/L	Grab	1/Quarter
Dichlorobromomethane	M-001	µg/L	Grab	1/Quarter
Dichloromethane (Methylene Chloride)	M-001	µg/L	Grab	1/Quarter
1,3-dichloropropene (1,3-Dichloropropylene)	M-001	µg/L	Grab	1/Quarter
Dieldrin	M-001	µg/L	Grab	1/Quarter
2,4-dinitrotoluene	M-001	µg/L	Grab	1/Quarter
1,2-diphenylhydrazine	M-001	µg/L	Grab	1/Quarter
Halomethanes[1]	M-001	µg/L	Grab	1/Quarter
Heptachlor	M-001	µg/L	Grab	1/Quarter
Heptachlor Epoxide	M-001	µg/L	Grab	1/Quarter
Hexachlorobenzene	M-001	µg/L	Grab	1/Quarter
Hexachlorobutadiene	M-001	µg/L	Grab	1/Quarter
Hexachloroethane	M-001	µg/L	Grab	1/Quarter
Isophorone	M-001	µg/L	Grab	1/Quarter
N-nitrosodimethylamine	M-001	µg/L	Grab	1/Quarter
N-nitrosodi-N-propylamine	M-001	µg/L	Grab	1/Quarter
N-nitrosodiphenylamine	M-001	µg/L	Grab	1/Quarter
PAHs[2]	M-001	µg/L	Grab	1/Quarter
PCBs[2]	M-001	µg/L	Grab	1/Quarter
TCDD equivalents[2]	M-001	µg/L	Grab	1/Quarter
1,1,2,2-tetrachloroethane	M-001	µg/L	Grab	1/Quarter
Tetrachloroethylene (Tetrachloroethene)	M-001	µg/L	Grab	1/Quarter
Toxaphene	M-001	µg/L	Grab	1/Quarter
Trichloroethylene (Trichloroethene)	M-001	µg/L	Grab	1/Quarter
1,1,2-trichloroethane	M-001	µg/L	Grab	1/Quarter

Parameter[1]	Monitoring Location	Units[2,3]	Sample Type	Minimum Sampling Frequency
2,4,6-trichlorophenol	M-001	µg/L	Grab	1/Quarter
Vinyl Chloride	M-001	µg/L	Grab	1/Quarter

Notes for Table E-3:

1. The analytical test method is as required under 40 CFR part 136.
2. See Attachment A for definitions of abbreviations and a glossary of common terms.
3. The Discharger must calculate and report the Mass Emission Rate (MER) for each constituent for which concentration is measured in mg/L or ug/L. The MER must be calculated using the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the flow rate at the monitoring location and C is the concentration in mg/L.
4. The Discharger must report both the daily measured and calculated flows. Flow values measured at monitoring location M-001 may be inaccurate at lower flow rates. The Discharger calculates the daily flows by adding individual flows measured at different points in the Facility, including the effluent from pre-treatment processes, the reverse osmosis system, the post-treatment processes, and the final-product water station.
5. Salinity must be measured using USEPA Standard Method 2520B.
6. Monitoring for total chlorine residual is not applicable when the Facility is not chlorinating.
7. Chronic toxicity results shall be reported as “Pass” or “Fail” and “Percent Effect”. Samples must be analyzed as specified in MRP section 3.3.
8. If the Discharger can demonstrate to the satisfaction of the San Diego Water Board and USEPA that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, performance goals for cyanide may be met by the combined measurement of free cyanide, simple alkali metals cyanides, and weakly complexed organometallic cyanide complexes. For the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in 40 CFR part 136, as amended.

At times including but not limited to plant start-up, during or after plant maintenance, or other times when the Facility is not delivering product water to the regional water system, the Facility may temporarily discharge flows without the concentrated reverse osmosis brine. During such temporary periods when the Facility is not discharging brine, monitoring is required to ensure compliance with permit provisions not including the flow effluent limitation of 67 MGD which only applies to the discharge of reverse osmosis concentrate and media filter backwash. The Discharger must monitor the effluent at monitoring location M-001 when not discharging brine as described in Table E-4.

Table E-4. Effluent Monitoring at M-001 When Not Discharging Brine

Parameter[1]	Unit[2]	Sample Type	Minimum Test Frequency
Flow	MGD	Recorder/Totalizer	Continuous[3]

Parameter[1]	Unit[2]	Sample Type	Minimum Test Frequency
Total Suspended Solids[4]	mg/L	Grab	1/Quarter
pH	Standard units	Grab	1/Quarter
Oil and Grease[4]	mg/L	Grab	1/Quarter
Settleable Solids	ml/L	Grab	1/Quarter
Turbidity	NTU	Grab	1/Quarter
Salinity[5]	ppt	Grab	1/Quarter
TCDD equivalents[2]	µg/L	Grab	1/Quarter
Total Chlorine Residual[4]	µg/L	Grab	1/Quarter

Notes for Table E-4:

1. The analytical test method is as required under 40 CFR part 136.
2. See Attachment A for definitions of abbreviations and a glossary of common terms.
3. The Discharger must report both the daily measured and calculated flows. Flow values measured at monitoring location M-001 may be inaccurate at lower flow rates. The Discharger determines calculated flows by adding individual flows measured at different points in the Facility, including effluent from the pre-treatment processes, the reverse osmosis system, the post-treatment processes, and the final-product water station.
4. The Discharger must calculate and report the MER. The MER must be calculated using the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the flow rate at the monitoring location and C is the concentration in mg/L.
5. Salinity must be measured using USEPA Standard Method 2520B.

3.3. Whole Effluent Toxicity (WET) Testing Requirements

The Discharger must conduct chronic toxicity testing on effluent samples collected at Monitoring Locations M-001 and M-002 at least one per month as described in the requirements below.

3.3.1. Chronic Marine Species and Test Methods

For chronic toxicity tests conducted at the in-stream waste concentration (IWC), the Discharger must use an IWC of 0.0438 for effluent samples collected at Monitoring Location M-001 and an IWC of 0.174 for effluent samples collected at Monitoring Location M-002.[1] The Discharger must conduct conduct chronic toxicity tests in accordance with species and test methods in *Short-Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine Estuarine Organisms* (EPA/600/R-95/136, 1995). Artificial sea salts or hypersaline brine must be used to increase sample salinity if needed. In no case must these species be substituted with another test species unless written authorization from the San Diego Water Board is received.

[1] See Fact Sheet section 4.3.7.2 for an explanation of how the chronic IWC is calculated.

3.3.1.1. A static renewal toxicity test with the topsmelt, *Atherinops affinis* (Larval Survival and Growth Test Method 1006.01). If laboratory-held cultures of the topsmelt, *Atherinops affinis*, are not available for testing, then the Discharger must conduct a static renewal toxicity test with the inland silverside, *Menidia beryllina* (Larval Survival and Growth Test Method 1006.01), found in the third edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA-821-R-02-014, 2002; Table IA, 40 CFR part 136). Additional species may be used by the Discharger if approved by the San Diego Water Board and USEPA.

3.3.1.2. A static non-renewal toxicity test with the purple sea urchin, *Strongylocentrotus purpuratus*/sand dollar, *Dendraster excentricus* (Fertilization Test Method 1008.0 or Larval Development Test Method); or a static non-renewal toxicity test with the red abalone, *Haliotis rufescens* (Larval Shell Development Test Method).

3.3.1.3. A static non-renewal toxicity test with the giant kelp, *Macrocystis pyrifera* (Germination and Growth Test Method 1009.0).

3.3.2. Sample Volume and Holding Time

The Discharger must ensure it collects sufficient sample volume to perform the required toxicity test. The total sample volume is determined by the specific toxicity test method used. The Discharger must also collect sufficient sample volume during accelerated monitoring for subsequent Toxicity Identification Evaluation (TIE) studies, if necessary, at each sampling event. All toxicity tests must be conducted as soon as possible following sample collection. No more than 36 hours must elapse before the conclusion of sample collection and test initiation.

3.3.3. Species Sensitivity Screening

The Discharger must conduct species sensitivity screening during this Order's first required sample collection after the effective date of this Order, or within 24 months of the most recent screening, whichever is later.

For each suite during the species sensitivity screening, the Discharger must collect a single effluent sample to initiate and concurrently conduct three toxicity tests using a marine vertebrate, a marine invertebrate, and an alga species previously referenced. This sample must also be analyzed for the parameters required monthly, or more frequently, for the discharge during that given month. As allowed under the test method for the *Atherinops affinis*, a second and third sample must be collected for use as test solution renewal water as the seven-day toxicity test progresses. If the result of all three species is "Pass," then the species that exhibits the highest "Percent Effect" at the discharge IWC during species sensitivity screening must be used for

routine monitoring during this Order cycle. If only one species fails, then that species must be used for routine monitoring during this Order cycle. Likewise, if two or more species result in “Fail,” then the species that exhibits the highest “Percent Effect” at the discharge IWC during the suite of species sensitivity screening must be used for routine monitoring during this Order cycle, until a rescreening is required.

If the first suite of rescreening tests demonstrates that the same species is the most sensitive, then the rescreening does not need to include more than one suite of tests. If a different species is the most sensitive or if there is ambiguity, then the Discharger shall proceed with suites of screening tests for a minimum of three, but not to exceed five suites.

Species sensitivity re-screening is required every 24 months. The Discharger must rescreen with the marine vertebrate, marine invertebrate, and alga species previously referenced, and continue to monitor with the most sensitive species. The species used to conduct the routine toxicity monitoring must be the most sensitive species from the most recent species sensitivity screening.

During the calendar month, toxicity tests used to determine the most sensitive test species must be reported as effluent compliance monitoring results for the chronic toxicity maximum daily effluent limitation (MDEL).

3.3.4. Quality Assurance and Additional Requirements

QA measures, instructions, and other recommendations and requirements are found in the test methods manual previously referenced. Additional requirements are specified below.

3.3.4.1. The Discharger must perform toxicity tests on final effluent samples. If the effluent is chlorinated and discharged without further treatment, then chlorine must not be removed from the effluent sample prior to toxicity testing without written approval by the San Diego Water Board. However, ammonia must not be removed from the effluent sample prior to toxicity testing, unless explicitly authorized under this section of this MRP and the rationale is explained in the Fact Sheet.

3.3.4.2. The discharge is subject to determination of “Pass” or “Fail” from a chronic toxicity test using the Test of Significant Toxicity (TST) statistical t-test approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1 and Appendix B, Table B-1. The null hypothesis (H_o) for the TST statistical approach is:

H_o: Mean discharge IWC response ≤ 0.75 × Mean control response.

A test result that rejects this null hypothesis is reported as “Pass”. A test result that does not reject this null hypothesis is reported as “Fail”. This is a t-

test (formally Student's t-Test), a statistical analysis comparing two sets of replicate observations—in the case of WET, only two test concentrations (i.e., a control and IWC). In conformance with requirements contained in 40 CFR part 136, a series of five dilutions are required to be tested, while only two of the test concentrations are compared. The results from the additional dilutions tested may be used for informational purposes. The purpose of this statistical test is to determine if the means of the two sets of observations are different (i.e., if the IWC or receiving water concentration differs from the control; the test result is "Pass" or "Fail"). The Welch's t-test employed by the TST statistical approach is an adaptation of Student's t-test and is used with two samples having unequal variances. The relative "Percent Effect", for reporting purposes, at the discharge IWC is defined and reported as:

(Mean control response - Mean discharge IWC response) / Mean control response) × 100

3.3.4.3. If the effluent toxicity test does not meet all test acceptability criteria (TAC) specified in the referenced test method, *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136), the test should be declared invalid, then the Discharger must resample and re-test within 14 days of test termination.

3.3.4.4. Dilution water and control water, including brine controls, must be uncontaminated natural seawater obtained from an unaffected area of the receiving waters or laboratory water prepared and used as specified in the test methods manual. If dilution water and control water is different from test organism culture water, then a second control using culture water must also be used.

3.3.4.5. Reference toxicant testing must be conducted in accordance with *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136). Reference toxicant test and effluent toxicity tests must be conducted using the same test conditions (e.g., same test duration, etc.). All reference toxicant test results should be reviewed and reported using the effective concentration at 25 percent (EC25).

3.3.5. Preparation of an Initial Investigation Toxicity Reduction Evaluation (TRE) Work Plan

The Discharger must prepare and submit its Initial Investigation TRE Work Plan to the San Diego Water Board for approval within 90 days of the effective date of this Order. If the San Diego Water Board does not disapprove of the work plan within 60 days, the work plan will become effective. The Discharger must use *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluation* (EPA/600/2-88/070), or the most current version as

guidance. The TRE Work Plan must describe the steps that the Discharger intends to follow if toxicity is measured above a chronic toxicity effluent limitation, and must include at a minimum:

3.3.5.1 A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency in removing toxic substances. This shall include a description of an accelerated chronic toxicity testing program;

3.3.5.2. A description of the Discharger's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in the operation of the Facility;

3.3.5.3. A description of the evaluation process to be used to determine if implementation of a more detailed TRE and TIE is necessary; and

3.3.5.4. If a TIE is necessary, the name and title of the individual responsible for conducting the TIE (i.e., an in-house expert or an outside contractor).

3.3.6. Accelerated Monitoring Schedule for Maximum Daily Single Result: "Fail"

The Discharger must use the Maximum Daily single result for chronic toxicity to determine if accelerated testing needs to be conducted. If the Maximum Daily single result is a "Fail", the Discharger must notify the San Diego Water Board and implement the accelerated monitoring schedule within five calendar days of becoming aware of this result. However, if the sample is contracted out to a commercial laboratory, the Discharger must ensure that the San Diego Water Board is notified and the first of six accelerated monitoring tests is initiated within five calendar days of the Discharger becoming aware of the result.

The accelerated monitoring schedule must consist of six toxicity tests, including the discharge IWC, conducted at approximately two-week intervals, over a twelve-week period, in preparation for the TRE process and associated reporting. These results must also be reported using the EC25. If each of the accelerated toxicity tests results are "Pass", then the Discharger may return to routine monitoring for the next monitoring period. If one of the accelerated toxicity tests results are a "Fail", then the Discharger must immediately implement the TRE Process conditions described below. During accelerated monitoring schedules, TST results ("Pass" or "Fail" and "Percent Effect") must be reported as effluent compliance monitoring results for chronic toxicity MDEL.

3.3.7. TRE Process

During the TRE Process, the Discharger must resume monthly effluent monitoring and report TST results ("Pass" or "Fail" and "Percent Effect") to the

San Diego Water Board for purposes of monitoring compliance with the chronic toxicity MDEL.

3.3.7.1. Preparation and Implementation of a detailed TRE Workplan. The Discharger must immediately initiate a TRE according to the type of treatment facility, using USEPA manual *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations* (EPA/600/2-88/070, 1989). The Discharger must submit the detailed TRE Work Plan to the San Diego Water Board within 15 days of receiving validated results. The detailed TRE Work Plan must follow the initial investigation TRE Work Plan revised as appropriate for this toxicity event. It must include the following information, and comply with additional conditions set by the San Diego Water Board:

3.3.7.1.1. Further actions by the Discharger to investigate, identify, and correct the causes of toxicity;

3.3.7.1.2. Actions the Discharger will take to mitigate the effects of the discharge and prevent the recurrence of toxicity; and

3.3.7.1.3. A schedule for these actions, progress reports, and the final report.

3.3.7.2. TIE Implementation. The Discharger may initiate a TIE as part of a TRE to identify the causes of toxicity using the same species and test method. The Discharger can use the following USEPA manuals as guidance in conducting the TIE:

- *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures* (EPA/600/6-91/003, 1991);
- *Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/080, 1993);
- *Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute; and Chronic Toxicity* (EPA/600/R-92/081, 1993); and *Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document* (EPA/600/R-96-054, 1996).

The TIE should be conducted on the species demonstrating the most sensitive toxicity response.

3.3.7.3. Many recommended TRE elements are parallel to required or recommended efforts for source control, pollution prevention, and stormwater control programs. TRE efforts should be coordinated with such efforts. As toxic substances are identified or characterized, the Discharger must continue the TRE by determining the sources of toxicity and evaluating strategies for reducing or eliminating the substances from the discharge. All reasonable steps must be taken to reduce toxicity to levels consistent with toxicity evaluation parameters.

3.3.7.4. The Discharger must continue to conduct routine effluent monitoring while the TRE or TIE process is taking place. Additional accelerated monitoring and TRE Work Plans are not required once a TRE has begun.

3.3.7.5. The San Diego Water Board recognizes that toxicity may be episodic and identification of causes and reduction of sources of toxicity may not be successful in all cases. Upon approval from the San Diego Water Board, the TRE may be ended at any stage if routine monitoring finds there is no longer toxicity.

3.3.7.6. TRE/TIE results. The Discharger must notify the San Diego Water Board no later than 30 days from completion of each aspect of TRE/TIE analyses. Prior to the completion of the final TRE/TIE report, the Discharger must provide status updates in the monthly self-monitoring reports (SMRs), indicating which TRE/TIE steps are underway, which steps have been completed, and the estimated time to completion of the final TRE/TIE report.

3.3.7.7. TRE/TIE Final Report. The final TRE/TIE report must be submitted to the San Diego Water Board within 30 days of report completion. At minimum, the TRE/TIE Final Report must include the following:

- A description of the probable source and cause of the toxicity effluent limitation exceedances, if known;
- A summary of the findings including a tabulation, evaluation, and interpretation of the data generated;
- A list of corrective actions taken or planned by the Discharger to reduce toxicity so that the Discharger can achieve consistent compliance with the toxicity effluent limitation and prevent recurrence of exceedances of the limitation; and
- If the exceedances of the toxicity effluent limitation have not been corrected, the anticipated time it is expected to continue and a time schedule for the steps planned to reduce, eliminate, and prevent recurrence of the exceedances.

3.3.7.8. The San Diego Water Board may consider the results of any TRE/TIE studies in an enforcement action.

3.3.8. Reporting

The Discharger must prepare a self-monitoring report (SMR) that includes a full laboratory report for each toxicity test using the format and content of the test methods manual chapter titled, “Report Preparation.”[2] All toxicity test

[2] Section 10 of *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to the West Coast Marine and Estuarine Organisms*, August 1995, EPA/600/R-95-136, https://cfpub.epa.gov/si/si_public_file_download.cfm?p_download_id=524691

results, whether identified as valid or otherwise, conducted during the calendar month must be reported on the SMR due date specified in Table E-9. The SMR must include:

3.3.8.1. Toxicity test results based on the TST statistical approach, reported as "Pass" or "Fail" and "Percent Effect" at the IWC for the discharge.

3.3.8.2. Summary water quality measurements for each toxicity test (e.g., pH, dissolved oxygen, temperature, conductivity, hardness, salinity, chlorine, ammonia).

3.3.8.3. The statistical analysis used in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010) Appendix A, Figure A-1 and Table A-1, and Appendix B, Table B-1.

3.3.8.4. Statistical program (e.g., TST calculator, CETIS, etc.) output results, including graphical plots, for each toxicity test.

3.3.8.5. Graphical plots clearly showing the laboratory's performance for the reference toxicant for the previous 20 tests and the laboratory's performance for the control mean, control standard deviation, and control coefficient of variation for the previous 12-month period.

3.3.8.6. Any quality assurance/quality control (QA/QC) documentation or any additional chronic toxicity-related information, upon written request from the San Diego Water Board.

3.4. Land Discharge Monitoring Requirements – Not Applicable

3.5. Recycling Monitoring Requirements – Not Applicable

4. Receiving Water Monitoring Requirements

The Discharger must conduct receiving water and sediment monitoring as specified below. The Discharger's receiving water monitoring program is intended to document conditions within the brine mixing zone (BMZ) and the zone of initial dilution (ZID), at reference stations, and at areas beyond the ZID where discharge impacts might be reasonably expected. Station location, sampling, sample preservation, and analyses, when not specified, must be by methods approved by the San Diego Water Board. The monitoring program may be modified by the San Diego Water Board at any time. The Discharger may also submit a request to the San Diego Water Board for changes to specific requirements in the MRP. The request must include the rationale for the proposed changes.

The Discharger must conduct all receiving water monitoring in accordance with restrictions and requirements established by the State of California Department of Fish and Wildlife and this Order. During monitoring events, sample stations must be located using a land-based microwave positioning system or a satellite positioning system such as a global positioning system. If an alternate navigation system is proposed, its accuracy must be compared to that of microwave and satellite-based systems, and any compromises in accuracy must be justified.

In the event the Discharger is unable to obtain a sample from a monitoring station(s) due to safety, legal, or other reasons, collection of samples at such station(s) can be omitted. If safe, the visual observations listed in the footnotes to Tables E-5 and E-6 below must still be recorded and reported in the quarterly SMR to the San Diego Water Board for these stations at the time of the sample collection. If practicable, an effort should be made to return to the sampling station that was omitted and collect the sample during safer conditions within the same reporting period. In the event a monitoring location is omitted, the Discharger must submit a statement to the San Diego Water Board containing, at a minimum, the following information:

- The monitoring station(s) that was omitted;
- The date the monitoring station was omitted; and
- A description of the circumstances for omitting the collection of data at the monitoring station.

4.1. Surf Zone Water Quality Monitoring Requirements

The Discharger must conduct monitoring at the surf zone stations listed in Table E-5 as specified below:

Table E-5. Surf Zone Monitoring Requirements

Parameter	Units	Sample Type	Sampling Stations	Sampling Frequency
Visual Observations	--	Visual	A-00 and A-50 through A-100	[1]
Enterococcus	CFU/100 mL	Grab[2]	A-00 and A-50 through A-100	1/Quarter
Total Coliform	CFU/100 mL	Grab[2]	A-00 and A-50 through A-100	1/Quarter
Temperature	°F	conductivity, temperature, and depth (CTD) Profiler[3]	A-00 and A-50 through A-100	1/Quarter
pH	standard units	CTD Profiler[3]	A-00 and A-50 through A-100	1/Quarter
Dissolved Oxygen	mg/L	CTD Profiler[3]	A-00 and A-50 through A-100	1/Quarter

Parameter	Units	Sample Type	Sampling Stations	Sampling Frequency
Salinity	ppt	CTD Profiler[3]	A-00 and A-50 through A-100	1/Quarter

Notes for Table E-5:

1. The Discharger must conduct visual observations of the surface water conditions at the designated receiving water stations and report and describe the presence, if any, of floatables. The Discharger must also record observations of wind (direction and speed), weather (e.g., cloudy, sunny, or rainy), direction of current, tidal conditions (high or low), water color, discoloration, oil and grease, turbidity, and odor. The Discharger must record these observations whenever a sample is collected and during repeated sampling.
2. Grab samples for indicator bacteria analysis must be collected at surface and mid-depth.
3. The Discharger must measure temperature, salinity, dissolved oxygen, and pH must be measured using a CTD profiler during quarterly sampling events. Measurements must be obtained using multiple sensors to measure parameters in the surf zone.

4.2. Offshore Water Quality Monitoring Requirements

The Discharger must conduct monitoring at the offshore monitoring stations listed in Table E-6 as specified below:

Table E-6. Offshore Monitoring Requirements

Parameter	Units	Sampling Stations	Sample Type	Sampling Frequency
Visual Observations[1]	--	A-10 through A-30, B-00, B-10 through B-40, C-10 through C-30, D-10 through D-50, E-10 through E-30	Visual	1/Quarter
Enterococcus	CFU/100 mL	A-10 through A-30, B-00, B-10 through B-40, C-10 through C-30, D-10 through D-50, E-10 through E-30	Grab[2]	1/Quarter
Total Coliform	CFU/100 mL	A-10 through A-30, B-00, B-10 through B-40, C-10 through C-30, D-10 through D-50, E-10 through E-30	Grab[2]	1/Quarter
Salinity	ppt	A-10 through A-30, B-00, B-10 through B-40, C-10 through C-30, D-10 through D-50, E-10 through E-30	Continuous Profile[3]	1/Quarter

Parameter	Units	Sampling Stations	Sample Type	Sampling Frequency
Temperature	˚F	A-10 through A-30, B-00, B-10 through B-40, C-10 through C-30, D-10 through D-50, E-10 through E-30	Continuous Profile[3]	1/Quarter
pH	standard units	A-10 through A-30, B-00, B-10 through B-40, C-10 through C-30, D-10 through D-50, E-10 through E-30	Continuous Profile[3]	1/Quarter
Dissolved Oxygen	mg/L	A-10 through A-30, B-00, B-10 through B-40, C-10 through C-30, D-10 through D-50, E-10 through E-30	Continuous Profile[3]	1/Quarter
Light Transmittance	Percent	A-10 through A-30, B-00, B-10 through B-40, C-10 through C-30, D-10 through D-50, E-10 through E-30	Continuous Profile[3]	1/Quarter

Notes for Table E-6:

1. The Discharger must conduct visual observations of the surface water conditions at the designated receiving water stations and describe and report the presence, if any, of floatables. The Discharger must also record observations of wind (direction and speed), weather (e.g., cloudy, sunny, or rainy), direction of current, tidal conditions (high or low), water color, oil and grease, turbidity, and odor whenever a sample is collected.
2. Grab samples for indicator bacteria analysis must be collected at surface and mid-depth.
3. The Discharger must measure temperature, depth, salinity, dissolved oxygen, light transmittance, and pH profile data throughout the entire water column using a CTD profiler during the quarterly sampling events. Depth profile measurements must be obtained using multiple sensors to measure parameters through the entire water column, from the surface to as close to the bottom as practicable, evaluated at one-foot intervals.

4.3. Benthic Monitoring Requirements

Seafloor sediments integrate constituents that are discharged to the ocean. Most particles that come from the Facility's discharge, and any associated contaminants, will eventually settle to the seafloor where they are incorporated into the existing sediments. Sediments can accumulate these particles over the years until the point where sediment quality is degraded and beneficial uses are impaired.

Benthic organisms are strongly affected by sediment contaminant exposure because these organisms often live in continual direct contact with sediment/pore water, and many species ingest significant quantities of sediment as a source of

nutrition. Because the benthos are dependent on their surroundings, they serve as a biological indicator that reflects the overall conditions of the aquatic environment. Seafloor sediment monitoring is intended to answer the following questions:

- Is the concentration of substances set forth in Table 3 of the Ocean Plan, for the protection of marine aquatic life in marine sediments, at levels which would degrade the benthic community?
- Is the concentration of organic pollutants in marine sediments at levels that would degrade the benthic community?
- Are benthic communities degraded because of the discharge?
- Is the sediment quality changing over time?

The assessment of sediment quality to evaluate potential effects of the Facility discharge and compliance with narrative water quality standards specified in the Ocean Plan consist of the measurement and integration of three lines of evidence: (1) physical and chemical properties of seafloor sediments, (2) seafloor sediment toxicity to assess bioavailability and toxicity of sediment contaminants, and (3) ecological status of the biological communities (benthos) that live in or on the seafloor sediments.

The Discharger must conduct sediment monitoring as described below.

4.3.1. Sediment Assessment for Physical and Chemical Properties

4.3.1.1. Sediment Sampling Stations and Monitoring Frequency. The sediment monitoring program is designed to assess spatial and temporal trends in sediment quality and to assess benthic habitat condition in terms of physical and chemical composition (e.g., grain-size distribution, sediment chemistry). The Discharger must collect sediment samples for assessment of sediment chemistry on an annual basis at the monitoring stations specified in the Benthic Monitoring Work Plan required in MRP section 4.3.4.

4.3.1.2. Sediment Sample Collection Methods. The Discharger must collect sediment samples must be taken using a 0.1-square meter modified Van Veen grab sampler. Samples for grain-size and chemical analyses must be taken from the top two centimeters of the surface sediment. The Discharger must take sediment samples for physical and chemical properties concurrently with and adjacent to, as much as possible, the sediment samples for benthic community condition. Bulk sediment chemical analysis must include at a minimum the set of constituents listed in Table E-7.

4.3.1.3. Sediment Chemistry Test Methods. Sediments chemistry is the measurement of the concentration of chemicals of concern in sediments. The chemistry line of evidence is used to assess the potential overall exposure risk to benthic organisms from pollutants in surficial sediments. Chemical analysis of sediment must be conducted using USEPA approved methods,

methods developed by the NOAA's National Status and Trends for Marine Environmental Quality, or methods developed in conjunction with the Southern California Bight Regional Monitoring Program. For chemical analysis of sediment, samples must be reported on a dry weight basis.

4.3.1.4. The Discharger must monitor sediment for physical and chemical properties at monitoring stations specified in the Updated Benthic Monitoring Work Plan as follows:

Table E-7. Sediment Monitoring Requirements

Parameter	Units	Type of Sample	Sampling Frequency
Acid Volatile Sulfides	milligram/kilogram (mg/kg)	Grab	1/Year
Total Organic Carbon	percent	Grab	1/Year
Total Chlorinated Hydrocarbons	mg/kg	Grab	1/Year
Particle Size Distribution	micrometer (µm)	Grab	1/Year
Arsenic	mg/kg	Grab	1/Year
Cadmium	mg/kg	Grab	1/Year
Total Chromium	mg/kg	Grab	1/Year
Copper	mg/kg	Grab	1/Year
Lead	mg/kg	Grab	1/Year
Mercury	mg/kg	Grab	1/Year
Nickel	mg/kg	Grab	1/Year
Silver	mg/kg	Grab	1/Year
Zinc	mg/kg	Grab	1/Year
Cyanide	mg/kg	Grab	1/Year
Phenolic Compounds	mg/kg	Grab	1/Year
PCBs	Nanogram/kilogram (ng/kg)	Grab	1/Year
2,4-DDD	ng/kg	Grab	1/Year
4,4-DDD	ng/kg	Grab	1/Year
2,4-DDE	ng/kg	Grab	1/Year
4,4-DDE	ng/kg	Grab	1/Year
2,4-DDT	ng/kg	Grab	1/Year
4,4,-DDT	ng/kg	Grab	1/Year
Aldrin	ng/kg	Grab	1/Year
Alpha-Chlordane	ng/kg	Grab	1/Year
Dieldrin	ng/kg	Grab	1/Year
Endosulfan	ng/kg	Grab	1/Year
Endrin	ng/kg	Grab	1/Year
Gamma-BHC	ng/kg	Grab	1/Year
Heptachlor	ng/kg	Grab	1/Year

Parameter	Units	Type of Sample	Sampling Frequency
Heptachlor Epoxide	ng/kg	Grab	1/Year
Hexachlorobenzene	ng/kg	Grab	1/Year
Mirex	ng/kg	Grab	1/Year
Trans-Nonachlor	ng/kg	Grab	1/Year
Acenaphthylene	Microgram/kilogram (µg/kg)	Grab	1/Year
Anthracene	µg/kg	Grab	1/Year
Benzo(a)anthracene	µg/kg	Grab	1/Year
Benzo(o)fluoranthene	µg/kg	Grab	1/Year
Benzo(k)fluoranthene	µg/kg	Grab	1/Year
Benzo(ghi)pyrelene	µg/kg	Grab	1/Year
Benzo(a)pyrene	µg/kg	Grab	1/Year
Benzo(e)pyrene	µg/kg	Grab	1/Year
Biphenyl	µg/kg	Grab	1/Year
Chrysene	µg/kg	Grab	1/Year
Dibenz(ah)anthraces	µg/kg	Grab	1/Year
Fluoranthene	µg/kg	Grab	1/Year
Fluorene	µg/kg	Grab	1/Year
Ideno(123cd)pyrene	µg/kg	Grab	1/Year
Naphthalene	µg/kg	Grab	1/Year
1-Methylnaphthalene	µg/kg	Grab	1/Year
2-Methylnaphthalene	µg/kg	Grab	1/Year
2,6-Dimethylnaphthalene	µg/kg	Grab	1/Year
2,3,5-Trimethylnaphthale	µg/kg	Grab	1/Year
Perylene	µg/kg	Grab	1/Year
Phenanthrene	µg/kg	Grab	1/Year
1-Methylphenanthene	µg/kg	Grab	1/Year
Pyrene	µg/kg	Grab	1/Year

4.3.2. Sediment Toxicity

4.3.2.1. Toxicity Sampling Stations and Frequency. Sediment toxicity is a measure of the response of invertebrates exposed to surficial sediments under controlled laboratory conditions. The sediment toxicity line of evidence is used to assess both pollutant-related biological effects and exposure. The Discharger must conduct sediment toxicity monitoring at least once every two years at the monitoring stations specified in the Sediment Monitoring Work Plan.

4.3.2.2. Sediment Toxicity Collection Methods. Sediment samples must be taken using a 0.1-square meter modified Van Veen grab sampler. Samples for

toxicity analyses must be taken from the top two centimeters of the surface sediment. Sediment samples for toxicity must be taken concurrently with and adjacent to, as much as possible, the sediment samples for physical and chemical properties, and benthic community condition.

4.3.2.3. Sediment Toxicity Test Methods. Sediment toxicity tests must utilize alternative amphipod species (*Eohaustorius estuaries*, *Leptocheirus plumulosus*, *Rhepoxynius abronius*) and be conducted in accordance with *Methods for Assessing the Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods* EPA 600/R-94/0925 (USEPA, 1994), and the most recent Southern California Bight Project sediment toxicity testing guidelines (currently Bight'23 Toxicology Laboratory Manual, B'28 Toxicology Committee, June 12, 2023).[3] Response criteria must include mortality, emergence from sediment during exposure, and ability to rebury in clean sediment at the end of the 10-day exposure period.

4.3.2.4. Data Analysis. Analysis of sediment toxicity must include a calculation of the mean control normalized response.

4.3.3. Benthic Community Condition

4.3.3.1. Benthic Community Sampling Stations and Frequency. The Discharger must collect samples for assessment of benthic community structure at least once every two years at monitoring stations specified in the Benthic Monitoring Work Plan. One sample per station must be collected for analysis of benthic community structure. Monitoring must be conducted as follows:

Table E-8. Infauna Monitoring Requirements

Parameter	Units	Sample Type	Sampling Frequency
Benthic Biota	Identification and enumeration	Grab	1/Two Years

4.3.3.2. Benthic Community Sample Collection Methods. Benthic community samples must be collected using the guidance specified in the most recent field manual developed for the Southern California Bight Regional Monitoring Program.[4] The benthic samples must be collected using a 0.1-square meter modified Van Veen grab sampler. These grab samples must be separate from

[3] The Southern California *Bight Project's Toxicology Laboratory Manual* is located at this website as of November 21, 2025: https://ftp.sccwrp.org/pub/download/BIGHT23/Bight23SedQualityToxLabManual.pdf

[4] The most recent field manual for the Southern California Bight Regional Monitoring Program as of November 21, 2025, is located at this website: https://ftp.sccwrp.org/pub/download/BIGHT23/Bight23FieldManual_v3_Appx_A-L.pdf.

(but adjacent to as much as possible) samples collected for sediment grain-size and chemistry. Benthic community samples must be processed in accordance with the most recent *Macrobenthic (Infaunal) Sample Analysis Laboratory Manual* developed for the Southern California Bight Regional Monitoring Program.[5] The samples must be sieved using a 1.0-millimeter mesh screen. The benthic organisms retained on the sieve must be fixed in 10 percent buffered formalin and transferred to at least 70 percent ethanol within two to five days of storage. All benthic invertebrates in the screened sample must be identified to the lowest possible taxon and enumerated (counted).

4.3.3.3. **Benthic Community Analysis.** Analysis of benthic community structure must include determination of the number of species, number of individuals per species, and total numerical abundance present. The following parameters or metrics must be calculated for each 0.1-square meter grab sample and summarized by station, as appropriate:

- Number of species;
- Total numerical abundance;
- Benthic Response Index (BRI);
- Swartz's 75 percent dominance index;
- Shannon-Weiner's diversity index (H); and
- Pielou evenness index (J)

4.3.4. Benthic Monitoring Work Plan

The Discharger must review the existing Benthic Monitoring Work Plan and submit an Updated Benthic Monitoring Work Plan within 180 days from the effective date of the Order. The Updated Benthic Monitoring Work Plan is necessary to ensure that the Discharger implements the benthic monitoring program described in MRP sections 4.3.1-4.3.3. The Updated Benthic Monitoring Work Plan must include the following elements:

4.3.4.1. A Quality Assurance Project Plan (QAPP) describing the project objectives and organization, functional activities, and quality assurance/quality control protocols;

4.3.4.2. Protocols for sediment sample collection and processing;

4.3.4.3. Methods for analyzing sediment data and integrating the three lines of evidence (i.e., sediment physical and chemical properties, sediment toxicity, and benthic community condition);

[5] The most recent *Macrobenthic (Infaunal) Sample Analysis Laboratory Manual* developed for the Southern California Bight Regional Monitoring Program as of November 21, 2025, is located at this website: https://ftp.sccwrp.org/pub/download/BIGHT23/Bight23SedQualityBenthicLabManual.pdf.

4.3.4.4. Triad monitoring station locations that are spatially representative of the sediment within the discharge field of influence and designated through a conceptual model that identifies the physical and chemical factors that control the fate and transport of pollutants and receptors that could be exposed to pollutants in the water and sediment including, but not limited to,: (1) points of discharge; (2) tidal flows and predominant currents; (3) historic or legacy conditions; (4) nearby land and marine uses; (5) beneficial uses; (6) potential receptors of concern; (7) changes in sediment grain size, salinity, water depth, and organic matter; and (8) other sources or discharges in the immediate vicinity; and

4.3.4.5. Schedule for completion of sample collection and submission of the results. Benthic (sediment quality) monitoring must occur at least once every two years.

Any proposed changes to the existing Benthic Monitoring Work Plan must be shown in the Updated Benthic Monitoring Work Plan in redline/underline text. The Discharger must implement the Updated Benthic Monitoring Work Plan 60 days after submission, unless directed otherwise in writing by the San Diego Water Board. The Discharger must modify the Updated Benthic Monitoring Work Plan as necessary to comply with any conditions set by the San Diego Water Board.

4.4. Receiving Water Reporting Requirements

4.4.1. Annual Receiving Water Monitoring Report. The Discharger must submit receiving water monitoring reports to the San Diego Water Board annually.

4.4.1.1. The Annual Receiving Water Monitoring Report must cover the following requirements:

4.4.1.1.1. Surf Zone and Offshore Water Quality (MRP sections 4.1 and 4.2);

4.4.1.1.2. Sediment assessment for physical and chemistry properties (MRP section 4.3.1 and required annually);

4.4.1.1.3. Sediment assessment for toxicity (MRP section 4.3.2 and required at least once every two years);

4.4.1.1.4. Benthic community condition (MRP section 4.3.3 and required at least once every two years); and

4.4.1.1.5. Sediment data analysis integrating the three lines of evidence (i.e., sediment physical and chemical properties, sediment toxicity, and benthic community condition) (MRP section 4.3.4 and required at least once every two years).

4.4.1.2. The Annual Receiving Water Monitoring Report must include, as a minimum, the following information:

4.4.1.2.1. A description of climatic and receiving water characteristics at the time of sampling (e.g., weather observations, floating debris, discoloration, wind speed and direction, swell or wave action, time of sampling, tide height, etc.);

4.4.1.2.2. A description of sampling stations, including, if such information is available, differences unique to each station (e.g., station location, sediment grain size, distribution of bottom sediments, rocks, shell litter, calcareous worm tubes, etc.);

4.4.1.2.3. A description of the sample collection and preservation procedures used in the survey;

4.4.1.2.4. A description of the specific method used for laboratory analysis;

4.4.1.2.5. An in-depth discussion, evaluation (e.g., detailed statistical analyses), interpretation and tabulation of the data including interpretations as to whether the discharge is adversely affecting receiving water quality; and

4.4.1.2.6. An in-depth discussion addressing the monitoring questions proposed in Fact Sheet sections 7.2 and 7.2.1-7.2.3 (Attachment F).

4.4.2. Uploading Receiving Water Monitoring Results in California Environmental Data Exchange Network (CEDEN) Compatible Format

The Discharger must upload the following receiving water monitoring results to California Integrated Water Quality System (CIWQS) using CEDEN compatible pivot tools:

- Surf zone and offshore water quality data (MRP sections 4.1 and 4.2);
- Sediment monitoring data (MRP section 4.3.1)
- Sediment toxicity results (MRP section 4.3.2); and
- Benthic community condition (MRP section 4.3.3).

4.4.3. State of the Ocean Report. The Discharger must present an oral report to the San Diego Water Board summarizing the conclusions of the annual receiving water monitoring reports. The State of the Ocean Report must be given at least once no later than 180 days prior to the expiration date of this Order. If an oral report cannot be scheduled for a San Diego Water Board meeting, the San Diego Water Board Executive Officer may approve submission of a written State of the Ocean Report. The State of the Ocean Report must include the following minimum elements:

4.4.3.1. Description of receiving water, sediment, and benthic monitoring completed during the permit term;

4.4.3.2. The status and trends of receiving water quality conditions; and

4.4.3.3. Plans for future monitoring efforts and any recommendations for improving the MRP.

5. Regional Monitoring Requirements

The Discharger must, as directed by the San Diego Water Board, participate with other regulated entities, other interested parties, and the San Diego Water Board in development and implementation of new and improved monitoring and assessment programs for ocean waters in the San Diego Region and discharges to those waters. These programs must be developed and implemented to answer the following questions:

- What are the status and trends of conditions in ocean waters in the San Diego Region with regard to beneficial uses? For example:
  - Are fish and shellfish safe to eat?
  - Is water quality safe for swimming?
  - Are ecosystems healthy?
- What are the primary stressors causing or contributing to conditions of concern?
- What are the major sources of the stressors causing or contributing to conditions of concern?
- Are the actions taken to address such stressors and sources effective (i.e., environmental outcomes)?

Development and implementation of new and improved monitoring and assessment programs for ocean waters will be guided by the following:

- The Ocean Plan;
- San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of a Regional Monitoring Framework*;
- San Diego Water Board staff report entitled *A Framework for Monitoring and Assessment in the San Diego Region*; and
- Other guidance materials, as appropriate.

5.1. Kelp Bed Canopy Monitoring Participation Requirements

The Discharger must participate with other Southern California ocean dischargers in an annual regional survey of coastal kelp beds in the Southern California Bight. The intent of these surveys is to provide an indication of the health of these kelp beds, recognizing that the extent of kelp bed canopies may change due to a variety of influences.

Kelp beds must be monitored by means of vertical aerial infrared photography, satellite imagery, or an alternative method approved by the San Diego Water Board Executive Officer to determine the maximum areal extent of the canopies of coastal kelp beds each year. Surveys must be conducted as close as possible to when kelp bed canopies are at their greatest extent during the year. The entire San Diego Region coastline, from the international boundary to the boundary between the San Diego Water Board and the Santa Ana Regional Water Quality Control Board must be photographed on the same day.

The maximum areal extent of kelp bed canopies each year must be compared to that observed in previous years. Any significant losses that persist for more than one year must be investigated by divers to document benthic and understory conditions.

Annually on October 1, the Discharger must submit to the San Diego Water Board a copy of the regional report which summarizes the data, analyses, assessment, and images produced by the surveys. The report is a collaboration among a few multiple ocean dischargers in Southern California (e.g., Region 9 Kelp Survey Consortium member agencies). In addition to the kelp bed canopies, the images must show onshore reference points, locations of all ocean outfalls and diffusers, artificial reefs, areas of known hard-bottom substrate (i.e., rocky reefs), and depth contours at intervals of 30-feet MLLW. The report must also be made available in a user-friendly format on a website that is readily available to the public.

The surveys must be conducted on a “continuous improvement” basis, i.e., each year improvements must be made in monitoring, analysis, assessment, and/or documentation. For example, these could include:

- More sophisticated analysis of patterns, correlations, and cycles that may be related to the extent of kelp bed canopies; or
- Projects to improve understanding of influences on kelp beds or of how the extent of the canopies of various kelp beds has changed since the early 20th century.

5.2. Southern California Bight Monitoring Program Participation Requirements

The Discharger must, as directed by the San Diego Water Board, participate in the Southern California Bight Regional Monitoring Program coordinated by the Southern California Coastal Water Research Project (SCCWRP), or any other coordinator named by the San Diego Water Board, pursuant to Water Code sections 13267, 13383, and 40 CFR section 122.48. The intent of the Southern California Bight Regional Monitoring Program is to maximize the efforts of all monitoring partners using a more cost-effective monitoring design and to best utilize the pooled scientific resources of the Southern California Bight.

During these coordinated sampling efforts, the Discharger’s sediment, benthic, and kelp bed monitoring requirements, as defined in MRP sections 4.3 and 5.1, may be reallocated to provide a regional assessment of the impact of the discharge of wastewater to the Southern California Bight. In that event, the San Diego Water Board must notify the Discharger in writing that the request to perform the sediment, benthic, and/or kelp bed monitoring requirements defined in MRP sections 4.3 and 5.1 is suspended for the duration of the reallocation. Anticipated modifications to the monitoring program will be coordinated to provide a more comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative impacts of various pollution sources. The level of resources in terms of sampling and analytical effort

redirected from the receiving water monitoring program required under MRP section 4 must approximately equal the level of resources provided to implement the regional monitoring and assessment program, unless the San Diego Water Board and the Discharger agree otherwise. The specific scope and duration of the receiving water monitoring program reallocation and redirection must be determined in writing by the San Diego Water Board in consultation with the Discharger.

6. Other Monitoring Requirements

6.1. Discharger Monitoring Report Quality Assurance (DMR-QA)

When requested by USEPA or the San Diego Water Board, the Discharger will participate in the NPDES DMR-QA performance study. If the DMR-QA is not required, then the Discharger must submit the most recent Water Pollution Performance Evaluation Study. The Discharger must submit results of the DMR-QA Study or the most recent Water Pollution Performance Evaluation Study annually by December 31 to the State Water Board by email to QualityAssurance@Waterboards.ca.gov.

In addition, annually on March 1, the Discharger must submit to the San Diego Water Board and USEPA a report which summarizes the QA activities for the previous calendar year. Duplicate chemical analyses must be conducted on a minimum of 10 percent of the samples or at least one sample per month, whichever is greater. A similar frequency shall be maintained for analyzing spiked samples. The Discharger shall have a success rate equal to or greater than 80 percent.

7. Reporting Requirements

7.1. General Monitoring and Reporting Requirements

7.1.1. The Discharger must comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

7.1.2. The Discharger must report all instances of noncompliance not reported under Attachment D sections 5.5, 5.7, and 5.8 at the time monitoring reports are submitted.

7.2. Self-Monitoring Report Submittal

7.2.1. The Discharger must electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) website at http://www.waterboards.ca.gov/water_issues/programs/ciwqs/. The CIWQS website will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal. The SMRs must be signed and certified in accordance with the standard provisions in Attachment D. The Discharger must maintain sufficient staffing and resources to ensure it

submits complete and timely SMRs. This includes provision for training and supervising individuals on how to prepare and submit SMRs.

7.2.2. The Discharger must report in the SMR the results for all monitoring specified in this MRP under sections 3 through 5. The Discharger must submit monthly, quarterly, and annual SMRs including the results of all required monitoring using USEPA approved test methods or other test methods specified in this Order. SMRs are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring must be included in the calculations and reporting of the data submitted in the SMR.

7.2.3. The Discharger must arrange all reported data in a tabular format. The data must be summarized to clearly illustrate whether the Facility is operating in compliance with effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger must electronically submit the data in a tabular format as an attachment.

7.2.4. The Discharger must attach a cover letter to the SMR. The information contained in the cover letter must clearly identify violations of the Order; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

7.2.5. The Discharger must add all violations to CIWQS under the “Violations” tab.

7.2.6. Monitoring periods and reporting for all required monitoring must be completed according to the following schedule:

Table E-9. Monitoring Periods and Reporting Schedule

Sampling Frequency/Report Type	Monitoring Period Begins	Monitoring Period	SMR Due Date
Continuous	Permit effective date.	All	First day of second calendar month following the month of sampling.
1/Week	First Sunday of the calendar month following the permit effective date or on	Sunday through Saturday	First day of second calendar month

Sampling Frequency/Report Type	Monitoring Period Begins	Monitoring Period	SMR Due Date
	the permit effective date if that date is the first Sunday of the calendar month.		following the month of sampling.
1/Month	First day of the calendar month following the permit effective date or on the permit effective date if that date is the first day of the month.	First day of calendar month through last day of calendar month.	First day of second calendar month following the month of sampling.
1/Quarter	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date.	January 1 through March 31; April 1 through June 30; July 1 through September 30; October 1 through December 31	May 1 August 1 November 1 February 1
Annual Receiving Water Monitoring Report[1]	January 1 following (or on) permit effective date.	January 1 through December 31	July 1
Biennial Benthic Monitoring Report	January 1 following (or on) permit effective date.	January 1 through December 31 of the following year	July 1

Note for Table E-9:
1. The annual receiving water monitoring report must include the benthic monitoring requirements for that year if sampled and an assessment of all receiving water monitoring data.

7.2.7. The Discharger must submit SMRs by the due dates specified in this MRP. SMRs must contain contents specified in Table E-10:

Table E-10. Required Contents in SMRs

SMR Type	Required Contents
Monthly	• Cover letter (see MRP section 7.2.4.). • Results of monitoring for influent, effluent, and receiving water parameters with continuous, weekly, or monthly monitoring frequencies.
Quarterly	• Cover letter (see MRP section 7.2.4.). • Results of monitoring for influent, effluent, and receiving water parameters with quarterly monitoring frequency.
Annually	• Cover letter (see MRP section 7.2.4.).

SMR Type	Required Contents
	• Results of monitoring for effluent and receiving water parameters with a monitoring frequency of every year, every two years, and once per permit term.

7.2.8. **Reporting Protocols.** The Discharger must report with each sample result the applicable reported Minimum Level (ML, also known as the Reporting Level) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR part 136.

The Discharger must report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

7.2.8.1. Sample results greater than or equal to the reported ML must be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

7.2.8.2. Sample results less than the reported ML, but greater than or equal to the laboratory's MDL, must be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample must also be reported.

For the purposes of data collection, the laboratory must write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

7.2.8.3. Sample results less than the laboratory's MDL must be reported as "Not Detected," (ND).

7.2.8.4. The Discharger is to instruct laboratories to establish calibration standards so that the ML value, or its equivalent if there is differential treatment of samples relative to calibration standards, is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

7.2.9. **Compliance Determination.** Compliance with effluent limitations for reportable pollutants must be determined using sample reporting protocols defined above and in Order section 7. For purposes of reporting and administrative enforcement by the San Diego Water Board and State Water Board, the Discharger will be deemed out of compliance with effluent limitations if the concentration of the reportable pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported ML.

7.2.10. **Multiple Sample Data.** When determining compliance with a measure of central tendency (e.g., arithmetic mean, geometric mean, median, etc.) of multiple sample analyses and the data set contains one or more reported determinations of DNQ or ND, the Discharger must compute the median in place of the arithmetic mean in accordance with the following procedure:

7.2.10.1. The data set must be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

7.2.10.2. The median value of the data set must be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value must be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

7.3. Discharge Monitoring Reports (DMRs)

DMRs are USEPA reporting requirements. The Discharger must electronically certify and submit DMRs together with SMRs using Electronic Self-Monitoring Reports module eSMR 2.5 or any upgraded version. Electronic DMR submittal must be in addition to electronic SMR submittal. Information about electronic DMR submittal is available at this website: http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring

7.4. Other Reports

The following reports are required by the Order, this MRP, or the California Code of Regulations (CCR). The reports must be submitted to the San Diego Water Board using CIWQS, unless otherwise noted. The reports must be signed and certified as required by Attachment D section 5. If no submission method is specified, or if CIWQS is down, the Discharger may email the reports directly to SanDiego@waterboards.ca.gov.

Table E-11. Other Reports

Report	Location of Requirement	Due Date
Report of Waste Discharge	Page 1 of Order	180 days before the Order expiration date
Final Brine Discharge Technology Empirical Study Report	Order section 6.3.2.1.	March 1, 2027
Updated MLMP	Order section 6.3.2.2.1.	Within six months of effective date of the Order
Quarterly Progress Reports	Order section 6.3.2.2.3.	See Table 5 of the Order

Report	Location of Requirement	Due Date
Spill Prevention and Response Plan	Order section 6.3.2.3.	Upon request of the San Diego Water Board
Asset Management Plan	Order section 6.3.3.1.	Within two years of the effective date of the Order
Initial Investigation TRE Work Plan	MRP section 3.3.5.	Within 90 days of the effective date of the Order
Results of any TRE Evaluation	MRP section 3.3.7.6.	Within 30 days of completion of the TRE
Updated Benthic Monitoring Work Plan[1]	MRP section 4.3.4.	Within 180 days of the effective date of the Order

Note for Table E-11:

1. The Discharger only needs to submit an Updated Benthic Monitoring Work Plan if it makes any substantive changes to its current Benthic Monitoring Work Plan.

ATTACHMENT F – FACT SHEET

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FACT SHEET

As described in section 2.2 of Order No. R9-2026-0007 (Order), the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) incorporates this Fact Sheet as findings of the San Diego Water Board supporting the issuance of this Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of the Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for dischargers in California. Only those sections or subsections of this Order that are specifically identified as “Not Applicable” have been determined not to apply to Channelside Water Resources LP (Discharger). Sections or subsections of the Order not specifically identified as “Not Applicable” are fully applicable to the Discharger.

1. Permit Information

The following table summarizes administrative information related to the Claude “Bud” Lewis Carlsbad Desalination Plant (Facility).

Table F-1. Facility Information

Type of Information	Facility/Discharger Information
WDID	9 000001429
Discharger	Channelside Water Resources LP
Name of Facility	Claude “Bud” Lewis Carlsbad Desalination Plant
Facility Address	4590 Carlsbad Boulevard Carlsbad, CA 92008 San Diego County
Facility Contact, Title and Phone	Shawntrel McCoy, Operations & Maintenance Manager, (504) 315-9100
Authorized Person to Sign and Submit Reports	Michelle Peters, Chief Executive Officer, (760) 262-9187
Mailing Address	4590 Carlsbad Boulevard, Suite 201 Carlsbad, CA 92008 San Diego County
Billing Address	Same as mailing address
Type of Facility	Water Treatment Plant (Desalination Plant)
Major or Minor Facility	Major
Threat to Water Quality	2[1]
Complexity	B[2]
Facility Permitted Flow at Monitoring Location M-001 in Million Gallons per Day (MGD)	67 MGD (combined maximum daily flow rate) • 7 MGD annual average flow rate for media filtration backwash • 60 MGD annual average flowrate for reverse osmosis concentrate

Type of Information	Facility/Discharger Information
Facility Permitted/Design Flow at Monitoring Location M-002	299 MGD
Watershed	Pacific Ocean
Receiving Water	Pacific Ocean
Receiving Water Type	Ocean waters

Notes for Table F-1:

1. As defined by California Code of Regulations, title 23, division 3, chapter 9, Waste Discharge Reports and Requirements, article 1 Fees – Threat to Water Quality, Category 2 is for "those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."
2. Ibid, Complexity Category B is defined to be "Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management unit."
3. Startup maintenance flows, product water, and off-specification water may be temporarily discharged to the Pacific Ocean during plant start-up, during or after plant maintenance, or at other times when the Facility is otherwise not delivering potable water to the regional water system. Temporarily discharging such water to the Pacific Ocean does not constitute a "bypass" as defined in Attachment A, and Attachment D, section 1.7.1.1. All limits and requirements, including monitoring, specified in this Order remain applicable during these temporary discharges.

1.1. The Facility is a seawater desalination plant located on the shores of Agua Hedionda Lagoon (also referred to as Lagoon) in Carlsbad, San Diego County. The Facility currently produces up to 54 MGD of potable drinking water for the San Diego County Water Authority (SDCWA). Channelside Water Resources LP (Discharger) is the current owner of the Facility, while the Facility is operated by IDE Technologies. However, the SDCWA has the option to purchase the Facility from the Discharger starting December 23, 2025.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger defined as Channelside Water Resources LP in this Order.

1.2. The Facility was formerly co-located with the Encina Power Station (EPS), owned and operated by Cabrillo Power I LLC. The EPS ceased power generating operations on December 11, 2018.

1.3. The Facility discharges wastewater to the Pacific Ocean, a water of the United States. The Facility and associated discharges to the Pacific Ocean were previously regulated by Order No. R9-2019-0003 National Pollutant Discharge Elimination System (NPDES) Permit No. CA0109223, *Waste Discharge Requirements for the Poseidon Resources (Channelside) LP Clause "Bud" Lewis Carlsbad Desalination Plant Discharge to the Pacific Ocean* (2019 Order). The San Diego Water Board adopted the 2019 Order on May 8, 2019, and it became effective on July 1, 2019. The San Diego Water Board amended the 2019 Order twice, through the adoption of Order Nos. R9-2020-0004 and R9-2023-0137. The 2019 Order expired on June 30, 2024. Title 40 of the Code of Federal Regulations (40 CFR) section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. In accordance with 40 CFR section 122.6 and title 23 California Code of Regulations (CCR), division 3, chapter 9, article 3, section 2235.4, the term of the 2019 Order, as amended, was administratively extended and continued in effect after the permit expiration date until the adoption of this Order. Accordingly, this Order limits the duration of the discharge authorization. However, pursuant to title 23 CCR, section 2235.4, the terms and conditions of an expired permit are automatically continued pending reissuance of an order if the discharger complies with all federal NPDES requirements for continuation of expired permits.

1.4. The Discharger submitted an application for renewal of its NPDES permit and waste discharge requirements (WDRs), including a report of waste discharge (ROWD), on January 2, 2024 (2024 ROWD). The San Diego Water Board informed the Discharger by letter dated May 1, 2024, that the 2024 ROWD was incomplete. The Discharger submitted a revised 2024 ROWD on June 21, 2024. No changes in the Facility's operational conditions or discharge flows were proposed in the 2024 ROWD.

1.5. On May 6, 2015, the State Water Resources Control Board (State Water Board) adopted an amendment to the *Water Quality Control Plan Ocean Waters of California* (Ocean Plan) to address effects associated with the construction and operation of seawater desalination facilities (Desalination Amendment). This amendment, for the first time, provides a uniform, consistent process for permitting seawater desalination facilities statewide. The Office of Administrative Law approved the Desalination Amendment on January 28, 2016. The United States Environmental Protection Agency (USEPA) approved the portions of the Desalination Amendment that implement federal law on April 7, 2016, making the Desalination Amendment effective.

1.6. California Water Code (Water Code) section 13142.5, subdivision (b) (hereafter Water Code section 13142.5(b)) requires that for each new or expanded coastal powerplant or other industrial installation using seawater for cooling, heating, or industrial processing, the best available site, design, technology, and mitigation measures feasible must be used to minimize the intake and mortality of all forms

of marine life. Ocean Plan section III.M provides the implementation provisions for desalination facilities to comply with Water Code section 13142.5(b).

1.7. **Stand-Alone Operations (2019 Water Code 13142.5(b) Determination)** - The Facility was formerly co-located with the EPS. The Facility formerly used the EPS intake for drawing in seawater for desalination and flow augmentation/brine dilution. The EPS discontinued operations on December 11, 2018. The Facility continued to use the EPS intake for drawing in seawater after the EPS discounted operations. During development of the 2019 Order, the San Diego Water Board analyzed separately as independent considerations, and in combination, a range of intake design alternatives and brine discharge alternatives and has determined that the Facility uses the best available combination of site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life. The 2019 Water Code section 13142.5(b) determination (2019 Determination) is limited to stand-alone operation of the Facility. A new Water Code 13142.5(b) determination is not needed since there has been no expansion of the Facility or changes that will result in an increase in intake and mortality of marine life beyond that which was originally approved in 2019. However, the 2019 Determination is incorporated into this Order as Attachments H.1 and H.2 (collectively referred to as Attachment H), with minor non-substantive changes made. Attachment H summarizes the San Diego Water Board's findings in support of its Determination.

1.8. **Future Modified Operations** - Any future expansions to the Facility as described in Ocean Plan section III.M.1.b(2) will require a new Determination.

2. Facility Description

2.1. Description

The Facility is located on a 5.7-acre parcel of land within the site of the former EPS. The Discharger has a long-term renewable lease and easement agreement with Cabrillo Power I LLC (the owner and operator of the former EPS) for the desalination plant's site.

The potable water production processes at the Facility include the addition of ferric sulfate and polymer, granular media filtration, reverse osmosis (RO) desalination, and product water stabilization. Ferric sulfate and polymer are added to the influent seawater to assist with the removal of fine particulates by forming floc which is then removed in the granular media filters. The ferric sulfate and polymer are removed by backwashing the granular media filters and are then collected in a sedimentation basin for removal as waste sludge which is disposed of at an authorized landfill. The clarified filter backwash from the backwash pit is discharged to the Pacific Ocean via the common outfall line.

Startup maintenance flows, product water, and off-specification water may be temporarily discharged in the Pacific Ocean during plant start-up, during or after plant maintenance, or other times when the Facility is not delivering potable water to the regional water system. To the maximum extent practicable, these flows must be recycled to the Facility headworks for potable water production. During such temporary periods, the total maximum allowable discharge flowrate must not exceed 299 MGD, the maximum allowable intake flowrate. Temporarily discharging such water to the Pacific Ocean does not constitute a "bypass" as defined in Attachments A and D of this Order. All limitations and requirements, including monitoring, specified in this Order remain applicable during these temporary discharges.

The Facility was co-located with the EPS. The EPS ceased power generating operations on December 11, 2018. At that time, the Facility initiated interim stand-alone operations, including drawing in seawater for desalination and flow augmentation using the existing intake structure formerly operated by the EPS. The San Diego Water Board approved the design of a new intake structure by letter dated August 4, 2022. The Discharger completed construction of the new intake structure in December 2024. The new intake structure is located along the southern shoreline of Agua Hedionda Lagoon outer basin and consists of a floating debris barrier, a large organism exclusion device, and eleven dual flow traveling screens with a 1-millimeter (mm) mesh (ten screens on-duty with one on standby). The dual flow traveling screens are designed to meet an intake water velocity of 0.5 feet/second (ft/s) or less with 15 percent screen occlusion and one screen taken out of service for maintenance, repair, or replacement. The dual flow traveling screens will screen both the seawater which feeds the Facility and seawater pumped in for flow augmentation. The intake structure will have a maximum intake capacity of approximately 299 MGD.

The Facility with minor modifications can produce a daily maximum of 60 MGD of potable water. To reflect conditions under which this daily maximum potable water production is achieved, the Discharger requested that the requirements of this Order pertaining to permanent stand-alone operations provide for the following:

- An average annual potable water production of up to 60 MGD;
- An average annual RO concentrate discharge of up to 60 MGD;
- Granular media filter backwash of up to 7 MGD, with the option to recycle backwash flows into the Facility's pretreatment process in lieu of discharging the backwash flow to the ocean;
- The intake and discharge of bypassed Lagoon water (flow augmentation) of up to 196 MGD.
- A total discharge for the combined backwash water, reverse osmosis concentrate, and flow augmentation water of up to 249 MGD.

The maximum observed concentrations of various parameters in the combined Facility's historical effluent data are summarized in Fact Sheet Tables F-2 and F-3.

Maintenance of the Intake Structure

The dual flow traveling screens are oriented perpendicular to the approaching flow and both the ascending and descending sides of the screen provide screening area. The dual flow traveling screens are designed such that the screening mesh is always on the upstream side of the screen. The dual flow traveling screens therefore eliminate the potential for carryover of debris by keeping all screening area on the upstream side. Keeping all screening on the upstream side also maximizes the screening area available to pass flow.

The dual flow traveling screens are approximately 40 feet tall, 10 feet wide, and are comprised of multiple individual screening panels (referred to as baskets). The baskets are attached to guided chains which rotate by way of a head sprocket located above deck level. The head sprocket is driven by a motor and gearbox. All mechanical and electrical components are above water and accessible from the deck level. The dual flow traveling screens are capable of continuous rotation for managing periods of high debris loading (e.g., storms). Above deck level, a spray wash system is used to rinse debris from the screen baskets into a debris trough/pipeline. The debris trough/pipeline acts as a sluice to transport collected debris to the discharge pond.

Given the shoreline location of the intake structure, most planned routine and unplanned emergency screen maintenance can most likely be accomplished from shore. Routine maintenance that can be accomplished from shore would include tasks such as screen removal, screen basket replacement, chain replacement, gear box inspection. In addition, the use of divers has been significantly reduced. Divers may only be required for occasional inspection of submerged components that are not accessible from the deck level (e.g., the dual flow traveling screen support frame and boot section).

2.2. Discharge Points and Receiving Waters

The Facility began stand-alone operations when the EPS ceased operations, including drawing in seawater for desalination and flow augmentation/brine dilution.

The Discharger submitted a discharge study to evaluate dilution as follows:

- In September 2015, the Discharger submitted Appendix C of the 2015 ROWD to evaluate dilution at a 200-meter radius from Discharge Point No. 001. The San Diego Water Board requested the Discharger revise the model to conform with the Ocean Plan requirements which do not take into consideration mixing in the ocean from current and wind.

- On July 12, 2016, the Discharger submitted Appendix BB of the 2015 ROWD to include an evaluation of "initial dilution" for pollutants specified in Table 1 of the Ocean Plan (now Table 3 in the 2019 Ocean Plan).
- On February 21, 2017, the Discharger submitted Appendix VV of the 2015 ROWD to align with the Ocean Plan and to propose a zone of initial dilution in the receiving waters at 304.8 meters from Discharge Point No. 001.

Using a combination of CORMIX 5.0 and *COSMOS.FlowWorks* modeling, Appendix VV of the 2015 ROWD evaluated initial dilution for the Facility's effluent discharged at a maximum flowrate of 238 MGD. The model used the most conservative ambient monthly mean temperature and salinity profiles (from September 2008). The ocean water temperature was assumed to be within 2 degrees Celsius of ambient with a salinity of 42.0 parts per thousand (ppt), which was the salinity required (at Monitoring Location M-002) for the effluent to meet acute toxicity threshold. The model also assumed no mixing due to the action of ocean currents, waves, tides, or wind, consistent with the Ocean Plan requirements.

Based on the model, the effluent discharge plume will be negatively buoyant (i.e., denser than seawater) and will flow along the ocean bottom downslope and offshore towards the west-northwest. When the brine plume becomes stationary, at a distance of approximately 1,851 meters from Discharge Point No. 001, the model predicts a difference in the salinity of the plume and the ambient ocean water to be less than 1 percent.

The Ocean Plan defines the zone of initial dilution (ZID) as the zone in which the process of initial dilution is completed; and since dilution ceases to increase significantly beyond 1,851 meters, this distance marks the seaward limit of the zone of initial dilution. This Order sets a ZID of 304.8 meters (1,000 feet), which is consistent with the 2019 Order. At 304.8 meters, the Discharger has proposed a dilution ratio of 21.83 parts sea water to 1-part undiluted brine when also considering dilution from flow augmentation water. The dilution ratio was derived as follows:

- At 304.8 meters,1 part of diluted effluent (comprised of undiluted effluent, reverse osmosis brine, mixed with flow augmentation dilution water) is diluted by 4.75 parts ocean water, resulting in a total of 5.75 parts water.
- Flow augmentation provides a dilution of 1-part undiluted effluent (60 MGD) to 2.97 parts flow augmentation dilution water (178 MGD), resulting in a total of 3.97 parts water.
- The combined dilution from the ocean water (5.75) and the flow augmentation water (3.97) is calculated by multiplying their individual dilution factors (5.75 x 3.97) for a result of 22.83.
- The final dilution ratio is thus 1 part of undiluted effluent to 21.83 parts seawater (comprised of ocean water and flow augmentation water).

2.3. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations and performances goals contained in the 2019 Order for discharges from the Facility are summarized in the following tables:

Table F-2. Historic Facility Effluent Limitations and Monitoring Data

Parameter	Unit	Effluent Limitations[1]			Monitoring Data (From July 2019 to July 2025)		
		Average Monthly	Average Weekly	Daily Maximum	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Maximum Discharge
Total Suspended Solids (TSS)	milligrams per liter (mg/L)	60	--	--	44.7	--	--
pH	standard units	--	--	6.0-9.0[2]	--	--	7.34-8.53[2]
Oil and Grease	mg/L	25	40	75[2]	5.2	12.6	12.6
Settleable Solids	milliliters per liter (ml/L)	1.0	1.5	3.0[2]	0.15	0.3	0.3
Turbidity	nephelometric turbidity units (NTU)	75	100	225[2]	8.49	23	39
Salinity	parts per thousand (ppt)	--	--	42.0	--	--	41.92
Chronic Toxicity	Pass/Fail	--	--	Pass	--	--	Pass

Notes for Table F-2:
1. See Attachment A for definitions of abbreviations and a glossary of common terms.
2. Instantaneous minimum and instantaneous maximum values.

Table F-3. Historic Performance Goals[1,2]

Parameter	Units[2]	6-Month Median	Maximum Daily	Instantaneous Maximum	Average Monthly	Highest Detected Discharge[3]
BASED ON OCEAN PLAN OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE						
Arsenic, Total Recoverable	microgram per liter (µg/L)	1.2E+02	6.7E+02	1.8E+03	–	1.6E+00
Cadmium, Total Recoverable	µg/L	2.28E+01	9.13E+01	2.28E+02	–	6.1E-01
Chromium-six[4]	µg/L	4.57E+01	1.83E+02	4.57E+02	–	1.9E-01
Copper, Total Recoverable	µg/L	2.48E+01	2.30E+02	6.41E+02	–	1.9E+00
Lead, Total Recoverable	µg/L	4.57E+01	1.83E+02	4.57E+02	–	4.3E-01
Mercury, Total Recoverable	µg/L	9.02E-01	3.64E+00	9.12E+00	–	1.1E-03
Nickel, Total Recoverable	µg/L	1.14E+02	4.57E+02	1.14E+03	–	3.6E+00
Selenium, Total Recoverable	µg/L	3.42E+02	1.37E+03	3.42E+03	–	7.2E-02
Silver, Total Recoverable	µg/L	1.25E+01	6.04E+01	1.56E+02	–	<3.6E-02
Zinc, Total Recoverable	µg/L	2.82E+02	1.65E+03	4.39E+03	–	9.7E+00
Cyanide, Total Recoverable[5]	µg/L	2.28E+01	9.13E+01	2.28E+02	–	<3.8E+00
Total Chlorine Residual	µg/L	4.57E+01	1.83E+02	1.37E+03	–	1.10E+02
Ammonia (as Nitrogen)	µg/L	1.37E+04	5.48E+04	1.37E+05	–	7.60E+02
Phenolic Compounds (non-chlorinated)	µg/L	6.85E+02	2.74E+03	6.85E+03	–	<1.13E+01
Chlorinated Phenolics	µg/L	2.28E+01	9.13E+01	2.28E+02	–	<2.72E+00
Endosulfan	µg/L	2.05E-01	4.11E-01	6.16E-01	–	<2.9E-02
Endrin	µg/L	4.57E-02	9.13E-02	1.37E-01	–	<1.7E-02
Hexachlorocyclohexane (HCH)	µg/L	9.13E-02	1.83E-01	2.74E-01	–	<4.9E-02
Radioactivity	picocuries per liter (pCi/L)	Not to exceed limits specified in Title 17, division 1, chapter 5, subchapter 4, group 3, article 3, section 30253 of the CCR. Reference to section 30253 is prospective, including future changes to any				8.48E+00

Parameter	Units[2]	6-Month Median	Maximum Daily	Instantaneous Maximum	Average Monthly	Highest Detected Discharge[3]
		incorporated provisions of federal law, as the changes take effect.				
BASED ON OCEAN PLAN OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – NONCARCINOGENS						
Acrolein	µg/L	–	–	–	5.02E+03	<2.2E+00
Antimony	µg/L	–	–	–	2.74E+04	3.5E-01
Bis(2-chloroethoxy) Methane	µg/L	–	–	–	1.00E+02	<5.0E-01
Bis(2-chloroisopropyl) Ether	µg/L	–	–	–	2.74E+04	<7.6E-01
Chlorobenzene	µg/L	–	–	–	1.30E+04	<3.5E-01
Chromium (III)	µg/L	–	–	–	4.34E+06	<5.0E+01
Di-n-butyl Phthalate	µg/L	–	–	–	7.99E+04	<3.4E-01
Dichlorobenzenes	µg/L	–	–	–	1.16E+05	<1.76E+00
Diethyl Phthalate	µg/L	–	–	–	7.53E+05	<3.5E-01
Dimethyl Phthalate	µg/L	–	–	–	1.87E+07	<3.6E-01
4,6-dinitro-2-methylphenol	µg/L	–	–	–	5.02E+03	<2.8E+00
2,4-dinitrophenol	µg/L	–	–	–	9.13E+01	<4.4E+00
Ethylbenzene	µg/L	–	–	–	9.36E+04	<4.1E-01
Fluoranthene	µg/L	–	–	–	3.42E+02	<3.5E-01
Hexachlorocyclopentadiene	µg/L	–	–	–	1.32E+03	<2.0E+00
Nitrobenzene	µg/L	–	–	–	1.12E+02	<7.2E-01
Thallium, Total Recoverable	µg/L	–	–	–	4.57E+01	2.9E-02
Toluene	µg/L	–	–	–	1.94E+06	<3.6E-01
Tributyltin	µg/L	–	–	–	3.20E-02	<2.6E-03
1,1,1-trichloroethane	µg/L	–	–	–	1.23E+07	<3.8E-01
BASED ON OCEAN PLAN OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS						
Acrylonitrile	µg/L	–	–	–	2.28E+00	<1.8E+00
Aldrin	µg/L	–	–	–	5.02E-04	<1.0E-02
Benzene	µg/L	–	–	–	1.35E+02	<4.7E-01
Benzidine	µg/L	–	–	–	1.58E-03	<3.7E+00

Parameter	Units[2]	6-Month Median	Maximum Daily	Instantaneous Maximum	Average Monthly	Highest Detected Discharge[3]
Beryllium	µg/L	–	–	–	7.53E-01	<3.9E-02
Bis(2-chloroethyl) Ether	µg/L	–	–	–	1.03E+00	<5.4E-01
Bis(2-ethylhexyl) Phthalate	µg/L	–	–	–	7.99E+01	2.0E+01
Carbon Tetrachloride	µg/L	–	–	–	2.05E+01	<3.3E-01
Chlordane	µg/L	–	–	–	5.25E-04	<5.0E+00
Chlorodibromomethane	µg/L	–	–	–	1.96E+02	<3.8E-01
Chloroform	µg/L	–	–	–	2.97E+03	6.5E-01
Dichloro-Diphenyl-Trichloroethane (DDT)	µg/L	–	–	–	3.88E-03	<1.75E-01
1,4-dichlorobenzene	µg/L	–	–	–	4.11E+02	<9.6E-01
3,3'-dichlorobenzidine	µg/L	–	–	–	1.85E-01	<2.5E+00
1,2-dichloroethane	µg/L	–	–	–	6.39E+02	<5.4E-01
1,1-dichloroethylene	µg/L	–	–	–	2.05E+01	<3.9E-01
Dichlorobromomethane	µg/L	–	–	–	1.42E+02	<4.4E-01
Dichloromethane	µg/L	–	–	–	1.03E+04	<3.9E-01
1,3-dichloropropene	µg/L	–	–	–	2.03E+02	<3.6E-01
Dieldrin	µg/L	–	–	–	9.13E-04	<8.0E-03
2,4-dinitrotoluene	µg/L	–	–	–	5.94E+01	<4.6E-01
1,2-diphenylhydrazine	µg/L	–	–	–	3.65E+00	<6.0E-01
Halomethanes	µg/L	–	–	–	2.97E+03	<1.79E+00
Heptachlor	µg/L	–	–	–	1.14E-03	<1.0E-02
Heptachlor Epoxide	µg/L	–	–	–	4.57E-04	<8.0E-03
Hexachlorobenzene	µg/L	–	–	–	4.79E-03	<9.8E-01
Hexachlorobutadiene	µg/L	–	–	–	3.20E+02	<9.4E-01
Hexachloroethane	µg/L	–	–	–	5.71E+01	<1.0E+00
Isphorone	µg/L	–	–	–	1.67E+04	<4.2E-01
N-nitrosodimethylamine	µg/L	–	–	–	1.67E+02	<1.0E+00
N-nitrosodi-N-proplyamine	µg/L	–	–	–	8.68E+00	<5.2E-01

Parameter	Units[2]	6-Month Median	Maximum Daily	Instantaneous Maximum	Average Monthly	Highest Detected Discharge[3]
N-nitrosodiphenylamine	µg/L	–	–	–	5.71E+01	<3.8E-01
Polycyclic Aromatic Hydrocarbons (PAHs)	µg/L	–	–	–	2.01E-01	<8.36E+00
Polychlorinated Biphenyls (PCBs)	µg/L	–	–	–	4.34E-04	<3.5E+01
TCDD equivalents	µg/L	–	–	–	8.90E-08	<2.1E-06
1,1,2,2-tetrachloroethane	µg/L	–	–	–	5.25E+01	<3.8E-01
Tetrachloroethylene	µg/L	–	–	–	4.57E+01	<4.2E-01
Toxaphene	µg/L	–	–	–	4.79E-03	<1.0E+01
Trichloroethylene	µg/L	–	–	–	6.16E+02	4.1E-01
1,1,2-trichloroethane	µg/L	–	–	–	2.15E+02	<4.2E-01
2,4,6-trichlorophenol	µg/L	–	–	–	6.62E+00	<4.4E-01
Vinyl Chloride	µg/L	–	–	–	8.22E+02	<3.3E-01

Notes for Table F-3:

1. See Attachment A for definitions of abbreviations and a glossary of common terms.
2. Scientific “E” notation is used to express certain values. In scientific “E” notation, the number following the “E” indicates that position of the decimal point in the value. Negative numbers after the “E” indicate that the value is less than 1, and positive numbers after the “E” indicate that the value is greater than 1. In this notation a value of 6.1E-02 represents 6.1×10^{-2} or 0.061, 6.1E+02 represents 6.1×10^{2} or 610, and 6.1E+00 represents 6.1x1 or 6.1.
3. Highest detected discharge values in the July 2019 – July 2025 monitoring data.
4. The Discharger may, at its option, apply this performance goal as a total chromium performance goal.
5. If the Discharger can demonstrate to the satisfaction of the San Diego Water Board that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, performance goals for cyanide may be evaluated with the combined measurement of free cyanide, simple alkali metals cyanides, and weakly complexed organometallic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in title 40 CFR part 136, as amended.

2.4. Compliance Summary

The following summarizes the compliance history for the period of July 2019 through April 2026:

Table F-4. Summary of Compliance History

Date	Violation Type	Description
07/30/2019	Deficient Monitoring	TCDD analysis was not conducted in accordance with Table E-4 in Attachment E of the 2019 Order. The sample was collected, but the chain of custody form was not updated to include the new TCDD monitoring requirement.
08/29/2019	Deficient Monitoring	Offshore monitoring was not conducted at station E-30 due to contractor error.
08/23/2020	Order Conditions	The Discharger exceeded the maximum allowable intake flow of 299 MGD of seawater by 1.35 MGD. The Discharger reported this exceedance was due to the dilution flow values set within the Supervisory Control and Data Acquisition (SCADA) system not properly accounting for the brine dilution provided by maintenance flow cycled through the plant.
04/11/2021	Deficient Monitoring	The Discharger failed to collect samples required at monitoring locations M-INF, M-001, and M-002 from 4/11/2021 to 4/17/2021 due to a maintenance shutdown that lasted from 8 PM on 4/11/2021 to 4/18/2021.
11/21/2022	Deficient Monitoring	The Discharger failed to collect the samples required at monitoring locations M-INF, M-001, and M-002 from 11/20/2022 to 11/26/2022. The Discharger reported this was due to an unscheduled Facility maintenance shutdown from 3:30 am on 11/21/2022 through 11/30/2022.
05/24/2023	Order Conditions	The Facility suffered a mechanical malfunction in its back wash system causing plant effluent containing a higher amount of sludge to discolor receiving waters.
06/03/2023	Late Report	The Discharger submitted the January-March 2023 quarterly SMR on 06/03/2023. The SMR was due on 05/01/2023.
08/03/2023	Order Conditions	A valve in the backwash system suffered a mechanical malfunction causing plant effluent containing sludge to discolor receiving waters.
08/03/2023	Late Report	The Discharger submitted the April-June 2023 quarterly self-monitoring report on 08/03/2023. The report was due on 08/01/2023.

Date	Violation Type	Description
08/14/2023	Deficient Monitoring	The oil and grease sample collected at monitoring location M-001 on 08/14/2023 was determined to be invalid due to the absence of a positive control QC.
08/28/2023	Deficient Monitoring	The oil and grease sample collected at monitoring location M-001 on 08/28/2023 was determined to be invalid due to the laboratory reporting low recovery with no additional sample volume remaining for re-analysis.
10/16/2023	Water Quality Effluent	The TSS average monthly effluent limitation is 60 mg/L and the reported value for October 2023 was 108 mg/L.
11/03/2023	Late Report	The Discharger submitted the July-September 2023 quarterly self-monitoring report on 11/03/2023. The report was due on 11/01/2023.
12/05/2023	Order Conditions	The Facility suffered a mechanical malfunction in its back wash system causing plant effluent containing sludge to discolor receiving waters.
06/30/2024	Order Conditions	The Discharger's contractor sub-contracted to a non-ELAP certified lab for the sediment analysis required in the 2023 Annual Monitoring Report.
06/25/2025	Order Conditions	The 2019 Order specified that surface water intakes must be screened at the onset of the intake of seawater, and the screens must be functional while the Facility is withdrawing seawater. During a planned replacement of traveling screen number three, unscreened seawater entered the Facility for approximately one hour through a 2-foot gap while a stop log was removed.
06/30/2025	Order Conditions	The Discharger used a non-Environmental Laboratory Accreditation Program (ELAP) certified laboratory for sediment analysis required in the 2024 Annual Monitoring Report.

2.5. Planned Changes – Not Applicable

3. Applicable Plans, Policies, and Regulations

The requirements contained in this Order are based on the requirements and authorities described in this section.

3.1. Legal Authorities

This Order serves as WDRs pursuant to article 4, chapter 4, division 7 of the Water Code, commencing with section 13260. This Order is also issued

pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the USEPA and chapter 5.5, division 7 of the Water Code, commencing with section 13370. It will serve as an NPDES permit for point source discharges from this Facility to surface waters of the U.S. at the discharge location described in Table 2 of the Order, subject to this Order. This Order also includes the 2019 Determination from the 2019 Order with minor, non-substantive changes.

3.2. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of chapter 3 of the CEQA, (commencing with section 21100, et. seq.) of division 13 of the Public Resources Code. However, compliance with CEQA is required for those provisions in this Order that are based on State law only. This Order's Determination that the Facility complies with Water Code section 13142.5(b) is based on consideration of State law only and is subject to CEQA compliance. In August 2016, the SDCWA certified the *Final Supplement to the Precise Development Plan and Desalination Plant Project Final Environmental Impact Report* (EIR 03-05; State Clearinghouse No. 2004041081) (Final SEIR). Since the certification of the Final SEIR, the SDCWA finalized the Seventh Addendum to the Final SEIR in May 2022. The San Diego Water Board independently considered the environmental effects of the project as described in the 2006 EIR, the 2016 Supplemental EIR, and addenda.3.3.

3.3. State and Federal Laws, Regulations, Policies, and Plans

3.3.1. Water Quality Control Plan. The San Diego Water Board adopted the *Water Quality Control Plan for the San Diego Basin* (Basin Plan) on September 8, 1994, that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Subsequent revisions to the Basin Plan have also been adopted by the San Diego Water Board and approved by the State Water Board. Beneficial uses applicable to the Pacific Ocean specified in the Basin Plan are as follows:

Table F-5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Pacific Ocean	• Industrial service supply; • Navigation; • Contact water recreation; • Non-contact water recreation; • Commercial and sport fishing; • Preservation of biological habitats of special significance; • Wildlife habitat;

		• Rare, threatened, or endangered species; marine habitat; • Aquaculture; • Migration of aquatic organisms; spawning, • Spawning, reproduction, and/or early development; and • Shellfish harvesting.

To protect the beneficial uses, the Basin Plan establishes water quality objectives and a program of implementation.

3.3.2. California Ocean Plan. The State Water Board adopted the Ocean Plan in 1972 and has made subsequent amendments, most recently on August 7, 2018. The State Water Board adopted Ocean Plan chapter III.M, regarding desalination facilities, on May 6, 2015, and it became effective on January 28, 2016. Ocean Plan chapter III.M provides the implementation provisions for desalination facilities to comply with Water Code section 13142.5(b). The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean. The Ocean Plan identifies beneficial uses of ocean waters of the State to be protected as summarized in Table F-6:

Table F-6. Ocean Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Uses
001	Pacific Ocean	• Industrial water supply; • Water contact and non-contact recreation, including aesthetic enjoyment; • Navigation; • Commercial and sport fishing; • Mariculture; • Preservation and enhancement of designated Areas of Special Biological Significance (ASBS); • Rare and endangered species; • Marine habitat; • Fish migration; Fish spawning; and • Shellfish harvesting.

To protect the beneficial uses, the Ocean Plan establishes water quality objectives and a program of implementation. Requirements of this Order implement the Ocean Plan.

3.3.3. California Thermal Plan. The State Water Board adopted the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters*

and Enclosed Bays and Estuaries of California (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for surface waters. Requirements of this Order implement the Thermal Plan.

3.3.4. Antidegradation Policy. Federal regulations at 40 CFR section 131.12 require that the State water quality standards include an antidegradation policy consistent with the federal antidegradation policy. The State Water Board established California's antidegradation policy in Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (Resolution No. 68-16). Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provisions of 40 CFR section 131.12 and Resolution No. 68-16.

3.3.5. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

3.3.6. Endangered Species Act Requirements. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S. Code Annotated sections 1531 to 1544). This Order requires compliance with effluent limitations, and other requirements to protect the beneficial uses of waters of the State. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

3.4. Impaired Water Bodies on the CWA Section 303(d) List

In May 2022, USEPA approved the list of impaired water bodies, prepared by the State Water Board pursuant to section 303(d) of the CWA, which are not expected to meet applicable water quality standards after implementation of technology-based effluent limitations (TBELs) for point sources. The 303(d) list for water in the vicinity of the Facility include:

- Agua Hedionda Lagoon for toxicity; and
- Pacific Ocean Shoreline, Carlsbad State Beach at Tamarack Avenue for trash.

Several total maximum daily loads (TMDLs) for bacteria indicators have been adopted and approved within the San Diego Region; however, there is no TMDL wasteload allocation applicable to the Facility's discharge.

3.5. Other Plans, Policies, and Regulations – Water Code Section 13142.5(b) Determination

Water Code section 13142.5(b) requires the use of the best available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life for new or expanded coastal power plants or other industrial installations using seawater for cooling, heating, or industrial processing. Ocean Plan chapter III.M provides the implementation provisions for desalination facilities to comply with Water Code section 13142.5(b).

The San Diego Water Board analyzed separately as independent considerations, and in combination, a range of intake design alternatives proposed by the Discharger during the development of the 2019 Order and determined that the Facility would use the best available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life. Attachment H to the 2019 Order summarized the considerations and basis for the 2019 Determination. This Order carries over the 2019 Determination. However, minor non-substantive changes have been made to the 2019 Determination and are incorporated as Attachments H-1 and H-2.

The 2019 Determination is based upon available information. The 2019 Order required the Discharger to conduct a Multiport Diffuser Analysis and submit a Multiport Diffuser Analysis Final Report to confirm the flow augmentation discharge technology provides a comparable level of intake and mortality of all forms of marine life to a multiport diffuser. The 2019 Determination was partially contingent on the results of the Multiport Diffuser Analysis. The Discharger submitted the Multiport Diffuser Analysis Final Report on March 18, 2022. The Multiport Diffuser Analysis Final Report confirms the San Diego Water Board's conclusion that flow augmentation provides a comparable level of intake and mortality of all forms of marine life to a multiport diffuser. As a result, the Determination is no longer conditional.

Any proposed changes in the design or operation of the Facility that could increase the intake or mortality of all forms of marine life beyond that which is approved by this Order would meet the definition of an expanded facility within the meaning of the Ocean Plan (see, Chapter III.M.1(b)(2)). Any such expansion will require a Determination in accordance with the Ocean Plan. The Discharger completed construction of a new intake structure in December 2024. Construction and operation of the new intake structure do not constitute an expansion of the Facility nor will it result in increase in intake or mortality of marine life. Therefore, a new Determination is not needed.

4. Rationale for Effluent Limitations, Intake Specifications, and Discharge Specifications

The federal CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the CFR: 40 CFR section 122.44(a) requires that permits include applicable technology-based limitations and standards (TBELs); and 40 CFR section 122.44(d) requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

4.1. Discharge Prohibitions

Discharges from the Facility to surface waters in violation of prohibitions contained in this Order are violations of the federal CWA and therefore are subject to third party lawsuits. Discharges from the Facility to land in violation of prohibitions contained in this Order are violations of the Water Code and are not subject to third party lawsuits under the federal CWA because the Water Code does not contain provisions allowing third party lawsuits for such violations.

4.1.1. Discharge Prohibition 3.1 has been carried over from the requirements in the 2019 Order. This prohibition is based on 40 CFR section 122.21(a), duty to apply, and Water Code section 13260, which requires filing a ROWD before discharges can occur. Discharges not described in the 2024 ROWD, and subsequently also not regulated in this Order, are prohibited.

4.1.2. Discharge Prohibition 3.2 has been carried over from the requirements in the 2019 Order. This prohibition is based on the requirements of the Ocean Plan. The Ocean Plan prohibitions are included in Attachment G of this Order.

4.1.3. Discharge Prohibition 3.3 is based on Ocean Plan sections II.C.1, II.C.5, III.A.2.b.(1), III.I.6. Discharge Prohibition 3.3 has been added to prevent the discharge of trash or floatable materials.

4.1.4. Discharge Prohibition 3.4 is based on Ocean Plan sections II.F.1 and III.I.1.a and Waste Discharge Prohibition 12 in chapter 4 of the Basin Plan. Discharge Prohibition 3.4 prohibits the discharge of radiological, chemical, or biological warfare agent or high-level radioactive waste to surface waters.

4.1.5. Discharge Prohibition 3.5 is based on Ocean Plan section III.I.3.a. Discharge Prohibition 3.5 has been carried over from section I.C of Attachment G of the 2019 Order. Discharge Prohibition 3.5 prohibits the discharge of sludge to surface waters.

This Order does not retain Discharge Prohibition III.C from the 2019 Order which required the Discharger to comply with applicable waste discharge

prohibitions contained in the Basin Plan. The Basin Plan prohibitions were incorporated into Attachment G of the 2019 Order. However, the Basin Plan prohibitions have also been removed from Attachment G of this Order. The Basin Plan prohibitions were not included in this Order for the following reasons:

- The discharge prohibitions described above, and this Order's effluent limitations and monitoring requirements provide equivalent protection of water quality and beneficial uses.
- The United States Supreme Court's decision in City and County of San Francisco, California v. Environmental Protection Agency (2025) held that NPDES permits may not include end-results requirements under Clean Water Act section 301(b)(1)(C). Some of the Basin Plan prohibitions are considered end-result requirements under the United States Supreme Court's decision.
- Several of the Basin Plan prohibitions do not apply to the type of waste discharged from the Facility.

4.2. Technology-Based Effluent Limitations (TBELs)

4.2.1. Scope and Authority

4.2.1.1. Section 301(b) of the federal CWA and implementing USEPA permit regulations at 40 CFR section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with 40 CFR section 125.3. Discharges from the Facility must also meet TBELs based on Table 4 of the Ocean Plan.

In compliance with 40 CFR section 122.45(f)(1), this Order establishes mass-based limitations for specific pollutants, with some exceptions. Section 122.45(f)(2) of 40 CFR allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass-based limitations provided in 40 CFR section 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH, turbidity, and settleable solids.

The CWA requires that TBELs be established based on several levels of controls:

4.2.1.1.1. Best practicable treatment control technology (BPT) represents the average of the best existing performance by well-operated facilities within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

4.2.1.1.2. Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

4.2.1.1.3. Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including Biochemical Oxygen Demand (BOD), TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering a two-part reasonableness test. The first test compares the relationship between the costs of attaining a reduction in effluent discharge and the resulting benefits. The second test examines the cost and level of reduction of pollutants from the discharge from publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources. Effluent limitations must be reasonable under both tests.

4.2.1.1.4. New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

4.2.1.2. The CWA requires USEPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and 40 CFR section 125.3 authorize the use of BPJ to derive TBELs on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the San Diego Water Board must consider specific factors outlined in 40 CFR section 125.3.

4.2.2. Applicable TBELs

4.2.2.1. **Ocean Plan.** The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean. Therefore, the discharge of wastewater to the Pacific Ocean from the Facility is subject to the Ocean Plan.

The Ocean Plan establishes water quality objectives, general requirements for management of waste discharged to the ocean, effluent quality requirements for waste discharges, discharge prohibitions, and general provisions. Further, Table 4 of the Ocean Plan establishes TBELs for discharges of pollutants for which ELGs have not been established pursuant to sections 301, 302, 304, or 306 of the CWA. Based on Table 4 of the Ocean Plan, the 2019 Order established numeric effluent limitations for the discharge of effluent to the Pacific Ocean. Consistent with the requirements of the Ocean Plan, these effluent limitations have been carried over. The TBELs from the Ocean Plan are summarized in Table F-7:

Table F-7. Summary of TBELs

Parameter	Units	Effluent Limitations			
		Average Monthly	Average Weekly	Instantaneous Minimum	Instantaneous Maximum
TSS	mg/L	60	--	--	--
pH	standard units	--	--	6.0	9.0
Oil and Grease	mg/L	25	40	--	75
Settleable Solids	ml/L	1.0	1.5	--	3.0
Turbidity	NTU	75	100	--	225

4.3. Water Quality-Based Effluent Limitations (WQBELs)

4.3.1. Scope and Authority

Section 301(b) of the federal CWA and 40 CFR section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) of 40 CFR requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) USEPA criteria guidance under section 304(a) of the CWA, supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan and Ocean Plan, and to achieve applicable water quality objectives and criteria that are contained in the Ocean Plan.

4.3.2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan and Ocean Plan designate beneficial uses, establish water quality objectives, and contain implementation programs and policies to achieve those objectives for all waters.

4.3.2.1. Basin Plan. The beneficial uses specified in the Basin Plan applicable to the Pacific Ocean are summarized in Fact Sheet section 3.3.1.

The Basin Plan includes water quality objectives for pH applicable to ocean waters is stated as follows: "*The pH value shall not be changed at any time more than 0.2 pH units from that which occurs naturally*."

The Basin Plan water quality objective for dissolved oxygen applicable to ocean waters is stated as follows: "*The dissolved oxygen concentration in ocean waters 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*."

The Basin Plan also states: "*The terms and conditions of the State Board's "Water Quality Control Plan for Ocean Waters of California" (Ocean Plan), "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" (Thermal Plan), and any revisions thereto are incorporated into this Basin Plan by reference. The terms and conditions of the Ocean Plan and Thermal Plan apply to the ocean waters within this Region*."

4.3.2.2. Ocean Plan. The beneficial uses specified in the Ocean Plan for the Pacific Ocean are summarized in Fact Sheet section 3.3.2. The Ocean Plan also includes water quality objectives for the ocean receiving water for bacterial characteristics, physical characteristics, chemical characteristics, biological characteristics, and radioactivity.

Table 3 of the Ocean Plan includes the following water quality objectives for toxic pollutants and whole effluent toxicity:

- Six-month median, daily maximum, and instantaneous maximum objectives for 19 chemicals and chemical characteristics, including total chlorine residual and chronic toxicity, for the protection of marine aquatic life;
- Thirty-day average objectives for 20 non-carcinogenic chemicals for the protection of human health;
- Thirty-day average objectives for 42 carcinogenic chemicals for the protection of human health;
- Daily maximum objectives for acute and chronic toxicity.

Additionally, the Ocean Plan establishes receiving water objectives for salinity applicable to desalination facilities.

4.3.3. Determining the Need for WQBELs

The San Diego Water Board evaluated the need for effluent limitations for non-conventional and toxic pollutant parameters based on the water quality

objectives in the Ocean Plan. For this Order, the need for effluent limitations based on water quality objectives in Table 3 of the Ocean Plan was re-evaluated in accordance with 40 CFR section 122.44(d) and guidance for statistically determining the "reasonable potential" for a discharged pollutant to exceed an objective, as outlined in the revised *Technical Support Document for Water Quality-based Toxics Control* (TSD; EPA/505/2-90-001, 1991) and the Ocean Plan Reasonable Potential Analysis (RPA) Amendment (adopted by the State Water Board on April 21, 2005). The statistical approach combines knowledge of effluent variability, as estimated by a coefficient of variation, with the uncertainty due to a limited amount of effluent data to estimate a maximum effluent value at a high level of confidence. This estimated maximum effluent value is based on a lognormal distribution of daily effluent values. Projected receiving water values, based on the estimated maximum effluent value or the reported maximum effluent value and minimum probably initial dilution, can then be compared to the appropriate objective to determine potential for an exceedance of that objective and the need for an effluent limitation. According to the Ocean Plan amendment, the RPA can yield one of three endpoints:

1. An effluent limitation is required, and monitoring is required;
2. An effluent limitation is not required, and the San Diego Water Board may require monitoring; or
3. The RPA is inconclusive, monitoring is required, and an existing effluent limitation may be retained, or a permit reopener clause may be included to allow inclusion of an effluent limitation if future monitoring warrants the inclusion. Endpoint 3 is typically the result when there are fewer than 16 data points and all are censored data (i.e., below quantitation or method detection levels for an analytical procedure).

The implementation provisions for Table 3 of the Ocean Plan specify that the minimum initial dilution is the lowest average initial dilution within any single month of the year. Dilution estimates are to be based on observed waste flow characteristics, observed receiving water density structure, and the assumption that no currents, of sufficient strength to influence the initial dilution process, flow across the discharge structure. Before establishing a dilution credit for a discharge, it must first be determined if, and how much receiving water is available to dilute the discharge.

Conventional pollutants were not considered as part of the RPA. TBELs for these pollutants are included in this Order as described in Fact Sheet section 4.2.

The San Diego Water Board conducted the RPA for the constituents listed in Table 3 of the Ocean Plan using the RPcalc 2.2 software tool developed by the State Water Board (see Fact Sheet Table F-8). For constituents that do not display reasonable potential, this Order includes desirable maximum effluent concentrations (MEC) which were derived using effluent limitation determination procedures described below and are referred to in this Order as

"performance goals". The Discharger is required to monitor for these parameters as stated in the Monitoring and Reporting Program (MRP, Attachment E) to gather data for use in reasonable potential analyses for future permit reissuances.

Effluent data provided in the Discharger's monitoring reports from July 2019 through July 2025 were used in the RPA. A minimum probable initial dilution of 21.83 to 1 was used in this evaluation. A summary of the RPA results is provided below:

Table F-8. RPA Results Summary

Parameter	Units	n[1]	MEC[2,3]	Most Stringent Criteria	Background	RPA Endpoint[4]
Arsenic, Total Recoverable	µg/L	24	2.94	8[5]	3[6]	2
Cadmium, Total Recoverable	µg/L	24	0.0037	1[5]	0	2
Chromium-6	µg/L	24	0.0083	2[5]	0	2
Copper, Total Recoverable	µg/L	24	1.99	3[5]	2[6]	2
Lead, Total Recoverable	µg/L	24	0.0187	2[5]	0	2
Mercury, Total Recoverable	µg/L	24	0.0005	0.04[5]	0.0005[6]	2
Nickel, Total Recoverable	µg/L	24	0.1565	5[5]	0	2
Selenium, Total Recoverable	µg/L	24	0.0031	15[5]	0	2
Silver, Total Recoverable	µg/L	24	0.154	0.7[5]	0.16[6]	2
Zinc, Total Recoverable	µg/L	24	8.074	20[5]	8[6]	2
Cyanide, Total Recoverable	µg/L	24	<0.1652	1[5]	0	2
Total Chlorine Residual	µg/L	24	4.783	2	0	1
Ammonia (as Nitrogen)	µg/L	24	33.044	600[5]	0	2
Acute Toxicity[8]	Toxicity unit acute	--	--	0.3	0	--
Chronic Toxicity	"Pass"/ "Fail"	144	"Pass"	--	0	1(based on BPJ)[7]
Phenolic Compounds (non-chlorinated)	µg/L	24	<0.4913	30[5]	0	2
Chlorinated Phenolics	µg/L	24	<0.1183	1[5]	0	2
Endosulfan	µg/L	24	<0.0013	0.009[5]	0	2
Endrin	µg/L	24	<0.0007	0.002[5]	0	2
HCH[11]	µg/L	24	<0.0426	0.004[5]	0	3
Radioactivity	picocuries per liter	20	8.48	See table note 9	0	--
Acrolein	µg/L	24	<0.0957	220[10]	0	2
Antimony	µg/L	24	0.0152	1,200[10]	0	2

Parameter	Units	n[1]	MEC[2,3]	Most Stringent Criteria	Background	RPA Endpoint[4]
Bis(2-chloroethoxy) Methane	µg/L	24	<0.0217	4.4[10]	0	2
Bis(2-chloroisopropyl) Ether	µg/L	24	<0.033	1,200[10]	0	2
Chlorobenzene	µg/L	24	<0.0152	570[10]	0	2
Chromium-3	µg/L	24	0.0565	190,000[10]	0	2
Di-n-butyl Phthalate	µg/L	24	0.0087	3,500[10]	0	2
Dichlorobenzenes	µg/L	24	<0.0765	5,100[10]	0	2
Diethyl Phthalate	µg/L	24	<0.0152	33,000[10]	0	2
Dimethyl Phthalate	µg/L	24	<0.0157	820,000[10]	0	2
4,6-dinitro-2-methylphenol	µg/L	24	<0.1217	220[10]	0	2
2,4-dinitrophenol	µg/L	24	<0.1913	4[10]	0	2
Ethylbenzene	µg/L	24	<0.0178	4,100[10]	0	2
Fluoranthene	µg/L	24	<0.0152	15[10]	0	2
Hexachlorocyclopentadiene	µg/L	24	<0.087	58[10]	0	2
Nitrobenzene	µg/L	24	<0.0313	4.9[10]	0	2
Thallium, Total Recoverable	µg/L	24	0.0013	2[10]	0	2
Toluene	µg/L	24	<0.0157	85,000[10]	0	2
Tributyltin	µg/L	24	0.0001	0.0014[10]	0	2
1,1,1-trichloroethane	µg/L	24	<0.0165	540,000[10]	0	2
Acrylonitrile	µg/L	24	<0.0783	0.1[10]	0	2
Aldrin	µg/L	24	<0.0004	0.000022[10]	0	3
Benzene	µg/L	24	<0.0204	5.9[10]	0	2
Benzidine	µg/L	24	<0.1609	0.000069[10]	0	3
Beryllium	µg/L	24	<0.0017	0.033[10]	0	2
Bis(2-chloroethyl) Ether	µg/L	24	<0.0235	0.045[10]	0	2
Bis(2-ethylhexyl) Phthalate	µg/L	24	0.8696	3.5[10]	0	2
Carbon Tetrachloride	µg/L	24	<0.0143	0.9[10]	0	2
Chlordane	µg/L	24	<0.2174	0.000023[10]	0	3
Chlorodibromomethane	µg/L	24	<0.0165	8.6[10]	0	2
Chloroform	µg/L	24	0.0283	130[10]	0	2
DDT[12]	µg/L	24	<0.0076	0.00017[10]	0	3
1,4-dichlorobenzene	µg/L	24	<0.0417	18[10]	0	2
3,3'-dichlorobenzidine	µg/L	24	<0.1087	0.0081[10]	0	3
1,2-dichloroethane	µg/L	24	<0.0235	28[10]	0	2
1,1-dichloroethylene	µg/L	24	<0.017	0.9[10]	0	2
Dichlorobromomethane	µg/L	24	<0.0191	6.2[10]	0	2
Dichloromethane	µg/L	24	<0.017	450[10]	0	2
1,3-dichloropropene	µg/L	24	<0.0157	8.9[10]	0	2
Dieldrin	µg/L	24	<0.0003	0.00004[10]	0	3
2,4-dinitrotoluene	µg/L	24	<0.02	2.6[10]	0	2
1,2-diphenylhydrazine	µg/L	24	<0.0261	0.16[10]	0	2

Parameter	Units	n[1]	MEC[2,3]	Most Stringent Criteria	Background	RPA Endpoint[4]
Halomethanes	µg/L	24	<0.0778	130[10]	0	2
Heptachlor	µg/L	24	<0.0004	0.00005[10]	0	3
Heptachlor Epoxide	µg/L	24	<0.0003	0.00002[10]	0	3
Hexachlorobenzene	µg/L	24	<0.0426	0.00021[10]	0	3
Hexachlorobutadiene	µg/L	24	<0.0409	14[10]	0	2
Hexachloroethane	µg/L	24	<0.0435	2.5[10]	0	2
Isphorone	µg/L	24	<0.0183	730[10]	0	2
N-nitrosodimethylamine	µg/L	24	<0.0435	7.3[10]	0	2
N-nitrosodi-N-proplyamine	µg/L	24	<0.0226	0.38[10]	0	2
N-nitrosodiphenylamine	µg/L	24	<0.0165	2.5[10]	0	2
PAHs	µg/L	24	<0.3635	0.0088[10]	0	3
PCBs	µg/L	24	<1.5217	0.000019[10]	0	3
TCDD equivalents	µg/L	10	<9.13E-7	3.9E-9[10]	0	3
1,1,2,2-tetrachloroethane	µg/L	24	<0.0165	2.3[10]	0	2
Tetrachloroethylene	µg/L	24	<0.0183	2[10]	0	2
Toxaphene	µg/L	24	<0.4348	0.00021[10]	0	3
Trichloroethylene	µg/L	24	<0.0161	27[10]	0	2
1,1,2-trichloroethane	µg/L	24	<0.0183	9.4[10]	0	2
2,4,6-trichlorophenol	µg/L	24	<0.0191	0.29[10]	0	2
Vinyl Chloride	µg/L	24	<0.0143	36[10]	0	2

Notes for Table F-8:

1. Number of data points available for the RPA.
2. If there is a detected value, the highest reported value is displayed in the table. If there are no detected values, the lowest MDL is displayed in the table.
3. Note that the reported MEC does not account for dilution. The RPA does account for dilution; therefore, it is possible for a parameter with an MEC in exceedance of the most stringent criteria not to present a RP (i.e. Endpoint 2).
4. End Point 1 – RP determined, limit required, monitoring required.
   End Point 2 – Discharge determined not to have RP, monitoring may be established.
   End Point 3 – RPA was inconclusive, carry over previous limitations if applicable, and establish monitoring.
5. Based on the Six-Month Median in Table 3 of the Ocean Plan.
6. Background concentrations contained in Table 5 of the Ocean Plan.
7. Consistent with step 13 of Ocean Plan Appendix VI, the effluent limitation for chronic toxicity has been retained from the 2019 Order based on best professional judgement.
8. The 2019 Order did not require monitoring of acute toxicity.
9. Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, section 30253 of the CCR. Levels of radioactivity that exceed the applicable criteria are not expected in the discharge.
10. Based on Thirty-Day Average in Table 3 of the Ocean Plan.
11. As defined in Attachment A.

Endpoint 1
Reasonable potential to cause or contribute to an exceedance of water quality objectives contained within the Ocean Plan (i.e., Endpoint 1) was determined for total chlorine residual. As a result, effluent limitations were included in the Order for that parameter. The Discharger adds chlorine to the product water after reverse osmosis treatment. “Off-specification” product water can be discharged with other waste streams generated at the Facility. The Discharger injects sodium bisulfate to de-activate the chlorine before discharge. However, improper functioning of the sodium bisulfate system may have led to exceedances of the performance goals for chlorine during the previous permit term.

Consistent with step 13 of Ocean Plan Appendix VI, reasonable potential has been concluded for chronic toxicity based on best professional judgement. Although there were no exceedances of the chronic toxicity effluent limitation during the previous permit term, this Order retains the chronic toxicity effluent limitation from the 2019 Order because pollutants in reverse osmosis concentrate/brine may have synergistic or additive toxic effects on receiving waters. Additionally, if a toxic effect is discovered in the receiving water, the results of whole effluent toxicity testing and toxicity reduction evaluation results may be useful for identifying the source of the toxicity.

Endpoint 2
Consistent with 40 CFR 122.44(l)(2)(i)(B), effluent limitations from the 2019 Order were not retained for constituents for which there is no reasonable potential (i.e. results with Endpoint 2). Instead, performance goals were assigned for these constituents. Parameters with Endpoint 2 are determined not to have reasonable potential, thus effluent limitations were not established for these parameters.

Endpoint 3
For parameters for which Endpoint 3 was concluded, reasonable potential was inconclusive. For parameters for which Endpoint 3 was concluded and previous effluent limitations had not been established, performance goals have been retained. The MRP is intended to facilitate collection of additional information for these parameters to determine if reasonable potential exists in future permit reissuances or updates.

4.3.4. Bacteria and Narrative Water Quality Objectives

4.3.4.1. Bacterial Characteristics

Ocean Plan section II.B establishes REC-1 numeric water quality objectives for enterococcus and fecal coliform for ocean waters, and numeric water quality objectives for total coliform at all areas where shellfish may be harvested. The 2019 Order did not require monitoring the effluent or receiving water for bacterial indicators. As a result, there is no data available

for evaluating whether the discharge will cause or contribute to an exceedance of bacterial water quality objectives. This Order requires monthly monitoring for enterococcus and total coliform in the effluent and receiving water to provide data which will be used for future reasonable potential evaluations.

4.3.4.2. Physical Characteristics

San Diego Water Board staff evaluated reasonable potential for the discharge to cause or contribute to noncompliance with narrative water quality objectives for physical characteristics contained in Ocean Plan section II.C. San Diego Water Board staff evaluated reasonable potential using effluent and receiving water monitoring data. San Diego Water Board's staff reasonable potential evaluation for each narrative water quality objective is as follows:

4.3.4.2.1. *Floating particulates and grease and oils shall not be visible.*

Based on visual observations of the surface water for floating particulates and oil and grease, the discharge does not have reasonable potential to cause or contribute to noncompliance with the Ocean Plan narrative water quality objective for floating particulates and oil and grease. Furthermore, the Order contains effluent limitations for total suspended solids, and oil and grease to prevent the discharge from causing visible levels of particulates and oil and grease in the receiving water. In addition, Order section 3.2 prohibits the discharge of waste containing trash or material that is floatable or that will become floatable upon discharge.

4.3.4.2.2. *The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean surface.*

The discharge does not have reasonable potential to cause or contribute to noncompliance with this narrative water quality objective based on (1) visible observations of the surface water conditions for water color, oil and grease, turbidity, odor, and trash, and (2) receiving water monitoring results for light transmittance. In addition, the Order prohibits the discharge of trash, floatable material, and sludges or supernatant sludge to the ocean, which are substances that can discolor the ocean surface (see Order sections 3.2 and 3.3).

4.3.4.2.3. *Natural light shall not be significantly reduced at any point outside the zone of initial dilution as a result of the discharge of waste.*

The discharge does not have reasonable potential to cause or contribute to noncompliance with this narrative water quality objective based on receiving monitoring data for light transmittance at the designated receiving water stations. Furthermore, the Order includes effluent limitations for turbidity to prevent the discharge from causing reductions to natural light penetration in the ocean.

4.3.4.2.4. *The rate of deposition of inert solids and the characteristics of inert solids in the ocean sediments shall not be changed such that benthic communities are degraded.*

The discharge from the Facility does not include inert solids as all solids removed from the seawater during the treatment process are sent to a landfill. Furthermore, the discharge is not directly released into the ocean but instead it goes to a dilution pond that is connected to the ocean by a channel. This further ensures that the rate of discharge into the ocean does not disturb marine sediments present in the water. Benthic monitoring results also do not show the discharge affecting the characteristics of marine sediment. Therefore, the discharge does not have the reasonable potential to cause or contribute to affecting the rate of deposition or the characteristics of inert solids such that benthic communities are degraded.

4.3.4.2.5. *Trash shall not be present in ocean waters, along shorelines, or in adjacent areas in amounts that adversely affect beneficial uses or cause nuisance.*

The discharge does not have reasonable potential to cause or contribute to noncompliance with the Ocean Plan narrative water quality objective for trash based on visual observations of the receiving water for trash. In addition, the Order prohibits the discharge of trash or floatable material (see Order section 3.2).

4.3.4.2.6. *The discharge of waste must not cause the temperature of the receiving water to be altered in a manner that adversely impacts the beneficial uses.*

The Discharger takes in ocean water from Agua Hedionda Lagoon and discharges the brine to a dilution pond with a channel connecting the pond to the Pacific Ocean. The temperature of the effluent ranged from 54.7 to 78.5 degrees Fahrenheit during the permit term. The temperature range was consistent with the change in temperature of the source water with the lower temperature occurring in the winter months and the warmer temperature occurring in the late summer/early fall months. Therefore, the discharge does not have reasonable potential to cause or contribute to a change in the temperature of the receiving water.

Based on the reasonable potential evaluations above, San Diego Water Board staff concluded that the discharge will allow for the attainment or maintenance of the Ocean Plan water quality objectives for physical characteristics.

4.3.4.3. Chemical Characteristics

San Diego Water Board staff evaluated reasonable potential for the discharge to cause or contribute to noncompliance with the narrative water quality objectives for chemical characteristics contained in Ocean Plan section II.D. San Diego Water Board staff made the reasonable potential

evaluations using effluent and receiving water monitoring data. San Diego Water Board staff's evaluation of each narrative water quality objective is as follows:

4.3.4.3.1. *The dissolved oxygen concentration shall not at any time be depressed more than ten percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste materials.*

The receiving water data for dissolved oxygen has occasionally shown a reduction greater than 10 percent from natural background levels in the offshore monitoring stations. These exceedances occurred during the winter months when upswelling of cold water could have contributed to the reduction of dissolved oxygen. This Order maintains the requirement for the Discharger to monitor the dissolved oxygen in the receiving water to continue monitoring the discharges impact on dissolved oxygen levels in the receiving water.

4.3.4.3.2. *The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.*

The receiving water monitoring for pH indicated that the effluent limitations in this Order for pH are sufficient to prevent an excursion above this water quality objective.

4.3.4.3.3. *The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions.*

Given the presence of oxygen in the plume waters, sulfides will be converted to other compounds and therefore sulfides will not be significantly increased above that present under natural conditions. Based on the sediment monitoring data for acid volatile sulfides, there is no reasonable potential for the discharge to contain sulfide concentrations above the background levels of the receiving water and sediments.

4.3.4.3.4. *The concentration of substances set forth in Table 3 of the Ocean Plan shall not be increased in marine sediments to levels that would degrade indigenous biota and the concentration of organic materials in marine sediments shall not be increased to levels that would degrade marine life.*

The sediment monitoring results for the substances (including metals, total DDTs, total PCBs, and total PAHs) set forth in chapter II, Table 3 of the Ocean Plan indicated that the chemical characteristics in sediments beyond the zone of initial dilution are not changed by the discharge such that toxic substances in Table 3 of the Ocean Plan are increased to levels which would degrade indigenous biota. San Diego Water Board staff evaluated these monitoring results for biological indicators and concluded that significant effects on the benthic macrofauna community are not occurring in areas beyond the zone of initial dilution. Therefore, there is no reasonable potential for the discharge to cause or contribute to significant

degradation of marine sediment quality and negatively impact the benthic community. However, this Order maintains the requirement for the Discharger to monitor marine sediment and the benthic community to ensure the discharge continues to not degrade marine sediment quality or impact the benthic community.

4.3.4.3.5. *Nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota.*

The Facility takes in seawater from Agua Hedionda Lagoon and treats it by adding ferric sulfate and polymer, using granular media filtration, and by using reverse osmosis. The Discharger dilutes reverse osmosis concentrate/brine with seawater taken in from Agua Hedionda Lagoon and then discharges the diluted effluent to a pond where the effluent mixes with seawater before flowing into the ocean. Nutrients are not present in the discharge at a level to cause or contribute to objectionable aquatic growths or degrade indigenous biota.

4.3.4.3.6. *Ocean Plan Table 3 water quality objectives apply to all discharges under this Order that are within the jurisdiction of the Ocean Plan. Unless otherwise specified, all metal concentrations are expressed as total recoverable concentrations.*

Table F-8 shows the results of the reasonable potential analysis for all pollutants listed in Table 3 of the Ocean Plan. The constituents that do not have reasonable potential to cause or contribute to an exceedance of water quality objectives have been assigned performance goals. Since the exceedances of the performance goals will trigger an investigation into the cause of the exceedance, these additional requirements are sufficient to prevent an excursion above the numeric water quality objectives in Table 3 of the Ocean Plan.

Based on the reasonable potential evaluations above, San Diego Water Board staff concluded that the discharge will allow for the attainment or maintenance of the Ocean Plan water quality objectives for chemical characteristics.

4.3.4.4. Biological Characteristics

San Diego Water Board staff evaluated reasonable potential for the discharge to cause or contribute to noncompliance with narrative water quality for biological characteristics contained in Ocean Plan section II.E. San Diego Water Board staff made the reasonable potential evaluations using effluent and receiving water monitoring data. San Diego Water Board staff's evaluation of each narrative water quality objectives is as follows:

4.3.4.4.1. *Marine communities, including vertebrate, invertebrate, algae, and plant species, shall not be degraded.*

Ocean Plan section III.M includes requirements for seawater intake structures including a screen slot size of one millimeter and an intake velocity of 0.5 feet per second. The Discharger installed an intake structure that complies with the Ocean Plan requirements in December 2024. The new intake structure minimizes entrainment and impingement of marine species.

Receiving water monitoring data collected from 2020-2024 does not show any adverse impacts from the discharge. The marine environment exposed to the discharge as it is diluted by the receiving waters remains indistinguishable from the surrounding marine environment that has not been exposed to the discharge. Sediment monitoring data collected in 2024 from six monitoring stations shows that no chemicals were detected in sediment above National Oceanic and Atmospheric Administration Effects Range Low concentrations. This suggests that the discharge is not causing any degradation of the coastal marine environment.

The benthic analysis conducted in 2021 demonstrated the turbulence generated by the discharge needed to support dilution caused larger sand material to dominate the benthic sediments within the ZID in comparison to the surrounding area. While the sediments were coarser in the ZID, chemical contamination was like the reference locations upcoast and downcoast of the discharge as well as the Southern California Bight in general. The benthic infaunal community in the ZID was consistent with the upcoast and downcoast reference stations based on species richness or abundance. The benthic response index (BRI) was the lowest in the ZID and sediments throughout the area were ranked as unimpacted when the sediment quality objectives model was applied to the data. These data all indicate the discharge did not impair the environment or affect any of the beneficial uses.

4.3.4.4.2. *The natural taste, odor, color of fish, shellfish, or other marine resources used for human consumption must not be altered.*

See section 4.3.4.4.1. above.

4.3.4.4.3. *The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.*

See section 4.3.4.4.1. above.

Based on the reasonable potential evaluations above, San Diego Water Board staff concluded that the discharge will allow for the attainment or maintenance of the Ocean Plan water quality objectives for biological characteristics.

4.3.4.5. Radioactivity

Ocean Plan section II.F specifies that discharges of radioactive waste shall not degrade marine life. The discharge is not expected to contain radioactivity above levels specified in the Ocean Plan. Reasonable potential analysis results for radioactivity using effluent monitoring data were inconclusive (see Table F-8). Therefore, this Order includes performance goals and requires quarterly effluent monitoring for radioactivity to ensure levels of radioactivity in the discharge do not exceed applicable criteria. Furthermore, Order section 3.3 prohibits the discharge of radiological warfare agents or radioactive waste to the ocean which would be sufficient to prevent an excursion above the applicable radioactivity criteria in the receiving water.

4.3.5. WQBEL and Performance Goal Calculations

4.3.5.1. Effluent limitations for total chlorine residual and performance goals based on water quality objectives from Table 3 of the Ocean Plan were calculated using the following equation, except for toxicity, radioactivity, and salinity:

$Ce = Co + D_m (Co – Cs)$ where:

Ce = the effluent limitation (µg/L)
Co = the water quality objective to be met at the completion of initial dilution (µg/L)
Cs = background seawater concentration (µg/L)
D_m = minimum probable initial dilution expressed as parts seawater per part wastewater

4.3.5.2. Initial dilution (D_m) was determined to be 21.83 to 1 by the Discharger through the application of USEPA's dilution model, Visual Plumes. The D_m of 21.83 was carried over from the 2019 Order.

4.3.5.3. Table 5 of the Ocean Plan establishes background concentrations for some pollutants to be used when determining reasonable potential (represented as "Cs"). In accordance with implementing procedures for Table 3 of the Ocean Plan, Cs equals zero for all pollutants not established in Table 5 of the Ocean Plan. The background concentrations provided in Table 5 of the Ocean Plan are summarized below:

Table F-9. Pollutants Having Background Concentrations

Pollutant	Background Seawater Concentration
Arsenic	3 µg/L
Copper	2 µg/L
Mercury	0.0005 µg/L
Silver	0.16 µg/L
Zinc	8 µg/L

4.3.5.4. As an example, performance goals for cyanide are determined as follows. Water quality objectives from the Ocean Plan for cyanide are:

Table F-10. Example Parameter Water Quality Objectives

Parameter	Units	Six-Month Median	Daily Maximum	Instantaneous Maximum
Cyanide	µg/L	1	4	10

Using the equation, $Ce = Co + D_m (Co-Cs)$, effluent limitations/performance goals were calculated as follows:

Cyanide
Ce = 1 + 21.83(1-0) = 22.83 (Six-Month Median)
Ce = 4 + 21.83(4-0) = 91.32 (Daily Maximum)
Ce = 10 + 21.83(10-0) = 228.3 (Instantaneous Maximum)

Based on the implementing procedures described above, effluent limitations for total chlorine residual and performance goals for all parameters in Table 3 pollutants of the California Ocean Plan were calculated and incorporated into this Order.

4.3.5.5. Section 122.45(f)(1) of 40 CFR requires that effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR section 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations and performance goals expressed in terms of mass and concentration. Pursuant to the exceptions to mass limitations provided in 40 CFR section 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., California Toxics Rule (CTR) criteria and Maximum Contaminant Levels) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations were calculated using the following equation:

Mass emission rate (MER, lbs/day) = Permitted Flow (MGD) x Pollutant Concentration (mg/L) x 8.34

4.3.5.6. Based on the results of the RPA, a summary of the WQBELs established in this Order are provided below.

Table F-11. Summary of WQBELs

Parameter	Units	Effluent Limitations			
		Six-Month Median	Maximum Daily	Instantaneous Maximum	Monthly Average
Total Residual Chlorine	µg/L	4.57E+01	1.83E+02	1.37E+03	–
Total Residual Chlorine	lbs/day	9.06E+01	3.63E+02	2.72E+03	–
Chronic Toxicity	”Pass” / “Fail”, Percent Effect	–	“Pass”	–	–

4.3.5.7. A summary of the performance goals is provided in Fact Sheet Table F-12. Performance goals are calculated for monitoring location M-001 using the design capacity of 238 MGD.

Table F-12. Summary of Performance Goals[1]

Parameter	Units[2]	6-Month Median[3]	Maximum Daily[3]	Instantaneous Maximum[3]	Average Monthly[3]
Ammonia (as Nitrogen)	µg/L	1.37E+04	5.48E+04	1.37E+05	–
Ammonia (as Nitrogen)	lbs/day	2.72E+04	1.09E+05	2.72E+05	–
Arsenic, Total Recoverable	µg/L	1.17E+02	6.65E+02	1.76E+03	–
Arsenic, Total Recoverable	lbs/day	2.33E+02	1.32E+03	3.50E+03	–
Cadmium, Total Recoverable	µg/L	2.28E+01	9.13E+01	2.28E+02	–
Cadmium, Total Recoverable	lbs/day	4.53E+01	1.81E+02	4.53E+02	–
Chlorinated Phenolics	µg/L	2.28E+01	9.13E+01	2.28E+02	–
Chlorinated Phenolics	lbs/day	4.53E+01	1.81E+02	4.53E+02	–
Non-Chlorinated Phenolic Compounds	µg/L	6.85E+02	2.74E+03	6.85E+03	–
Non-Chlorinated Phenolic Compounds	lbs/day	1.36E+03	5.44E+03	1.36+04	–
Chromium-6[4]	µg/L	4.57E+01	1.83E+02	4.57E+02	–

Parameter	Units[2]	6-Month Median[3]	Maximum Daily[3]	Instantaneous Maximum[3]	Average Monthly[3]
Chromium-6[4]	lbs/day	9.06E+01	3.63E+02	9.06E+02	–
Copper, Total Recoverable	µg/L	2.48E+01	2.30E+02	6.41E+02	–
Copper, Total Recoverable	lbs/day	4.93E+01	4.57E+02	1.27E+03	–
Cyanide, Total Recoverable[5]	µg/L	2.28E+01	9.13E+01	2.28E+02	–
Cyanide, Total Recoverable[5]	lbs/day	4.53E+01	1.81E+02	4.53E+02	–
Endosulfan	µg/L	2.05E-01	4.11E-01	6.16E-01	–
Endosulfan	lbs/day	4.08E-01	8.16E-01	1.22E+00	–
Endrin	µg/L	4.57E-02	9.13E-02	1.37E-01	–
Endrin	lbs/day	9.06E-02	1.81E-01	2.72E-01	–
HCH	µg/L	9.13E-02	1.83E-01	2.74E-01	–
HCH	lbs/day	1.81E-01	3.63E-01	5.44E-01	–
Lead, Total Recoverable	µg/L	4.57E+01	1.83E+02	4.57E+02	–
Lead, Total Recoverable	lbs/day	9.06E+01	3.63E+02	9.06E+02	–
Mercury, Total Recoverable	µg/L	9.02E-01	3.64E+00	9.12E+00	–
Mercury, Total Recoverable	lbs/day	1.79E+00	7.23E+00	1.81E+01	–
Nickel, Total Recoverable	µg/L	1.14E+02	4.57E+02	1.14E+03	–
Nickel, Total Recoverable	lbs/day	2.27E+02	9.06E+02	2.27E+03	–
Selenium, Total Recoverable	µg/L	3.42E+02	1.37E+03	3.42E+03	–
Selenium, Total Recoverable	lbs/day	6.80E+02	2.72E+03	6.80E+03	–
Silver, Total Recoverable	µg/L	1.25E+01	6.04E+01	1.56E+02	–
Silver, Total Recoverable	lbs/day	2.48E+01	1.20E+02	3.10E+02	–
Zinc, Total Recoverable	µg/L	2.82E+02	1.65E+03	4.39E+03	–
Zinc, Total Recoverable	lbs/day	5.60E+02	3.28E+03	8.72E+03	–
Radioactivity	picocuries per liter (pCi/L)	Not to exceed limits specified in title 17, division 1, chapter 5, subchapter 4, group 3, article 3, section 30253 of the CCR. Reference to section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.			
Acrolein	µg/L	–	–	–	5.02E+03

Parameter	Units[2]	6-Month Median[3]	Maximum Daily[3]	Instantaneous Maximum[3]	Average Monthly[3]
Acrolein	lbs/day	–	–	–	9.97E+03
Acrylonitrile	µg/L	–	–	–	2.28E+00
Acrylonitrile	lbs/day	–	–	–	4.53E+00
Aldrin	µg/L	–	–	–	5.02E-04
Aldrin	lbs/day	–	–	–	9.97E-04
Antimony	µg/L	–	–	–	2.74E+04
Antimony	lbs/day	–	–	–	5.44E+04
Benzene	µg/L	–	–	–	1.35E+02
Benzene	lbs/day	–	–	–	2.67E+02
Benzidine	µg/L	–	–	–	1.58E-03
Benzidine	lbs/day	–	–	–	3.13E-03
Beryllium	µg/L	–	–	–	7.53E-01
Beryllium	lbs/day	–	–	–	1.50E+00
Bis(2-chloroethoxy) Methane	µg/L	–	–	–	1.00E+02
Bis(2-chloroethoxy) Methane	lbs/day	–	–	–	1.99E+02
Bis(2-chloroethyl) Ether	µg/L	–	–	–	1.03E+00
Bis(2-chloroethyl) Ether	lbs/day	–	–	–	2.04E+00
Bis(2-ethylhexyl) Phthalate	µg/L	–	–	–	7.99E+01
Bis(2-ethylhexyl) Phthalate	lbs/day	–	–	–	1.59E+02
Bis(2-chloroisopropyl) Ether	µg/L	–	–	–	2.74E+04
Bis(2-chloroisopropyl) Ether	lbs/day	–	–	–	5.44E+04
Carbon Tetrachloride	µg/L	–	–	–	2.05E+01
Carbon Tetrachloride	lbs/day	–	–	–	4.08E+01
Chlordane	µg/L	–	–	–	5.25E-04
Chlordane	lbs/day	–	–	–	1.04E-03
Chlorobenzene	µg/L	–	–	–	1.30E+04
Chlorobenzene	lbs/day	–	–	–	2.58E+04
Chlorodibromomethane	µg/L	–	–	–	1.96E+02

Parameter	Units[2]	6-Month Median[3]	Maximum Daily[3]	Instantaneous Maximum[3]	Average Monthly[3]
Chlorodibromomethane	lbs/day	–	–	–	3.90E+02
Chloroform	µg/L	–	–	–	2.97E+03
Chloroform	lbs/day	–	–	–	5.89E+03
Chromium-3	µg/L	–	–	–	4.34E+06
Chromium-3	lbs/day	–	–	–	8.61E+06
Di-n-butyl Phthalate	µg/L	–	–	–	7.99E+04
Di-n-butyl Phthalate	lbs/day	–	–	–	1.59E+05
Dichlorobenzenes	µg/L	–	–	–	1.16E+05
Dichlorobenzenes	lbs/day	–	–	–	2.31E+05
1,4-dichlorobenzene	µg/L	–	–	–	4.11E+02
1,4-dichlorobenzene	lbs/day	–	–	–	8.16E+02
3,3'-dichlorobenzidine	µg/L	–	–	–	1.85E-01
3,3'-dichlorobenzidine	lbs/day	–	–	–	3.67E-01
Dichlorobromomethane	µg/L	–	–	–	1.42E+02
Dichlorobromomethane	lbs/day	–	–	–	2.81E+02
1,2-dichloroethane	µg/L	–	–	–	6.39E+02
1,2-dichloroethane	lbs/day	–	–	–	1.27E+03
1,1-dichloroethylene	µg/L	–	–	–	2.05E+01
1,1-dichloroethylene	lbs/day	–	–	–	4.08E+01
Dichloromethane	µg/L	–	–	–	1.03E+04
Dichloromethane	lbs/day	–	–	–	2.04E+04
1,3-dichloropropene	µg/L	–	–	–	2.03E+02
1,3-dichloropropene	lbs/day	–	–	–	4.03+E02
DDT	µg/L	–	–	–	3.88E-03
DDT	lbs/day	–	–	–	7.70E-03
Dieldrin	µg/L	–	–	–	9.13E-04
Dieldrin	lbs/day	–	–	–	1.81E-03
Diethyl Phthalate	µg/L	–	–	–	7.53E+05

Parameter	Units[2]	6-Month Median[3]	Maximum Daily[3]	Instantaneous Maximum[3]	Average Monthly[3]
Diethyl Phthalate	lbs/day	–	–	–	1.50E+06
Dimethyl Phthalate	µg/L	–	–	–	1.87E+07
Dimethyl Phthalate	lbs/day	–	–	–	3.72E+07
4,6-dinitro-2-methylphenol	µg/L	–	–	–	5.02E+03
4,6-dinitro-2-methylphenol	lbs/day	–	–	–	9.97E+03
2,4-dinitrophenol	µg/L	–	–	–	9.13E+01
2,4-dinitrophenol	lbs/day	–	–	–	1.81E+02
2,4-dinitrotoluene	µg/L	–	–	–	5.94E+01
2,4-dinitrotoluene	lbs/day	–	–	–	1.18E+02
1,2-diphenylhydrazine	µg/L	–	–	–	3.65E+00
1,2-diphenylhydrazine	lbs/day	–	–	–	7.25E+00
Ethylbenzene	µg/L	–	–	–	9.36E+04
Ethylbenzene	lbs/day	–	–	–	1.86E+05
Fluoranthene	µg/L	–	–	–	3.42E+02
Fluoranthene	lbs/day	–	–	–	6.80E+02
Halomethanes	µg/L	–	–	–	2.97E+03
Halomethanes	lbs/day	–	–	–	5.89E+03
Heptachlor	µg/L	–	–	–	1.14E-03
Heptachlor	lbs/day	–	–	–	2.27E-03
Heptachlor Epoxide	µg/L	–	–	–	4.57E-04
Heptachlor Epoxide	lbs/day	–	–	–	9.06E-04
Hexachlorobenzene	µg/L	–	–	–	4.79E-03
Hexachlorobenzene	lbs/day	–	–	–	9.52E-03
Hexachlorobutadiene	µg/L	–	–	–	3.20E+02
Hexachlorobutadiene	lbs/day	–	–	–	6.34E+02
Hexachlorocyclopentadiene	µg/L	–	–	–	1.32E+03
Hexachlorocyclopentadiene	lbs/day	–	–	–	2.63E+03
Hexachloroethane	µg/L	–	–	–	5.71E+01

Parameter	Units[2]	6-Month Median[3]	Maximum Daily[3]	Instantaneous Maximum[3]	Average Monthly[3]
Hexachloroethane	lbs/day	–	–	–	1.13E+02
Isphorone	µg/L	–	–	–	1.67E+04
Isphorone	lbs/day	–	–	–	3.31E+04
Nitrobenzene	µg/L	–	–	–	1.12E+02
Nitrobenzene	lbs/day	–	–	–	2.22E+02
N-nitrosodimethylamine	µg/L	–	–	–	1.67E+02
N-nitrosodimethylamine	lbs/day	–	–	–	3.31E+02
N-nitrosodiphenylamine	µg/L	–	–	–	5.71E+01
N-nitrosodiphenylamine	lbs/day	–	–	–	1.13E+02
N-nitrosodi-N-proplyamine	µg/L	–	–	–	8.68E+00
N-nitrosodi-N-proplyamine	lbs/day	–	–	–	1.72E+01
PAHs	µg/L	–	–	–	2.01E-01
PAHs	lbs/day	–	–	–	3.99E-01
PCBs	µg/L	–	–	–	4.34E-04
PCBs	lbs/day	–	–	–	8.61E-04
TCDD equivalents	µg/L	–	–	–	8.90E-08
TCDD equivalents	lbs/day	–	–	–	1.77E-07
1,1,2,2-tetrachloroethane	µg/L	–	–	–	5.25E+01
1,1,2,2-tetrachloroethane	lbs/day	–	–	–	1.04E+02
Tetrachloroethylene	µg/L	–	–	–	4.57E+01
Tetrachloroethylene	lbs/day	–	–	–	9.06E+01
Thallium, Total Recoverable	µg/L	–	–	–	4.57E+01
Thallium, Total Recoverable	lbs/day	–	–	–	9.06E+01
Toluene	µg/L	–	–	–	1.94E+06
Toluene	lbs/day	–	–	–	3.85E+06
Tributyltin	µg/L	–	–	–	3.20E-02
Tributyltin	lbs/day	–	–	–	6.34E-02
1,1,1-trichloroethane	µg/L	–	–	–	1.23E+07

Parameter	Units[2]	6-Month Median[3]	Maximum Daily[3]	Instantaneous Maximum[3]	Average Monthly[3]
1,1,1-trichloroethane	lbs/day	–	–	–	2.45E+07
1,1,2-trichloroethane	µg/L	–	–	–	2.15E+02
1,1,2-trichloroethane	lbs/day	–	–	–	4.26E+02
Trichloroethylene	µg/L	–	–	–	6.16E+02
Trichloroethylene	lbs/day	–	–	–	1.22E+03
2,4,6-trichlorophenol	µg/L	–	–	–	6.62E+00
2,4,6-trichlorophenol	lbs/day	–	–	–	1.31E+01
Toxaphene	µg/L	–	–	–	4.79E-03
Toxaphene	lbs/day	–	–	–	9.52E-03
Vinyl Chloride	µg/L	–	–	–	8.22E+02
Vinyl Chloride	lbs/day	–	–	–	1.63E+03

Notes for Table 4:

1. See Attachment A for definitions, abbreviations, and a glossary of common terms.
2. The MER is calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is a flow rate of 238 MGD and C is the concentration in mg/L. A discharge flow rate of 238 MGD is an operational constraint of the Facility modeled with the highest concentration of brine discharged, 60 MGD, with the minimum amount of dilution water, 178 MGD, that is necessary to meet the salinity effluent limitation.
3. Scientific "E" notation is used to express certain values. In scientific "E" notation, the number following the "E" indicates that position of the decimal point in the value. Negative numbers after the "E" indicate that the value is less than 1, and positive numbers after the "E" indicate that the value is greater than 1. In this notation a value of 6.1E-02 represents 6.1 x 10^{-2} or 0.061, 6.1E+02 represents 6.1 x 10^{2} or 610, and 6.1E+00 represents 6.1 x 1 or 6.1.
4. The Discharger may, at their option, apply this performance goal as a total chromium performance goal.
5. If the Discharger can demonstrate to the satisfaction of the San Diego Water Board that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, performance goals may be evaluated with the combined measurement of free cyanide, simple alkali metals cyanides, and weakly complexed organometallic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in 40 CFR part 136, as amended.

4.3.6. Water Quality Limitations for Salinity

Ocean Plan chapter III.M.3.b requires the inclusion of an effluent limitation necessary to meet the receiving water limitation of a daily maximum of 2.0 ppt above natural salinity at the edge of a 100-meter brine mixing zone (BMZ) measured horizontally from the discharge point. There is no vertical limit to this zone. Ocean Plan chapter III.M.3.d allows for facilities to receive a BMZ of up to 200 meters laterally from the discharge point that (a) have received a conditional Water Code section 13142.5(b) determination, (b) are over 80 percent constructed by the effective date of the Desalination Amendment, and (c) propose flow augmentation using a surface water discharge. To receive the 200-meter BMZ, the Discharger must demonstrate that the combination of the expanded BMZ and flow augmentation using a surface water intake provides a comparable level of intake and mortality of all forms of marine life as the combination of the 100-meter BMZ and wastewater dilution if wastewater is available, or multiport diffusers if wastewater is unavailable. Additionally, the discharge shall not result in hypoxic conditions outside the BMZ. The Facility meets the requirements to apply for an expanded BMZ of up to 200 meters because: (a) the Facility has previously received a conditional Water Code section 13142.5(b) determination, (b) the Facility was over 80 percent constructed prior to the effective date of the Desalination Amendment, and (c) the Discharger proposes flow augmentation using a surface water discharge.

The Discharger submitted an entrainment study, based on Tenera Environmental's 2008 Encina Power Station *Clean Water Act Section 316(b) Impingement Mortality and Entrainment Characterization Study*, as Appendix K of the 2015 ROWD. The Discharger subsequently revised the entrainment effects calculations as recommended by the Science Advisory Panel (SAP) and provided the results as Appendices FFF and GGG to the 2015 ROWD. The studies found that for this Facility, flow augmentation with a surface water intake and an expanded BMZ of 200 meters is more protective than a 100-meter BMZ using a multiport diffuser. The study found that the use of wastewater was infeasible due to limited flow for dilution and limited capacity at any nearby existing wastewater outfalls.

Appendix BB of the 2015 ROWD concludes that a 200-meter BMZ, with a minimum dilution of 3.31:1 in the ocean for the diluted effluent, is needed to achieve the salinity receiving water limitation. Consistent with Ocean Plan chapter III.M.3.d, this Order establishes an expanded BMZ of 200 meters.

In determining the effluent limitation necessary to meet the receiving water limitation at the edge of the BMZ, the Ocean Plan establishes the following formula:

$Ce = (2.0 \text{ ppt} + Cs) + D_m(2.0 \text{ ppt})$

Where:
Ce = the maximum daily effluent concentration limit in ppt

Co = the salinity concentration to be met at the BMZ; i.e. Co = 2.0 ppt + Cs
Cs = the natural background salinity (determined from salinity data collected at a reference location that is representative of the natural background salinity at the discharge location)
D_m = minimum probable initial dilution expressed as parts seawater per part brine discharge

For the purposes of this evaluation, the period of record at the Scripps Pier Shore Station was selected as the natural background salinity. Natural background salinity at Scripps Pier in San Diego was recorded from April 2005 through April 2025, and the lowest monthly mean salinity for that period was calculated to be 33.425 ppt and used as the natural background salinity. Using the mean salinity from April 2005 through April 2025 as the natural background salinity, the salinity effluent limitation was calculated using this equation:

Ce = (2.0 ppt + 33.425 ppt) + 3.31(2.0 ppt) = 42.0 ppt.

4.3.7. Whole Effluent Toxicity (WET)

4.3.7.1. WET testing protects receiving waters from the aggregate toxic effect of a mixture of pollutants in the effluent. The effluent from the Facility will consist of concentrated pollutants that were present in the influent and pollutants that are introduced as part of the treatment process. Therefore, the Facility's effluent has a potential for toxic constituents in toxic amounts to be present, or could have additive, synergistic, or antagonistic effects.

4.3.7.2. The chronic "in-stream" waste concentration (IWC) is calculated by dividing 100 percent by the dilution ratio. At Monitoring Location M-001, the IWC is calculated as follows:

IWC = 1/minimum initial dilution factor (D_m) = 1/22.83 = 0.0438 x 100 = 4.38 percent

Because chronic toxicity sampled at M-002 is following dilution from flow augmentation water, the only remaining dilution available is from the ocean. Therefore, the IWC for chronic toxicity at M-002 is calculated only using dilution from the ocean, 5.75, and not the total dilution, 22.83. The IWC at Monitoring Location M-002 is 17.4 percent effluent:

IWC = 1/minimum initial dilution factor (D_m) = 1/5.75 = 0.174 x 100 = 17.4 percent

For further information regarding the calculation of the dilution factor, please see Fact Sheet section 2.2.

4.3.7.3. In the 2019 Order, the chronic toxicity is expressed as "Pass" or "Fail" for each maximum daily individual result. The 2019 Order also required the Discharger to report the "Percent Effect" as part of the chronic toxicity result. From July 2019 to July 2025, the Discharger was in compliance with the

effluent limitation for chronic toxicity with all the reported results as “Pass” in its self-monitoring reports.

However, as stated in Fact Sheet section 4.3.3, the effluent limitation for chronic toxicity is being carried over from the 2019 Order based on best professional judgement (i.e. Step 13 of Ocean Plan Appendix IV). This Order also retains the monthly monitoring requirement for chronic toxicity to determine compliance with the effluent limitation.

Like the 2019 Order, this Order requires the Discharger to asses compliance with the chronic toxicity effluent limitation using the Test of Significant Toxicity (TST) statistical approach at the discharge “in-stream” waste concentration (IWC). Chronic toxicity text results are to be reported as “Pass” or “Fail,” as described in MRP section 3.3. The TST statistical approach is described in the *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1. The TST null hypothesis must be "mean discharge IWC response $\leq$ 0.75 x mean control response.” A test that rejects this null hypothesis must be reported as “Pass”. A test that does not reject this null hypothesis must be reported as “Fail”. The Discharger must also continue reporting the “Percent Effect” as part of chronic toxicity result. Percent Effect (or Effect, in percent) = [(Control mean response – IWC mean response) ÷ Control mean response)] ×100.

Use of the TST statistical approach is based on the following information:

4.3.7.3.1. Evaluating chronic toxicity using the TST statistical approach more precisely identifies toxicity in the effluent.

4.3.7.3.2. In 2010, USEPA endorsed the TST statistical approach in the *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010). This document states, “Permitting authorities should consider adding the TST approach to their implementation procedures for analyzing valid WET data for their current NPDES WET Program.” The TST approach is “another statistical option to analyze valid WET test data for NPDES WET reasonable potential and permit compliance determinations.…The TST approach does not result in changes to EPA’s WET test methods promulgated at Title 40 of the Code of Federal Regulations Part 136.” The document also states, “The TST approach can be applied to acute (survival) and chronic (sublethal) endpoints and is appropriate to use for both freshwater and marine EPA WET test methods.”

4.3.7.3.3. Using the TST in this Order, in conjunction with other Ocean Plan requirements (West Coast WET method/test species for monitoring and limiting chronic toxicity, the IWC representing the critical condition for water

quality protection, the initial dilution procedure, and a single test for compliance) provides increased assurance that statistical error rates are more directly addressed and accounted for in decisions regarding chronic toxicity in the discharge. The TST statistical approach will improve consistency in assessing effluent toxicity and the impact of discharge. Diamond et al. (2013) examined the side-by-side comparison of No-Observed-Effect-Concentration (NOEC) and TST results using California chronic toxicity test data (including data from POTWs) for *Haliotis rufescens* used in the red abalone larval development WET method and *Mytilus* species used in the pacific oyster, *Crassostrea gigas* and mussel, Mytilus spp. shell development test method 1005.0 (Diamond D, Denton D, Roberts, J, Zheng L. 2013. *Evaluation of the Test of Significant Toxicity for Determining the Toxicity of Effluents and Ambient Water Samples*, Environ Toxicol Chem 32:1101-1108; and California State Water Resources Control Board. 2011. *Whole Effluent Toxicity Test Drive Analysis of the Test of Significant Toxicity (TST),* Sacramento, CA, USA (see Table 1, method types 1 through 5, on page 1,103). This comparison shows that while the TST and NOEC statistical approaches perform similarly most of the time, the TST performs better in identifying toxic and nontoxic samples, a desirable characteristic for chronic toxicity testing conducted under this Order. This examination also signals that the test methods' false positive rate (β no higher than 0.05 at a mean effect of 10 percent) and false negative rate (α no higher than 0.05 (0.25 for topsmelt) at a mean effect of 25 percent) are indeed low.

4.3.7.3.4. Fox et al. 2019[1] found that the TST approach incentivizes laboratories to produce more precise data and increase statistical power. When within-test variability is low and the percent effect is low, the NOEC approach is more likely to declare a sample toxic than the TST approach. When within-test variability is high and the percent effect is high, the NOEC approach is less likely to declare a sample toxic than the TST approach.

4.3.7.3.5. Using the TST approach, the San Diego Water Board will have more confidence when making reasonable potential determinations as to whether the discharge is toxic or non-toxic. The use of the TST approach will also allow for better data comparability to the Discharger's previous toxicity results reported under the 2019 Order.

4.3.7.3.6. The USEPA's WET testing program and acute and chronic WET methods rely on the measurement result for a specific test endpoint, not upon achievement of specified concentration-response patterns to determine

[1] Fox J, Denton D, Diamond J, Stuber R. 2019. *Comparison of False-Positive Rates of 2 Hypothesis-Test Approaches in Relation to Laboratory Toxicity Test Performance. Environmental Toxicology and Chemistry*. 38(3): 511–523.

toxicity. USEPA's WET methods do not require achievement of specified effluent or ambient concentration-response patterns prior to determining that toxicity is present.[2]

Nevertheless, USEPA's acute and chronic WET methods require that effluent and ambient concentration-response patterns generated for multi-concentration acute and chronic toxicity tests be reviewed, as a component of test review following statistical analysis, to ensure that the calculated measurement result for the toxicity test is interpreted appropriately (EPA-821-R-02-012, section 12.2.6.2; EPA-821-R-02-013, section 10.2.6.2).

4.3.7.3.7. Some pollutants, such as TCDD equivalents, have method detection limits that are greater than their effluent limitations or performance goals. Thus, pollutants in excess of the effluent limitation may be discharged without detection, attach to suspended solids, be released into the Pacific Ocean, and harm designated beneficial uses. The effluent could also include harmful levels of pharmaceuticals and personal care products, pesticides, and per- and polyfluoroalkyl substances (PFAS) that do not have effluent limitations or performance goals that could cause toxic conditions in the receiving water.

4.3.7.4. The 2019 Order removed performance goals and monitoring requirements for acute toxicity established in Order No. R9-2006-0065, NPDES No. CA0109223, *Waste Discharge Requirements for the Poseidon Resources (Channelside) LLC, Carlsbad Desalination Project, Discharge to the Pacific Ocean Via the Encina Power Station Discharge Channel*. An acute toxicity test is conducted over a short period and measures mortality. A chronic toxicity test is conducted over a short or a longer exposure period and may measure mortality, reproduction, and growth. A chemical at a low concentration could have chronic effects but no acute effects until the chemical was at a higher concentration. Thus, chronic toxicity is a more stringent requirement than acute toxicity. To ensure the aggregated impacts of pollutants present within the Discharger's effluent does not result in the presence of toxicity within the receiving water, this Order continues to leave out performance goals and monitoring requirements for acute toxicity and retains effluent limitations for chronic toxicity. A chronic toxicity effluent limitation is necessary, feasible, and appropriate to ensure the aggregated impacts of pollutants present within the Discharger's effluent do not cause or contribute to toxicity within the receiving water.

4.3.7.5. In January 2010, USEPA published a guidance document entitled; *EPA Regions 8, 9 and 10 Toxicity Training Tool*, which among other things discusses permit limitation expression for chronic toxicity. The document

[2] See, Supplementary Information in support of the Final Rule establishing WET test methods at 67 Fed. Reg. 69952, 69963, Nov. 19, 2002.

acknowledges that NPDES regulations at 40 CFR section 122.45(d) require that all permit limits be expressed, unless impracticable, as an average weekly effluent limitation (AWEL) and average monthly effluent limitation (AMEL) for all dischargers other than publicly owned treatment works. Following section 5.2.3 of the Technical Support Document (TSD), the use of an AWEL and AMEL is not appropriate for WET. In lieu of an AWEL and AMEL, USEPA recommends establishing a maximum daily effluent limitation (MDEL) for toxic pollutants and pollutants in water quality permitting, including WET. This is appropriate for two reasons: (1) the basis for the average weekly and average monthly requirement is secondary treatment regulations and is not related to the requirement to assure achievement of water quality standards and (2) an average weekly and average monthly requirement comprising up to seven and thirty-one daily samples, respectively, could average out daily peak toxic concentrations for WET and therefore, the discharge's potential for causing acute and chronic effects would be missed. It is impracticable to use an AWEL and AMEL, because short-term spikes of toxicity levels that would be permissible under the seven-day and thirty-one-day average scheme, respectively, would not be adequately protective of all beneficial uses. The MDEL is the highest allowable value for the discharge measured during a calendar day or 24-hour period representing a calendar day. This approach is comparable to that of the Ocean Plan, which calls for a daily maximum chronic toxicity limit.

4.3.7.6. USEPA designed its 2000 guidance as a standardized step-by step review process that investigates the causes for ten commonly observed concentration-response patterns and provides for the proper interpretation of the test endpoints derived from these patterns for NOECs, lethal concentration 50 (LC 50), and effective concentration 25 (EC25), thereby reducing the number of misclassified test results. The guidance provides one of three determinations based on the review steps: (1) that calculated effect concentrations are reliable and should be reported, (2) that calculated effect concentrations are anomalous and should be explained, or (3) that the test was inconclusive and should be repeated with a newly collected sample. The standardized review of the effluent and receiving water concentration-response patterns provided by USEPA's 2000 guidance decreased discrepancies in data interpretation for NOEC, LC 50, and EC25 test results, thereby lowering the chance that a truly nontoxic sample would be misclassified and reported as toxic.

Appropriate interpretation of the measurement result from USEPA's TST statistical approach ("pass"/"fail") for effluent and receiving water samples is, by design, independent from the concentration-response patterns of the toxicity tests for those samples. Therefore, when using the TST statistical approach, application of USEPA's 2000 guidance on effluent and receiving waters concentration-response patterns will not improve the appropriate interpretation of TST results as long as all Test Acceptability Criteria and

other test review procedures - including those related to quality assurance for effluent and receiving water toxicity tests, reference toxicity tests, and control performance (mean, standard deviation, and coefficient of variation) - described by the WET test methods manual and TST guidance are followed. The 2000 guidance may be used to identify reliable, anomalous, or inconclusive concentration-response patterns and associated statistical results to the extent that the guidance recommends review of test procedures and laboratory performance already recommended in the WET test methods manual. The guidance does not apply to single-concentration (e.g., IWC) and control statistical t-tests and does not apply to the statistical assumptions on which the TST is based. The San Diego Water Board will not consider a concentration-response pattern as sufficient basis to determine that a TST t-test result for a toxicity test is anything other than valid, absent other evidence. In a toxicity laboratory, unexpected concentration-response patterns should not occur with any regular frequency and consistent reports of anomalous or inconclusive concentration-response patterns or test results that are not valid will require an investigation of laboratory practices.

4.3.7.7. Any Data Quality Objectives or Standard Operating Procedure used by the toxicity testing laboratory to identify and report valid, invalid, anomalous, or inconclusive effluent or receiving water toxicity test measurement results from the TST statistical approach which include a consideration of concentration-response patterns and/or Percent Minimum Significant Differences (PMSDs) must be submitted for review by the San Diego Water Board, in consultation with USEPA Region IX, the State Water Board's Quality Assurance Officer, and ELAP (40 CFR section 122.44(h)). As described in the bioassay laboratory audit directives to the San Jose Creek Water Quality Laboratory from the State Water Board dated August 7, 2014, and from the USEPA dated December 24, 2013, the PMSD criteria only apply to compliance for NOEC and the sublethal endpoints of the NOEC, and therefore are not used to interpret TST results.

4.3.7.8. This Order contains a reopener to require the San Diego Water Board to modify this Order, if necessary, to make it consistent with any policy, law, or regulation.

4.4. Final Effluent Limitation Considerations

The following tables list the final effluent limitations established in this Order. Where this Order establishes MER limitations, these limitations have been derived based on a flowrate of 238 MGD.

Table F-13. Effluent Limitations[1]

Parameter	Monitoring Location	Units[2]	Average Monthly	Average Weekly	Average Daily	6-Month Median	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
TTSS	M-001	mg/L	60	–	–	–	–	–	–
TSS	M-001	lbs/day	119,095	–	–	–	–	–	–
pH	M-001	standard units	–	–	–	–	–	6.0	9.0
Oil and Grease	M-001	mg/L	25	40	–	–	–	–	75
Oil and Grease	M-001	lbs/day	49,623	79,397	–	–	–	–	148,869
Settleable Solids	M-001	ml/L	1.0	1.5	–	–	–	–	3.0
Turbidity	M-001	NTU	75	100	–	–	–	–	225
Total Chlorine Residual	M-001	µg/L	–	–	–	45.7	183	–	1,370
Total Chlorine Residual	M-001	lbs/day	–	–	–	90.6	363	–	2,270
Salinity	M-002	ppt	–	–	42.0	–	–	–	–
Chronic Toxicity[3,4]	M-002	"Pass"/"Fail", Percent Effect	–	–	–	–	"Pass"	–	–

Notes for Table F-13:
1. See Attachment A for definitions, abbreviations, and a glossary of common terms.
2. The MER is calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the flowrate of 238 MGD and C is the concentration in mg/L. A discharge flowrate of 238 MGD is an operational constraint of the Facility modeled with the highest

concentration of brine discharged, 60 MGD, with the minimum amount of dilution water 178 MGD, that is necessary to meet the salinity effluent limitation.

3. As specified in MRP section 3.3.
4. The chronic toxicity final effluent limitation is protective of both the numeric acute and chronic toxicity Ocean Plan water quality objectives. The final effluent limitation will be implemented using *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to the West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, 1995).

Table F-14. Permitted Discharge Flows[1] at Monitoring Location M-001

Wastewater	Maximum Daily Flowrate (MGD)	Annual Average Flowrate (MGD)
Media Filtration Backwash	–	7
Reverse Osmosis Concentrate	–	60
Combined Discharge of Media Filtration Backwash and Reverse Osmosis Concentrate	67	–

Notes for Table F-14:

1. Start-up maintenance flows, product water, and off-specification water may be temporarily discharged to the Pacific Ocean during plant start-up, during or after plant maintenance, or at other times when the Facility is otherwise not delivering potable water to the regional water system. Temporarily discharging such water to the Pacific Ocean does not apply to the maximum daily flowrate limit of 67 MGD which applies solely to the combined discharge of backwash and RO concentrate and does not constitute a “bypass” as defined in Attachment A and Attachment D section 1.7.1.1. All limitations and requirements, including monitoring, specified in the Order remain applicable during these temporary discharges.

4.4.1. Satisfaction of Anti-Backsliding Requirements

Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR section 122.44(l) prohibit backsliding in NPDES permits (see Fact Sheet section 3.3.5). These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed.

As discussed in Fact Sheet section 4, all effluent limitations contained in this Order are at least as stringent as those established in the 2019 Order. The monitoring requirements in the MRP are designed to obtain additional information for parameters with performance objectives to determine if reasonable potential exists for these parameters in future permit renewals and/or updates.

Based on all these considerations, this Order complies with all applicable federal and State anti-backsliding regulations.

4.4.2. Satisfaction of Antidegradation Policies

The Order must conform with antidegradation requirements discussed in Fact Sheet section 3.3.4. The antidegradation policies require that beneficial uses and the water quality necessary to maintain those beneficial uses in the receiving waters of the discharge shall be maintained and protected, and, if existing water quality is better than the quality required to maintain beneficial uses, the existing water quality shall be maintained and protected unless allowing a lowering of water quality is necessary to accommodate important economic and social development or consistent with maximum benefit to the people of California. When a significant lowering of water quality is allowed by the San Diego Water Board, an antidegradation analysis is required in accordance with the State Water Board's Administrative Procedures Update (July 2, 1990), *Antidegradation Policy Implementation for NPDES Permitting*. The Order complies with the antidegradation provision of 40 CFR section 131.12 and State Water Board Resolution No. 68-16, and no degradation of the receiving water is expected.

A comprehensive "complete" antidegradation analysis is required if the proposed change results in a substantial increase in mass emissions of pollutants or if the activity results in significant impact to aquatic life. Complete antidegradation analyses are not required if the change will not result in a significant impact to water quality.

The Discharger has not proposed any changes over the proposed permit term that are subject to an antidegradation review.

The Discharger projected that the RO process will result in 99.6 percent of TDS from the influent to the Facility being discharged to the ocean as RO

concentrate. The Discharger also estimated that the concentrations of toxic pollutants in the RO concentrate may increase by approximately 4.8 percent as described in Appendix M to the 2015 ROWD. Based on data available to date, the increase in concentration of toxic pollutants in the RO concentrate is not anticipated to result in impacts to the receiving water beneficial uses or aquatic life and is not anticipated to exceed applicable water quality objectives established in Table 3 of the Ocean Plan.

This analysis did not consider the additional dilution provided by initial dilution in the receiving water, under which impacts to the receiving water would be significantly less, and thus providing an additional margin of safety. The operational changes needed for stand-alone operations were anticipated to increase salinity by approximately 4.8 percent, and reduce salinity mass loading by approximately 2.4 percent due to a decrease in dilution water used for flow augmentation (as described in Appendix M to the 2015 ROWD). Thus, for the consideration of the discharge of the Ocean Plan's Table 3 parameters, the operational changes are consistent with State Water Board Resolution No. 68-16 and federal antidegradation provisions at 40 CFR section 131.12.

The resulting effluent limitation for salinity of 42.0 ppt is consistent with the Ocean Plan, providing for a receiving water salinity of up to 2.0 ppt above ambient at the edge of the BMZ. Based on the Discharger's assessment provided in Appendix M of the 2015 ROWD, under stand-alone operations, with unheated effluent and a negatively buoyant plume, salinities at the ocean bottom at 200 meters from the discharge point are projected to be always within 2 ppt of ambient.

As reported, the Discharger has not observed acute toxicity for effluent with salinity ranging from 40 to 42 ppt or chronic toxicity for effluent with salinities below 36 ppt. Thus, the increased salinity discharges are not anticipated to result in acute toxicity within the BMZ, or chronic toxicity at the edge of the zone of initial dilution.

Implementation of stand-alone operations will result in identifiable increases above ambient conditions in the receiving water column salinity within and beyond the 200-meter BMZ. These increases are compliant with the Ocean Plan's receiving water objectives and beneficial uses, with significant impacts limited to the area within the BMZ resulting in greater than 2 ppt above background. As such, the increased salinity due to the operational changes are consistent with State Water Board Resolution No. 68-16 and federal antidegradation provisions at 40 CFR section 131.12.

The Facility's discharge is not anticipated to significantly impact Agua Hedionda Lagoon, with salinities in the lagoon remaining at ambient background levels under all proposed operating conditions.

Based on the Discharger's Intake/Discharge Feasibility Report, Appendices B, II, and YY of the 2015 ROWD, alternative intake and discharge facilities were evaluated, including subsurface intakes, a seafloor infiltration gallery, a lagoon-based seafloor infiltration gallery, discharging to an existing municipal ocean outfall, and a submerged diffuser.

Furthermore, future and expanded operation of the Facility is anticipated to provide:

- Improved sustainable regional water supply reliability of up to 60 MGD of drinking water per day, with a regional asset value of approximately $1 billion.
- A drought-resilient supply source for existing and planned local recycling and reuse projects.
- Decreased regional reliance on imported water supplies from the Sacramento Bay-Delta and the Colorado River, i.e. additional local water sources reduce regional needs for imported water.
- Improved potable water quality, the water supply has lower TDS than other imported sources and recycled water which benefits residential, agricultural, and industrial customers.

The cumulative impacts of the Facility's operations, and the associated discharge flows are not anticipated to significantly impact receiving water quality, will be protective of water quality objectives and beneficial uses, will provide important economic and social development, and are consistent with the maximum benefit to the people of the State. Based on these considerations, this Order is consistent with State and federal antidegradation requirements.

4.4.3. Stringency of Requirements for Individual Pollutants

This Order contains both TBELs and WQBELs for individual pollutants. The Order contains TBELs for TSS, pH, oil and grease, settleable solids, and turbidity, which are discussed in Fact Sheet section 4.2. This Order's TBELs implement the minimum, applicable federal technology-based requirements. These limitations are not more stringent than required by the CWA.

WQBELs have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. The procedures for calculating the individual WQBELs are based on the Ocean Plan, which was approved by USEPA on January 28, 2016. All beneficial uses and water quality objectives contained in the Basin Plan were approved under State law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of

the CWA" pursuant to 40 CFR section 131.21(c)(1). Collectively, this Order's effluent limitations for individual pollutants are no more stringent than required to implement the requirements of the CWA.

4.5. Performance Goals

This Order establishes performance goals for parameters that do not have reasonable potential to cause or contribute to an exceedance of water quality objectives, or for which reasonable potential to cause or contribute to an exceedance of water quality objectives cannot be determined. The Discharger is required to monitor for the performance goal parameters in Table 4 of this Order at Monitoring Location M-001. The performance goals are not water quality-based effluent limitations (WQBELs) and are not enforceable.

Performance goals serve to ensure that the Facility maintains existing effluent quality and supports State and federal antidegradation policies. Additionally, performance goals provide all interested parties with information regarding the expected levels of pollutants in the discharge that should not be exceeded to maintain the water quality objectives established in the Ocean Plan. Performance goals are not limitations or standards for the regulation of the discharge. Effluent concentrations above the performance goals will not be considered as violations of the Order but will serve as indicators that effluent may cause or contribute to an exceedance of water quality objectives. However, any three consecutive exceedances of a performance goal for the same parameter will trigger an investigation into the cause of the exceedance. The Discharger is required to submit a Performance Goal Exceedance Investigation Work Plan to the San Diego Water Board within 30 days of the Discharger becoming aware of the third successive exceedance. The Performance Goal Exceedance Investigation Work Plan is required to outline the investigative steps being taken, whether outside technical expertise is being retained to assist in the investigation, and the proposed schedule for completing a Performance Goal Exceedance Report. The Performance Goal Exceedance Report is required to include a description of the nature of the exceedance(s), the results of the investigation including the cause of the exceedance(s), the corrective actions taken, any proposed corrective measures, and a schedule for implementation, if necessary. Repeated exceedances of performance goals may prompt the San Diego Water Board to reopen and amend the Order to replace performance goals for constituents of concern with effluent limitations, or the San Diego Water Board and USEPA may coordinate such actions with the next permit reissuance.

A summary of the performance goals is provided in Fact Sheet Table F-12. A minimum probable initial dilution factor of 1:21.83 was used in establishing the performance goals.

4.6. Interim Effluent Limitations – Not Applicable

4.7. Intake Specifications

Order Section 4.3 provides narrative requirements for the intake of seawater and the discharge of effluent from the Facility. These provisions of the Order are necessary to implement the requirements specified in the Ocean Plan. The intake specifications implement Ocean Plan section III.M.2.(d).

4.8. Discharge Specifications

The 2019 Order incorporated requirements from Ocean Plan sections III.A.2.a-c for management of waste discharged to the ocean to be consistent with the Ocean Plan.

Section IV.D.1 of the 2019 Order specified that wastewater from the Facility must be discharged in a manner that provides sufficient dilution to comply with the limitations and specifications contained in sections IV and V of the 2019 Order and in compliance with the discharge prohibitions contained in section III of the 2019 Order. An initial dilution of 21.83 to 1 which is based on the modelling results/data provided in Appendix VV of the 2015 Order was used in the RPA for this Order and in calculating effluent limitations and performance goals specified in this Order. This discharge specification is redundant and was not included in this Order because the RPA, effluent limitations, and performance goals already consider the initial dilution.

Based on Ocean Plan section III.A.2.a, section IV.D.2 of the 2019 Order specified that waste management systems that discharge to the ocean must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community. This discharge specification is redundant and was not included in this Order because the Order contains effluent limitations, performance goals, and monitoring requirements to protect water quality and beneficial uses of the receiving water. In addition, Attachment D section 1.4 requires the Discharger to always properly operate and maintain all facilities and systems of treatment and control to achieve compliance with the conditions of this Order.

Based on Ocean Plan section III.A.2.b, section IV.D.3 of the 2019 Order specified that waste discharged to the ocean must be essentially free of:

- Material that is floatable or will become floatable upon discharge;
- Settleable material or substances that may form sediments which will degrade benthic communities or other aquatic life;
- Substances which will accumulate to toxic levels in marine water, sediments, or biota;
- Substances that significantly decrease the natural light to benthic communities and other marine life; and
- Material that result in aesthetically undesirable discoloration of the ocean surface.

These discharge specifications are redundant and were not included in this Order. The Facility discharges brine and filter backwash, which complies with effluent limitations for TSS, oil and grease, settleable solids, turbidity, and chronic toxicity. The receiving water monitoring results also indicate that waste discharged from the Facility meets the requirements of Ocean Plan section III.A.2.b (e.g., no observed floatable material, no reduction in light transmittance, or undesirable discoloration near the outfall). Furthermore, the TBELs in this Order, including those for TSS, settleable solids, oil and grease, and turbidity are sufficient to prohibit these materials in the discharge that may negatively impact beneficial uses.

4.9. Land Discharge Specifications – Not Applicable

4.10. Recycling Specifications – Not Applicable

5. Rationale for Receiving Water Limitations

This Order retains the receiving water limitation for salinity of 2 ppt above natural background salinity throughout the water column, measured at a point 200 meters from the end of the discharge channel. This limitation is based on state requirements listed in Ocean Plan sections III.M.3.b and III.M.3.d. This limitation does not implement the CWA.

The 2019 Order included receiving water limitations as backstops for unanticipated circumstances or any potential changes to effluent quality that could affect receiving water quality. This Order removes those receiving water limitations to be consistent with the 2025 U.S. Supreme Court ruling in City and County of San Francisco, California v. Environmental Protection Agency (No. 23-753), which held that the Clean Water Act does not authorize end-result requirements in NPDES permits. End-result requirements make the Discharger responsible for the quality of the receiving water into which it discharges pollutants, without specifying conditions (e.g., effluent limitations) or actions the Discharger must take that apply at or before the discharge point. The receiving water limitations were derived from the narrative water quality objectives for ocean waters established by the Basin Plan and the Ocean Plan. The San Diego Water Board has evaluated whether there is reasonable potential for the discharge to cause or contribute to an exceedance of any numeric and narrative water quality objectives in accordance with 40 CFR section 122.44(d). Where reasonable potential is determined, this Order requires more stringent limitations or discharge prohibitions to ensure that the discharge satisfies Clean Water Act section 301(b)(1)(C) (33 U.S.C. section 1311(b)(1)(C)). See Fact Sheet section 4.3.3.2. If unanticipated circumstances or changes to effluent quality occur during the permit term, the San Diego Water Board may reopen this Order to include any limitations necessary to protect water quality.

6. Rationale for Provisions

6.1. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR section 122.42, are provided in Attachment D of this Order.

Sections 122.41(a)(1) and (b) through (n) of 40 CFR establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) of 40 CFR allows the State to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

6.2. Special Provisions

6.2.1. Reopener Provisions

This Order may be reopened and modified, revoked and reissued, or terminated in accordance with the provisions of 40 CFR parts 122, 123, 124, and 125. The San Diego Water Board may reopen the Order to modify permit conditions and requirements. Causes for modifications include, but are not limited to, increased/modified receiving water requirements and participation in the Southern California Coastal Water Research Project (SCCWRP) model monitoring program; or the promulgation of new regulations by USEPA, the State Water Board, or the San Diego Water Board, including revisions to the Ocean Plan or Basin Plan.

This Order may be reopened to modify provisions governing compliance with Water Code section 13142.5(b) and the Ocean Plan if the Discharger proposes a change in design or operation of the Facility in a manner that could increase intake or mortality of all forms of marine life, consistent with the Ocean Plan definition of an expanded facility, beyond that which is approved in the 2019 Determination. Causes for modifications to the Facility operations that are expected to result in an increased intake or mortality of all forms of marine life will require a new Water Code section 13142.5(b) determination by the San Diego Water Board. This Order may also be reopened if the Brine Discharge Technology Empirical Study Final Report (Final Report) concludes that the Discharger’s choice of flow augmentation technology has a greater intake and mortality of marine life than theoretical multiport diffusers. This Order may be reopened at any time for modifications of provisions governing compliance with the receiving water limitation for salinity as set forth in Ocean Plan chapter III.M.3.

6.2.2. Special Studies, Technical Reports, and Additional Monitoring Requirements

6.2.2.1. Brine Discharger Technology Empirical Study Final Report

The Ocean Plan provides that brine discharge technologies, other than wastewater dilution and multiport diffusers, may be used if an owner or operator of a desalination facility can demonstrate to the San Diego Water Board that the technology provides a comparable level of intake and mortality of all forms of marine life as (1) wastewater dilution, if wastewater to dilute the facility's brine is available, or (2) multiport diffusers, if wastewater is unavailable.

As described in Attachment H and required by the Ocean Plan, the Discharger evaluated all the individual and cumulative effects of the proposed flow augmentation discharge method on the intake and mortality of marine life. This includes intake-related entrainment, osmotic stress, turbulence that occurs during water conveyance and mixing, and shearing stress at the point of discharge. The Discharger's evaluation demonstrated that wastewater dilution is not available, and that, based on available information, flow augmentation provides a comparable level of intake and mortality of all forms of marine life to the level of the multiport diffuser.

As described in Attachment H, the Water Code section 13142.5(b) determination must address the requirements of Ocean Plan chapter III.M.2.d.(2)(c) when brine discharge technologies other than wastewater dilution and multiport diffusers are used. The Discharger must demonstrate that the alternative technology provides a comparable level of intake mortality as wastewater dilution or multiport diffusers, if feasible. Appendix CC of the 2015 ROWD and Attachment H of the 2019 Order concluded that wastewater dilution was not available due to: (1) insufficient wastewater flow volumes, (2) necessary capacity restrictions due to wastewater discharges during wet weather, and (3) lack of access to the necessary infrastructure. Thus, for comparison purposes with the flow augmentation discharge method, the Discharger provided an evaluation based on a model multiport diffuser that would be located 4,000 feet offshore. The model multiport diffuser was designed to maximize dilution, minimize the size of the mixing zone, minimize the suspension of benthic sediments, and minimize marine life mortality.

The Discharger estimated entrainment effects for the flow augmentation brine discharge alternative, consistent with Ocean Plan chapter III.M.2.d.(2)(c)i through iii, in Appendices A and K of the 2015 ROWD on the 2008 *EPS Impingement Mortality and Entrainment Characterization Study* performed by Tenera Environmental. The Discharger revised the entrainment effects calculations from using flow augmentation discharge technology as recommended by the SAP and provided the results as Appendix FFF to the

2015 ROWD. The Discharger revised the entrainment effects calculations from using a multiport diffuser in Appendix GGG. However, the multiport diffuser calculations are limited to the use of marine life data from Agua Hedionda Lagoon, because of the unavailability of data from the Pacific Ocean. The analysis determined that flow augmentation is at least equivalent when compared to the model multiport diffuser for marine life mortality, based on available information.

Section VI.C.2.a of the 2019 Order required the Discharger to complete a Multiport Diffuser Analysis to confirm the conclusion that the intake and mortality of all forms of marine life from flow augmentation and multiport diffusers are comparable as required in Ocean Plan chapter III.M.2.d.(2)(c). The Discharger submitted the Multiport Diffuser Analysis Final Report on March 18, 2022, which confirmed that flow augmentation was comparable to the intake and mortality of marine life caused by multiport diffusers. As such, the 2019 Determination is no longer conditional.

Section VI.C.2.b of the 2019 Order required the Discharger to complete a Brine Discharge Technology Empirical Study irrespective of the conclusions in the 2015 ROWD and 2019 Determination as required by Ocean Plan chapter III.M.2.d(2)(c)iv. The 2019 Order required the Discharger to submit a Brine Discharge Technology Work Plan (Work Plan) within 180 days of the adoption of the 2019 Order. The Discharger submitted the Work Plan on November 4, 2019. San Diego Water Board staff approved the Work Plan on July 9, 2020. The Discharger submitted an updated Work Plan on July 22, 2024, to account for the new intake structure. San Diego Water Board staff approved the updated Work Plan on December 10, 2024. The 2019 Order required the Discharger to begin implementing the Work Plan within 60 days following the implementation of the new intake structure, however, the Discharger requested an extension on January 31, 2025, due to delays with getting the necessary permits. San Diego Water Board staff approved the extension on February 10, 2025. The Discharger began implementing the Work Plan on August 18, 2025.

Order section 6.3.2.1 carries over the 2019 Order’s requirement for the Discharger to submit the final report to the Final Report. The Final Report must include the results of the Multiport Diffuser Analysis of projected marine life impacts caused by brine discharged through theoretical multiport diffusers. The Final Report must also include the results of the flow augmentation study and an in-depth discussion, evaluation, interpretation, and tabulation of the data supporting the interpretations and conclusions reached.

If the Final Report shows that the brine discharge technology results in more intake and mortality of marine life than if the Facility used multiport diffusers

as described in Finding 31 of Appendix H, then the Discharger must also submit with the Final Report a proposed schedule to either:

(1) Cease using the alternative brine discharge technology and install and use wastewater dilution or multiport diffusers to discharge brine waste; or

(2) Re-design the alternative brine discharge technology system to minimize intake and mortality of all forms of marine life to a level that is comparable with wastewater dilution if wastewater is available or multiport diffusers if wastewater is unavailable, subject to San Diego Water Board approval.

6.2.2.2. Updated Marine Life Mitigation Plan (MLMP)

Water Code section 13142.5(b) requires that the best available mitigation measures feasible must be used to minimize the intake and mortality of all forms of marine life. Ocean Plan chapter III.M.2.e establishes requirements to implement mitigation measures in compliance with Water Code section 13142.5(b). The Ocean Plan provisions require that the Discharger estimate the marine life mortality resulting from construction and operation of the Facility that would occur following implementation of the best available site, design, and technology measures. A summary of the Discharger's estimation of marine life mortality from the best available intake and discharge technology for stand-alone operation is provided in findings 38 through 42 in Attachment H.1.

Based on the Discharger's estimation of marine life mortality, the wetland mitigation area required for marine life mortality impacts related to the Facility's stand-alone operations is 68.30 acres, as described in Attachment H.1 finding 42. To fulfill the required mitigation acreage, the Discharger has chosen to complete a mitigation project pursuant to Ocean Plan chapter III.M.2.e(3). The mitigation project to meet the requirements of Ocean Plan chapter III.M.2.e(3) is the Otay River Estuary Restoration Project (ORERP). The ORERP site is located at the south end of San Diego Bay, San Diego County, California, within the South San Diego Bay Unit of the San Diego Bay National Wildlife Refuge. Restoration activities will occur at two separate locations within the Refuge: (1) Otay River Floodplain Site, and (2) Pond 15 Site. Specifically, the approximately 34-acre Otay River Floodplain Site is located west of Interstate 5 between Main Street to the north and Palm Avenue to the south in the City of San Diego. The Pond 15 Site consists of an approximately 91-acre active solar salt pond located in the northeast portion of the refuge, located northwest of the intersection of Bay Boulevard and Palomar Street in Chula Vista.

Section VI.C.2.d of the 2019 Order required the Discharger to submit an updated MLMP that established specific steps and methods necessary to

provide 68.3 acres of mitigation to compensate for the marine life mortality impacts associated with the Facility's construction and operation. The Discharger submitted the updated MLMP on July 1, 2020. San Diego Water Board staff provided comments on the updated MLMP by letter dated September 24, 2020. The September 24, 2020, staff letter required the Discharger to revise the updated MLMP to include additional information. The additional information required metrics for measuring the success of the ORERP, criteria for selecting reference sites, and proposed monitoring for comparing the restored wetlands to the identified reference sites. The Discharger responded to these comments and submitted a revised updated MLMP on December 23, 2020, and identified that the requested information was part of the draft Monitoring Plan prepared for the California Coastal Commission by the Scientific Advisory Panel and not the updated MLMP itself. By letter dated June 3, 2021, the San Diego Water Board's Executive Officer approved the revised updated MLMP on the condition that the unaddressed comments would be addressed in the finalized Monitoring Plan. The Discharger submitted a revised MLMP again on March 4, 2024, following adoption of Order No. R9-2023-0137, *Addendum No.1 to Order No. R9-2019-0004 as Amended by Order No. R9-2020-0004 NPDES No. CA0109223, Amending Waste Discharge Requirements and National Discharge Elimination System Permit for the Poseidon Resources (Channelside) LP Claude "Bud" Lewis Carlsbad Desalination Plant Discharge to the Pacific Ocean*. Order No. R9-2023-0137 made modifications to the 2019 Order, which required: (1) the Discharger to provide an additional 0.132 acres of mitigation, (2) an updated schedule for initiating the approved ORERP including dates the ORERP is expected to meet performance metrics, and (3) quarterly reports describing progress towards meeting that schedule.

Order section 6.3.2.2 requires an updated MLMP to ensure adequate mitigation is provided in compliance with the Ocean Plan and Water Code section 13142.5(b). To accomplish this, this Order requires the Discharger to update the MLMP with a description of the reference sites approved by the California Coastal Commission on June 30, 2025, and a new schedule that includes proposed interim goals for completing project milestones until the ORERP meets performance standards.

Additional information regarding the mitigation requirements for the project is available in Attachment H.1 finding 62.

6.2.2.3. Spill Prevention and Response Plan

The federal CWA largely prohibits any discharge of pollutants from point sources to waters of the United States except as authorized under an NPDES permit. The unpermitted discharge of wastewater to waters of the United States is illegal under the federal CWA. Further, the Basin Plan

prohibits discharges of waste to land, except as authorized by WDRs or the terms described in Water Code section 13264. Further, Discharge Prohibition 3.1 prohibits the discharge of waste from the Facility to a location other than Discharge Point No. 001.

There are many factors which may affect the likelihood of a spill. To ensure appropriate funding, management, and planning to reduce the likelihood of a spill, and to increase the level of response if a spill does occur, this Order requires the Discharger to maintain and implement a Spill Prevention and Response Plan. Also, to determine compliance with Discharge Prohibition 3.1 and provide appropriate notification to the San Diego Water Board, spill reporting requirements have been established in Order section 6.3.2.3.1.

6.2.2.4. Special Assessment of Violation and Noncompliance

In the event of either a violation of any limitations or noncompliance with any permit conditions (e.g., discharge prohibitions) of this Order, the San Diego Water Board may require the Discharger to perform a special assessment. The purpose of the special assessment will be to investigate the nature and cause of the noncompliance and identify measures needed to ensure future compliance with the limitations, requirements, or conditions of this Order. The Discharger must submit the required assessment report to the San Diego Water Board within 90 days of receipt of the San Diego Water Board's notification to perform the Violation/Noncompliance Assessment. The results of the assessment will assist the Discharger and San Diego Water Board staff determine permit compliance and appropriate corrective actions for the protection of water quality and designated beneficial uses.

6.2.2.5. Pollutant Minimization Plan

Order section 6.3.2.5. requires the Discharger to develop and conduct a Pollutant Minimization Program, if needed to comply with the requirements of section III.C.9 of the Ocean Plan. The goal of the Pollutant Minimization Program is to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures, to maintain the effluent concentration at or below the effluent limitation.

Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The completion and implementation of a Pollution Prevention Plan required in accordance with Water Code section 13263.3(d) would fulfill the Pollution Minimization Program requirements.

6.3. Construction, Operation, and Maintenance Specifications

6.3.1. Asset Management Plan

This Order requires the Discharger to develop and implement an Asset Management Plan. Asset management is the practice of managing infrastructure capital assets to minimize the total cost of owning and operating these assets while delivering the desired service levels. Many utilities use asset management to pursue and achieve sustainable infrastructure. A high-performing asset management program includes rehabilitation and replacement plan, maintenance plan, system map, funding, asset management software, and asset resiliency. Standard Provision 1.4 in Attachment D is based on the requirements of 40 CFR section 122.41(e) and requires the Discharger to properly operate and maintain all facilities and systems of treatment and control which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Asset management planning provides a framework for setting and operating quality assurance procedures and ensuring the Discharger has sufficient financial and technical resources to continually maintain a targeted level of service and the operational integrity of the Facility. Extreme weather conditions may fundamentally alter the way treatment plants are designed, operated, and maintained. The Asset Management Plan requirement has been updated to include asset resiliency to ensure the Facilities and operations are protected against regional impacts of these extreme weather conditions. Asset management requirements have been established in this Order to ensure compliance with Standard Provision 1.4 in Attachment D and the requirements of 40 CFR section 122.41(e).

6.4. Special Provisions for Publicly Owned Treatment Works – Not Applicable

6.5. Other Special Provisions – Not Applicable

7. Rationale for Monitoring and Reporting Requirements

CWA section 308 and 40 CFR sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code section and 13383 also authorize the San Diego Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The MRP (Attachment E) establishes monitoring, reporting, and recordkeeping requirements that implement federal and State requirements. The reports required by the MRP are needed to ensure compliance with the Order, protect beneficial uses, and obtain other benefits as described in this Fact Sheet and the MRP. Thus, the burdens, including costs, of the MRP required by this Order bear a reasonable relationship to the need for and benefits to be obtained from the MRP. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this Facility.

7.1. Core Monitoring Requirements

The core monitoring requirements in MRP section 3 are designed to measure the characteristics of seawater prior to the desalination treatment process and to determine and quantify contaminants in the effluent. This monitoring is

necessary to determine compliance with the Order's prohibitions, limitations, and water quality standards. The overall core monitoring program is intended to answer the following questions:

- Is the intake flow consistent with permit conditions and expectations?
- What is the concentration factor for pollutants within the effluent compared to the influent? Is this consistent with expectations considered during permit development?
- Are intake credits reasonable for future permit development efforts?
- Does the effluent comply with permit effluent limitations, performance goals, and other requirements of this Order, thereby ensuring that water quality standards are achieved in the receiving water?
- What is the mass of constituents that are discharged?
- Is the effluent concentration or mass loading changing over time?
- Is the Facility being properly operated and maintained to ensure compliance with the conditions of the Order?

7.1.1. Influent Monitoring Requirements

Influent monitoring is required to determine if the intake flow and the concentration factor for pollutants within the effluent compared to the influent is consistent with permit conditions and expectations. Influent monitoring requirements have been carried over from the 2019 Order.

Influent monitoring of seawater withdrawn from the Agua Hedionda Lagoon prior to entering the Facility is necessary to address the following questions:

- Is the intake flow consistent with permit conditions and expectations?
- What is the concentration factor for pollutants within the effluent compared to the influent? Is this consistent with expectations considered during permit development?
- Are intake credits reasonable for future permit development efforts?

Refer to MRP section 3.1 for the influent monitoring requirements.

7.1.2. Effluent Monitoring Requirements

Effluent monitoring is the collection and analysis of samples or measurements of effluent, after all treatment processes, to determine and quantify contaminants and demonstrate compliance with applicable effluent limitations, standards, and other requirements of this Order.

Effluent monitoring is required to determine compliance with the permit conditions, to identify operational problems, to ensure consistent or improved Facility performance, and to conduct reasonable potential analyses for subsequent Orders. Effluent monitoring also provides information on wastewater characteristics for use in interpreting water quality and biological

data. This Order requires monitoring of the effluent when the Facility is discharging brine and when the Facility is not discharging brine.

Effluent monitoring is necessary to address the following questions:

- Does the effluent comply with permit effluent limitations, performance goals, and other requirements of this Order, thereby ensuring that water quality standards are achieved in the receiving water?
- What is the mass of constituents that are discharged?
- Is the effluent concentration or mass loading changing over time?
- Is the Facility being properly operated and maintained to ensure compliance with the conditions of the Order?

Refer to MRP section 3.2 for the effluent monitoring requirements.

7.1.3. Whole Effluent Toxicity Testing Requirements

This Order contains chronic toxicity effluent limitations as described in Fact Sheet section 4.3.7.

Monitoring to assess the overall toxicity of the effluent is required to answer the following questions:

- Does the effluent comply with the Order's effluent limitations for toxicity thereby ensuring that water quality standards are achieved in the receiving water?
- If the effluent does not comply with the Order's effluent limitations for toxicity, are unmeasured pollutants causing risk to aquatic life?
- If the effluent does not comply with the Order's effluent limitations for toxicity, are pollutants in combinations causing risk to aquatic life?

Consistent with the requirements of the Ocean Plan, MRP section 3.3.5 requires the Discharger to develop an Initial Investigation Toxicity Reduction Evaluation (TRE) Work Plan and submit the Initial Investigation TRE Work Plan within 90 days of the effective date of this Order. The Initial Investigation TRE Work Plan must describe steps the Discharger intends to follow if the effluent limitation for chronic toxicity is exceeded.

Ocean Plan section III.C.10 requires a TRE if a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table 3 of the Ocean Plan. To determine if the discharge consistently exceeds the toxicity effluent limitation, this Order requires the Discharger to notify the San Diego Water Board and accelerate toxicity testing if the effluent limitation for chronic toxicity is exceeded in any one test. If any of the additional tests demonstrate toxicity, in accordance with Ocean Plan section III.C.10, the Discharger is required to submit a detailed TRE Work Plan in accordance with its submitted

Initial Investigation TRE Work Plan and USEPA guidance[3] which shall include further steps taken by the Discharger to investigate, identify, and correct the causes of toxicity; actions the Discharger will take to mitigate the effects of the discharge and prevent the recurrence of toxicity; and a schedule for these actions. The Discharger may also implement a Toxicity Identification Evaluation (TIE), as necessary, based upon the magnitude and persistence of toxicity effluent limitation exceedances. Once the source of toxicity is identified, the Discharger must take all reasonable steps to reduce the toxicity to meet the chronic toxicity effluent limitation identified in Order section 4.1.

The above accelerated monitoring (a minimum of six succeeding tests performed at 14-day intervals) is based on the probability of encountering at least one toxicity exceedance assuming a true, but unknown level of occurrence.

Within 30 days of completion of the TRE, the Discharger must submit the results of the TRE, including a summary of the findings, data generated, a list of corrective actions taken or planned to achieve consistent compliance with the toxicity effluent limitation of this Order and prevent recurrence of exceedances of the effluent limitation, and a time schedule for implementation of any planned corrective actions. The Discharger must implement any planned corrective actions in the TRE Final Report in accordance with the specified time schedule, unless otherwise directed in writing by the San Diego Water Board. The corrective actions and time schedule must be modified at the direction of the San Diego Water Board.

Refer to MRP section 3.3.

7.1.4. Land Discharge Monitoring Requirements – Not Applicable

7.1.5. Recycling Monitoring Requirements – Not Applicable

7.2. Receiving Water Monitoring Requirements

The receiving water and sediment monitoring requirements are designed to measure the effects of the Facility's discharge on the receiving ocean waters, including potential effects on coastal water quality, seafloor sediments, and marine life. The overall receiving water monitoring program is intended to answer the following questions:

[3] See (a) *TRE Guidance for Municipal Wastewater Treatment Plants* (EPA 833-B-99-002, 1999); (b) *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations* (EPA/600/2-88/070); *Toxicity Identification Evaluation, Phase I* (EPA/600/6-91/005F); (c) *Methods for Aquatic Toxicity Identification Evaluations, Phase II* (EPA/600/R-92/080); (d) *Methods for Aquatic Toxicity Identification Evaluations, Phase III* (EPA/600/R-92/081); and (e) *Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document* (EPA/600/R-96-054,1996).

- Does the receiving water meet water quality standards?
- Are the receiving water conditions getting better or worse over time?
- What is the relative contribution of the Facility's discharge to pollution in the receiving water?
- What are the effects of the discharge on the receiving waters?

Refer to MRP section 4.

7.2.1. Surf Zone Water Quality Monitoring Requirements

As ocean surface waves come closer to shore they break, forming the foamy, bubbly surface called surf. The region of breaking waves defines the surf zone.

Surf zone monitoring is intended to answer the following question:

Does the effluent cause or contribute to an exceedance of the water quality standards in the receiving water?

Refer to MRP section 4.1 for the surf zone water quality monitoring requirements.

7.2.2. Offshore Water Quality Monitoring Requirements

The nearshore, for the purposes of monitoring and assessment, is considered to extend from the shoreline to a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline. Offshore, for the purposes of monitoring and assessment, is considered to extend beyond the nearshore zone. Offshore monitoring extends north and south of the former Encina Power Station discharge channel.

Offshore monitoring is necessary to answer the following questions:

- Does the discharge cause an increase in salinity of greater than 2.0 ppt above ambient conditions?
- Is the wastewater plume adversely impacting receiving water areas used for swimming, surfing, diving, and shellfish harvesting?
- Is natural light significantly reduced at any point outside the ZID because of the discharge?
- Does the discharge cause a discoloration of the ocean surface?
- Does the discharge of oxygen demanding waste cause the dissolved oxygen concentration to be depressed at any time more than 10 percent from that which occurs naturally?
- Does the discharge of waste cause the pH to change at any time more than 0.2 units from that which occurs naturally?
- What is the fate of the discharge plume?

This Order carries over the offshore monitoring requirements established in the 2019 Order to evaluate water quality impacts of the discharge on receiving water. This Order requires measurements of temperature, salinity, pH, dissolved oxygen, and light transmittance to be taken throughout the water column using a CTD profiler. Continuous profiles provide a higher resolution of the conditions in the receiving water.

Refer to MRP section 4.2 for the offshore water quality monitoring requirements.

7.2.3. Benthic Monitoring Requirements

Seafloor sediments integrate constituents that are discharged to the ocean. Most particles that come from the Facility's discharge, and any associated contaminants, will eventually settle to the seafloor where they are incorporated into the existing sediments. Sediments can accumulate these particles over the years until the point where sediment quality is degraded and beneficial uses are impaired.

Benthic organisms are strongly affected by sediment contaminant exposure because these organisms often live in continual direct contact with sediment/pore water, and many species ingest significant quantities of sediment as a source of nutrition. Because the benthos are dependent on their surroundings, they serve as a biological indicator that reflects the overall conditions of the aquatic environment. Seafloor sediment monitoring is intended to answer the following questions:

- Is the concentration of substances in Table 3 of the Ocean Plan, for the protection of marine aquatic life in marine sediments, at levels which would degrade the benthic community?
- Is the concentration of organic pollutants in marine sediments at levels that would degrade the benthic community?
- Are benthic communities degraded as a result of the discharge?
- Is the sediment quality changing over time?

The assessment of sediment quality to evaluate potential effects of the discharge and compliance with narrative water quality standards specified in the Ocean Plan consist of the measurement and integration of three lines of evidence: (1) physical and chemical properties of seafloor sediments, (2) seafloor sediment toxicity to assess bioavailability and toxicity of sediment contaminants, and (3) ecological status of the biological communities (e.g., benthos) that live in or on the seafloor sediments.

This Order carries over the benthic monitoring requirements at offshore monitoring stations B-00 through B-40, C-10, D-30, D-50 and E-10 established in the 2019 Order. In addition, the Order clarifies that the required frequency of sediment toxicity monitoring, benthic community condition assessment, and

sediment data analysis is at least once every two years to address inconsistencies in the 2019 Order.

Refer to MRP section 4.3 for the benthic monitoring requirements.

7.2.4. Receiving Water Reporting Requirements

7.2.4.1. Annual Receiving Water Monitoring Report
The Order requires the Discharger to submit an annual receiving water monitoring report containing results of all surf zone, offshore, sediment, and benthic monitoring conducted during the calendar year. The receiving water monitoring report is also to include an evaluation of whether the discharge is adversely affecting receiving water quality and a discussion on how receiving water monitoring addresses the monitoring questions listed in MRP section 4.

7.2.4.2. Uploading Receiving Water Monitoring Results in California Environmental Data Exchange Network (CEDEN) Compatible Format

CEDEN is a central database to find and share information about the State's water bodies, including streams, lakes, rivers, and the ocean. Many groups in the State monitor water quality, aquatic habitat, and wildlife health to ensure good stewardship of our ecological resources. CEDEN aggregates this data and makes it accessible to environmental managers and the public. CEDEN requires a minimum level of quality assurance and quality control measures to ensure the data reported is of sufficient quality. When developing integrated reports for listing impaired water bodies pursuant to CWA section 303(d), Regional Water Quality Control Boards must rely on data submitted to CEDEN to make determinations of water quality. Data not included in CEDEN is generally not permissible to be included in the integrated reports.

This Order requires the Discharger to submit applicable receiving water monitoring data to CIWQS using CEDEN compatible pivot tools. This will facilitate upload of the receiving water data to CEDEN to ensure the monitoring data is available to the San Diego Water Board for integrated reports and is easily accessible to the public and other environmental managers. Additionally, the requirement to submit receiving water monitoring data using CEDEN compatible pivot tools is consistent with the San Diego Water Board's *A Framework for Monitoring and Assessment in the San Diego Region*, endorsed by the San Diego Water Board in December 2012 through Resolution No. R9-2012-0069. The Discharger is required to submit an annual certification that all applicable monitoring results for the previous calendar year were timely uploaded to CIWQS using CEDEN compatible pivot tools.

7.2.4.3. State of the Ocean Report

This Order requires require the Discharger present a State of the Ocean oral report to the San Diego Water Board at a public Board meeting, at least once during the permit term. The State of the Ocean oral report summarizes the

conclusions of the Annual Receiving Water Monitoring Reports, including a description of the monitoring efforts completed, the status and trends of receiving water quality conditions, and plans for future monitoring efforts. Like the Annual Receiving Water Monitoring Reports, the State of the Ocean oral report helps educate the public about potential water quality impacts resulting from the discharge in a more concise and approachable manner. In addition to educating the public, the State of the Ocean oral report also allows for public participation by providing a forum for the public to comment on the findings presented by the Discharger. If an oral report cannot be scheduled for a San Diego Water Board meeting, this Order provides provide the option for the San Diego Water Board Executive Officer to approve the submission of a written State of the Ocean Report in lieu of an oral report.

7.3. Other Monitoring Requirements

7.3.1. Regional Monitoring Requirements

Regional ocean water monitoring provides information about the sources, fates, and effects of anthropogenic contaminants in the coastal marine environment necessary to make assessments over large areas. The large-scale assessments provided by regional monitoring describe and evaluate cumulative effects of all anthropogenic inputs and enable better decision-making regarding protection of beneficial uses of ocean waters. Regional monitoring data assists in the interpretation of core monitoring studies by providing a more accurate and complete characterization of reference conditions and natural variability. Regional monitoring also leads to methods standardization and improved quality control through intercalibration exercise. The coalitions implementing regional monitoring enable sharing of technical resources, trained personnel and associated costs. Focusing these resources on regional issues and developing a broader understanding of pollutants effects in ocean waters enables the development of more rapid and effective response strategies. Based on all these considerations, the San Diego Water Board supports regional approaches to monitoring ocean waters.

The Discharger must participate with other regulated entities, other interested parties, and the San Diego Water Board in development, refinement, implementation and coordination of regional monitoring and assessment programs for ocean waters in the San Diego Region and discharge to those waters, to answer the following questions:

- Determine the status and trends of conditions in ocean waters in the San Diego Region with regard to beneficial uses, e.g.,
  - Are fish and shellfish safe to eat?
  - Is water quality safe for swimming?
  - Are ecosystems healthy?
- What are the primary stressors causing or contributing to conditions of concern?

- What are the major sources of the stressors causing or contributing to conditions of concern?
- Are actions taken to address such stressors and sources effective (i.e. environmental outcomes)?

During these coordinated sampling efforts, the Discharger's sediment, benthic, and kelp bed sampling and analytical effort, as defined in MRP sections 4.3 and 5.1, may be reallocated to provide a regional assessment of the impact of the discharge to the ocean. In that event, the San Diego Water Board must notify the Discharger in writing that the requirement to perform the sediment, benthic, and kelp bed sampling and analytical effort defined in MRP sections 4.3 and 5.1 is suspended for the duration of the reallocation. Anticipated modifications to the monitoring program will be coordinated to provide a more comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative impacts of various pollution sources. The level of resources in terms of sampling and analytical effort redirected from the sediment, benthic, and kelp bed monitoring program required in MRP sections 4.3 and 5.1 must equal the level of resources provided to implement the regional monitoring and assessment program, unless the San Diego Water Board and the Discharger agree otherwise. The specific scope and duration of the receiving water monitoring program reallocation and redirection will be determined and set by the San Diego Water Board in consultation with the Discharger. If the Discharger declines to participate in regional monitoring efforts, its ongoing sampling and analytical requirements will remain unchanged.

7.3.2. Kelp Bed Canopy Monitoring Requirements

Kelp consists of a number of species of brown algae. Along the central and southern California coast, giant kelp (*Macrocystis pyrifera*) is the largest species colonizing rocky, and in some cases sandy, subtidal habitats. Giant kelp is an important component of coastal and island communities in southern California, providing food and habitat for numerous animals. Monitoring of the kelp beds is necessary to answer the following questions:

- What is the maximum areal extent of the coastal kelp bed canopies each year?
- What is the variability of the coastal kelp bed canopy over time?
- Are coastal kelp beds disappearing? If yes, what are factors that could contribute to the disappearance?
- Are new coastal kelp beds forming?

Refer to MRP section 5.1 for the kelp bed canopy monitoring requirements.

7.3.3. Southern California Bight Monitoring

The Southern California Bight (Bight), defined as the concave bend of the shoreline extending from Point Conception to Punta Colonet in Mexico, is host to unique, biologically diverse marine ecosystems that have long been vulnerable to the impacts of human activity. The coastal zone of the Bight hosts nearly 22 million U.S. residents that engage in a wide variety of industrial, military, and recreational activities. Approximately 5,600 miles of watersheds, half of which are highly developed, drain into the Bight. The Southern California Bight Regional Monitoring Program brings together researchers and water-quality managers to pool their resources and work together to investigate the condition of marine ecosystems both spatially and temporally and extend greater protections to the Bight's diverse habitats and natural resources.

The Discharger is required to participate in the Bight Regional Monitoring Program coordinated by SCCWRP, or any other coordinator named by the San Diego Water Board, pursuant to Water Code sections 13267 and 13383, and 40 CFR section 122.48. The intent of the Bight Regional Monitoring Program is to maximize the efforts of all monitoring partners using a more cost-effective monitoring design and to best utilize the pooled scientific resources of the Bight.

During these coordinated sampling efforts, the Discharger's sediment, benthic, and kelp bed sampling and analytical effort, as defined in MRP sections 4.3 and 5.1, may be reallocated to provide a regional assessment of the impact of the discharge of wastewater to the Bight. In that event, the San Diego Water Board shall notify the Discharger in writing that the requirement to perform the Discharger's sediment, benthic, and kelp bed sampling and analytical effort, as defined in MRP sections 4.3 and 5.1 is suspended for the duration of the reallocation. Anticipated modifications to the monitoring program will be coordinated to provide a more comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative impacts of various pollution sources. The level of resources in terms of sampling and analytical effort redirected from the sediment, benthic, and kelp bed monitoring program required in MRP sections 4.3 and 5.1 must approximately equal the level of resources provided to implement the regional monitoring and assessment program, unless the San Diego Water Board and the Discharger agree otherwise. The specific scope and duration of the sediment, benthic, and kelp bed monitoring program reallocation and redirection will be determined and set by the San Diego Water Board, in consultation with the Discharger.

Refer to MRP section 5.2.

7.3.4. Discharge Monitoring Report – Quality Assurance (DMR-QA) Study Program

Under the authority of section 308 of the CWA (33 U.S.C. section 1318), USEPA requires major and selected minor permittees under the NPDES Program to participate in the annual DMR-QA Study Program. The DMR-QA Study Program evaluates the analytical ability of laboratories that routinely perform or support self-monitoring analyses required by NPDES permits. There are two options to satisfy the requirements of the DMR-QA Study Program: (1) the Discharger can obtain and analyze a DMR-QA sample as part of the DMR-QA Study; or (2) under the waiver issued by USEPA to the State Water Board, the Discharger can submit the results of the most recent Water Pollution Performance Evaluation Study from its own laboratories or its contract laboratories. A Water Pollution Performance Evaluation Study is similar to the DMR-QA Study. Thus, it also evaluates a laboratory's ability to analyze wastewater samples to produce quality data that ensures the integrity of the NPDES Program. The Discharger must ensure that the results of the DMR-QA Study or the results of the most recent Water Pollution Performance Evaluation Study are submitted annually to the State Water Board. The State Water Board's Quality Assurance Program Officer will send the DMR-QA Study results or the results of the most recent Water Pollution Performance Evaluation Study to USEPA's DMR-QA Coordinator and Quality Assurance Manager.

Refer to MRP section 6.1.

7.4. Other Monitoring Requirements – Not Applicable

8. Public Participation

The San Diego Water Board has considered the issuance of WDRs that will serve as an NPDES permit for the Facility. As a step in the WDR adoption process, the San Diego Water Board staff developed a Tentative Order and encouraged public participation in the proceedings to consider adoption of the Tentative Order in accordance with the requirements of 40 CFR section 124.10 and Water Code section 13167.5.

8.1. Notification of Interest Parties

The San Diego Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and provided an opportunity to submit written comments and recommendations. The San Diego Water Board provided notification by posting a Notice of Public Hearing and Comment and the tentative WDRs on its website for the duration of the public comment period. The Tentative Order was posted on the San Diego Water Board website and emailed to the Discharger and all known interested parties on September 10, 2026.

The public also had access to the agenda and any changes in dates and locations through the San Diego Water Board's web site at: http://www.waterboards.ca.gov/sandiego/.

8.2. Written Comments

Interested persons were invited to submit written comments on the Tentative Order as provided through the notification process. Comments were due either in person or by mail to the San Diego Water Board at 2375 Northside Drive, Suite 100, San Diego, CA 92108.

To be fully responded to by staff and considered by the San Diego Water Board, the written comments were due at the San Diego Water Board office by 5:00 PM on October 9, 2026. The San Diego Water Board provided written responses to all timely received public comments on the Tentative Order and posted the response to comments document on the Board's website in advance of the public hearing date.

8.3. Public Hearing

The San Diego Water Board held a public hearing on the Tentative Order during its regular Board meeting on the following date and time at the following location:

Date: December 9, 2026
Time: 9:00 AM
Location: Board Room, San Diego Regional Water Control Board
2375 Northside Drive, Suite 100
San Diego, CA 92108

8.4. Reconsideration of Waste Discharge Requirements

Any aggrieved person aggrieved by this action of the San Diego Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the San Diego Water Board taking action, at the following address except that if the thirtieth day falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Petitions may be sent via email to waterqualitypetitions@waterboards.ca.gov, by fax at (916) 341-5199, or as follows:

By Mail	In Person
State Water Resources Control Board Office of Chief Counsel P.O. Box 100, 1001 I Street Sacramento, CA 95812-0100	State Water Resources Control Board Office of Chief Counsel 1001 I Street Sacramento, CA 95814

For instructions on how to file a petition for review, see: http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml

8.5. Information and Copying

The 2019 ROWD, other supporting documents, and written comments received on the Tentative Order are on file and may be inspected at the San Diego Water Board address above at any time between 8:00 a.m. and 5:00 p.m., Monday through Friday, except for State holidays. Copying of documents may be arranged through the San Diego Water Board by calling (619) 516-1990.

The San Diego Water Board website contains information and instructions on how to request access and obtain copies of these documents at: http://www.waterboards.ca.gov/sandiego/about_us/contact_us/records.shtml

Before making a request to view public records in the San Diego Water Board office, interested persons may wish to determine if the information is already available on the San Diego Water Board website at http://www.waterboards.ca.gov/sandiego/

8.6. Register of Interested Parties

Any person interested in being placed on the mailing list for information regarding this Order should contact the San Diego Water Board at the address below, reference this Facility, and provide a name, address, email address, if available, and phone number.

2375 Northside Drive, Suite 100
San Diego, CA 92108-2700
Phone (619) 516-1990

8.7. Additional Information

Requests for additional information or questions regarding this Order should be directed to the San Diego Water Board at RB9-WDR@waterboards.ca.gov.

ATTACHMENT G – PROHIBITIONS FROM THE WATER QUALITY CONTROL PLAN OCEAN WATERS OF CALIFORNIA (OCEAN PLAN) PROHIBITIONS

1. Ocean Plan Discharge Prohibitions

1.1. The discharge of any radiological chemical, or biological warfare agent or high-level radioactive waste into the ocean is prohibited.

1.2. Waste must not be discharged to designated Areas of Biological Significance except as provided in chapter III.E of the Ocean Plan.

1.3. Pipeline discharge of sludge to the ocean is prohibited by federal law; the discharge of municipal and industrial waste sludge directly to the ocean, or into a waste stream that discharges to the ocean, is prohibited. The discharge of sludge digester supernatant directly to the ocean, or to a waste stream that discharges to the ocean without further treatment, is prohibited.

1.4. The bypassing of untreated wastes containing concentrations of pollutants in excess of those of Table 3 and 4 [of the Ocean Plan] to the ocean is prohibited, except as allowed by Federal Standard Provisions 1.7 and 1.8 (Attachment D).

1.5. The discharge of trash to surface waters of the State or the deposition of trash where it may be discharged into surface waters of the State is prohibited.

ATTACHMENT H.1 – CALIFORNIA WATER CODE SECTION 13142.5(b) DETERMINATION FOR PERMANENT STAND-ALONE OPERATIONS

Channelside Water Resources LP (Channelside or Discharger), formerly Poseidon Resources (Channelside) LP, is the owner and operator of the Carlsbad Desalination Project (Facility). The CDP was formerly co-located with the Encina Power Station (EPS), a power plant owned and operated by Cabrillo Power I LLC (Cabrillo). The EPS withdrew water from the Agua Hedionda Lagoon in Carlsbad, San Diego County for cooling water through an intake structure.

The former co-located CDP operation withdrew source water through the former EPS discharge structure. The CDP used up to 114 million gallons per day (MGD) of cooling water from the EPS as source water to produce up to 54 MGD of potable drinking water for the San Diego County Water Authority (SDCWA). The remaining 60 MGD of brine waste from the desalination process and other wastewater from the CDP were commingled with the remaining cooling water from the EPS and discharged to the Pacific Ocean. The EPS terminated power generation operations on December 11, 2018. At that time, the CDP commenced withdrawing water from Agua Hedionda Lagoon under stand-alone conditions for its own purposes.

Under the current stand-alone operations, as regulated under this Order, CDP intakes source seawater from Agua Hedionda Lagoon at a flowrate of 299 MGD. 127 MGD of the source water is used to produce up to 60 MGD of potable water. The remaining water that is not used for potable water production is used to dilute the brine wastewater and other wastewater flows for the Discharger to meet the discharge salinity requirements of this Order. The discharge flow rate varies in accordance with CDP operations. For example, at 50 MGD of potable water production, the discharge flow rate is 249 MGD, which consists of 54 MGD of brine waste and 195 MGD of dilution water. At 60 MGD of potable water production, the discharge flow rate is 239 MGD into the Pacific Ocean.

California Water Code (Water Code) section 13142.5, subdivision (b) (hereafter Water Code section 13142.5(b)) provides that "[f]or each new or expanded coastal powerplant or other industrial installation using seawater for cooling, heating, or industrial processing, the best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life."

The San Diego Water Board adopted Order No. R9-2009-0038 and its Water Code determination (2009 Determination[1]) on May 13, 2009, amending Order No. R9-2006-0065 National Pollutant Discharge Elimination System (NPDES) No. CA0109223, *Waste Discharge Requirements for the Poseidon Resources (Channelside) LLC, Carlsbad Desalination Project, Discharge to the Pacific Ocean Via the Encina Power*

[1] Order No. R9-2009-0038 is available on the San Diego Water Board website at: https://www.waterboards.ca.gov/sandiego/board_decisions/adopted_orders/2009/R9-2009-0038.pdf (as of August 20, 2026).

Station Discharge Channel (Order No. R9-2006-0065), finding that the CDP complied with Water Code section 13142.5(b) for co-located operations and temporary stand-alone operations. The 2009 Determination concluded that if the EPS permanently ceases power generation operations and the Discharger proposes to independently operate the existing EPS seawater intake and outfall for the benefit of the CDP ("stand-alone operation"), it will be necessary to evaluate whether, under those conditions, the CDP complies with the requirements of Water Code section 13142.5(b) for permanent stand-alone operating conditions. The 2009 Determination also required the Discharger to construct 55.4 acres of wetland mitigation to compensate for the intake, entrainment, and mortality of all forms of marine life resulting from co-located and temporary stand-alone CDP operations. The 2009 Determination established a biological performance standard of fish productivity (i.e., the production of new fish biomass) of 1,715.5 kilograms/year (kg/year) to be achieved in the wetlands mitigation site.

Subsequently, the Discharger reached an agreement with the California Coastal Commission (Coastal Commission) to increase the wetland mitigation area to 66.4 acres as a condition of the Commission's Coastal Development Permit. On September 29, 2010, the Discharger and the United States Fish and Wildlife Service (USFWS) entered into a memorandum of understanding to establish a partnership to facilitate restoration of tidal wetlands in the Otay River Floodplain and an active solar salt pond site (Pond 15) within the USFWS San Diego Bay National Wildlife Refuge. The restoration project is referred to as the "Otay River Estuary Restoration Project." The Discharger proposes to fund and implement the Otay River Estuary Restoration Project (ORERP) to fulfill the mitigation requirements imposed by the Coastal Commission's 2007 Coastal Development Permit and the San Diego Water Board's 2009 Determination.

The State Water Resources Control Board (State Water Board) adopted the *Amendment to the Water Quality Control Plan for Ocean Waters of California* (Ocean Plan) *Addressing Desalination Facility Intakes, Brine Discharges, and the Incorporation of Other Non-substantive Changes* (Desalination Amendment) on May 6, 2015. The Desalination Amendment provides specific direction to regional water boards for making Water Code section 13142.5(b) determinations when permitting new or expanded seawater desalination facilities to ensure a consistent statewide approach for minimizing intake and mortality of marine life and protecting water quality and related beneficial uses of ocean waters at and near desalination facilities. The San Diego Water Board's role in making the Water Code section 13142.5(b) determination is to evaluate a range of feasible[2] alternatives for the best available site, design, technology, and mitigation measures to minimize intake and mortality of all forms of marine life and then to determine the best combination of feasible alternatives to

[2] The Ocean Plan provides in Appendix I that "feasible" for the purposes of Ocean Plan chapter III.M means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

minimize intake and mortality of all forms of marine life. (Ocean Plan chapter III.M.2.a(2).)

The Discharger submitted a request for a Water Code section 13142.5(b) determination for permanent stand-alone operating conditions on September 4, 2015. The Discharger submitted additional information to supplement the 2015 Report of Waste Discharge (2015 ROWD), in the form of technical memos, studies, and other reports, on multiple dates. For example, on October 22, 2018, the Discharger submitted a letter stating that it supports and proposes to implement Design Alternative 21. The Discharger submitted a letter on November 19, 2018, that describes the new intake pumps. Table H-1 lists the appendices to the 2015 ROWD. The table does not include correspondence such as the October 22, 2018, and November 19, 2018, letters.

Table H-1. Appendices to the 2015 ROWD

Appendix Letter	Appendix Title	Date Submitted
A	*Compliance with Ocean Plan Amendments* (Errata in Appendix JJ below)	September 4, 2015
B	*Intake Discharge Feasibility Report* (Addendum in Appendix II below)	September 4, 2015
C	*Hydrodynamic Discharge Study*	September 4, 2015
D	*Coastal Process Effects of Reduced Intake*	September 4, 2015
E	NPDES Order No. R9-2011-0028	September 4, 2015
F	*Water Circulation in Agua Hedionda Lagoon*	September 4, 2015
G	*Acute Toxicity Study*	September 4, 2015
H	*Chronic Toxicity Study*	September 4, 2015
I	*Brine Dilution Salinity Tolerance*	September 4, 2015
J	*Fish-Friendly Pumping*	September 4, 2015
K	*Intake/Discharge Entrainment Analysis*	September 4, 2015
L	*CFD Modeling of Flow Augmentation System*	September 4, 2015
M	*Antidegradation Analysis*	September 4, 2015
N	*Life Cycle Cost Analysis* (Revised in Appendix OO below)	September 4, 2015
O	NPDES Order No. R9-2009-0038	September 4, 2015
P	*Flow, Entrainment, Impingement Minimization Plan*	September 4, 2015
Q	*Final EIR*	September 4, 2015
R	*California Coastal Commission Approval of Marine Life Mitigation Plan*	September 4, 2015
S	*Hydrogeologic Investigation SDG&E Encina Power Plant, Carlsbad, CA*	September 4, 2015
T	*Drought Proofing Through Desalting the SDG&E Approach*	September 4, 2015

Appendix Letter	Appendix Title	Date Submitted
U	*Huntington Beach Desalination Project, ISTAP Phase I & II Reports*	September 4, 2015
V	*U.S. Fish and Wildlife Service MOU*	September 4, 2015
W	*SDCWA 2010 Urban Water Management Plan and 2013 Facilities Master Plan Update*	September 4, 2015
X	*Construction Cost Estimates for Intake/Discharge Alternatives*	September 4, 2015
Y	*Implementation Schedules for Intake/Discharge Alternatives*	September 4, 2015
Z	*Proposed Monitoring and Reporting Plan*	September 4, 2015
AA	*California Coastal Commission Approval of CDP*	August 18, 2016
BB	*Revised Hydrodynamic Discharge Modeling Report*	August 18, 2016
CC	*Encina Wastewater Authority Response to Request for Information regarding the Encina Ocean Outfall as a Brine Discharge Alternative for the Carlsbad Desalination Plant*	August 18, 2016
DD	*Analysis of Potential for CDP Discharge to Cause Hypoxic Conditions*	August 18, 2016
EE	*Comparison of Fish Return Options*	August 18, 2016
FF	*Fish Return System Cleaning Methods*	August 18, 2016
GG	*Larval Fish Residence Time in Agua Hedionda Lagoon*	August 18, 2016
HH	*Entrapment Evaluation*	August 18, 2016
II	*Addendum to Intake Discharge Feasibility Report*	August 18, 2016
JJ	*Appendix A Errata*	August 18, 2016
KK	*Draft Final SEIR*	August 18, 2016
LL	*Draft Response to Comments*	August 18, 2016
MM	*Draft Findings of Fact*	August 18, 2016
NN	*Draft Mitigation Monitoring and Reporting Program*	August 18, 2016
OO	*Revised Life Cycle Cost Analysis*	August 18, 2016
PP	*Intake/Discharge Design Modifications*	August 18, 2016
QQ	*Response to Questions Regarding CDP Discharge Modeling Reports* (Revised February 21, 2017)	February 21, 2017
RR	*Feasibility Assessment of Alternative Brine Discharge to the Encina Ocean Outfall*	October 31, 2016
SS	*Feasibility Assessment of Wedge-wire Screen (WWS) Intake in Agua Hedionda Lagoon*	October 31, 2016
TT	*Fish Return System Discharge Location Alternatives Analysis*	October 31, 2016

Appendix Letter	Appendix Title	Date Submitted
UU	*Brine Mixing Zone Habitat Assessment* (Revised January 18, 2017)	January 18, 2017
VV	*Establishing the Location of the Zone of Initial Dilution for Stand-Alone Operation* (Revised March 14, 2017)	March 14, 2017
WW	*Brine Discharge Mortality Calculations*	January 30, 2017
XX	*Current and 2065 Area BMZ and Wetlands Restoration Project*	January 30, 2017
YY	*Marine Life Mortality Comparison between the Proposed Screening Location and the Lagoon Screen Locations*	January 30, 2017
ZZ	*Marine Life Mortality Report and Mitigation Calculation (Rev. 1)*	April 11, 2017
AAA	*Fish Return Antidegradation*	April 11, 2017
BBB	*Evaluation of Intake Alternatives 1, 15-20*	April 11, 2017
CCC	*Evaluation of Intake Alternatives 1, 11-14*	April 11, 2017
DDD	*Feasibility Assessment of Carlsbad Desalination Plant Intake and Discharge*	November 20, 2017
EEE	*Revised Feasibility Assessment for Intake Alternatives 1, 15, and 21*	April 4, 2018
FFF	*Revised Area of Production Foregone (APF) Calculations*	May 31, 2018
GGG	*Revised Entrainment Analysis for Brine Discharge Options*	December 14, 2018
HHH	*Relative Salinity Impacts in the Brine Mixing Zone (BMZ) of the Carlsbad Desalination Plant (CDP) for Variable Discharge Rates*	December 18, 2018

All documents, data, correspondence and other materials that are identified in Table H.1 are incorporated into this Order by this reference and made part of the record.

Ocean Plan chapter III.M.1(a)(1) authorizes the San Diego Water Board to require the Discharger, as owner and operator of the CDP, to hire a neutral third-party entity to review studies and models and make recommendations to the San Diego Water Board for consideration in developing the Water Code section 13142.5 determination. Following discussions with the Discharger, a Science Advisory Panel (SAP), previously convened by the Coastal Commission, was selected to conduct the neutral third-party review of studies and models and make recommendations to the San Diego Water Board. The SAP first convened on June 21, 2018, and submitted a final report to the San Diego Water Board on September 15, 2018. The SAP reviewed topics regarding the biological performance standard for mitigation; mitigating for mortality to all forms of marine life; and comparing the intake and mortality of all forms of marine life

associated with various alternative intake screen locations.[3] The SAP recommendations[4] in summary are:

1) The San Diego Water Board's biological performance standard of fish productivity (i.e. the production of new fish biomass) of 1,715.5 kg/year for the mitigation project may be removed because the monitoring required to assess the biological performance standard would likely be counter-productive to the goal for the mitigation. By contrast, evaluating mitigation performance through comparison with appropriate reference sites is much less intrusive in comparison;

2) The Discharger's restoration mitigation project ORERP, if successful, should adequately compensate for the projected mortality of all forms of marine life with respect to the intake related impacts under stand-alone operation; and

3) The Discharger's evaluation of intake and mortality of marine life in the design alternatives was adequate in consideration of current data constraints. Further monitoring of the new intake system for permanent stand-alone operation is recommended.[5]

During development of Order No. R9-2019-0003, NPDES No. CA0109223, *Waste Discharge Requirements for the Poseidon Resources (Channelside) LP Claude "Bud" Lewis Carlsbad Desalination Plant Discharge to the Pacific Ocean* (2019 Order), San Diego Water Board staff conducted a Water Code section 13142.5(b) analysis of permanent stand-alone operations at the Facility in accordance with Ocean Plan chapter III.M. In conducting the analysis, San Diego Water Board staff independently reviewed the record for development of this Order, including the 2015 ROWD and all supplemental documents, and the SAP recommendations. The San Diego Water Board staff evaluated a range of feasible alternatives for the best available site, design, technology, and mitigation measures to minimize intake and mortality of all forms of marine life. San Diego Water Board staff, based on its evaluation, determined the best combination of feasible alternatives to minimize intake and mortality of all forms of marine life. The San Diego Water Board staff determined that Design Alternative 21 provided the best available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life while taking into account construction, operation, and maintenance costs.[6]

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[3] The San Diego Water Board topics for SAP review are available upon request.

[4] The SAP's final report with recommendations is available upon request.

[5] Section VI.C.2.b of the 2019 Order required a Brine Discharge Technology Empirical Study that will assess the impacts from the new intake system withdrawing seawater to provide flow augmentation dilution of the brine discharge.

[6] The 2019 Determination was conditional on completion of the Multiport Diffuser Analysis described in Section VI.C.2.a of the 2019 Order requiring the collection of additional data to confirm the conclusion that flow augmentation and a multiport diffuser

Most of the findings, analysis, and conclusions of the Water Code 13142.5(b) Determination for the 2019 Order (2019 Determination), have been carried over into Attachments H.1 and H.2 of this Order. Attachments H.1 and H.2 include minor or non-substantive changes to the 2019 Determination. The key changes made to Attachments H.1 and H.2 include the following:

1) Updating findings to reflect that the Discharger has installed a new intake design for the Facility.
2) Updating findings to include conclusions related to the Discharger's multiport diffuser analysis.
3) Updating findings to reflect status and progress of the Discharger's mitigation project.

Background information regarding the new intake design, multiport diffuser analysis, and the mitigation project are provided below.

New Intake Design

The Discharger installed a new intake structure for the Facility. The San Diego Water Board Executive Officer approved the intake design by letter dated August 2, 2022, and provided authorization to the Discharger to initiate operation of the new intake by letter dated December 10, 2024. The new intake design consists of a floating debris barrier, a large organism exclusion device, and 1.0 millimeter (mm) dual flow traveling screens with an intake water velocity designed for 0.5 feet per second (ft/sec) or less located along the southern shoreline of Agua Hedionda Lagoon outer basin. The Discharger's new intake design replaces Design Alternative 21, previously approved by the San Diego Water Board.

Design Alternative 21 was to be located within the outer basin of Agua Hedionda Lagoon, but closer to the lagoon center. Design Alternative 21 consisted of a floating debris barrier, four separate 900-foot pipelines referred to as intake laterals and submerged 1.0 mm wedgewire screens (WWS) with an intake water velocity designed for 0.5 ft/sec or less.

The Discharger proposed the new intake design due to (1) anticipated challenges associated with operating and maintaining the Design Alternative 21 intake laterals and WWS in a low-energy estuarine marine environment, and (2) the potential need for extended Facility shutdowns during periodic cleaning of the intake laterals to remove biofouling organisms. Water production would need to be halted during cleaning of the intake laterals and would not resume until marine growth is removed and turbidity of the intake water was stabilized. The Discharger estimated shutdowns associated with maintenance of the intake laterals would result in interruption of water production for about two months each year.

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have a comparable level of intake and mortality of all forms of marine life. See section VI.C.2.a of the 2019 Order and Finding 31, below, for discussion of the conditional determination.

A new Water Code determination is not necessary because the Facility is not a new or expanded facility as defined in Ocean Plan chapter III.M.1.b.(2). Ocean Plan chapter III.M.1.b.(2) defines expanded facilities to mean “existing facilities” for which, after January 28, 2016, the owner or operator does either of the following in a manner that could increase intake or mortality of all forms of marine life beyond that which was originally approved in any NPDES permit or Water Code section 13142.5 (b) determination:

1) Increases the amount of seawater used either exclusively by the facility or used by the facility in conjunction with other facilities or uses; or
2) Changes the design or operation of the facility.

Installation of the new intake did not result in the Facility being considered an expanded facility because it will not increase the amount of seawater used by the Facility or result in an increase in intake of marine life and mortality beyond that approved in the 2019 Order and Determination. San Diego Water Board staff concluded that the new intake will not increase the intake and mortality of marine life for the following reasons:

- The new intake design will minimize entrainment through use of 1 mm traveling screens and will not cause additional impingement because the intake flow rate is not being increased.

- The new intake design will minimize impingement because intake water velocity will be less than 0.5 ft/sec.

- Permanent habitat loss will be 0.2 acres which is the same permanent habitat loss projected with implementation of Design Alternative 21. Under Design Alternative 21, all 0.2 acres lie within the lagoon. Under the new intake design, half (0.1 acres) of the total 0.2 acres is comprised of riprap.

- Temporary impacts from construction of the new intake design were minimal, and it required less in-water work than would be required for Design Alternative 21.

Table H-2 compares how the new intake design results in equivalent compliance with the 2019 Determination as Design Alternative 21:

Table H-2. Comparison of 2019 Determination Criteria

Criterion	Design Alternative 21	New Intake Design
Intake flow rate (MGD)	299	No change
Brine mixing zone (acres)	18.5	No change

Criterion	Design Alternative 21	New Intake Design
Screen technology	1.00 mm wedge wire screens	1.00 mm travelling screens
Through-screen velocity	< 0.5 ft/sec	No change
Permanent construction impacts	0.2 acres	No change

Multiport Diffuser Analysis

The 2019 Order required the Discharger to conduct a Multiport Diffuser Analysis and submit a Multiport Diffuser Analysis Final Report to confirm the flow augmentation discharge technology provides a comparable level of intake and mortality of all forms of marine life to a multiport diffuser. The 2019 Determination was partly contingent of the Multiport Diffuser Analysis confirming that intake and mortality of marine life from flow augmentation was comparable to that from theoretical multiport diffusers (see Attachment H.1 Findings 5, 19, 20, 30-34, and 36 in Table H-3). The Discharger submitted the Multiport Diffuser Analysis Final Report on March 18, 2022, which confirmed the level of intake and mortality of all forms of marine life estimated using flow augmentation was comparable to that of theoretical multiport diffusers. As a result, this Order's Determination is no longer conditional.

Mitigation

This Order requires the Discharger to revise and update its March 4, 2024, Marine Life Mitigation Plan (MLMP) to add the four reference sites approved by the California Coastal Commission and to update the project schedule to include proposed interim goals for completion of project milestones until performance standards are meet. The Discharger must provide and maintain 68.432 acres of mitigation to compensate for marine life impacts associated with the Facility's construction and operation through implementation of the approved ORERP. The ORERP is to be implemented in accordance with specific steps and measures in the Discharger's updated MLMP. The mitigation area required by the 2019 Order and Determination was 68.3 acres. The San Diego Water Board adopted Order No. R9-2023-0137, *Addendum No. 1 to Order No. R9-2019-0003 as amended by Order No. R9-2020-0004* (Order No. R9-2023-0137) on September 13, 2023. Order No. R9-2023-0137 required the Discharger to submit a revised Marine Life Mortality Report (MLMR) and a revised MLMP to include an additional 0.132 acres of mitigation through expansion of the approved 68.3 acres of mitigation. As a result, this Order carries over the requirement from Order No. R9-2023-0137 for the Discharger to provide an additional 0.132 acres of mitigation, which results in a total required mitigation area of 68.432 acres. The additional 0.132 acres of mitigation is required as the 2019 Order applied a one percent mitigation credit which should only be applied to Ocean Plan compliant intake screens. However, the Discharger did not install and begin using an Ocean Plan compliant intake screen until

December 10, 2024. Therefore, the additional acreage is required to correctly apply the one percent mitigation credit.

The Discharger's mitigation project provides 94.08 acres of mitigation which exceeds the 68.432 acres of mitigation required by this Order.

Table H-3 below and Attachment H.2 of this Order set forth the San Diego Water Board's considerations of the feasible alternatives evaluated and describes the San Diego Water Board's conclusion regarding Design Alternative 21.

Table H-3. Water Code Section 13142.5(b) Determination

Finding No.	Ocean Plan, chapter III.M Reference	Ocean Plan Requirement	Finding
-	2.a	Water Code section 13142.5(b) determinations for New and Expanded Facilities: Site, Design, Technology, and Mitigation Measures Feasibility Considerations. General Considerations:	
1	2.a(1)	The owner or operator shall submit a request for a Water Code section 13142.5(b) determination to the appropriate regional water board as early as practicable. This request shall include sufficient information for the regional water board to conduct the analyses described below. The regional water board in consultation with the State Water Board staff may require an owner or operator to provide additional studies or information if needed, including any information necessary to identify and assess other potential sources of mortality to all forms of marine life. All studies and models are subject to the approval of the regional water board in consultation with State Water Board staff. The regional water board may require an owner or operator to hire a neutral third-party entity to review studies and models and make recommendations to the regional water board.	On September 4, 2015, the Discharger as the owner and operator of the Facility submitted with the 2015 ROWD, a request for a Water Code section 13142.5(b) determination for permanent stand-alone operating conditions. The San Diego Water Board in consultation with the State Water Board reviewed the request and all supporting appendices. During that review, additional information was provided by the Discharger including revised dilution studies and further investigation of various intake configuration alternatives. The San Diego Water Board required the Discharger to hire a neutral third party to review studies and models and make recommendations to the San Diego Water Board for the reissuance of the Discharger's NPDES permit for permanent stand-alone operations of the Facility. Following discussions with the Discharger, a previously established SAP overseen by the Coastal Commission was chosen to review three topics pertaining to the permit reissuance: 1) Removing the biological performance standard for mitigation; 2) Mitigating for mortality to all forms of marine life; and 3) Comparing intake and mortality of all forms of marine life associated with different intake screen locations. The SAP recommendations in summary are: 1) The San Diego Water Board's biological performance standard of fish productivity (i.e the

Finding No.	Ocean Plan, chapter III.M Reference	Ocean Plan Requirement	Finding
			production of new fish biomass) of 1,715.5 kg/year for the mitigation project may be removed because the monitoring required to assess the biological performance standard would likely be counter-productive to the goal for the mitigation. By contrast, evaluating mitigation performance through comparison with appropriate reference sites is much less intrusive; 2) The Discharger's restoration mitigation project should be adequate compensation with respect to intake related impacts under stand-alone operation if it is successful; and 3) The Discharger's evaluation of intake and mortality of marine life in the design alternatives was adequate in consideration of current data constraints. Further monitoring of the new intake system for permanent stand-alone operation is recommended. The SAP's full report with recommendations is available upon request.
2	2.a(2)	The regional water board shall conduct a Water Code section 13142.5(b) analysis of all new and expanded desalination facilities. A Water Code section 13142.5(b) analysis may include future expansions at the facility. The regional water board shall first analyze separately as independent considerations a range of feasible alternatives for the best available site, the best available design, the best available technology, and the best available mitigation measures to minimize intake and mortality of all forms of marine life. Then, the regional water board shall consider all four factors collectively and determine the best	The San Diego Water Board conducted a Water Code section 13142.5(b) analysis of the Facility. In doing so, the San Diego Water Board analyzed separately as independent considerations a range of feasible alternatives for the best available site, best available design, the best available technology, and the best available mitigation measures to minimize intake and mortality of all forms of marine life. The San Diego Water Board also analyzed and considered all four factors collectively to determine the best

Finding No.	Ocean Plan, chapter III.M Reference	Ocean Plan Requirement	Finding
		combination of feasible alternatives to minimize intake and mortality of all forms of marine life. The best combination of alternatives may not always include the best alternative under each individual factor because some alternatives may be mutually exclusive, redundant, or not feasible in combination.	combination of feasible alternatives to minimize intake and mortality of all forms of marine life. This table and Attachment H.2 summarize the San Diego Water Board's analysis and findings for the separate and combined considerations of various feasible alternatives for the Water Code section 13142.5(b) determination.
3	2.a(3)	The regional water board's Water Code section 13142.5(b) analysis for expanded facilities may be limited to those expansions or other changes that result in the increased intake or mortality of all forms of marine life, unless the regional water board determines that additional measures that minimize intake and mortality of all forms of marine life are feasible for the existing portions of the facility.	The San Diego Water Board's Water Code section 13142.5(b) analysis was not limited to the Facility expansions or other changes that result in increased intake or mortality of all forms of marine life. The 2009 Determination was limited in scope to co-located and temporary stand-alone operations of the Facility with the EPS. Finding 52 of the 2009 Determination states: "Implementation of the March 27, 2009, Minimization Plan will ensure that the CDP is in compliance with Water Code section 13142.5(b) under co-location operations to benefit the CDP." The 2019 Water Code section 13142.5(b) determination (2019 Determination) was for permanent stand-alone operations of the Facility upon termination of power-generating activities at EPS. The changes made to the Facility since adoption of the 2019 Order and Determination do not result in increased intake or mortality of all forms of marine life.
4	2.a(4)	In conducting the Water Code section 13142.5(b) determination, the regional water boards shall consult with other state agencies involved in the permitting of that facility, including, but not limited to: California Coastal Commission, California State Lands Commission, and California Department of Fish and Wildlife. The regional water board shall consider project-specific decisions made	In conducting the Water Code section 13142.5(b) determination, the San Diego Water Board consulted with, the Coastal Commission, the California State Lands Commission, and the California Department of Fish and Wildlife (CDFW).

Finding No.	Ocean Plan, chapter III.M Reference	Ocean Plan Requirement	Finding
		by other state agencies; however, the regional water board is not limited to project-specific requirements set forth by other agencies and may include additional requirements in a Water Code section 13142.5(b) determination.	
5	2.a(5)	A regional water board may expressly condition a Water Code section 13142.5(b) determination based on the expectation of the occurrence of a future event. Such future events may include, but are not limited to, the permanent shutdown of a co-located power plant with intake structures shared with the desalination facility, or a reduction in the volume of wastewater available for the dilution of brine. The regional water board must make a new Water Code section 13142.5(b) determination if the foreseeable future event occurs.	The 2009 Determination was conditioned on the expectation of the permanent termination of the co-located operations. Finding 4 of the 2009 Determination states “If EPS permanently ceases operations and the Discharger proposes to independently operate the existing EPS seawater intake and outfall for the benefit of the CDP ("standalone operation"), it will be necessary to evaluate whether, under those conditions, the CDP complies with the requirements of Water Code section 13142.5(b). Additional review will be necessary in part because under stand-alone operations, the Discharger will have more flexibility in how it operates the intake structure and outfall and additional and/or better design and technology features may be feasible. The Discharger will be required to submit a new Report of Waste Discharge to the Regional Board for authorization to operate in stand-alone mode, and shall seek review under Water Code section 13142.5(b) for such stand-alone operation, with permanent shut down of the EPS facility, within 90 days after EPS provides written notice to the California Independent System Operator of its intent to shutdown permanently all of its generating units.” The San Diego Water Board conducted the 2019 Determination as required in conformance with Finding 9 of the 2009 Determination and the information on which the finding was based and as required by the Ocean Plan to evaluate the best site, design, technology, and

Finding No.	Ocean Plan, chapter III.M Reference	Ocean Plan Requirement	Finding
			mitigation measures feasible to minimize the intake and mortality of marine life during permanent stand-alone operations of the Facility. The 2019 Determination was conditional on the expectation that the Multiport Diffuser Analysis would confirm the San Diego Water Board's conclusion that flow augmentation and a theoretical multiport diffuser provide a comparable level of intake and mortality of all forms of marine life. The Discharger submitted the Multiport Diffuser Analysis Final Report on March 18, 2022, which confirmed the level of intake and mortality of all forms of marine life estimated using flow augmentation was comparable to that of theoretical multiport diffusers. As a result, this Order's Determination is no longer conditional.
6	2.a(5)(a)	The owner or operator shall provide notice to the regional water board as soon as it becomes aware that the expected future event will occur and shall submit a new request for a Water Code section 13142.5(b) determination to the regional water board at least one year prior to the event occurring. If the owner or operator does not become aware that the event will occur at least one year prior to the event occurring, the owner or operator shall submit the request as soon as possible.	The EPS permanently ceased power generating operations as of December 11, 2018, and the Discharger requested a new Water Code section 13142.5(b) determination on September 4, 2015, which was issued as part of the 2019 Order.
7	2.(a)(5)(b)	The regional water board may allow up to five years from the date of the event for the owner or operator to make modifications to the facility required by a new Water Code section 13142.5(b) determination, provided that the regional water board finds that 1) any water supply interruption resulting from the facility modifications requires additional time for water users to obtain a temporary replacement supply, or 2) such a compliance period is	In accordance with chapter III.M.2.(a)(5)(b) of the Ocean Plan, section VI.C.9 of the 2019 Order included a compliance schedule which gave the Discharger up to five years from the date EPS permanently ceased power generating operations to secure permits, complete design, and construct a new intake structure that supports stand-alone operation of the Facility while maintaining compliance with the Ocean Plan. This compliance period to modify the intake technology as required by the 2019 Determination was in the public interest to maintain Facility

Finding No.	Ocean Plan, chapter III.M Reference	Ocean Plan Requirement	Finding
		otherwise in the public interest and reasonably required for modification of the facility to comply with the determination.	operations and continue drinking water production at the Facility during that time when the EPS permanently ceased power generating operations prior to the construction of a new intake structure, according to the schedule provided by the Discharger on September 13, 2018. The approximately 4.5-year compliance schedule reflected a realistic assessment of the time needed to design, obtain necessary permits for, construct and put into operation a new intake structure within the waters of Agua Hedionda Lagoon. The 2019 Order was amended by Order No. R9-2023-0137, which extended the final deadline in the compliance schedule in the 2019 Order for the new intake structure to achieve full compliance with applicable requirements. The Discharger completed construction of the new intake structure and received approval from the San Diego Water Board by letter dated December 10, 2024, to initiate operation of the new intake structure. No modifications to the Facility are proposed. As a result, a new Water Code 12142.5 (b) determination is not needed.
8	2.(a)(5)(c)	If the regional water board makes a Water Code section 13142.5(b) determination for a desalination facility that will be co-located with a power plant, the regional water board shall condition its determination on the power plant remaining in compliance with the Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling.	This 2019 Determination is for permanent stand-alone operations of the Facility. Because EPS has ceased power generation operations and CDP is no longer co-located with EPS, the provision requiring power plant compliance with the *Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling* (Once-Through Cooling Policy) does not apply.
-	2.b	**Site Location:** The Site is the general onshore and offshore location of a new or expanded facility. There may be multiple potential facility design configurations within any given site. For each potential site, in order to determine whether a proposed facility site is the best available site feasible to minimize intake and mortality of all forms of marine life, the regional water board shall require the owner or operator to:	

Finding No.	Ocean Plan, chapter III.M Reference	Ocean Plan Requirement	Finding
9	2.b(1)	Consider whether subsurface intakes are feasible.	The San Diego Water Board previously considered the feasibility of various intake configurations (beach wells, slant wells, horizontal wells, offshore subsurface infiltration galleries, and the existing EPS intake) in the 2009 Determination for the CDP, including the applicability of subsurface intake technology, and found that subsurface intakes were not feasible at that time. In support of the 2009 Determination the San Diego Water Board concluded that the Discharger analyzed the following intake alternatives: (1) Subsurface intake (vertical and horizontal beach wells, slant wells, and infiltration galleries); (2) new open ocean intake; (3) Modifications to the existing power plant intake system; and (4) Installation of variable frequency drives (VFDs) on seawater intake pumps." (see Finding 9 of the 2009 Determination). The San Diego Water Board also concluded that the proposed technology [surface water intakes with flow augmentation discharge] for the CDP is the best available technology feasible under co-location operation for the CDP benefit (see Findings 35-39 of the 2009 Determination). Following the Discharger's September 4, 2015, request for a new Water Code section 13142.5(b) determination for stand-alone operation of the Facility, the San Diego Water Board independently re-evaluated the feasibility of subsurface intakes for the 2019 Determination. The Discharger conducted a hydrogeological study of the subsurface conditions in the vicinity of the Facility, which concluded that subsurface intakes were not feasible because of limited water production capacity of the subsurface geological formation, poor water quality (high salinity and turbidity) of collected source water, cost, and environmental considerations (i.e., construction impacts, operational impacts, and aesthetics). The San Diego Water Board considered the findings of the 2009 Determination

Finding No.	Ocean Plan, chapter III.M Reference	Ocean Plan Requirement	Finding
			for the 2019 Determination and the information on which the findings were based and concluded that oceanographic geologic, hydrogeologic, and seafloor conditions have not changed since the 2009 Determination such that subsurface intakes would now be feasible. The cost for relocating the Facility to an alternate site where sub-surface intakes are technically feasible would be economically infeasible. The City of Carlsbad's Final Environmental Impact Report (EIR)[1] and the Coastal Commission's Coastal Development Permit[2] also concluded that beach wells, slant wells, horizontal wells, and offshore seafloor infiltration galleries were not feasible (see Appendices Q and AA to the 2015 ROWD). The Discharger also explored the feasibility of two additional subsurface intake alternatives for the Facility: (1) a seafloor infiltration gallery (SIG) located in Agua Hedionda Lagoon coupled with an ocean outfall diffuser and (2) a lagoon-based SIG coupled with flow augmentation using the existing EPS intake and an ocean outfall. The Discharger estimated a total project cost of $679 million and a total annual cost, including operating costs, of $94 million to implement a SIG with a multiport diffuser. The Discharger estimated a total project cost of $1,038 million and a total annual cost, including operating costs, of $159 million to implement a SIG with flow augmentation. See Appendices B, O, and II to the 2015 ROWD. Based on the findings in the 2009 Determination and the information provided by the Discharger in the 2015 ROWD, the San Diego Water Board has concluded that subsurface

Finding No.	Ocean Plan, chapter III.M Reference	Ocean Plan Requirement	Finding
			intakes are not feasible at this time. The conclusion that subsurface intakes are not feasible is consistent with the findings of the SDCWA's Final Supplemental EIR (SEIR), dated August 2016 contained in Appendix KK to the 2015 ROWD. and the Coastal Commission's Coastal Development Permit. [1] See *Precise Development Plan and Desalination Plant Project, Final Environmental Impact Report (EIR 03-05)*, *City of Carlsbad, California, SCH# 200404108*, *FEIR Certified* June 13, 2006. The FEIR is available at this website: http://www.carlsbaddesal.com/eir.html (as of August 20, 2026).
10	2.b(2)	Consider whether the identified need for desalinated water is consistent with an applicable adopted urban water management plan prepared in accordance with Water Code section 10631, or if no urban water management plan is available, other water planning documents such as a county general plan or integrated regional water management plan.	A fundamental objective of the Facility is its contribution of desalinated seawater as a component of meeting regional water supply planning goals. The SDCWA's *2015 Urban Water Management Plan* (UWMP)[1] contains a water supply reliability assessment which states that development of a diversified mix of water resources including surface water, groundwater, recycled water, potable reuse and desalinated seawater, is needed over the next 25 years to meet the region's existing and future water demands. The UWMP identifies the Facility as providing a long-term, reliable, drought-resistant water supply for the San Diego Region. The UWMP describes the additional annual average potable water output potentially resulting from the proposed CDP modifications as an adaptive management supply that could be used to meet projected regional growth and water demands. Accordingly, the identified need for desalinated water is consistent with an applicable adopted urban water management plan.

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			[1] SDCWA's 2020 and 2015 UWMPs are available at this website: https://www.sdcwa.org/your-water/planning-preparedness/ (as of February 3, 2026).
11	2.b(3)	Analyze the feasibility of placing intake, discharge, and other facility infrastructure in a location that avoids impacts to sensitive habitats and sensitive species.	The Discharger analyzed the feasibility of locating the Facility intake, discharge, and other facility infrastructure in a location that avoids impacts to sensitive habitats and sensitive species. See Appendix A to the 2015 ROWD. The Discharger installed a new intake for the Facility. Prior to installation, the new intake design was approved by the San Diego Water Board. The new intake design was needed due to challenges associated with operation and maintaining the Design Alternative 21 intake laterals and wedgewire screens in a low-energy estuarine marine environment, and the potential need for extended Facility shutdowns during periodic cleaning of the intake laterals to remove biofouling organisms. The new intake design meets the requirements and conditions of chapter III.M.2.d.(1)(c) of the Ocean Plan and will not result in an increase in intake and mortality of marine life beyond that approved by the 2019 Order and Determination. Of the 21 design alternatives proposed, prior to the development of the 2019 Order, the Discharger initially identified Design Alternatives 1 and 15 as "preferred alternatives." Both of the Discharger's previously preferred design alternatives make use of the existing EPS intake bar racks and tunnels with new intake pumps and new 1-mm screens located on-shore and within the intake structure, rather than screens located in or at the interface of the Agua Hedionda Lagoon. Recommendation, Condition, and Finding (RCF) number 21 in Appendix A to the 2015 ROWD explains the Discharger's reasoning regarding their preferred location for the on-shore intake screens using the existing EPS intake structure. Appendix

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			A also states that the continued use of the EPS intake would a) avoid impacts because no significant construction would be required in the lagoon and b) avoid impacts to pelagic fishes commonly reported in the nearshore water-column habitat. Following extensive meetings with the San Diego Water Board and the State Water Board, the Discharger stated in a letter dated October 22, 2018, that the SDCWA and the Discharger concluded that Design Alternative 21 which would locate 1-mm wedgewire screens within Agua Hedionda Lagoon was best suited to comply with the requirements of the Ocean Plan and propose to implement Design Alternative 21. Agua Hedionda Lagoon is habitat for the marine species garibaldi, *Hypsypops rubicundus*. Although garibaldi is not an endangered species, there is concern that commercial collection by the saltwater aquarium industry has reduced its numbers. In 1995, the California Legislature acted to protect the garibaldi by placing a moratorium on commercial collection and designating garibaldi as the official State Marine Fish of California, under CDFW fishery regulations. Agua Hedionda Lagoon's artificial rocky shoreline provides spawning grounds for garibaldi. Few adult garibaldi were surveyed in the 2008 Cabrillo Power I LLC EPS Clean Water Act Section 316(b) impingement mortality and entrainment characterization study (2008 EPS Study)[1]. The 2008 EPS Study counted only 5 garibaldi individuals impinged during the year of sampling. However, the probability of mortality by entrainment for the garibaldi larval population in the lagoon was found to be 14.2 percent with an estimated annual

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			29,287,646 larval fish entrained per year. The 2008 EPS study states: *"quantitative observations of garibaldi in the Outer Lagoon … during August 2005 recorded densities of 7 fish per 30 m x 2 m transect along the North Jetty, 2 fish per transect in front of the EPS intake, and 1 per transect along the east channel leading into the Middle Lagoon. Based on the distribution of hard substrate in the lagoon, it would not be an overestimate to conclude that several hundred garibaldi could be present in [Agua Hedionda Lagoon], especially during the peak of breeding season in June and July."* The San Diego Water Board determined that WWS must be used to minimize impingement and avoid entrapment of garibaldi and other fish. As explained in the *Final Staff Report Including the Final Substitute Environmental Documentation for the Final Desalination Amendment*[2] (Desalination Amendment Staff Report), wedge-wire technology reduces impingement, entrainment, and entrapment of aquatic life by: • Acting as a physical barrier to prevent aquatic organisms sufficiently larger than the screen slot size (1 mm) from being entrained; • Using sweeping currents in the source water to move aquatic organisms past the screen faces; and • Utilizing a fine-mesh cylindrical wedgewire for the screens can further reduce entrainment of juvenile and adult stage of aquatic organisms. Additionally, to minimize entrainment of larvae, the intake screens should be located at point of water withdrawal in

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			the lagoon and the flow-through velocity of the screens should be minimized. The San Diego Water Board previously concluded that Design Alternative 21 was the best alternative to avoid impacts to sensitive habitats and species. Design Alternative 21 is located within Agua Hedionda Lagoon's outer pond. This design avoids the rocky shoreline habitat by locating the screens on the sandy seafloor in the interior of the lagoon. The intake laterals may be covered with natural sediments to restore habitat impacts. Design Alternative 21 proposed using WWS while maintaining the Ocean Plan's 0.5 ft/sec or less through-screen velocity standard, minimizing entrainment and impingent; and avoiding entrapment of marine life. The new intake design installed by the Discharger in lieu of Design Alternative 21 uses 1mm screens to minimize entrainment and will maintain a screen velocity of 0.5 ft/sec to minimize impingement. As a result, the new intake will not increase the intake and mortality of marine life beyond that which was originally approved in the 2019 Order and Determination. Further analysis of the intake and discharge alternatives is provided in Attachment H.2 of this Order to comparatively demonstrate that Design Alternative 21 was the best alternative to minimize intake and mortality of all forms of marine life. Design Alternative 21 is described in Appendices DDD and EEE to the 2015 ROWD. The San Diego Water Board also concluded that the Facility's current discharge location and proposed BMZ avoid impacts to sensitive habitats and species by using an existing discharge structure.

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			Additional information regarding the proposed design alternatives and the impacts associated with impingement and entrainment from the intake of seawater is contained in Appendices B, J, K, P, X, Y, EE, FF, GG, HH, II, PP, SS, TT, YY, ZZ, AAA, BBB, CCC, DDD, and EEE to the 2015 ROWD. Additional information regarding the proposed discharge structure is contained in Appendices C, G, H, I, K, X, Y, BB, CC, DD, PP, QQ, RR, TT, UU, VV, WW, XX, and ZZ to the 2015 ROWD. [1]The 2008 EPS Study is available upon request. [2]The Desalination Amendment Staff Report is available on the State Water Board website at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2015/rs2015_0033_sr_apx.pdf (as of April 14, 2026).
12	2.b(4)	Analyze the direct and indirect effects on all forms of marine life resulting from facility construction and operation, individually and in combination with potential anthropogenic effects on all forms of marine life resulting from other past, present, and reasonably foreseeable future activities within the area affected by the facility.	The Discharger received approval from the San Diego Water Board to use a new intake design which is different from the Design Alternative 21 approved in the 2019 Order. The Discharger analyzed criteria considered by the San Diego Water Board in the 2019 Determination to establish the intake and mortality of all forms of marine life for the Design Alternative 21 intake design alongside that of the modified intake design (see Table H-1). For each of the criteria considered (intake flow, intake velocity, size of the brine mixing zone, discharge concentration, screen size, and construction impacts) both intake alternatives rank the same. As a result, the Discharger and San Diego Water Board staff independently concluded that construction and operation of the new intake structure will not increase the

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			intake or mortality of marine life beyond what was originally approved in the 2019 Order and Determination. The Discharger analyzed and summarized the direct and indirect effects on all forms of marine life resulting from the proposed alternatives for the Facility. See Appendices A, YY, ZZ, BBB, CCC to the 2015 ROWD. Based on the information provided by the Discharger, the San Diego Water Board concluded that the intake structure alternative in Design Alternative 21 will most effectively minimize or avoid direct and indirect effects on all forms of marine life resulting from facility construction and operation, individually and in combination with potential anthropogenic effects on all forms of marine life resulting from other past, present, and reasonably foreseeable future activities within the area affected by the Facility. Further analysis and comparison of the intake and discharge alternatives in support of this conclusion is provided in Attachment H.2 of the 2019 Order. Design Alternative 21 was projected to have greater temporary impacts to the benthic habitat within Agua Hedionda Lagoon when compared to some of the other proposed intake alternatives, the permanent impact of approximately 0.2 acres of benthic habitat is less than or similar to the permanent benthic impacts of other alternatives considered and also avoids long-term, continuous impacts to marine life caused by the other intake alternatives that rely on an onshore intake structure. The new intake design was estimated to have 0.2 acres of permanent construction impacts like Design Alternative 21. Temporary impacts from the intake laterals were to be addressed by restoring natural sediment after construction. Other intake alternatives, such as Design Alternatives 1

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			and 15, may cause entrapment and impacts associated with a fish return system because they rely on an intake structure located at the shoreline of Agua Hedionda Lagoon. Other intake alternatives at the shoreline, such as Design Alternatives 11 through 14, could potentially remove the rocky shoreline suitable for garibaldi habitat. Additionally, the benthic habitat quality in Agua Hedionda Lagoon is periodically subject to disturbance caused by maintenance dredging conducted within the lagoon to maintain the intake channel for the EPS. Design Alternative 21 may not require the same extent of lagoon dredging as the other intake alternatives. Further analysis and comparison of the intake and discharge alternatives is provided in Attachment H.2 of the 2019 Order.
13	2.b(5)	Analyze oceanographic geologic, hydrogeologic, and seafloor topographic conditions at the site, so that the siting of a facility, including the intakes and discharges, minimizes the intake and mortality of all forms of marine life.	The San Diego Water Board considered the feasibility of various intake configurations (beach wells, slant wells, horizontal wells, offshore subsurface infiltration galleries, and the existing EPS intake) in the 2009 Determination for the CDP, including the applicability of subsurface intake technology, and found that subsurface intakes were not feasible at that time due to limited production capacity of the subsurface geological formation, poor water quality of collected source water, excessive cost, and environmental considerations. In the 2009 Determination, the San Diego Water Board considered several alternative seawater intake, discharge, screening, and treatment technologies prior to selecting the desalination plant intake, screening, and seawater treatment technologies planned for the CDP. When economic, environmental and technological factors are considered, the improved power plant intake screening alternatives were not capable of being accomplished in a

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			successful manner within a reasonable period of time (see Finding 34 of the 2009 Determination). The San Diego Water Board also concluded in support of the 2009 Determination that the Discharger analyzed the following intake alternatives: (1) Subsurface intake (vertical and horizontal beach wells, slant wells, and infiltration galleries); (2) new open ocean intake; (3) Modifications to the existing power plant intake system; and (4) Installation of variable frequency drives (VFDs) on seawater intake pumps (see Finding 35 of the 2009 Determination). The San Diego Water Board considered and reevaluated the findings of the 2009 Determination for the 2019 Order and Determination, and the information on which the findings were based and concluded that oceanographic geologic, hydrogeologic, and seafloor conditions have not changed since the 2009 Determination such that subsurface intakes would now be feasible. Further analysis of the intake and discharge alternatives is provided in Attachment H.2. See Findings 9, 11, and 12 above, and Appendices O, P, Q, R and AA to the 2015 ROWD. The Discharger analyzed the oceanographic, geological and hydrogeological conditions in Agua Hedionda Lagoon in Appendices B, D, F, S, T, DD, II, PP, SS, YY, and ZZ to the 2015 ROWD. The Discharger analyzed the potential nearshore and offshore discharge effects in Appendices B, C, G, H, I, K, L, S, BB, PP, UU, VV, WW, and XX to the 2015 ROWD.

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14	2.b(6)	Analyze the presence of existing discharge infrastructure, and the availability of wastewater to dilute the facility's brine discharge.	The EPS discontinued power generating activities on December 11, 2018. The closest existing discharge infrastructure and source of treated wastewater for dilution is the Encina Ocean Outfall (EOO) which is owned and operated by the Encina Wastewater Authority. The EOO is located approximately two miles south of the CDP. According to the Encina Wastewater Authority, the EOO is near full capacity during large storm events, and future wastewater recycling will significantly reduce the availability of wastewater for diluting the brine discharge. The Discharger submitted studies regarding the potential use of EOO as a brine discharge alternative for the CDP as Appendices B and CC to the 2015 ROWD. These studies found that the use of wastewater was infeasible due to limited flow for dilution and limited capacity at any nearby existing wastewater outfalls. For these reasons, the San Diego Water Board determined that discharging brine by commingling with wastewater from the EOO is infeasible at this time. Additional information regarding the feasibility of discharging brine to the EOO is provided in Appendix RR to the 2015 ROWD.
15	2.b(7)	Ensure that the intake and discharge structures are not located within a Marine Protected Area (MPA) or State Water Quality Protection Areas (SWQPA) with the exception of intake structures that do not have marine life mortality associated with the construction, operation, and maintenance of the intake structures (e.g. slant wells). Discharges shall be sited at a sufficient distance from a MPA or SWQPA so that the salinity within the boundaries of a MPA or SWQPA does not exceed natural background salinity. To the extent feasible, surface intakes shall be	The nearest MPA or SWQPA is Batiquitos Lagoon, approximately five miles south of the Facility. Batiquitos Lagoon is a MPA, specifically a State Marine Conservation Area, with a no-take regulation by the CDFW[1]. As noted in Appendix C, BB, and QQ to the 2015 ROWD, the intake and discharge is sited at a sufficient distance from a MPA or SWQPA so that the salinity within the boundaries of a MPA or SWQPA does not exceed natural background salinity. In addition, based upon the models and studies that the Discharger submitted, the San Diego Water Board

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		sited so as to maximize the distance from a MPA or SWQPA.	finds that CDP's brine discharge will not exceed 2.0 ppt above natural background salinity outside the BMZ, the edge of which is at least five miles from Batiquitos Lagoon (See Attachment H.1 Finding 18 and further analysis of the discharge alternatives in Attachment H.2). Accordingly, the San Diego Water Board finds that the discharge is sited at a sufficient distance from a MPA or SWQPA so that the salinity within the boundaries of a MPA or SWQPA does not exceed natural background salinity. [1]More information regarding Batiquitos Lagoon designation as a MPA is provided at this website: https://www.wildlife.ca.gov/conservation/marine/mpas/network/southern-california#27149500-batiquitos-lagoon-state-marine-conservation-area (as of April 14, 2026)
-	2.c	Design: Design is the size, layout, form, and function of a facility, including the intake capacity and the configuration and type of infrastructure, including intake and outfall structures. The regional water board shall require that the owner or operator perform the following in determining whether a proposed facility design is the best available design feasible to minimize intake and mortality of all forms of marine life:	
16	2.c(1)	For each potential site, analyze the potential design configurations of the intake, discharge, and other facility infrastructure to avoid impacts to sensitive habitats and sensitive species.	See Findings 9, 11, 12, 13, and 15 regarding the evaluation of the potential design configurations of intake and discharge structures. Further analysis of the intake and discharge alternatives is provided in Attachment H.2 of this Order.
17	2.c(2)	If the regional water board determines that subsurface intakes are not feasible and surface water intakes are proposed instead, analyze potential designs for those intakes in order to minimize the intake and mortality of all forms of marine life.	See Finding 9 regarding the San Diego Water Board's 2009 Determination that subsurface intakes are not feasible. Based on the findings in the 2009 Determination and the information provided by the Discharger in the 2015 ROWD, the San Diego Water Board concluded that subsurface intake alternatives are not feasible at this time. This conclusion is consistent with the findings of the SDCWA's Final Supplemental EIR dated August 2016

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			contained in Appendix KK to the 2015 ROWD and consistent with the Coastal Commission's Coastal Development Permit in Appendix Q to the 2015 ROWD. The Discharger's surface water intake alternatives analysis is provided in the Appendices B, Q, AA, II, KK, PP, SS, YY, BBB, CCC, DDD, and EEE to the 2015 ROWD. Further analysis of the intake and discharge alternatives is provided in Attachment H.2 of this Order.
18	2.c(3)	Design the outfall so that the BMZ does not encompass or otherwise adversely affect existing sensitive habitat.	See Findings 12, 13, 15, and 19 regarding the design of the outfall. Further analysis of the intake and discharge alternatives is provided in Attachment H.2 of this Order. Based on the referenced findings and the information provided in the 2015 ROWD, the San Diego Water Board finds that the outfall has been designed so that the BMZ does not encompass or otherwise adversely affect sensitive habitat. No kelp beds or permanently exposed natural rock outcrops exist within the BMZ.
19	2.c(4)	Design the outfall so that discharges do not result in dense, negatively buoyant plumes that result in adverse effects due to elevated salinity or hypoxic conditions occurring outside the BMZ. An owner or operator must demonstrate that the outfall meets this requirement through plume modeling and/or field studies. Modeling and field studies shall be approved by the regional water board in consultation with State Water Board staff.	Based on information provided by the Discharger, the San Diego Water Board analyzed two outfall design alternatives following consideration of the availability of wastewater for dilution: 1) a multiport diffuser alternative and 2) a flow augmentation alternative. The information provided by the Discharger regarding the outfall design analysis is provided in Appendices B, C, K, L, N, X, Y, BB, CC, DD, II, OO, PP, QQ, RR, UU, and WW to the 2015 ROWD. The multiport diffuser alternative that the San Diego Water Board analyzed as modeled by the Discharger consisted of a 72-inch outfall pipe extending approximately 4,000 feet (ft.) offshore, which would convey the brine discharge from the Facility to a multiport diffuser system where four duckbill diffuser ports would eject the brine into the water column at a high velocity to promote rapid diffusion and

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			dispersion. The diffusers were designed to promote rapid mixing to prevent the formation of negatively buoyant plumes. Under this scenario, the BMZ would be a circle with a radius of 100 meters (328 ft.), originating from each of the diffuser ports. The duckbill diffusers were spaced approximately 100 ft. apart. Outside of the BMZ, salinity would not exceed 2 parts per thousand (ppt) over ambient background salinity. Within the BMZ, entrained organisms would experience elevated salinity. The benthic area encompassed by the BMZ would be approximately 12.3 acres. The flow augmentation alternative modeled by the Discharger and analyzed by the San Diego Water Board consisted of commingling the brine discharge from the Facility in the existing EPS discharge channel with flow augmentation water from the Agua Hedionda Lagoon to initially dilute the brine to 42 ppt. Final dilution to comply with the receiving water limitation for salinity was accomplished through natural mixing in the surf zone. Under these conditions the BMZ would comprise an area slightly larger than a semicircle with a radius of 200 meters (656 ft.), originating from the end of the discharge jetty and continuing out to the ocean and circling back to the shoreline. The benthic area encompassed by the BMZ would be approximately 18.51 acres. The Discharger concluded in Appendix DD to the 2015 ROWD that "hypoxic conditions are not present under existing operating conditions, and are not expected to be present outside the 200 meter (656 ft.) BMZ under the proposed operating conditions." In support of this application, the Discharger also submitted an entrainment study, based on Tenera Environmental's 2008 Encina Power Station Clean Water

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			Act Section 316(b) Impingement Mortality and Entrainment Characterization Study, as Appendix K of the 2015 ROWD. The Discharger subsequently revised the entrainment effects calculations as recommended by the SAP and provided the results as Appendices FFF and GGG to the 2015 ROWD, which the San Diego Water Board reviewed and analyzed. The Discharger's entrainment effects study found that for this Facility, flow augmentation with a surface water intake would not result in adverse effects due to elevated salinity or hypoxic conditions occurring outside the BMZ. The Discharger also found that the use of wastewater was infeasible due to limited flow for dilution and limited capacity at any nearby existing wastewater outfalls In addition, Order No. R9-2006-0065 required extensive surf zone monitoring for dissolved oxygen. The results of this monitoring showed that the dissolved oxygen levels in ocean waters within the zone of initial dilution have met the Ocean Plan's dissolved oxygen water quality standards. The discharge of brine using flow augmentation dilution technology has not resulted in hypoxic conditions. Accordingly, the San Diego Water Board finds that the outfall has been designed so that discharges do not result in dense, negatively buoyant plumes that result in adverse effects due to elevated salinity or hypoxic conditions occurring outside the BMZ.
20	2.c(5)	Design outfall structures to minimize the suspension of benthic sediments.	Both outfall structure alternatives have been designed to minimize the suspension of benthic sediments. As described in Attachment A to the 2015 ROWD, a new multiport diffuser discharge system would be located approximately 4,000 ft. offshore, 3,280 ft. northwest of kelp beds. The diffuser system would be elevated off the

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			seafloor and oriented to minimize the suspension of benthic sediments, in accordance with Ocean Plan provisions. As described in Attachment A to the 2015 ROWD, a flow augmentation discharge system would flow by gravity into the existing EPS discharge channel following dilution to 42 ppt by flow augmentation with additional seawater. Final dilution to comply with the receiving water limitation for salinity would be accomplished through natural mixing in the surf zone, thereby minimizing project-related suspension of benthic sediments.
-	2.d	Technology: Technology is the type of equipment, materials, and methods that are used to construct and operate the design components of the desalination facility. The regional water board shall apply the following considerations in determining whether a proposed technology is the best available technology feasible to minimize intake and mortality of all forms of marine life:	
21	2.d(1)(a)(i)	The regional water board shall consider the following factors in determining feasibility of subsurface intakes: geotechnical data, hydrogeology, benthic topography, oceanographic conditions, presence of sensitive habitats, presence of sensitive species, energy use for the entire facility; design constraints (engineering, constructability), and project life cycle cost. Project life cycle cost shall be determined by evaluating the total cost of planning, design, land acquisition, construction, operations, maintenance, mitigation, equipment replacement and disposal over the lifetime of the facility, in addition to the cost of decommissioning the facility. Subsurface intakes shall not be determined to be economically infeasible solely because subsurface intakes may be more expensive than surface intakes. Subsurface intakes may be determined to be economically infeasible if the additional costs or lost profitability associated with subsurface intakes, as compared to surface intakes, would render the	The San Diego Water Board concludes, as it did in the 2009 Determination, that subsurface intakes are not feasible at this time. The same considerations now required by Ocean Plan chapter III.M.2.d(1)(a)(i) were reviewed in the 2009 Determination and the information and conditions on which the findings were based, and those conditions have not changed since that time. See Findings 9 and 13 regarding geotechnical data, hydrogeology, benthic topography, oceanographic conditions, presence of sensitive habitats, and design constraints associated with subsurface intakes. See Appendices N and OO to the 2015 ROWD for information regarding life cycle costs for subsurface intakes.

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		desalination facility not economically viable. In addition, the regional water board may evaluate other site- and facility-specific factors.	Further analysis of the intake alternatives including subsurface intake alternatives is provided in Attachment H.2 of this Order.
22	2.d(1)(a)(ii)	If the regional water board determines that subsurface intakes are not feasible for the proposed intake design capacity, it shall determine whether subsurface intakes are feasible for a reasonable range of alternative intake design capacities. The regional water board may find that a combination of subsurface and surface intakes is the best feasible alternative to minimize intake and mortality of marine life and meet the identified need for desalinated water as described in chapter III.M.2.b.(2).	The San Diego Water Board concluded in the 2009 Determination that subsurface intake alternatives were not feasible. The San Diego Water Board reevaluated the feasibility of subsurface intakes for under the 2019 Order and Determination and found that a combination of subsurface and surface intakes were not feasible at the time. A combination of a low-volume subsurface intake with a surface intake would be a very complex technical intake configuration with multiple pipelines, pumps, and infrastructure constructed on an already developed parcel of land with existing site constraints. The increased complexity and dual infrastructure needed for both a subsurface intake and surface water intake would be a cost multiplier on capital expenses, operation and maintenance, permitting, and other expenses associated with constructing a new intake system. These technical and economic considerations would render a combination of intake technologies to be infeasible. See Findings 9, 10, 11, 12, 13, 14, 15, and 21 regarding the feasibility of subsurface intakes for a range of alternative intake design capacities.
23	2.d(1)(b)	Installation and maintenance of a subsurface intake shall avoid, to the maximum extent feasible, the disturbance of sensitive habitats and sensitive species.	The San Diego Water Board concluded in the 2019 Determination that subsurface intake alternatives were not feasible. See Finding 9 for further discussion of the environmental effects of the SIG alternatives. See Finding 11 and 21 for further discussion on avoiding sensitive habitats and sensitive species.

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			See Appendices B, and II to the 2015 ROWD for information regarding the potential impacts from subsurface intakes.
24	2.d(1)(c)	If subsurface intakes are not feasible, the regional water board may approve a surface water intake subject to the following conditions:	After analyzing the Discharger's submittals regarding relevant geotechnical data, hydrogeology, benthic topography, oceanographic conditions, presence of sensitive habitats, presence of sensitive species, energy use for the entire facility, design constraints, and project life cycle costs, the San Diego Water found that the surface intake configuration in Design Alternative 21 met the requirements and conditions of chapter III.M.2.d.(1)(c) of the Ocean Plan. See Findings 25 through 28 for further discussion. A new intake design approved by the San Diego Water Board has been installed due to challenges associated with operating and maintaining the Design Alternative 21 intake laterals and WWS in a low-energy estuarine marine environment, and the potential need for extended Facility shutdowns during periodic cleaning of the intake laterals to remove biofouling organisms. The new intake design meets the requirements and conditions of chapter III.M.2.d.(1)(c) of the Ocean Plan and will not result in an increase in intake and mortality of marine life beyond that approved by the 2019 Order.
25	2.d(1)(c)i	The regional water board shall require that surface water intakes be screened. Screens must be functional while the facility is withdrawing seawater.	The Facility will be equipped with functioning screens while withdrawing seawater. See Finding 11 for more information. Further analysis of the intake and discharge alternatives is provided in Attachment H.2.
26	2.d(1)(c)ii	In order to reduce entrainment, all surface water intakes must be screened with a 1.0 mm (0.04 in) or smaller slot size screen when the desalination facility is withdrawing	The Facility's surface water intake will be screened with a 1.0 mm screen or smaller slot size screen. Like Design Alternative 21, the new intake design complies with the 1.0 mm screening requirement and the 0.5 ft/sec or less through-screen velocity requirement. The 1.0 mm screening and the through-screen velocity standard set by

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		seawater.	the Ocean Plan minimizes the mortality to marine life due to impingement and entrainment. See Appendices B, J, K, P, X, Y, EE, FF, GG, HH, II, PP, SS, TT, YY, ZZ, AAA, BBB, CCC, DDD, EEE, and FFF to the 2015 ROWD. Further analysis of the intake and discharge alternatives is provided in Attachment H.2 of this Order.
27	2.d.(1)(c)iii	An owner or operator may use an alternative method of preventing entrainment so long as the alternative method results in intake and mortality of eggs, larvae, and juvenile organisms that is less than or equivalent to a 1.0 mm (0.04 in) slot size screen. The owner or operator must demonstrate the effectiveness of the alternative method to the regional water board. The owner or operator must conduct a study to demonstrate the effectiveness of the alternative method, and use an Empirical Transport Model (ETM)/ APF approach to estimate entrainment. The study period shall be at least 12 consecutive months. Sampling for environmental studies shall be designed to account for variation in oceanographic or hydrologic conditions and larval abundance and diversity such that abundance estimates are reasonably accurate. Samples must be collected using a mesh size no larger than 335 microns and individuals collected shall be identified to the lowest taxonomical level practicable. The ETM/APF analysis shall evaluate entrainment for a broad range of species, species morphologies, and sizes under the environmental and operational conditions that are representative of the entrained species and the conditions at the full-scale desalination facility. At their discretion, the regional water boards may permit the use of existing entrainment data to meet this requirement.	The Facility's surface water intake will be screened with a 1.0 mm screen or smaller slot size screen. See Finding 11 for more information.

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28	2.d(1)(c)iv	In order to minimize impingement, through-screen velocity at the surface water intake shall not exceed 0.15 meters per second (0.5 ft/sec).	Like Design Alternative 21, the new intake design complies with the 0.5 ft/sec through-screen velocity requirement. The 0.5 ft/sec standard set by the Ocean Plan minimizes mortality to marine life due to impingement. Further analysis of the intake and discharge alternatives is provided in Attachment H.2 of this Order.
29	2.d(2)(a)	The preferred technology for minimizing intake and mortality of all forms of marine life resulting from brine discharge disposal is to commingle brine with wastewater (e.g., agricultural, municipal, industrial, power plant cooling water, etc.) that would otherwise be discharged to the ocean. The wastewater must provide adequate dilution to ensure salinity of the commingled discharge meets the receiving water limitation for salinity in chapter III.M.3. Nothing in this section shall preclude future recycling of the wastewater.	The San Diego Water Board finds that wastewater is unavailable to dilute the Facility's brine discharge. See Finding 14 for more information.
30	2.d(2)(b)	Multiport diffusers are the next best method for disposing of brine when the brine cannot be diluted by wastewater and when there are no live organisms in the discharge. Multiport diffusers shall be engineered to maximize dilution, minimize the size of the BMZ, minimize the suspension of benthic sediments, and minimize mortality of all forms of marine life.	The Discharger projects that the total project cost for a multiport diffuser with a surface water intake is up to $458,639,220 in Appendix OO to the 2015 ROWD, Table 1, Surface Screened Intake with Multiport Diffuser. While the San Diego Water Board considered this cost projection, the conditional determination that flow augmentation is the best available feasible brine discharge technology is not based on the projected cost of a multiport diffuser but based on available information that supports the conclusion that use of flow augmentation as an alternative brine discharge technology and a theoretical multiport diffuser will provide comparable intake and mortality of all forms of marine life pursuant to chapter III.M.2.d(2)(c). Appendices B, N, II, and OO to the 2015 ROWD provide more information regarding the cost of construction and operation of a multiport diffuser. Further analysis of the

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			intake and discharge alternatives is provided in Attachment H.2 of this Order.
31	2.d(2)(c)	Brine discharge disposal technologies other than wastewater dilution and multiport diffusers, may be used if an owner or operator can demonstrate to the regional water board that the technology provides a comparable level of intake and mortality of all forms of marine life as wastewater dilution if wastewater is available, or multiport diffusers if wastewater is unavailable. The owner or operator must evaluate all of the individual and cumulative effects of the proposed alternative discharge method on the intake and mortality of all forms of marine life, including (where applicable); intake-related entrainment, osmotic stress, turbulence that occurs during water conveyance and mixing, and shearing stress at the point of discharge. When determining the intake and mortality associated with a brine discharge disposal technology or combination of technologies, the regional water board shall require the owner or operator to use empirical studies or modeling to:	To allow use of flow augmentation as an alternative brine discharge technology, the San Diego Water Board must consider whether the Discharger has demonstrated that flow augmentation provides a comparable level of intake and mortality of all forms of marine life as a multiport diffuser. The San Diego Water Board analyzed the information provided by the Discharger for intake and marine life mortality due to flow augmentation and the information provided by the Discharger for intake and marine life mortality due to a discharge from a theoretical multiport diffuser by calculating the required volume of water to dilute the discharge to meet the salinity receiving water limit. This volume was then multiplied by 0.23 (23 percent) to estimate the volume of water where shearing-related mortality occurs, as was reported by Foster et al[1] and referenced in the *Final Staff Report Including the Final Substitute Environmental Documentation* (SED)[2]. Finally, an estimate of the size of the Brine Mixing Zone was calculated using modeling and a theoretical diffuser. This area is 12.3 acres according to Appendix A to the 2015 ROWD. This analysis shows that the flow augmentation discharge technology provides a comparable level of intake and mortality of all forms of marine life as the theoretical multiport diffuser. See Appendices A, K, WW, ZZ, FFF, and GGG to the 2015 ROWD. A recent scientific report[3] by Dr. Philip Roberts has refined the methods to calculate marine life mortality caused by a brine discharge through a diffuser. These refined methods include a process to systematically determine the best available diffuser design to minimize mortality and the size of the BMZ.

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			The San Diego Water Board analyzed potential diffuser designs using the methods in the most recent scientific report by Dr. Roberts and estimated that the shearing-related mortality from the best available diffuser design is comparable to the Discharger's estimate of the additional intake-related mortality from the flow augmentation discharge technology. Specifically, a theoretical diffuser could be designed that would result in a volume of approximately 170 MGD exposed to shearing-related mortality and a potential BMZ that might be as low as 1 acre. The Discharger's estimate of mortality from using flow augmentation discharge technology includes a 171 to 196 MGD volume of intake with an APF of 76 to 88 acres and a BMZ of approximately 18.5 acres. The comparison of brine discharge technologies was conducted considering a "worst-case" scenario of the maximum brine discharge of 60 MGD. "Worst case" is the plant operating conditions that would most likely result in the highest threat to water quality. For a brine discharge of 60 MGD, a theoretical multiport diffuser would result in approximately 170 MGD of seawater compared to 171 MGD of seawater needed from flow augmentation to dilute 60 MGD of brine. Due to the Order's intake specification limiting the total intake of seawater to 299 MGD, if the flow augmentation was increased to 196 MGD, the plant could only produce approximately 48 MGD of brine which is less of a threat to water quality than the discharge of 60 MGD of brine. Therefore, the comparison of brine discharge technologies was done for a discharge of 60 MGD of brine. The Discharger conducted an ETM/APF analysis in Appendix GGG to the 2015 ROWD that concluded a diffuser could be designed that would result in approximately 170 MGD of shearing related mortality.

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			However, the Appendix GGG ETM/APF calculation for a diffuser inappropriately relied on larval length data from Agua Hedionda Lagoon rather than larval length data from the open ocean coastal area where a multiport diffuser would be located. Due to a lack of larval length data from the open ocean coastal area to calculate an ETM/APF value for a multiport diffuser, the 2019 Order required the collection of entrainment data at the location of the theoretical multiport diffuser and an ETM/APF analysis based on those data within two years of the 2019 Order's effective date. While available information supports the conclusion that flow augmentation is the best available brine discharge technology feasible, greater confidence in the scientific determination that underlays the comparison of intake and mortality levels from multiport diffusers and flow augmentation was provided through implementation of the Multiport Diffuser Analysis required in Section VI.C.2.a of the 2019 Order. See also Finding 36, below for further information on how the data was used for comparison to the outcome of the flow augmentation discharge technology empirical study required in the 2019 Order, section VI.C.2.b. In Appendix N to the 2015 ROWD, the Discharger estimated the cost to construct a multiport diffuser with a surface water intake to be approximately $425 million. In Appendix EEE to the 2015 ROWD, the Discharger estimated the cost to construct Design Alternative 21, a surface water intake with WWS using flow augmentation discharge technology, to be $53 million. The Discharger's September 13, 2018, cost update for Alternative 21 put the expected cost of this alternative between $66.2 to $82.8 million.

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			Based on these considerations with the information available, the San Diego Water Board conditionally determined that flow augmentation was the best available discharge technology feasible. [See discussion in Finding II.D of the 2019 Order explaining that the 2019 Determination was made conditional on the results of the Multiport Diffuser Analysis] confirming the San Diego Water Board's conclusion that use of an alternative brine discharge technology pursuant to section III.M.2.d.(2)(c) of the Ocean Plan is permissible. Results of the Multiport Diffuser Analysis concluded that the flow augmentation results in a comparable level of intake and mortality to multiport diffusers. Due to uncertainties in estimating the marine life mortality through modeling and as required by the Ocean Plan, Section VI.C.2.b of the 2019 Order required a special study consistent with the requirements in Ocean Plan chapter III.M.2.d.(2)(c)iv to further evaluate the intake and mortality of all forms of marine life associated with the discharge technology for permanent stand-alone operations. The Discharger completed the Brine Discharge Technology Empirical Study and will submit a final report for the study by March 1, 2027. The study will evaluate the marine life mortality from a flow augmentation discharge with empirical observation data for direct comparison to the marine life mortality from a diffuser as required by chapter III.M.2.d.(2)(c)(v) of the Ocean Plan. If the study demonstrates that the flow augmentation discharge technology results in more intake and mortality of all forms of marine life than a Facility using multiport diffusers, then, as required by Ocean Plan chapter III.M.2.d.(2)(c)v, the Facility must submit a proposed schedule to either:

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			1. Cease using the flow augmentation brine discharge technology and install and use wastewater dilution or multiport diffusers to discharge brine waste; or 2. Re-design the alternative flow augmentation discharge technology system to minimize intake and mortality of all forms of marine life to a level that is comparable with wastewater dilution if wastewater is available, or multiport diffusers if wastewater is unavailable, subject to San Diego Water Board approval. [1]Desalination Plant Entrainment Impacts and Mitigation. Expert Review Panel III, Foster et al, 2013 available upon request. [2]The Final Staff Report Including the Final Substitute Environmental Documentation is available at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2015/rs2015_0033_sr_apx.pdf [3]Brine Diffusers and Shear Mortality, Philip J.W. Roberts, (Roberts Report) April 18, 2018, is available upon request.
32	2.d(2)(c)i	Estimate intake entrainment impacts using an ETM/APF approach.	The Discharger estimated the intake entrainment impacts from flow augmentation using an ETM/APF approach based on Appendix E to the Desalination Amendment Staff Report. The SAP reviewed the Discharger's APF and ETM calculations for flow augmentation and recommended that the ETM calculations be consistent with the calculations conducted for the 2008 EPS Study, to account for the intake of marine life species from multiple source water bodies (i.e. Agua Hedionda Lagoon and the Pacific Ocean) rather than a single source water body (i.e. only Pacific Ocean). The Discharger revised the ETM calculations for flow augmentation as recommended by the SAP and provided the results as Appendix FFF to the 2015 ROWD.

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			See Finding 31 and Appendices K, P, WW, FFF, and GGG to the 2015 ROWD. The San Diego Water Board evaluated this information in reaching its conclusion that the intake and mortality of all forms of marine life from flow augmentation and multiport diffusers are comparable. This conclusion was conditional on the outcome of the Multiport Diffuser Analysis, as described in Finding II.D of the 2019 Order. The Multiport Diffuser Analysis concluded that the level of intake and mortality of marine life estimated using the flow augmentation discharge technology was comparable to that of multiport diffusers.
33	2.d(2)(c)ii	Estimate degradation of all forms of marine life from elevated salinity within the BMZ, including osmotic stresses, the size of impacted area, and the duration that all forms of marine life are exposed to the toxic conditions. Considerations shall be given to the most sensitive species, and community structure and function.	The Discharger analyzed the potential for degradation to marine life due to elevated salinity within the BMZ. See Appendices C, G, H, I, L, BB, DD, QQ, UU, WW, XX and ZZ to the 2015 ROWD. The San Diego Water Board evaluated this information in reaching its conclusion that the intake and mortality of all forms of marine life from flow augmentation and multiport diffusers are comparable. This conclusion was confirmed by results of the Discharger's Multiport Diffuser Analysis which concluded that flow augmentation would result in an area of production forgone of 38.1 acres and that multiport diffusers would result in 123.0 acres impacted by the construction and operation of the multiport diffusers. This Order's Monitoring Reporting Program in Attachment E requires salinity monitoring within the BMZ to assess impacts and evaluate adverse changes in the environment due to elevated salinity.
34	2.d(2)(c)iii	Estimate the intake and mortality of all forms of marine life that occurs as a result of water conveyance, in-plant turbulence or mixing, and waste discharge.	The Discharger estimated the intake and mortality of all forms of marine life that occurs as a result of water conveyance assuming 100 percent mortality of marine life entrained in the intake water. See Findings 31 and 32 and Appendices B, C, F, K, I, J, L, BB, DD, GG, HH, QQ, UU,

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			WW, XX YY, and ZZ to the 2015 ROWD. The San Diego Water Board evaluated this information in reaching its conclusion that the intake and mortality of all forms of marine life from flow augmentation and multiport diffusers are comparable. This conclusion was confirmed by results of the Discharger's Multiport Diffuser Analysis.
35	2.d(2)(c)iv	Within 18 months of beginning operation, submit to the regional water board an empirical study that evaluates intake and mortality of all forms of marine life associated with the alternative brine discharge technology. The study must evaluate impacts caused by any augmented intake volume, intake and pump technology, water conveyance, waste brine mixing, and effluent discharge. Unless demonstrated otherwise, organisms entrained by the alternative brine discharge technology are assumed to have a mortality rate of 100 percent. The study period shall be at least 12 consecutive months. If the regional water board requires a study period longer than 12 months, the final report must be submitted to the regional water board within 6 months of the completion of the empirical study.	Section VI.C.2.b of the 2019 Order required an empirical study to evaluate intake and mortality of all forms of marine life associated with the flow augmentation discharge. See Finding 31 for more information on the special study.
36	2.d(2)(c)v	If the empirical study shows that flow augmentation, the alternative brine discharge disposal technology, results in more intake and mortality of all forms of marine life than a facility using wastewater dilution or multiport diffusers, then the facility must either (1) cease using flow augmentation the alternative brine discharge technology and install and use wastewater dilution or multiport diffusers to discharge brine waste, or (2) re-design the flow augmentation the alternative brine discharge technology system to minimize intake and mortality of all forms of marine life to a level that is comparable with wastewater dilution if wastewater is available, or multiport diffusers if wastewater is unavailable, subject to regional water board approval.	The Discharger conducted the Brine Discharge Technology Empirical Study and will submit a final report for the study by March 1, 2027. As required by chapter III.M.2.d.(2)(c)(v) of the Ocean Plan, the study evaluated marine life mortality from the flow augmentation discharge with empirical observation data for direct comparison to the marine life mortality from multiport diffuser. Results of the study are expected to conclude that the flow augmentation discharge technology will not result in more intake and mortality of marine life than multiport diffusers. See Finding 31 for more information on the special study.

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37	2.d(2)(d)(ii)	[Flow Augmentation as an alternative brine discharge technology is prohibited with the following exceptions:] At a facility that has received a conditional Water Code section 13142.5(b) determination and is over 80 percent constructed by January 28, 2016. If the owner or operator of the facility proposes to use flow augmentation as an alternative brine discharge technology, the facility must: use low turbulence intakes (e.g., screw centrifugal pumps or axial flow pumps) and conveyance pipes; convey and mix dilution water in a manner that limits thermal stress, osmotic stress, turbulent shear stress, and other factors that could cause intake and mortality of all forms of marine life; comply with chapter III.M.2.d(1); and not discharge through multiport diffusers.	The San Diego Water Board finds that the Facility meets the criteria in this Ocean Plan provision for continued use of flow augmentation as an alternative brine discharge technology. The Facility received a conditional Water Code section 13142.5(b) determination in 2009 for co-located operations and temporary stand-alone operations (2009 Determination) and was over 80 percent constructed by January 28, 2016. The Discharger has retrofitted the Facility with an Ocean Plan complaint low turbulence intake and new fish friendly pumps. The Discharger received authorization from the San Diego Water Board to initiate operating the new intake structure on December 10, 2024. Additionally, the new pumps convey and mix dilution water in a manner that limits thermal stress, osmotic stress, turbulent shear stress, and other factors that could cause intake and mortality of all forms of marine life. On this basis, the San Diego Water Board finds that the requirements of chapter III.M.2.d.(2)(d)(ii) have been satisfied. See Finding 31 and Appendices B, G, H, I, J, K, L, FFF, and GGG to the 2015 ROWD. Further analysis of the intake and discharge alternatives is provided in Attachment H.2 of this Order.
-	2.e	Mitigation: for the purposes of this section mitigation is the replacement of all forms of marine life or habitat that is lost due to the construction and operation of a desalination facility after minimizing intake and mortality of all forms of marine life through best available site, design, and technology. The regional water board shall ensure an owner or operator fully mitigates for the operational lifetime of the facility and uses the best available mitigation measures feasible to minimize intake and mortality of all forms of marine life. The owner or operator may choose whether to satisfy a facility's mitigation measures pursuant to chapter III.M.2.e.(3), or if available, M.2.e.(4), or a combination of the two.	
38	2.e(1)	Marine Life Mortality Report. The owner or operator of a facility shall submit a report to the regional water board estimating the marine life mortality resulting from construction and operation of the facility after	Appendices A, B, II, and ZZ to the 2015 ROWD provide estimated impacts to all forms of marine life resulting from various intake and discharge alternatives under consideration for the Facility.

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		implementation of the facility's required site, design, and technology measures.	
39	2.e(1)(a)	For operational mortality related to intakes, the report shall include a detailed entrainment study. The entrainment study period shall be at least 12 consecutive months and sampling shall be designed to account for variation in oceanographic or hydrologic conditions and larval abundance and diversity such that abundance estimates are reasonably accurate. At their discretion, the regional water boards may permit the use of existing entrainment data from the facility to meet this requirement. Samples must be collected using a mesh size no larger than 335 microns and individuals collected shall be identified to the lowest taxonomical level practicable. The ETM/APF analysis shall be representative of the entrained species collected using the 335 micron net. The APF shall be calculated using a one-sided, upper 95 percent confidence bound for the 95th percentile of the APF distribution. An owner or operator with subsurface intakes is not required to do an ETM/APF analysis for their intakes and is not required to mitigate for intake-related operational mortality. The regional water board may apply a one percent reduction to the APF acreage calculated in the Marine Life Mortality Report to account for the reduction in entrainment of all forms of marine life when using a 1.0 mm slot size screen.	The Discharger submitted an entrainment study in Appendix K to the 2015 ROWD and a minimization plan in Appendix P to the 2015 ROWD that addresses this Ocean Plan requirement. Appendices K and P relied on data from the 2008 EPS Study. In support of the 2009 Determination for co-located operations, the 2008 EPS Study and other studies produced in support of the Discharger's permitting applications were reviewed by Dr. Peter Raimondi, an academic researcher with extensive experience evaluating entrainment studies on behalf of California state agencies, including the Coastal Commission and the San Diego Water Board. Dr. Raimondi reported that the 2008 EPS Study and the Discharger's use of the entrainment data for the CDP were consistent with the best available science (see Appendix K to the 2015 ROWD) and concluded that the study provided adequate data to determine the types and numbers of organisms that would be subject to entrainment. Accordingly, the San Diego Water Board concludes that the use of the entrainment data from the 2008 EPS Study to assess the operational mortality related to the Facility's intake is appropriate. The SAP reviewed the Discharger's APF and ETM calculations. The SAP recommended that the ETM calculations be consistent with the calculations conducted for the 2008 EPS Study, to account for the intake of marine life species from multiple source water bodies (i.e. Agua Hedionda Lagoon and the Pacific Ocean) rather than a single source water body (i.e. only Agua Hedionda Lagoon). The Discharger revised the ETM calculations as recommended by the SAP and provided the results to the

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			San Diego Water Board as Appendix FFF and GGG to the 2015 ROWD. See Finding 32. The SAP calculated the APF for entrainment to be 66.63 acres. With a 1 percent reduction when using the 1.0 mm slot size screen, the total APF for entrainment is 65.97 acres. The Discharger will use a 1.0 mm slot size screen and therefore qualifies for a 1 percent reduction to the APF acreage.
40	2.e.(1).(b)	For operational mortality related to discharges, the report shall estimate the area in which salinity exceeds 2.0 parts per thousand above natural background salinity or a facility-specific alternative receiving water limitation (see chapter III.M.3). The area in excess of the receiving water limitation for salinity shall be determined by modeling and confirmed with monitoring. The report shall use any acceptable approach approved by the regional water board for evaluating mortality that occurs due to shearing stress resulting from the facility's discharge, including any incremental increase in mortality resulting from a commingled discharge.	The area in which the flow augmentation discharge exceeds 2.0 ppt above the natural background salinity is approximately the shape of a semicircle extending 200 meters (656 ft.) from the end of the discharge jetty. Appendices XX and ZZ to the 2015 ROWD calculated the area impacted within the BMZ to be 18.5 acres. The size of the BMZ was determined through hydrodynamic modeling studies and was verified through receiving water monitoring required in the 2019 Order. The diffuser brine discharge alternative consists of four duckbill ports located 100 ft. apart, which would discharge the brine into the water column at a high velocity to promote rapid diffusion and dispersion. The BMZ would extend 100 meters (328 ft.) out from each of the four discharge points with the combined area inside the BMZ covering 12.3 acres as calculated in Appendix ZZ to the 2015 ROWD.
41	2.e(1)(c)	For construction-related mortality, the report shall use any acceptable approach approved by the regional water board for evaluating the mortality that occurs within the area disturbed by the facility's construction. The regional water board may determine that the construction-related disturbance does not require mitigation because the	Construction-related marine life mortality impacts depend on the intake structure design. In Appendix EEE to the 2015 ROWD, the Discharger estimates that the permanent impacts from construction and installation of WWS in the lagoon for Design Alternative 21 would result in 0.2 acres of permanent impacts. However, these impacts are expected to be temporary in nature when the intake pipe

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		disturbance is temporary and the habitat is naturally restored.	laterals from the WWS to the shoreline are buried with sediment, which would eventually restore the benthic habitat to pre-project conditions. The new intake design which replaced Design Alternative 21 also results in 0.2 acres of construction impacts. In Appendices B and ZZ to the 2015 ROWD, the Discharger estimated that a multiport diffuser alternative for the brine discharge would have four acres of temporary impacts to marine habitat during construction, with 12.3 acres of permanent impacts remaining after construction. The flow augmentation alternative for brine discharge would not require additional construction at the discharge point and no construction related impacts to the marine habitat are identified at the discharge point. Further analysis of the intake and discharge alternatives is provided in Attachment H.2 of this Order
42	2.e(1)(d)	Upon approval of the report by the regional water board in consultation with State Water Board staff, the calculated marine life mortality shall form the basis for the mitigation provided pursuant to this section.	The wetland mitigation area required for marine life mortality impacts related to the CDP's permanent stand-alone operations is 68.30 acres, which includes a mitigation ratio of 1 acre of mitigation for every 10 acres of impacted soft bottom or open ocean habitat. Of that total, 65.97 acres is due to marine life impacts from entrainment, including a 1 percent reduction to the APF that accounts for the reduction in entrainment when using a 1.0 mm slot size screen. The permanent construction related impacts to marine life from the new intake design is 0.2 acres of benthic habitat in Agua Hedionda Lagoon (no change from Design Alternative 21). Total impacts within the BMZ are calculated to be 18.5 acres: 18.2 acres of soft bottom habitat, with a mitigation ratio of 1 acre of mitigation for every 10 acres of soft bottom, open ocean habitat, and 0.31 acres of rocky jetty habitat, with a mitigation ratio of 1

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			acre of mitigation for every 1 acre of habitat. Therefore, the total mitigation required for the impacts to the BMZ is 2.13 acres.
43	2.e(2)	The owner or operator shall mitigate for the mortality of all forms of marine life determined in the report above by choosing to either complete a mitigation project as described in chapter III.M.2.e.(3) or, if an appropriate fee-based mitigation program is available, provide funding for the program as described in chapter III.M.2.e.(4). The mitigation project or the use of a fee-based mitigation program and the amount of the fee that the owner or operator must pay is subject to regional water board approval.	On May 13, 2009, the San Diego Water Board adopted Order No. 2009-0038, amending Order No. 2006-0065 to require 55.4 acres of wetland mitigation for impacts attributable to co-located and temporary stand-alone operations of the Facility. Finding 41 of the 2009 Determination states, “The Marine Life Mitigation Plan (MLMP) was written for stand-alone operation, and proposes phased implementation of up to 55.4 acres of wetland mitigation within the Southern California Bight.” Finding 46 of the 2009 Determination states, “It is appropriate to establish a fish productivity requirement that must be achieved to compensate for projected impingement based on the estimate of 4.7 kilograms per day. Based on this estimate, it is reasonable to establish 1,715.5 kilograms per year (kg/year) as the fish productivity requirement. This requirement is considered a ‘Biological Performance Standard’ under section 5A.b. of the MLMP.” Section VI.C.2.e.a. of Order R9-2006-0065, as amended, provides that the Executive Officer of the San Diego Water Board shall consider any adjustment to the biological performance standard/fish productivity standard for the next permit cycle. Section VI.C.2.e.b. of Order R9-2006-0065, as amended provides that the Discharger can propose modification and variations from Allen’s productivity methodologies used for monitoring the biological performance standard of the mitigation, following review by the SAP and approval by the Executive Officer.

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			Subsequently, in September 2009, the Discharger in consultation with the Coastal Commission agreed to provide an additional 11 acres of mitigation, bringing the total wetland mitigation area required for co-located and temporary stand-alone operations to 66.4 acres. The SAP reviewed the biological performance standard and concluded that the additional 11 acres of mitigation, as required by the Coastal Commission, would compensate for the 1,715.5 kg/year biological productivity requirement required in the San Diego Water Board's 2009 Determination. The SAP recommended comparing the mitigation wetland to reference wetlands to assess the overall wetland function rather than the biological productivity. The Discharger proposed to implement the mitigation required in the 2009 Determination through restoration of native wetland habitat within the San Diego Bay National Wildlife Refuge (NWR) managed by the United States Fish and Wildlife Service. Consistent with the Ocean Plan, the San Diego Water Board incorporates the previously approved mitigation project in determining mitigation requirements for any additional mortality of all forms of marine life resulting from the occurrence of the conditional event or expansion of the Facility. Nonetheless, additional mitigation is required to compensate for any additional construction, discharge or other increases in intake or impacts or an increase in intake and mortality of all forms of marine life. For permanent stand-alone operations implementing Design Alternative 21 with WWS within the Lagoon, the mitigation required is 68.3 acres (see Finding 42 for more information). The San Diego Water Board has credited the

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			previously approved 66.4 acres of wetland mitigation area towards providing the 68.3 acres of mitigation required for impacts attributable to the CDP's permanent stand-alone operations. Accordingly, the Discharger must provide 1.9 acres of additional wetland mitigation area to offset impacts from permanent stand-alone operations. Section VI.C.2.d of the 2019 Order required the Discharger to develop and submit a permanent stand-alone mitigation plan providing for the additional 1.9 acres of mitigation needed for approval by the San Diego Water Board. For more information, please see Appendices ZZ and EEE to the 2015 ROWD and mitigation calculations provided by the Discharger on October 22, 2018. The Order requires the Discharger to provide and maintain at least 68.432 acres of mitigation to compensate for the marine life mortality impacts associated with the Facility's construction and operation through implementation of the approved ORERP. The mitigation area required by the 2019 Order and Determination was 68.3 acres. The San Diego Water Board adopted Order No. R9-2023-0137 on September 13, 2023. Order No. R9-2023-0137 required the Discharger to submit a revised MLMR and revised MLMP to include an additional 0.132 acres of mitigation through expansion of the approved 68.3 acres of mitigation. As a result, this Order carries over the requirement from Order No. R9-2023-0137 for the Discharge to provide an additional 0.132 acres of mitigation, which results in a total required mitigation area of 68.432 acres. The additional 0.132 acres of mitigation is required as the 2019 Order applied a one percent mitigation credit which should only be applied to Ocean Plan compliant intake screens. However, the Discharger did not install and begin using an Ocean Plan compliant

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			intake screen until December 10, 2024. Therefore, the additional mitigation is required to correctly apply the one percent mitigation credit. The Discharger's mitigation project will provide 94.08 acres of mitigation which exceeds the 68.432 acres of mitigation required by this Order.
44	2.e(3)	Mitigation Option 1: Complete a Mitigation Project. The mitigation project must satisfy the following provisions:	See Findings 43, and 45 through 55.
45	2.e(3)(a)	The owner or operator shall submit a Mitigation Plan. Mitigation Plans shall include: project objectives, site selection, site protection instrument (the legal arrangement or instrument that will be used to ensure the long-term protection of the compensatory mitigation project site), baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards and success criteria, monitoring requirements, and financial assurances.	The MLMP in Appendix P to the ROWD was developed by Poseidon in consultation with the San Diego Water Board, and was approved by the Coastal Commission and finalized on November 21, 2008. The MLMP in Appendix P to the ROWD requires Poseidon to restore at least 66.4 acres of wetland native habitats to offset habitat impacts attributable to co-located and temporary stand-alone Facility operations. See Finding 43. The mitigation project to meet the MLMP requirements is referred to as the Otay River Estuary Restoration Project. The Project site is located at the south end of San Diego Bay, San Diego County, California, within the South San Diego Bay Unit of the San Diego Bay NWR. Restoration activities will occur at two separate locations within the Refuge: 1) Otay River Floodplain Site, and 2) Pond 15 Site. Specifically, the approximately 34-acre Otay River Floodplain Site is located west of Interstate 5 between Main Street to the north and Palm Avenue to the south in the City of San Diego. The Pond 15 Site consists of an approximately 91-acre active solar salt pond located in the northeast portion of the refuge, located northwest of the intersection of Bay Boulevard and Palomar Street in Chula Vista. See Finding 43.

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			This Order requires the Discharger to provide and maintain at least 68.432 acres of mitigation area through its ORERP and submit an updated MLMP with an updated schedule for completion of the ORERP following delays with planting due to elevated soil salinity.
46	2.e(3)(b)i	Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following: kelp beds, estuaries, coastal wetlands, natural reefs, MPAs, or other projects approved by the regional water board that will mitigate for intake and mortality of all forms of marine life associated with the facility.	On March 10, 2011, the San Diego Water Board adopted Resolution No. R9-2011-0028[1], approving the Discharger's MLMP and the selection of locations with the San Diego Bay NWR as the wetland mitigation site. See Findings 43 and 45. The SAP concluded that the Discharger's ORERP would adequately compensate for intake-related impacts under permanent stand-alone operation. The SAP did not comment on mitigation needed to compensate for the impacts attributable to Facility discharge or construction. The marine life impacts due to the discharge from the Facility and from the construction of the new intake were accounted for in Finding 42, above, based on the information provided in Appendix EEE to the 2015 ROWD. [1]Resolution No. R9-2011-0028 is available on the San Diego Water Board website at: https://www.waterboards.ca.gov/sandiego/water_issues/programs/regulatory/docs/Resolution_R9_2011_0028.pdf (as of April 14, 2026)
47	2.e(3)(b)ii	The owner or operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including expansion, restoration, or creation of habitat based on the APF acreage calculated in the Marine Life Mortality Report above. The owner or operator using surface water intakes shall do modeling to evaluate the areal extent of the mitigation project's production area to confirm that it overlaps the facility's source water body. Impacts on the mitigation project due to entrainment by the	The Discharger was required to establish 1.9 acres in addition to the previously approved 66.4 acres of wetland mitigation. Section VI.C.6 of the 2019 Order required the Discharger to develop and submit a permanent stand-alone mitigation plan to provide the additional 1.9 acres of wetland mitigation for approval by the San Diego Water Board in consultation with the State Water Board. Monitoring of the completed mitigation project is being

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		facility must be offset by adding compensatory acreage to the mitigation project.	performed to confirm that the project meets the mitigation requirements. See Finding 44. The Ocean Plan allows the San Diego Water Board to account for previously-approved mitigation projects in determining mitigation requirements for any additional mortality of all forms of marine life resulting from the occurrence of the conditional event or expansion of the Facility. Additional mitigation must compensate for any additional construction, discharge or other increases in intake or impacts or an increase in intake and mortality of all forms of marine life. The San Diego Water Board has decided to account for the previously approved 66.4-acre mitigation project in requiring 68.3 acres of mitigation to offset impacts from stand-alone operations.
48	2.e(3)(b)iii	The owner or operator shall demonstrate that the project also fully mitigates for the discharge-related marine life mortality projected in the Marine Life Mortality Report above.	See Findings 41 and 44.
49	2.e(3)(b)iv	The owner or operator shall demonstrate that the project also fully mitigates for the construction-related marine life mortality identified in the Marine Life Mortality Report above.	See Findings 42 and 44.
50	2.e(3)(b)v	The regional water board may permit out-of-kind mitigation for mitigation of open water or soft-bottom species. In-kind mitigation shall be done for all other species whenever feasible.	See Findings 44 and 47.
51	2.e(3)(b)vi	For out-of-kind mitigation, an owner or operator shall evaluate the biological productivity of the impacted open water or soft-bottom habitat calculated in the Marine Life	The habitat impacted by the construction and operation of the intake and discharge structures includes open water, soft-bottom, estuarine, and rocky habitats. See Appendices

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		Mortality Report and the proposed mitigation habitat. If the mitigation habitat is a more biologically productive habitat (e.g. wetlands, estuaries, rocky reefs, kelp beds, eelgrass beds, surfgrass beds), the regional water boards may apply a mitigation ratio based on the relative biological productivity of the impacted open water or soft-bottom habitat and the mitigation habitat. The mitigation ratio shall not be less than one acre of mitigation habitat for every ten acres of impacted open water or soft-bottom habitat.	ZZ and EEE to the 2015 ROWD). The Discharger is constructing the ORERP which will restore wetland habitat as described in Findings 43, 44, and 47. Accordingly, the San Diego Water Board approved the Discharger's request to apply a mitigation ratio of one acre of mitigation habitat for every ten acres of impacted open water or soft-bottom habitat.
52	2.e(3)(b)vii	For in-kind mitigation, the mitigation ratio shall not be less than one acre of mitigation habitat for every one acre of impacted habitat.	The Discharger proposed a mitigation ratio of one acre of mitigation habitat for every one acre of impacted estuarine or rocky habitat. The SAP evaluated the Discharger's ETM/APF analyses by habitat classification and found that the Discharger used the appropriate designations in their ETM/APF calculation. The San Diego Water Board reviewed the mitigation ratios and found that the Discharger's proposal meets the requirements of this chapter. See Findings 42, 44 and 47.
53	2.e(3)(b)viii	For both in-kind and out-of-kind mitigation, the regional water boards may increase the required mitigation ratio for any species and impacted natural habitat calculated in the Marine Life Mortality Report when appropriate to account for imprecisions associated with mitigation, including but not limited to, the likelihood of success, temporal delays in productivity, and the difficulty of restoring or establishing the desired productivity functions.	The Facility commenced discharge in December 2015, and the construction of the ORERP did not begin until October 2022. Section 6.3.2.2 of this Order requires the Discharger to submit an updated Marine Life Mitigation Plan to include the four reference sites approved by the California Coastal Commission on June 30, 2025, and to update the project schedule to include interim goals to complete project milestones until the project meets performance standards. The updated MLMP is subject to the approval of the San Diego Water Board and must aim to offset the temporal losses in fish productivity occurring while the Facility was operated prior to the mitigation project meeting performance standards. The Discharger is therefore required to maintain the mitigation project as long as necessary to fully account for the temporal loss of fish

Finding No.	Ocean Plan, chapter III.M Reference	Ocean Plan Requirement	Finding
			productivity during the time between the start of operations of the Facility and when the mitigation project meets performance standards. See Finding 43. Prior to the EPS ceasing power generating activities, the intake pumps were bringing in up to 330 MGD of seawater. Following the installation of the new intake pumps, the amount of seawater pumped has reduced to about 299 MGD. Section VI.C.2.d.i.(f) of the 2019 Order required the Discharger to mitigate for the additional impacts from the additional intake of seawater during the interim period.
54	2.e(3)(b)ix	The rationale for the mitigation ratios must be documented in the administrative record for the permit action.	The wetland mitigation area required for marine life mortality impacts related to the CDP's permanent stand-alone operations is 68.30 acres, which includes a mitigation ratio of 1 acre of mitigation for every 10 acres of soft bottom or open ocean habitat. Of that total, 65.97 acres is due to marine life impacts from entrainment, including a 1 percent reduction to the APF that accounts for the reduction in entrainment when using a 1.0 mm slot size screen. The permanent construction impacts from the new intake design are 0.2 acres of benthic habitat in Agua Hedionda Lagoon (i.e., no change in construction impacts estimated from Design Alternative 21). Total impacts within the BMZ are calculated to be 18.5 acres: 18.2 acres of soft bottom habitat, with a mitigation ratio of 1 acre of mitigation for every 10 acres of soft bottom, open ocean habitat, and 0.31 acres of rocky jetty habitat, with a mitigation ratio of 1 acre of mitigation for every 1 acre of habitat. Therefore, the total mitigation required for the 18.5 acres of impacts to the BMZ is 2.13 acres of mitigation. The San Diego Water Board has reviewed and concludes that the mitigation ratios are consistent with the Ocean

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			Plan's requirements for 1:1 in-kind mitigation for impacts to estuarine species and the rocky jetty habitat, and 10:1 mitigation for open ocean water habitat and soft bottom habitat impacted by Facility operations. See Findings 44 and 52, Appendix ZZ to the 2015 ROWD, and in Order No. R9-2009-0038.
55	2.e(3)(c)	The Mitigation Plan is subject to approval by the regional water board in consultation with State Water Board staff and with other agencies having authority to condition approval of the project and require mitigation.	The San Diego Water Board consulted with State Water Board, the Coastal Commission, and the CDFW in the development and 2009 approval of the MLMP. Future revisions of the MLMP will be approved by the San Diego Water Board in consultation with the State Water Board, Coastal Commission, and CDFW. Please see Findings 44 and 47.
56	2.e(4)	Mitigation Option 2: Fee-based Mitigation Program. If the regional water board determines that an appropriate fee-based mitigation program has been established by a public agency, and that payment of a fee to the mitigation program will result in the creation and ongoing implementation of a mitigation project that meets the requirements of chapter M.2.e.(3), the owner or operator may pay a fee to the mitigation program in lieu of completing a mitigation project.	The Discharger has chosen not to pursue this mitigation option.
57	2.e(4)(a)	The agency that manages the fee-based mitigation program must have legal and budgetary authority to accept and spend mitigation funds, a history of successful mitigation projects documented by having set and met performance standards for past projects, and stable financial backing in order to manage mitigation sites for the operational life of the facility.	The Discharger has chosen not to pursue this mitigation option.
58	2.e(4)(b)	The amount of the fee shall be based on the cost of the mitigation project, or if the project is designed to mitigate cumulative impacts from multiple desalination facilities or	The Discharger has chosen not to pursue this mitigation option.

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		other development projects, the amount of the fee shall be based on the desalination facility's fair share of the cost of the mitigation project.	
59	2.e(4)(c)	The manager of the fee-based mitigation program must consult with the California Department of Fish and Wildlife, Ocean Protection Council, Coastal Commission, State Lands Commission, and State and regional water boards to develop mitigation projects that will best compensate for intake and mortality of all forms of marine life caused by the desalination facility. Mitigation projects that increase or enhance the viability and sustainability of all forms of marine life in Marine Protected Areas are preferred, if feasible.	The Discharger has chosen not to pursue this mitigation option.
60	2.e(5)	California Department of Fish and Wildlife, the regional water board, and State Water Board may perform audits or site inspections of any mitigation project.	Section VI.C.6 of the 2019 Order required the Discharger to develop a permanent stand-alone mitigation plan to compensate for additional impacts caused from permanent stand-alone operations, for approval by the San Diego Water Board's Executive Officer. Consistent with the Ocean Plan, the CDFW, the San Diego Water Board, and the State Water Board are authorized to perform audits or site inspections of any mitigation project.
61	2.e(6)	An owner or operator, or a manager of a fee-based mitigation program, must submit a mitigation project performance report to the regional water board 180 days prior to the expiration date of their NPDES permit.	The Discharger has chosen not to pursue a fee-based mitigation option.
62	2.e(7)(a)	For conditionally permitted facilities or expanded facilities, the regional water boards may: Account for previously-approved mitigation projects associated with a facility when making a new Water Code section 13142.5(b) determination.	The Ocean Plan allows the San Diego Water Board to account for previously-approved mitigation projects in determining mitigation requirements for any additional mortality of all forms of marine life resulting from the occurrence of the conditional event or expansion of the Facility. Additional mitigation is required to compensate for any additional construction, discharge or other

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			increases in intake or impacts or an increase in intake and mortality of all forms of marine life. The San Diego Water Board elected to account for the previously approved 66.4-acre mitigation project toward the 68.3 acres of mitigation now required to offset impacts from stand-alone operations. Therefore, an additional 1.9 acres of mitigation is required for permanent stand-alone operations either through the mitigation acreage established at the ORERP or by proposing a new mitigation project. This Order increased the mitigation area required from 68.3 to 68.432 acres. See Finding 43.
63	2.e(7)(b)	For conditionally permitted facilities or expanded facilities, the regional water boards may: Require additional mitigation when making a new Water Code section 13142.5(b) determination for any additional mortality of all forms of marine life resulting from the occurrence of the conditional event or the expansion of the facility. The additional mitigation must be to compensate for any additional construction, discharge, or other increases in intake or impacts or an increase in intake and mortality of all forms of marine life.	Additional mitigation was required by section VI.C.2.d of the 2019 Order to address marine life impacts from permanent stand-alone operations. This Order increased the mitigation area required from 68.3 to 68.432 acres. See Finding 43.
-	3	**Receiving Water Limitations for Salinity**	
64	3.b(1)	Discharges shall not exceed a daily maximum of 2.0 parts per thousand (ppt) above natural background salinity measured no further than 100 meters (328 ft) horizontally from each discharge point. There is no vertical limit to this zone.	The Ocean Plan's receiving water limitation for salinity provides that the Facility's discharge shall not exceed 2.0 ppt above natural background salinity measured no further than 100 meters (328 ft.) horizontally from the end of the Facility discharge jetty. The Ocean Plan requires that the standard BMZ not exceed 100 meters (328 ft.) laterally from the points of discharge and throughout the water column. The Ocean Plan also provides for an alternative BMZ, if approved by the San Diego Water Board as

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			described in Ocean Plan chapter III.M.3.d, that shall not exceed 200 meters (656 ft.) laterally from the points of discharge and throughout the water column. Appendices CC, BB, QQ, and VV to the 2015 ROWD demonstrate that a BMZ of 200 meters (656 ft.) is necessary to meet the Ocean Plan's receiving water limitation for salinity of not exceeding 2 ppt above natural background. Ocean Plan chapter III.M.3.d allows a BMZ up to 200 meters (656 ft.) laterally from each discharge point for dischargers that 1) have received a conditional Water Code section 13142.5(b) determination, 2) were over 80 percent constructed by January 28, 2016, and 3) propose flow augmentation using a surface water intake. See Finding 65. To justify approval of a BMZ greater than 100 meters, the Discharger must demonstrate that the combination of the expanded BMZ and flow augmentation using a surface water intake provides a comparable level of intake and mortality of all forms of marine life as the combination of the standard BMZ and wastewater dilution if wastewater is available, or multiport diffusers if wastewater is unavailable. Additionally, the discharge must not result in hypoxic conditions outside the BMZ. The Discharger meets the requirements for an expanded BMZ because the Facility previously received a Water Code section 13142.5(b) determination (2009 Determination), was over 80 percent constructed prior to January 28, 2016, and uses flow augmentation. Appendices BB, CC, QQ and VV to the 2015 ROWD demonstrates that a BMZ of 200 meters (656 ft.) satisfies the Ocean Plan's salinity water quality objective.

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			Consideration of available dilution and anticipated discharge salinity indicates that the Discharger can comply with a daily maximum of 2.0 ppt above natural background salinity (i.e. 35.5 ppt) within 200 meters (656 ft.). This Order requires the Discharger to meet the receiving water salinity limit at the edge of a 200-meter (656 ft.) BMZ. In addition, in support of this application, the Discharger submitted an entrainment study, based on Tenera Environmental's 2008 Encina Power Station Clean Water Act Section 316(b) Impingement Mortality and Entrainment Characterization Study, as Appendix K of the 2015 ROWD. The Discharger subsequently revised the entrainment effects calculations as recommended by the SAP and provided the results as Appendices FFF and GGG to the 2015 ROWD, which the San Diego Water Board has reviewed and assessed. The San Diego Water Board finds that an expanded BMZ will not result in hypoxic conditions outside the BMZ, will not encompass or otherwise adversely affect existing sensitive habitat, and will not negatively impact sensitive habitats, sensitive species, MPAs, or SWQPAs.
65	3.b(2)	In determining an effluent limit necessary to meet this receiving water limitation, permit writers shall use the formula in chapter III.C.4 of the Ocean Plan that has been modified for brine discharges as follows: Equation 1: Ce= Co + Dm(2.0 ppt) Ce= (2.0 ppt + Cs) + Dm(2.0 ppt) Where: Ce= the effluent concentration limit, ppt Co= the salinity concentration to be met at the completion of initial dilution= 2.0 ppt + Cs Cs= the natural background salinity, ppt Dm= minimum probable initial dilution expressed as parts seawater per part brine discharge.	Appendix VV to the 2015 ROWD specifies the need for a BMZ which extends to a distance of 200 meters (656 ft.) horizontally from the point of discharge at the end of the discharge jetty, with a receiving water dilution factor of 3.31 parts seawater per part wastewater (3.31:1) for the diluted discharge. Consistent with Ocean Plan chapter III.M.3.d, this Order establishes an expanded BMZ of 200 meters (656 ft.). See Finding 70. To calculate the effluent limit(s) necessary to meet the receiving water limitation at the edge of the BMZ, the Ocean Plan establishes the following formula:

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			Ce = (2.0 ppt + Cs) + Dm(2.0 ppt) Where: Ce = the maximum daily effluent concentration limit in ppt Co = the salinity concentration to be met at the BMZ Cs = the natural background salinity (defined as a 20-year monthly mean) Dm = minimum probable initial dilution expressed as parts seawater per part brine discharge As described in section 4.3.5 of the Order Fact Sheet, the natural background salinity at Scripps Pier was analyzed from April 2005 through April 2025 and the monthly means were calculated. The monthly means range from 33.42 ppt to 33.66 ppt. Using the lowest background salinity (applicable for February; representative of the most conservative limitation), the following salinity effluent limitation was calculated: Ce = (2.0 ppt + 33.42 ppt) + 3.31(2.0 ppt) = 42.0 ppt. The Discharger specified in the 2015 ROWD that the salinity concentration of the effluent will not exceed 42 ppt, and the supporting studies (antidegradation analysis, hydrodynamic discharge study, acute and chronic toxicity studies) all rely on an effluent concentration not to exceed 42 ppt. Furthermore, an effluent limitation of 42 ppt in the Hydrodynamic Discharge Study (Appendices C, BB, and QQ to the 2015 ROWD), is representative of a receiving water dilution of 3.25:1, and is anticipated to be protective of water quality and beneficial uses. The effluent limitation of 42 ppt, as measured at the discharge pond, is anticipated to be conservative and protective during all

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			months of the year, and on that basis, the San Diego Water Board has determined that an effluent limitation for salinity of 42 ppt is appropriate.
66	3.b(2)(a)	The fixed distance referenced in the initial dilution definition shall be no more than 100 meters (328 ft.).	See Findings 64, 65 and 70.
67	3.b(2)(b)	In addition, the owner or operator shall develop a dilution factor (Dm) based on the distance of 100 meters (328 ft.) or initial dilution, whichever is smaller. The dilution factor (Dm) shall be developed within the BMZ using applicable water quality models that have been approved by the regional water boards in consultation with State Water Board staff.	The Discharger meets the requirements for an expanded BMZ because the Facility previously received a Water Code section 13142.5(b) determination (2009 Determination), was over 80 percent constructed prior to January 28, 2016, and uses flow augmentation. Appendix VV to the 2015 ROWD demonstrates that a BMZ of 200 meters (656 ft.) is necessary to meet the Ocean Plan's receiving water limitation for salinity. At a distance of 200 meters (656 ft.), Appendices VV provides that the dilution factor is 3.31 for the flow augmented brine discharge. See Findings 64, 65 and 70.
68	3.c	An owner or operator may submit a proposal to the regional water board for approval of an alternative (other than 2 ppt) salinity* receiving water limitation to be met no further than 100 meters horizontally from the discharge. There is no vertical limit to this zone.	The Discharger initially requested a facility-specific alternative receiving water limitation for salinity (see Appendix A to the 2015 ROWD) but did not pursue this request in the development of the 2015 ROWD. Consequently, the 2015 ROWD does not include adequate technical supporting information to demonstrate that an alternative receiving water limitation would be protective of water quality standards.
69	3.d	The owner or operator of a facility that has received a conditional Water Code section 13142.5(b) determination and is over 80 percent constructed by [the effective date of this plan] that proposes flow augmentation using a surface water intake may submit a proposal to the regional water board in consultation with the State Water Board staff for approval of an alternative BMZ not to exceed 200 meters laterally from the discharge point and throughout the water	The Discharger submitted studies (See Appendices C, BB, QQ, and VV to the 2015 ROWD) demonstrating the BMZ may extend to 200 meters (656 ft.) and that the combination of the alternative BMZ and flow augmentation provides a comparable level of intake and mortality of all forms of marine life as the combination of the standard BMZ and multiport diffusers.

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		column. The owner or operator of such a facility must demonstrate, in accordance with chapter III.M.2.d.(2)(c), that the combination of the alternative BMZ and flow augmentation using a surface water intake provide a comparable level of intake and mortality of all forms of marine life as the combination of the standard BMZ and wastewater dilution if wastewater is available, or multiport diffusers if wastewater is unavailable. In addition to the analysis of the effects required by chapter III.M.2.d.(2)(c), the owner or operator must also evaluate the individual and cumulative effects of the alternative BMZ on the intake and mortality of all forms of marine life. In no case may the discharge result in hypoxic conditions outside of the alternative BMZ. If an alternative BMZ is approved, the alternative distance and the areal extent of the alternative BMZ shall be used in lieu of the standard BMZ for all purposes, including establishing an effluent limitation and a receiving water limitation for salinity, in chapter III.M.	Based on this information, the San Diego Water Board determined the BMZ will be 200 meters (656 ft.), from the end of the discharge jetties, which is less than the 1000 ft. zone of initial dilution specified in Order No. 2006-0065 (see Attachment F section 4.3.6 and Attachment F section IV.C.5 of the 2019 Order). Order No. R9-2006-0065 did not specify a BMZ separate from the zone of initial dilution. At that time, the Desalination Amendment, which requires a separate BMZ and zone of initial dilution, had not been adopted yet.
70	3.e	Existing facilities that do not meet the receiving water limitation at the edge of the BMZ and throughout the water column by January 28, 2016 must either: 1) establish a facility-specific alternative receiving water limitation for salinity as described in chapter III.M.3.c; or, 2) upgrade the facility's brine discharge method in order to meet the receiving water limitation in chapter III.M.3.b in accordance with the State Water Board's Compliance Schedule Policy, as set forth in chapter III.M.3.f below. An owner or operator that chooses to upgrade the facility's method of brine discharge disposal:	The Discharger will meet the receiving water limitation based on the discharge salinity, expected dilution within the BMZ, and natural background salinity concentrations. Attachment E, the Monitoring and Reporting Program, requires salinity monitoring in both the effluent and receiving waters to verify that the Facility does not exceed the receiving water limitation for salinity. See Finding 69 regarding the appropriateness of establishing a facility-specific receiving water limitation for salinity.
71	3.f	The regional water board may grant compliance schedules for the requirements for brine waste discharges for desalination facilities. All compliance schedules shall be in accordance with the State Water Board's Compliance	The hydrodynamic dilution model provided by the Discharger in Appendices C, BB, QQ, and VV to the 2015 ROWD indicates that the brine discharge is anticipated to meet the receiving water limitation within a 200-meter (656

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		Schedule Policy, except that the salinity receiving water limitation set forth in chapters III.M.3.b and III.M.3.c. shall be considered to be a "new water quality objective" as used in the Compliance Schedule Policy.	ft.) BMZ based on the discharge salinity, expected dilution within the BMZ, and natural background salinity concentrations. Section VI.C.2.b of the 2019 Order required the Discharger to conduct a Brine Discharge Technology Empirical Study comparing discharge mortality from flow augmentation to the marine life mortality from multiport diffusers (see Findings 31-36). The study demonstrates that the flow augmentation discharge technology will not result in more intake and mortality of marine life than multiport diffusers.
72	3.g	The regional water board in consultation with the State Water Board staff may require an owner or operator to provide additional studies or information if needed. All studies and models are subject to the approval of the regional water board in consultation with State Water Board staff. The regional water board may require an owner or operator to hire a neutral third-party entity to review studies and models and make recommendations to the regional water board.	The San Diego Water Board required special studies in section VI.C.2 of the 2019 Order. Section VI.B.2 of the Fact Sheet of the 2019 Order contains additional information regarding these special studies. The Special Studies included: • Multiport Diffuser Analysis (see section VI.C.2.a of the 2019 Order); • Brine Discharge Technology Empirical Study (see section VI.C.2.b of the 2019 Order); • Marine Life Mitigation Plan (see section VI.C.2.d of the 2019 Order); and • Receiving Water Violation Assessment (see section VI.C.2.c of the 2019 Order).
-	4	**Monitoring and Reporting Program**	
73	4.a	The owner or operator of a desalination facility must submit a Monitoring and Reporting Plan to the regional water board for approval. The Monitoring and Reporting Plan shall include monitoring of effluent and receiving water characteristics and impacts to all forms of marine life. The Monitoring and Reporting Plan shall, at a	Order No. R9-2006-0065 established a Monitoring and Reporting Plan. In the 2015 ROWD and Appendix Z to the 2015 ROWD, the Discharger proposed modifications to the Monitoring and Reporting Plan including changes to the receiving water monitoring and effluent monitoring requirements. In general, the San Diego Water Board

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		minimum, include monitoring for benthic community health, aquatic life toxicity, hypoxia, and receiving water characteristics consistent with Appendix III of this Plan and for compliance with the receiving water limitation in chapter III.M.3. Receiving water monitoring for salinity shall be conducted at times when the monitoring locations are most likely affected by the discharge. For new or expanded facilities the following additional requirements apply: (1) An owner or operator must perform facility-specific monitoring to demonstrate compliance with the receiving water limitation for salinity and evaluate the potential effects of the discharge within the water column, bottom sediments, and the benthic communities. Facility specific monitoring is required until the regional water board determines that a regional monitoring program is adequate to ensure compliance with the receiving water limitation. The monitoring and reporting plan shall be reviewed, and revised if necessary, upon NPDES permit renewal. (2) Baseline biological conditions shall be established at the discharge location and at a reference location prior to commencement of construction. The owner or operator is required to conduct biological surveys (e.g., Before-After Control-Impact study), that will evaluate the differences between biological communities at a reference site and at the discharge location before and after the discharge commences. The regional water board will use the data and results from the surveys and any other applicable data for evaluating and renewing the requirements set forth in a facility's NPDES permit.	established monitoring requirements in Attachment E of the 2019 Order that were consistent with Discharger's request. This Order carries over most of the monitoring requirements from the 2019 Order. The rationale for this Order's Monitoring and Reporting Program is discussed in Attachment F section 7.

ATTACHMENT H.2 – DESIGN ALTERNATIVES ANALYSIS SUPPLEMENT TO ATTACHMENT H.1

California Water Code (Water Code) section 13142.5(b) (hereinafter Water Code section 13142.5 (b)) provides: "*For each new or expanded coastal powerplant or other industrial installation using seawater for cooling, heating, or industrial processing, the best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life*." A "Desalination Facility", as defined by the *Water Quality Control Plan for Ocean Waters of California, California Ocean Plan* (Ocean Plan)[1], is an industrial facility. Any new or expanded desalination facility using seawater is subject to the requirements of Water Code section 13142.5(b) to minimize the intake and mortality of marine life. Water Code section 13142.5(b) requires that new or expanded desalination facilities use the best available site, design, technology, and mitigation measures feasible to minimize intake and mortality of all forms of marine life.

The Ocean Plan provides specific direction for regional water boards regarding the determination required by Water Code section 13142.5(b) to ensure a consistent statewide approach for minimizing intake and mortality of marine life and protecting water quality and related beneficial uses of ocean waters when permitting new or expanded seawater desalination facilities. The California Regional Water Quality Control Board, San Diego Region's (San Diego Water Board) role in making the Water Code section 13142.5(b) determination is to evaluate a range of feasible alternatives separately for each of the following: the best available site, design, technology, and mitigation measures to minimize intake and mortality of all forms of marine life. The San Diego Water Board then must determine the best combination of feasible alternatives to minimize intake and mortality of all forms of marine life. (Ocean Plan chapter III.M.2.a(2).) The purpose of this Attachment H.2 is to supplement Attachment H.1 with additional information regarding the San Diego Water Board's determination as required by Water Code section 13142.5(b).

Channelside Water Resources LP (Discharger) provided information to the San Diego Water Board for the evaluation of 21 different intake and outfall design combinations, referred to as Design Alternatives, in its 2015 report of waste discharge (2015 ROWD) and appendices in application for Order No. R9-2019-0003, National Pollutant Discharge Elimination System (NPDES) No. CA0109223, *Waste Discharge Requirements for the Poseidon Resources (Channelside) LP Claude "Bud" Lewis Carlsbad Desalination Plant Discharge to the Pacific Ocean* (2019 Order). The 2019 Order established waste discharge requirements for permanently operating the Carlsbad Desalination Plant (Facility) as a stand-alone facility. Table H.2-1 below provides an overview of the 21 design alternatives.

[1] The Ocean Plan defines "desalination facility" as an industrial facility that processes water to remove salts and other components from the source water to produce water that is less saline than the source water.

Table H.2-1: Overview of Intake and Outfall Design Alternatives

Design Alternative	Intake Design Description	Outfall Design Description	2015 ROWD Appendix
1	Onshore Traveling Screens with Fish Return System	Flow Augmentation[2]	B
2	Onshore Traveling Screens with Fish Return System	Multiport Diffuser[3]	B
3	In Lagoon with Subsurface Intake Galleries	Flow Augmentation	B
4	In Lagoon with Subsurface Intake Galleries	Multiport Diffuser	B
5	In Ocean with Wedgewire Screens (WWS)	Flow Augmentation	II
6	In Ocean with WWS	Multiport Diffuser	II
7	In Lagoon with WWS	Flow Augmentation	II
8	In Lagoon with WWS	Multiport Diffuser	II
9	In Lagoon with Traveling Screens at the Shoreline	Flow Augmentation	II
10	In Lagoon with Traveling Screens at the Shoreline	Multiport Diffuser	II
11	In Lagoon with Traveling Screens at the Shoreline	Flow Augmentation	CCC
12	In Lagoon with Traveling Screens at the Shoreline	Flow Augmentation	CCC
13	In Lagoon with Traveling Screens at the Shoreline	Flow Augmentation	CCC
14	In Lagoon with Traveling Screens at the Shoreline	Flow Augmentation	CCC
15	Onshore Traveling Screens with Fish Return System	Flow Augmentation	BBB
16	Onshore Traveling Screens with Fish Return System	Flow Augmentation	BBB
17	Onshore Traveling Screens with Fish Return System	Flow Augmentation	BBB
18	Onshore Traveling Screens with Fish Return System	Flow Augmentation	BBB
19	Onshore Traveling Screens with Fish Return System	Flow Augmentation	BBB

[2] Flow Augmentation is defined in Attachment A of this Order as “A type of in-plant dilution that occurs when a desalination facility withdraws additional source water for the specific purpose of diluting brine prior to discharge.”

[3] Multiport Diffusers are defined in Attachment A of this Order as “Linear structures consisting of spaced ports or nozzles that are installed on submerged marine outfalls and enable rapid mixing, dispersal, and dilution of brine within a relatively small area.”

Design Alternative	Intake Design Description	Outfall Design Description	2015 ROWD Appendix
20	Onshore Traveling Screens with Fish Return System	Flow Augmentation	BBB
21	In Lagoon with WWS	Flow Augmentation	DDD and EEE

Based on the information provided by the Discharger and explained below, the San Diego Water Board determined during development of the 2019 Order, that Design Alternative 21 provided the best available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life while considering construction, operation, and maintenance costs. Design Alternative 21 proposed retaining the existing discharge configuration that conveys flow augmentation water to the dilution pond and then through the surface channel to the Pacific Ocean.

Design Alternative 21 proposed modifying the former intake configuration by installing 16 submerged WWS in the outer embayment of Agua Hedionda Lagoon at a sufficient distance offshore to benefit from currents caused by tidal action. The WWS may have included rotating brushes and/or an air burst system to remove marine debris, such as vegetation or marine life, that accumulates on the screens, thereby maintaining sufficient intake flow capacity to operate the Facility. The WWS would have been connected to the shoreline by four intake pipelines, called laterals, on the seafloor of Agua Hedionda Lagoon, and buried and covered with natural materials to restore the seafloor habitat to pre-project conditions.

Design Alternative 21 required less acreage of maintenance dredging in Agua Hedionda Lagoon because the channel from the WWS to the shoreline would no longer require dredging. Prior to shutdown of the Encina Power Station (EPS), the seafloor of Agua Hedionda Lagoon was dredged approximately once every three years to maintain intake flow capacity for the EPS. Although this maintenance dredging will continue in the future to maintain intake flow capacity for the Discharger's Facility, the dredging footprint may be reduced. Periodic suction dredging may be required around the screens to remove accumulated debris.

Further, the use of WWS in the Lagoon at the point of water withdrawal was intended to minimize marine life impacts by avoiding entrapment of marine life within the intake laterals, reducing impingement of marine life to *de minimis* levels, and minimizing entrainment of marine life by maintaining a through-screen velocity of less than 0.5 ft/sec in accordance with Ocean Plan requirements. This Attachment details the San Diego Water Board's determination regarding the evaluation of the 21 Design Alternatives listed in Table H.2-1.

Site

The Ocean Plan at chapter III.M.2.b requires the Discharger to evaluate a reasonable range of nearby sites, including sites that would likely support subsurface intakes. As

set forth in Attachment H.1, Findings 9 through 15, the San Diego Water Board evaluated the design alternatives for conformance with the Ocean Plan criteria and previously determined that Design Alternative 21 provided the best available site feasible to minimize the intake and mortality of all forms of marine life.

Design
The Ocean Plan at chapter III.M.2.c requires the Discharger to perform several analyses to determine whether a proposed design is the best available design feasible to minimize intake and mortality of all forms of marine life. As set forth in Attachment H.1, Findings 16 through 20, the San Diego Water Board evaluated the design alternatives for conformance with the Ocean Plan criteria and previously determined that Design Alternative 21 provided the best available design feasible to minimize the intake and mortality of all forms of marine life.

Technology
The Ocean Plan at chapter III.M.2.d specifies several considerations in determining whether a proposed technology is the best available technology feasible to minimize intake and mortality of all forms of marine life. Findings 21 through 37 of Attachment H.1 describe the San Diego Water Board evaluation of the Design Alternatives for conformance with the Ocean Plan criteria. The San Diego Water Board concluded that based on available information, Design Alternative 21 provided the best available technology feasible to minimize the intake and mortality of all forms of marine life.

Intake Technology
The Ocean Plan requires an evaluation of intake technology to determine the best available technology feasible to minimize the intake and mortality of all forms of marine life.

Subsurface Intakes
The Ocean Plan requires that the San Diego Water Board consider subsurface intakes in its evaluation of the best available site, design, and technology feasible to minimize the intake and mortality of all forms of marine life. As described in Attachment H.1, Findings 9, 13, 17, 21, 22, and 23, the San Diego Water Board determines that subsurface intakes are infeasible for the reasons stated therein. This determination is consistent with previous findings in this regard in Order No. R9-2009-0038.[4]

[4] Order No. 2009-0038, *Amending Order No. R9-2006-0065 (NPDES No. CA0109223) Waste Discharge Requirements for the Poseidon Resources Corporation, Carlsbad Desalination Project Discharge to the Pacific Ocean Via the Encina Power Station Discharge Channel*, adopted by the San Diego Water Board on May 9, 2009, available at: https://www.waterboards.ca.gov/sandiego/board_decisions/adopted_orders/2009/R9-2009-0038.pdf.

Surface Water Intakes

The Ocean Plan chapter III.M.2.d.(1)(c) provides in relevant part that if subsurface intakes are not feasible the San Diego Water Board may approve surface water intakes when the following conditions are met:

> *"(c) If subsurface intakes are not feasible, the regional water board may approve a surface water intake, subject to the following conditions:*
>
> *i. The regional water board shall require that surface water intakes be screened. Screens must be functional while the facility is withdrawing seawater.*
>
> *ii. In order to reduce entrainment, all surface water intakes must be screened with a 1.0 millimeter (mm) (0.04 in) or smaller slot size screen when the desalination facility is withdrawing seawater. …*
>
> *iv. In order to minimize impingement, through-screen velocity at the surface water intake shall not exceed 0.15 meters per second (0.5 (ft/sec)).”*

Surface water intakes withdraw from water above the seafloor. The withdrawal of seawater for desalination can result in the impingement[5], entrainment[6], and entrapment[7] of marine life. To preclude as much debris, seaweed, fish, and other organisms as possible from entering a desalination facility, the Ocean Plan requires in chapter III.M.2.d.(1)(c)(i), referenced above, that surface water intake structures be screened and that the screens must be functional while the facility is withdrawing seawater. To adequately minimize entrainment impacts, the Ocean Plan requires in chapter III.M.2.d.(1)(c)(ii) referenced above that surface water intakes implement screening technologies with a 1.0 mm or smaller slot size, as that slot size has been demonstrated to be effective in entrainment reduction and protection of eggs, larvae, and juvenile organisms while still being feasible from an operational and maintenance standpoint. In addition, the velocity at which seawater is withdrawn through an intake has a significant influence on the potential for impingement because a higher intake velocity results in greater net force towards the intake that marine life cannot escape. To reduce impingement mortality the Ocean Plan requires in chapter III.M.2.d.(1)(c)(iv) referenced above that surface water intake structures be designed to limit the through-

[5] Impingement occurs when the flow of water drawn into the facility traps organisms against the intake screens.

[6] Entrainment occurs when organisms are drawn in with the source water and are transported into the facility's system.

[7] Entrapment occurs when organisms enter an intake and do not exit the intake due to factors including, but not limited to, the intake velocity, and the types of marine life organisms that may be unable or unwilling to exit interior pipelines and embayments.

screen intake flow velocity to a maximum of 0.15 meters per second (i,e., 0.5 feet/second).

Design Alternative 21
Water Code section 13142.5(b) requires among other factors that new or expanded desalination facilities use the best available site, design, technology, and mitigation measures feasible to minimize intake and mortality of all forms of marine life. A reasonable reading of the requirements of Ocean Plan chapter III.M.2.d.(1)(c) indicates that a conduit drawing seawater from a water body should screen the intake at the onset of seawater withdrawal to most effectively minimize intake and mortality of all forms of marine life.

Based on this evaluation, the San Diego Water Board determined that locating the intake screens at the onset of withdrawal from the source waterbody will most effectively minimize the intake and mortality of all forms of marine life because:

1. Siting the intake screen at the onset of the intake ensures that the maximum velocity encountered by organisms entering the intake is 0.5 ft/sec, which has been found to protect most small fish and preclude impingement of most large fish that are too large to pass through the intake screens.

2. Siting the intake screen at the onset of the intake eliminates the potential for organism entrapment in the intake structure and thereby precludes entrapment impacts.

3. Siting the intake screen at the onset of the intake precludes the need for a fish return system to transport collected organisms back to Agua Hedionda Lagoon. Fish could be adversely affected by traveling through a fish return system, potentially becoming injured and/or disoriented. Upon exiting the fish return system, damaged or disoriented fish may be unable to escape predators in the Lagoon leading to higher than typical predation rates.

For these reasons, the San Diego Water Board determined that the use of intake screens at the onset of the intake water structure is the best available intake technology feasible to minimize intake and mortality of all forms of marine life. Of the 21 design alternatives proposed by the Discharger in applying for the Water Code section 13142.5(b) determination included as part of the 2019 Order, only 12 of the Design Alternatives (Design Alternatives 3 through 14 and 21) meet the Ocean Plan's criteria for 0.5 ft/sec intake velocity when applied at the onset of the intake.

While locating the screens at the onset of the intake water structure will minimize intake and mortality of all forms of marine life, Ocean Plan chapter III.M.2.d.(1)(c) does not explicitly require intake screens to be placed at the onset of the intake. Accordingly, the San Diego Water Board has included other intake alternatives proposed by the Discharger which do not employ screening technology at the onset of the intake, in its evaluation of a range of feasible alternatives for the best available site,

design, technology, and mitigation measures to minimize intake and mortality of all forms of marine life. Due to site constraints, the other intake alternatives proposed by the Discharger involved various configurations that rely on a combination of screening technology with placement of the intake screens located downstream of the onset of the intake at the existing EPS trash racks.

New Intake Design
The Discharger installed a new intake structure for the Facility, which the San Diego Water Board approved the intake design by letter dated August 2, 2022. The Discharger also received authorization from the San Diego Water Board by letter dated December 10, 2024, to initiate operation of the new intake. The new intake design consists of a floating debris barrier, a large organism exclusion device, and 1.0 mm dual flow traveling screens with an intake water velocity designed for 0.5 ft/sec or less located along the southern shoreline of Agua Hedionda Lagoon outer basin. The Discharger's new intake design replaced Design Alternative 21, previously approved by the San Diego Water Board.

Design Alternative 21 was also to be located within the outer basin of Agua Hedionda Lagoon, but closer to the lagoon center. Design Alternative 21 consisted of a floating debris barrier, four separate 900-foot pipelines referred to as intake laterals and submerged 1.0 mm WWS with an intake water velocity designed for 0.5 ft/sec or less.

The Discharger proposed the new intake design due to (1) anticipated challenges associated with operating and maintaining the Design Alternative 21 intake laterals and WWS in a low-energy estuarine marine environment and (2) the potential need for extended Facility shutdowns during periodic cleaning of the intake laterals to remove biofouling organisms. Water production would need to be halted during cleaning of the intake laterals and would not resume until marine growth is removed and turbidity of the intake water was stabilized. The Discharger estimated shutdowns associated with maintenance of the intake laterals would result in interruption of water production for about two months every year.

San Diego Water Board staff concluded that the new intake will not result in an increase in intake and mortality of marine life beyond that which was originally approved in the 2019 Order and Determination for the following reasons:

- The new intake design will minimize entrainment through use of 1 mm traveling screens and will not cause additional impingement because the intake flow rate is not being increased.

- The new intake design will minimize impingement because intake water velocity will be less than 0.5 ft/sec.

- Permanent habitat loss will be 0.2 acres which is the same permanent habitat loss projected with implementation of Design Alternative 21. Under Design

Alternative 21, all 0.2 acres lie within the lagoon. Under the new intake design, half (0.1 acres) of the total 0.2 acres is comprised of riprap.

- Temporary impacts from construction of the new intake design were minimal, and it required less in-water work than would be required for Design Alternative 21 design.

Design Alternatives Considered

The following table, Table H.2-2, summarizes the feasibility[8] and technical factors of the design alternatives considered in the San Diego Water Board's analysis for conformance to Ocean Plan chapter III.M.2.d.(1)(c) requirements. The design alternatives were considered during development of the 2019 Order and Determination.

Table H.2-2: Intake Design Alternatives Ocean Plan Chapter III.M.2 Factors

Design Alternative	Intake Design Description	Intake Screen Location	Screen Size	Max Intake Velocity	Through-Screen Velocity	Feasible
1, 2	Traveling Screens	Onshore	3 ½ inch trash rack to 1 mm onshore screens	2.63 ft/sec	0.5 ft/sec	Yes
3, 4	Subsurface Intake Galleries	None	None	NA	0.5 ft/sec	No
5, 6	WWS	Offshore in the Pacific Ocean	1 mm	0.5 ft/sec	0.5 ft/sec	No
7, 8	WWS	Nearshore in the Lagoon	1 mm	0.5 ft/sec	0.5 ft/sec	Yes
9, 10	Traveling Screens	Lagoon shoreline	1 mm	0.5 ft/sec	0.5 ft/sec	Yes
11, 12, 13, 14	Traveling Screens	Lagoon shoreline	1 mm	0.5 ft/sec	0.5 ft/sec	No
15	Traveling Screens	Onshore	3 ½ inch trash rack to 1 mm onshore screens	1.54 ft/sec	0.5 ft/sec	Yes

[8] The Ocean Plan defines "Feasible" for the purposes of chapter III.M and the determination required by Water Code section 13142.5(b), to mean capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

Design Alternative	Intake Design Description	Intake Screen Location	Screen Size	Max Intake Velocity	Through-Screen Velocity	Feasible
16	Traveling Screens	Onshore	3 ½ inch trash rack to 1 mm onshore screens	2.63 ft/sec	0.5 ft/sec	Yes
17	Traveling Screens	Onshore	3 ½ inch trash rack to 1 mm onshore screens	1.54 ft/sec	0.5 ft/sec	Yes
18	Traveling Screens	Onshore	3 ½ inch trash rack to 1 mm onshore screens	1.04 ft/sec	0.5 ft/sec	Yes
19	Traveling Screens	Onshore	3 ½ inch trash rack to 1 mm onshore screens	1.06 ft/sec	0.5 ft/sec	Yes
20	Traveling Screens	Onshore	3 ½ inch trash rack to 1 mm onshore screens	1.06 ft/sec	0.5 ft/sec	Yes
21	WWS	Offshore in the Lagoon	1 mm	0.5 ft/sec	0.5 ft/sec	Yes

Outfall Technology

Desalination facilities produce brine as a waste stream of the reverse-osmosis process. The discharge technology alternatives in the Ocean Plan for discharging the brine wastewater from desalination facilities include commingling the brine with wastewater in an existing ocean outfall, discharging the brine through a dedicated ocean outfall that terminates in a multiport diffuser, or diluting the brine with additional source water prior to discharging it to the ocean (a process known as flow augmentation).

The Discharger explored the possibility of commingling the brine waste from the Facility with wastewater in the Encina Wastewater Authority's existing Encina Ocean Outfall and other nearby facilities and found that the outfall is near full capacity during large storm events and that future wastewater recycling will reduce the availability of wastewater for brine dilution. Accordingly, the San Diego Water Board has determined that commingling the brine discharge with wastewater is not feasible at this time. See Appendix CC to the 2015 ROWD and Attachment H.1 Finding 14, of this Order for additional information.

The Discharger explored the possibility of constructing a dedicated ocean outfall with a multiport diffuser and found that multiport diffusers are infeasible due to costs. The Discharger estimated the cost for constructing a dedicated ocean outfall with a multiport diffuser to be approximately $300 million. The Discharger estimated the cost

to operate a dedicated outfall with multiport diffusers to be approximately $1.2 million/year. See Appendices B, N, X II, and OO to the 2015 ROWD and Attachment H.1, Finding 30 of the 2019 Order for additional information.

The Discharger explored the possibility of diluting the brine with additional source water, i.e. flow augmentation, prior to discharging it to the ocean and found that flow augmentation provides a comparable level of intake and mortality of all forms of marine life as multiport diffusers, if wastewater dilution is unavailable. See Appendices A, K, WW, Z, FFF, and GGG to the 2015 ROWD and Attachment H-1 Finding 31, of the 2019 Order for additional information. As discussed in section 2.4 of and in Finding 31, Attachment H-1 of the 2019 Order, the San Diego Water Board used the entrainment flow volumes to compare the estimated intake and mortality of both flow augmentation and theoretical multiport diffusers to conditionally conclude that intake and mortality of all forms of marine life from the two discharge technologies are comparable. During development of the 2015 Order, the Discharger did not agree that using flow volumes as the basis for the comparative analysis is appropriate and requested that the comparison be based on Empirical Transport Model/Area of Production Foregone (ETM/APF) analyses. However, the ETM/APF analyses provided by the Discharger and available to estimate the intake and mortality of all forms of marine life from theoretical multiport diffusers lacked sufficient data to support a scientifically defensible ETM/APF analysis for theoretical multiport diffusers. Accordingly, section VI.C.2.a of the 2019 Order required the Discharger to complete a Multiport Diffuser Analysis within the first two years from the permit's effective date to collect marine life data from the open ocean coastal area for use in the ETM/APF calculations for theoretical multiport diffusers. This data collection was expected to provide greater confidence in the scientific basis for the estimating intake and mortality of all forms of marine life from theoretical multiport diffusers for purposes of comparison to flow augmentation as required by the Ocean Plan chapter III.M.2.d.(2)(c) and III.M.2.d.(2)(c)v. The 2019 Determination was made conditional in limited part on the outcome of this confirmatory study, as discussed in the Order at Finding II.D and in the 2019 Determination.

The Facility meets the requirements in chapter III.M.2.d.(2)(d)ii of the Ocean Plan, which specifies the following conditions under which a regional water board may approve of a seawater desalination facility that uses flow augmentation discharge technology:

> *Flow Augmentation as an alternative brine discharge technology is prohibited with the following exception(s):*
>
> *At a facility that has received a conditional Water Code section 13142.5(b) determination and is over 80 percent constructed by January 28, 2016. If the owner or operator of the facility proposes to use flow augmentation as an alternative brine discharge technology, the facility must: use low turbulence intakes (e.g., screw centrifugal pumps or axial flow pumps) and conveyance pipes; convey and mix dilution water in a manner that limits thermal stress, osmotic stress, turbulent shear stress, and other factors that could cause intake*

and mortality of all forms of marine life; comply with chapter III.M.2.d(1); and not discharge through multiport diffusers."

For these reasons, the San Diego Water Board determined, based on available information that flow augmentation and multiport diffusers provide comparable levels of intake and mortality to all forms of marine for purposes of Ocean Plan chapter III.M.2.d.(2)(c). However, as described in Finding II.D and in Finding 31 of Attachment H.1 of the 2019 Order, the 2019 Determination was made conditional in limited part on the outcome of the Multiport Diffuser Analysis required to be completed within two years of the effective date of the 2019 Order to provide additional data to confirm this comparability conclusion.

The Discharger submitted the Multiport Diffuser Analysis Final Report on March 18, 2022. Results of the Multiport Diffuser Analysis concluded that the flow augmentation results in a comparable level of intake and mortality to multiport diffusers through the comparison of the APF resulting from flow augmentation and the APF resulting from theoretical multiport diffusers. The report concluded that flow augmentation had an APF of 38.1 acres compared to the 123.0 acres of impact caused by building and operating multiport diffusers.

The following table, Table H.2-3, summarizes the feasibility of Design Alternatives considered in this analysis based on discharge design considerations.

Table H.2-3: Feasibility Based on Discharge Design

Design Alternative	Discharge Design Description	Feasible?
None	Commingling with Wastewater	No
2, 4, 6, 8, 10	Multiport Diffuser	No
1, 3, 5, 7, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21	Flow Augmentation	Yes

The Discharger has since installed a new intake structure in lieu of Design Alternative 21. However, the Discharger still makes use of the flow augmentation discharge technology.

Mitigation

The Ocean Plan requires the Discharger to fully mitigate for marine life or habitat impacts attributable to the construction and operation of the CDP for the lifetime of the CDP. The Discharger must use the best available mitigation measures feasible to minimize intake and mortality of all forms of marine life. For purposes of determining whether a facility will use the best available mitigation measures feasible, the Ocean Plan requires that the San Diego Water Board evaluate the estimated marine life mortality impacts associated with construction and operation of Facility.

Marine Life Mortality

The Ocean Plan requires at chapter III.M.2.e(1):

> *"Marine Life Mortality Report. The owner or operator of a facility shall submit a report to the regional water board estimating the marine life mortality resulting from construction and operation of the facility after implementation of the facility's required site, design, and technology measures."*

Water Code section 13142.5(b) requires the following:

> *For each new or expanded coastal power plant or other industrial installation using seawater for cooling, heating, or industrial processing, the best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life.*

Stress, injury, or mortality to marine life from the intake of seawater may result from entrainment, impingement, entrapment, increased predation[9], transportation through a fish return system, and impacts to habitat. The 2015 ROWD and appendices submitted to and evaluated by the San Diego Water Board include the information constituting the Marine Life Mortality Report required by the Ocean Plan in chapter III.M.2.e.(1).

Entrainment
Entrainment, as defined by the *Final Staff Report Including the Final Substitute Environmental Documentation*[10] for the Desalination Amendment to the Ocean Plan, occurs when marine organisms are drawn in with the source water and transported into a facility's industrial processes. Marine organisms do not survive entrainment due to "*shearing and compressive forces within pumps, exposure to high pressures, and temperature variants during processing, and osmotic shock from exposure to significantly higher salinities during processing and discharge.*" Generally, eggs, larvae, and plankton are small enough to pass through the 1.0 mm screens and experience entrainment mortality.

All the surface water intake design alternatives considered in this analysis include 1.0 mm intake screens in accordance with the Ocean Plan chapter III.M.2.d.(1)(c)ii requirements. The only difference among the design alternatives that could affect the amount of marine life entrained is the volume of intake water required by each Design Alternative.

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[9] Increased predation of marine life occurs due to the marine life being injured or disoriented while traveling through the intake and fish return system. A fish return system discharges marine life into the lagoon at a single point source that focuses the marine life exiting at that single discharge point. Predator species, including mammals, fish, and birds, can then more easily feed at a single point source on the injured and disoriented sea life that otherwise would be able to escape predation.

[10] The State Water Board's *Final Staff Report Including the Final Substitute Environmental Documentation* for the Desalination Amendment to the Ocean Plan is available on the State Water Board's website (as of December 22, 2025) at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2015/rs2015_0033_sr_apx.pdf.

Impingement
Impingement occurs when marine organisms are trapped on a screen surface because they are unable to escape the intake velocity. Mortality from impingement is possible with screened surface intakes. With subsurface intakes, sand acts as a natural barrier, eliminating impingement. Higher intake velocities result in greater net force towards the intake, increasing the potential for impingement because fewer organisms will successfully swim away from the intake and may become trapped against the intake screens.

Entrapment
The Ocean Plan does not define entrapment. The United States Environmental Protection Agency (USEPA) defines entrapment for cooling water intakes at power plants in 40 CFR section 125.92[11] as follows:

> *"Entrapment means the condition where impingeable fish and shellfish lack the means to escape the cooling water intake. Entrapment includes but is not limited to: Organisms caught in the bucket of a traveling screen and unable to reach a fish return; organisms caught in the forebay of a cooling water intake system without any means of being returned to the source waterbody without experiencing mortality; or cooling water intake systems where the velocities in the intake pipes or in any channels leading to the forebay prevent organisms from being able to return to the source waterbody through the intake pipe or channel."*

While Clean Water Act section 316(b) and implementing regulations at 40 CFR part 125, subpart J specifically applies to cooling water intakes for power plants, USEPA has not promulgated regulations regarding desalination plant intakes. A report on intake velocities of cooling water intake structures by the Electric Power Research Institute[12] lists screenwall entrapment areas on the route leading to intake screens as one of the intake design features that contributes to high impingement rates. Reducing entrapment is consistent with the provisions of Water Code section 13142.5(b) because reduced entrapment is expected to minimize intake and mortality of all forms of marine life.

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[11] See 40 CFR Part 125, Subpart J, Requirements Applicable to Cooling Water Intake Structures for Existing Facilities Under Section 316(b) of the Clean Water Act, Section 125.92, Special Definitions at this website (as of December 22, 2025) https://www.gpo.gov/fdsys/pkg/CFR-2011-title40-vol22/pdf/CFR-2011-title40-vol22-part125.pdf.

[12] See page 2-1 of the Electric Power Research Institute report, *Technical Evaluation of the Utility of Intake Approach Velocity as an Indicator of Potential Adverse Environmental Impact under Clean Water Act Section 316(b), Final Report December 2000*

Onshore traveling screen design alternatives (Design Alternatives 1, 15, 16, 17, 18, 19, 20) are the only design alternatives considered in this analysis that present risks of entrapment to marine life. Marine life may pass through the trash rack and enter the intake tunnels, creating a zone of entrapment where marine life may be unable to escape the higher flow velocities at the trash rack (with flow rates that are up to 1.06 feet per second) and within the intake tunnels (with flow rates that are up to 2.6 ft/sec). Additionally, the higher flow velocities and unnatural environment within the intake tunnels may stress and disorient entrapped organisms, which could lead to marine life injury, mortality, and higher impingement.

Fish Return System
Only the onshore traveling screen design alternatives (Design Alternatives 1, 15, 16, 17, 18, 19, 20) considered in this analysis present risks of mortality to marine life associated with a fish return system. The fish return system associated with the onshore traveling screen designs is intended to provide a means of egress for some of the impinged or entrapped organisms. However, organisms may suffer exhaustion, suffocation, acute or chronic stress and associated deleterious physiological effects (e.g., impaired growth, immune, and reproductive functions), or delayed mortality as they pass through the fish return system. Locating screens at the onset of the intake precludes the possibility of entrapping organisms in the area between the trash rack and the screens situated farther downstream, thereby minimizing intake and mortality of marine life.

Appendix YY to the 2015 ROWD includes estimates of marine life mortality from a fish return system that are based on an Electric Power Research Institute 2010[13] study and a 1989 study at San Onofre Nuclear Generating Station. Survival rates from both studies varied with fish species and corresponding swim speeds and ranged from 70 percent to 100 percent for fish greater than 11 mm (0.43 inches) in length. The survival rates from these studies have a small degree of uncertainty because the study conditions were not the same as the onshore traveling screen designs analyzed for this determination. The Science Advisory Panel[14] (SAP) recognized that limited information and uncertainty hinders assessing the effectiveness of a fish return system.

The onshore traveling screen design alternatives with a fish return system can change marine life behavior, leading to increased predation and marine life mortality. Entrapment in the intake tunnels may attract predators, which may feed on confused, injured, and/or trapped marine life – a phenomenon previously observed at San Onofre Nuclear Generating Station. Additionally, fish return systems are generally designed so that marine organisms exiting the system are discharged at a single point. Predators

[13] See the Electric Power Research Institute's December 2010 Report, "*Evaluation of Factors Affecting Juvenile and Larval Fish Survival in Fish Return Systems at Cooling Water Intakes"*

[14] The SAP's final report with recommendations, dated September 15, 2018, is available upon request.

may congregate at this discharge point to feed on marine life exiting the fish return system. Marine life may be confused and/or injured from passing through the fish return system, making them more susceptible to predation.

Habitat Impacts
The Ocean Plan at chapter III.M.2.(b)3 requires that new intake, discharge, and other facility infrastructure be sited in a location that avoids impacts to sensitive habitats and sensitive species. Construction of a new intake structure can cause permanent and temporary impacts to marine life habitat within the source water body. The magnitude of impacts to habitat and the types of affected habitat vary by intake design.

Appendix EEE to the 2015 ROWD estimated the permanent construction-related habitat impacts for Design Alternative 21 to be 0.2 acres of lagoon habitat consisting of the footprint of the screening structure. In addition to the permanent impacts to habitat from the footprint of Design Alternative 21, temporary impacts to habitat were predicted to occur from construction of the intake lateral pipelines from the screens to the shoreline. These temporary impacts were to be offset by covering the intake lateral pipelines, following construction, with natural sand or sediment to restore the impacted benthic habitat to pre-project conditions. Furthermore, Design Alternative 21 was projected to reduce the area within Agua Hedionda Lagoon that requires routine maintenance dredging, thus decreasing benthic habitat impacts associated with continued dredging of the Lagoon. The previous intake system for the Facility required periodic dredging approximately once every three years to remove sediment and sand blocking waterflow in the channel between the mouth of Agua Hedionda Lagoon to the intake at the shoreline on the south side of the Lagoon. Design Alternative 21 would have placed the intake approximately 800 feet offshore in the Lagoon. Dredging may no longer be needed in the 800 linear feet between the WWS and the south shoreline where the current intake is located. Design Alternative 21 may have required spot suction dredging around the screens to remove accumulated debris and occasionally to keep the mouth of the lagoon open for water flow.

Permanent habitat loss from use of the new intake structure will be 0.2 acres, which is the same permanent habitat loss projected with implementation of Design Alternative 21. Under Design Alternative 21, all 0.2 acres lie within Agua Hedionda Lagoon. Under the new intake design, half (0.1 acres) of the total 0.2 acres is comprised of riprap. Temporary impacts from construction of the new intake design were minimal, and it required less in-water work than would be required for Design Alternative 21.

Marine Life Impacts of Design Alternatives
Table H.2-4 summarizes the potential marine life impacts due to construction and operation of different intake designs and provides a comparison of the potential impacts to marine life caused by the different design alternatives. The subsurface intake Design Alternatives 3 and 4 were projected to have the lowest overall impacts to marine life. Of the surface water intake design alternatives, those alternatives with the 1-mm screens placed directly at the interface with the Lagoon have the lowest projected marine life impacts, such as Design Alternatives 9 through 14 and 21.

Table H.2-4: Marine Life Impacts by Intake Design Alternatives

Design Alternative	Intake Design Description	Maximum Intake Velocity[1]	Entrainment Impacts[2]	Impingement Impacts[2]	Entrapment Impacts[3]	Habitat Impacts
1 Appendix ZZ of 2015 ROWD	Onshore Traveling Screens with Fish Return	2.63 ft/sec	83.44 acres	0	0.85 to 0.93 acres	0.1 acres
2 Appendix ZZ of 2015 ROWD	Onshore Traveling Screens with Fish Return	2.63 ft/sec	83.44 acres	0	0.85 to 0.93 acres	0.1 acres
3 Appendix II of 2015 ROWD	Lagoon Subsurface Intake Galleries	NA	0	0	0	72 acres
4 Appendix II of 2015 ROWD	Lagoon Subsurface Intake Galleries	NA	0	0	0	72 acres
5 Appendix II of 2015 ROWD	Offshore Ocean WWS	0.5 ft/sec	92 acres	0	0	2.0 acres
6 Appendix II of 2015 ROWD	Offshore Ocean WWS	0.5 ft/sec	92 acres	0	0	2.0 acres
7 Appendix EEE of 2015 ROWD	Offshore Lagoon WWS	0.5 ft/sec	83.44 acres	0	0	0.2 acres
8 Appendix EEE of 2015 ROWD	Offshore Lagoon WWS	0.5 ft/sec	83.44 acres	0	0	0.2 acres
9 Appendix II of 2015 ROWD	Lagoon Traveling Screens at the Shoreline	0.5 ft/sec	83.44 acres	0	0	0.19 acres

Design Alternative	Intake Design Description	Maximum Intake Velocity[1]	Entrainment Impacts[2]	Impingement Impacts[2]	Entrapment Impacts[3]	Habitat Impacts
10 Appendix II of 2015 ROWD	Lagoon Traveling Screens at the Shoreline	0.5 ft/sec	83.44 acres	0	0	0.19 acres
11 Appendix II of 2015 ROWD	Lagoon Traveling Screens at the Shoreline	0.5 ft/sec	83.44 acres	0	0	0.19 acres
12 Appendix II of 2015 ROWD	Lagoon Traveling Screens at the Shoreline	0.5 ft/sec	83.44 acres	0	0	0.19 acres
13 Appendix II of 2015 ROWD	Lagoon Traveling Screens at the Shoreline	0.5 ft/sec	83.44 acres	0	0	0.19 acres
14 Appendix II of 2015 ROWD	Lagoon Traveling Screens at the Shoreline	0.5 ft/sec	83.44 acres	0	0	0.19 acres
15 Appendix ZZ of 2015 ROWD	Onshore Traveling Screens with Fish Return	1.54 ft/sec	83.44 acres	0	0.85 to 0.93 acres	0.1 acres
16 Appendix ZZ of 2015 ROWD	Onshore Traveling Screens with Fish Return	2.63 ft/sec	83.44 acres	0	0.85 to 0.93 acres	0.1 acres
17 Appendix ZZ of 2015 ROWD	Onshore Traveling Screens with Fish Return	1.54 ft/sec	83.44 acres	0	0.85 to 0.93 acres	0.1 acres
18 Appendix ZZ of 2015 ROWD	Onshore Traveling Screens with Fish Return	1.04 ft/sec	83.44 acres	0	0.85 to 0.93 acres	0.1 acres

Design Alternative	Intake Design Description	Maximum Intake Velocity[1]	Entrainment Impacts[2]	Impingement Impacts[2]	Entrapment Impacts[3]	Habitat Impacts
19 Appendix ZZ of 2015 ROWD	Onshore Traveling Screens with Fish Return	1.06 ft/sec	83.44 acres	0	0.85 to 0.93 acres	0.1 acres
20 Appendix ZZ of 2015 ROWD	Onshore Traveling Screens with Fish Return	1.06 ft/sec	83.44 acres	0	0.85 to 0.93 acres	0.1 acres
21 Appendix EEE of 2015 ROWD	Offshore Lagoon WWS	0.5 ft/sec	83.44 acres	0	0	0.2 acres

Table Notes:
1. All the surface water intake alternatives will have a through-screen intake velocity of 0.5 ft/sec. However, some of the alternatives are projected to have a higher intake velocity in the pipes leading to the 1-mm screens. The increased velocity in the tunnels prior to the fish screens being onshore would increase the risk of entrapment of marine life within the tunnels.
2. Measured in acres of area production foregone. APF also known as habitat production foregone, is defined in the Ocean Plan and refers to an estimate of the area that is required to produce (replace) the same amount of larvae or propagules that are removed via entrainment at a desalination facility's intakes. APF is calculated by multiplying the proportional mortality by the source water body, which are both determined using an empirical transport model.
3. Entrapment impacts include potential impacts due to a fish return system.

Economic Considerations of Design Alternatives

Cost and economics are principal factors in evaluating an alternative's feasibility.[15] The Discharger submitted information to the San Diego Water Board for analysis including "fixed capital and operating costs not recovered while the Facility is out of service after 2018" with an "out-of-service" cost ranging from $200 million to $423 million. Some of the Design Alternatives that the Discharger proposed for the San Diego Water Board's analysis would require the Facility to shut down drinking water production for an extended period while a new intake structure is constructed. Many of the alternatives proposed avoided shutdown of the Facility through the compliance schedule in section VI.C.7 of the 2019 Order. The compliance schedule allowed interim intake facilities or temporary continued use of the existing pumps until construction of the new pumps

[15] Feasible is defined by the Ocean Plan as capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors. Economics is also a societal and governmental concern in determining feasibility.

and intake structure was completed. Some alternatives such as Design Alternatives 9 and 10 could not avoid an extended plant shutdown because the new intake structure would be constructed at the existing intake. Other alternatives such as Design Alternatives 3 and 4 required a compliance schedule longer than the minimum five years required by the Ocean Plan. The cost evaluation presented below does not include the "out-of-service" cost information for those alternatives that required a Facility shutdown to construct.

Table H.2-5 below summarizes the estimated costs and construction timeframe for each intake design alternative. When evaluating the cost of construction and operation of the new intake design, the San Diego Water Board is not required to select the least expensive alternative. "*The fact that an alternative may be more expensive or less profitable is not sufficient to show that the alternative is financially infeasible. What is required is evidence that the additional costs or lost profitability are sufficiently severe as to render it impractical to proceed with the project*." (Cf., SPRAWLDEF v. San Francisco Bay Conservation and Development Commission (2014) 226 Cal.App.4th 905, 918, applying an analysis of project alternative feasibility pursuant to CEQA.).

The Discharger and the San Diego County Water Authority (SDCWA) previously expressed a preference for Design Alternatives 1 and 15; while the San Diego Water Board at the time preferred Design Alternative 21. The Discharger expressed during development of the 2019 Order and Determination that Design Alternatives 1, 15, and 21 could be constructed while avoiding long term shutdown of the Facility and costs incurred with Facility shutdown. The Discharger, however, proposed the new intake design to replace Design Alternative 21 due to 1) anticipated challenges associated with operating and maintaining the Design Alternative 21 intake laterals and WWS in a low-energy estuarine marine environment, and 2) the potential need for extended Facility shutdowns during periodic cleaning of the intake laterals to remove biofouling organisms. Water production would need to be halted during cleaning of the intake laterals and would not resume until marine growth is removed and turbidity of the intake water was stabilized. The Discharger estimated shutdowns associated with maintenance of the intake laterals would result in interruption of water production for about two months each year.

Table H.2-5: Cost Estimates by Intake Design[16]

Design Alternative	Intake Design Description	2015 ROWD Appendix Source	Construction Capital Cost (Million $)	Annual O&M Cost (Million $/Year)	Construction Time (Years)
1	Onshore Traveling Screens with Fish Return with Flow Augmentation	EEE	$68.1 million (mill)	$4.8 mill/year	2.1 years

[16] The information in this table is taken from Appendices II, BBB, CCC, and EEE to the 2015 ROWD. Appendix II was submitted in 2016 and was the best available information at that time. Actual costs from Appendix II may have risen since that time.

Design Alternative	Intake Design Description	2015 ROWD Appendix Source	Construction Capital Cost (Million $)	Annual O&M Cost (Million $/Year)	Construction Time (Years)
2	Onshore Traveling Screens with Fish Return with Diffuser	OO	$428.6 mill	$2.2 mill/year	6 years
3	Lagoon Subsurface Intake Galleries with Flow Augmentation	OO	$1,037.7 mill	$10.1 mill/year	10.2 years
4	Lagoon Subsurface Intake Galleries with Diffuser	OO	$676.9 mill	$5.2 mill/year	6.8 years
5	Offshore Ocean WWS with Flow Augmentation	OO	$285.5 mill	$3.9 mill/year	6 years
6	Offshore Ocean WWS with Diffuser	OO	$76.8 mill	$2.3 mill/year	6 years
7	Offshore Lagoon WWS with Flow Augmentation	OO	$126.9 mill	$3.8 mill/year	6 years
8	Offshore Lagoon WWS with Diffuser	OO	$405.8 mill	$2.2 mill/year	6 years
9	Lagoon Traveling Screens at the Shoreline with Flow Augmentation	OO	$80.8 mill	$3.8 mill/year	6 years
10	Lagoon Traveling Screens at the Shoreline	OO	$35 mill	$6.7 mill/year	6 years
11	Lagoon Traveling Screens at the Shoreline with Flow Augmentation	CCC	$112.7 mill	$3.25 mill/year	4 years
12	Lagoon Traveling Screens at the Shoreline with Flow Augmentation	CCC	$111.4 mill	$3.25 mill/year	4 years
13	Lagoon Traveling Screens at the Shoreline with Flow Augmentation	CCC	$111.1 mill	$3.25 mill/year	4 years
14	Lagoon Traveling Screens at the Shoreline with Flow Augmentation	CCC	$113.4 mill	$3.25 mill/year	4 years
15	Onshore Traveling Screens with Fish Return with Flow Augmentation	EEE	$71.9 mill	$4.8 mill/year	2.2 years
16	Onshore Traveling Screens with Fish Return with Flow Augmentation	BBB	$47.2 mill	$4.8 mill/year	3.3 years
17	Onshore Traveling Screens with Fish Return with Flow Augmentation	BBB	$50.2 mill	$4.8 mill/year	3.5 years
18	Onshore Traveling Screens with Fish Return with Flow Augmentation	BBB	$56.3 mill	$4.8 mill/year	4 years

Design Alternative	Intake Design Description	2015 ROWD Appendix Source	Construction Capital Cost (Million $)	Annual O&M Cost (Million $/Year)	Construction Time (Years)
19	Onshore Traveling Screens with Fish Return with Flow Augmentation	BBB	$43.6 mill	$4.8 mill/year	2.4 years
20	Onshore Traveling Screens with Fish Return with Flow Augmentation	BBB	$54.3 mill	$4.8 mill/year	2.2 years
21	Offshore Lagoon WWS with Flow Augmentation	September 13, 2018, meeting	$66.1 to 82.8 mill	$5.8 to $6.6 mill/year	5 years

Reliability Considerations

The confidence in the projected reliability of the intake design alternatives varies based on the known constraints and the availability of historical operational data for a design alternative. Intake design alternatives that are similar to the current shoreline intake operation would have a higher confidence for reliability because the engineering parameters for operation and maintenance, such as the required amount of debris cleaning, are established and well understood. The Discharger indicated that it has the most confidence in the operational reliability of Design Alternatives 1 and 15 because these alternatives are similar to the existing shoreline intake structure. More unknown parameters exist for the other design alternatives that are proposing a change to the design and technology of the existing intake structures. For example, if the same intake technology and configuration for an existing water intake were proposed for application in a different source water body, the data and operational parameters for the existing water intake could provide a basis for increased confidence in the reliability of the intake technology in the different source water body. Intake design alternatives that have not been implemented at any other sites, have a lower confidence of reliability, due to a lack of empirical performance data to assess the reliability of such design alternatives. Although these design alternatives may not have empirical performance data, some parameters for operation and maintenance can be conservatively estimated based on other data sources.

In Appendix DDD of the 2015 ROWD, *Feasibility Assessment of Carlsbad Desalination and Intake and Discharge Alternative 21*, the Discharger raised technical concerns that Design Alternative 21 has potential reliability issues pertaining to cleaning and debris management that that could impair the operational reliability of the Facility. The Discharger's chief reliability concern with Design Alternative 21 was the use of narrow-slot WWS in a low-energy estuarine marine environment like Agua Hedionda Lagoon constitutes an operational risk since there is no performance data on such installations as proposed for this alternative. The San Diego Water Board responded to the identified concerns with the reliability of Design Alternative 21 below.

1. *The use of an existing intake technology in an unproven application represents a technical risk to the reliable operation of the CDP.*

The WWS technology incorporated in Design Alternative 21 has been installed and operated effectively in fresh water and at a small-scale in seawater for decades although not in a lagoon environment. WWS technology has proven to be reliably effective in river and ocean water body settings. Operation of WWS technology in a lagoon environment will have similarities and disparities when compared to other facilities that use WWS technology in the open ocean and in a river. While certain risks exist due to a lack of operational data for implementing WWS in a lagoon, these risks can be mitigated by examining the operation of WWS in other environments and through implementing a pilot scale intake project in Agua Hedionda Lagoon to assess debris management and intake maintenance requirements.

2. *The cleaning and maintenance requirements are high due to uncertainty relative to performance of narrow-slot WWS in the Lagoon.*

   The Discharger submitted an estimate of cleaning and maintenance requirements based on the requirements for the existing shoreline surface water intake configuration of the EPS. The placement of WWS in the Agua Hedionda Lagoon under Design Alternative 21 will have different operational parameters that might possibly reduce the cleaning and maintenance requirements when compared to the existing shoreline intake structure. For example, the Design Alternative 21 intake flow and through-screen velocity for the WWS (i.e. 299 million gallons per day (MGD) at 0.5 ft/sec) will be far less than the EPS intake which averaged 657 MGD with a through – screen velocity of up to 2.9 ft/sec. The greatly reduced intake flow and through-screen velocity for the WWS would potentially result in less clogging debris. The WWS can be installed with self-cleaning brushes to remove clogging debris. Furthermore, the current intake structure is at a dead-end corner of the Agua Hedionda Lagoon where debris collects and can only be removed through the intake structure. Under Design Alternative 21, the WWS can be located within the interior of the Agua Hedionda Lagoon where natural sweeping currents and tidal action can keep debris moving away from the screens. The existing shoreline intake structure withdraws water from the entire Agua Hedionda Lagoon water column, from the water surface to the bottom of the Lagoon. Under Design Alternative 21 the WWS will be situated on raised foundations on the Agua Hedionda Lagoon floor, allowing floating debris to be caught by a floating boom and settling debris to accumulate below the screens. All of these considerations have the potential to significantly reduce the amount of debris on WWS placed in the Agua Hedionda Lagoon at the point of water withdrawal as compared to the current shoreline intake configuration.

3. *The cleaning of the intake laterals via pigging creates challenges associated with debris management and meeting the terms of the Water Purchase Agreement regarding allowable days offline.*

   Due to the marine environment of the pipeline laterals for the Design Alternative 21 intake facilities, a robust cleaning maintenance program of the intake

pipelines is anticipated to prevent buildup of biological marine growth that could cause a reduction in water flow to the Facility. Various methods can be used to control marine growth in pipelines such as continued chlorine addition, heat treatment, shock chlorination and pigging. The Discharger indicated the conceptual design of the intake laterals will be based on the "pigging" maintenance approach. This maintenance approach would use an interior scrubbing device called a "pig" that would be launched through the pipeline. The pig has an abrasive coating that scrubs the pipeline walls, removing any natural buildup of marine sediments, mineral deposits and bio-growth and pushing out the debris. Detailed information is not yet available at this stage of alternative analysis on the frequency of pipeline cleanings, volumes of flush water that would be generated, the characteristics and volumes of debris that would be produced and the method of debris disposal. Silt screens and treatment measures will need to be developed to address the debris management. The intake pipe lateral cleaning may be able to be scheduled sometimes during regular plant maintenance periods when the Facility is already scheduled to be offline. These items and other issues will need to be further investigated by the Discharger and the results incorporated into the final design of the intake structure.

4. *The schedule for permitting, designing, and constructing a structure in the Lagoon will take up to 5 years – longer than alternatives that do not require construction in the Lagoon.*

   Section VI.C. 9 of the 2019 Order includes a compliance schedule that would allow interim intake and discharge operations during stand-alone operations to continue for a period of up to five years from the time that EPS ceases power generating activities until the permanent new intake structure and configuration is constructed and operational.

5. *The total environmental impact is greater than other alternatives due to the permanent loss of benthic habitat in the Lagoon.*

   As previously discussed in the "*Habitat Impacts"* section, the Discharger estimates in Appendix EEE of the 2015 ROWD that the permanent construction-related benthic habitat impacts for Design Alternative 21 would be 0.2 acres of lagoon habitat. The temporary impacts to benthic habitat from construction of Design Alternative 21 can be partially mitigated by covering the intake lateral pipelines after placement with natural sand or sediment to eventually restore the impacted benthic habitat. Furthermore, Design Alternative 21 may reduce the area within Agua Hedionda Lagoon that requires routine maintenance dredging, thus decreasing benthic habitat impacts associated with continued maintenance dredging of the Lagoon.

6. *The cost is greater than other alternatives due to requisite in-water construction and increased maintenance anticipated.*

   In Appendix EEE of the 2015 ROWD, the Discharger presents a Table with a

revised assessment of the overall feasibility of Design Alternative 21. The Table compares the environmental impacts, cost, and construction schedule aspects of Design Alternative 21 as compared to Design Alternatives 1 and 15. This Table indicates that Alternative 21 has a reduced total environmental, a comparable cost (capital cost and annual operation and maintenance cost), and a longer construction schedule by approximately two years. The San Diego Water Board has concluded that Design Alternative 21 provides the best combination of available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life based in part on the Discharger's overall feasibility assessment in Appendix EEE of the 2015 ROWD.

While Design Alternative 21 represents a substantial change in design and technology from the current intake technology that is currently in place at the Facility, the San Diego Water Board concluded that the concerns cited by the Discharger affecting the operational reliability of Alternative 21 were not an insurmountable barrier to the construction and reliable implementation of Design Alternative 21 and did not render the alternative infeasible. Ocean Plan chapter III.M.2.a(5)(b) provides that the San Diego Water Board may allow up to five years from the date of an event identified in a previous Water Code section 13142.5(b) conditional determination for the owner or operator to make modifications to the Facility that are required by a new section 13142.5(b) determination. The San Diego Water Board concluded that potential water supply interruptions resulting from the necessary facility modifications require additional time, and a compliance schedule of up to five years is in the public interest and reasonably required for the modifications.

Following the adoption of the 2019 Order, the Discharger investigated the operational reliability of Design Alternative 21 and analyzed challenges associated with implementing Design Alternative 21. The Discharger anticipated there would be challenges associated with operating and maintaining the Design Alternative 21 intake laterals and WWS in a low-energy estuarine marine environment. The Discharger also reported that using Design Alternative 21 may lead to potential extended Facility shutdowns during periodic cleaning of the intake laterals to remove biofouling organisms. Water production would need to be halted during cleaning of the intake laterals and would not resume until marine growth is removed and turbidity of the intake water was stabilized. The Discharger estimated shutdowns associated with maintenance of the intake laterals would result in interruption of water production for about two months each year. Consequently, the Discharger proposed a new intake design in lieu of Design Alternative 21 which was approved by the San Diego Water Board. The new intake design eliminated the need for intake laterals by moving the structure closer to the shore. The new intake design will not result in an increase in intake and mortality of marine life beyond that approved by the 2019 Order and Determination nor will it result in an increase in the volume of seawater used by the Facility. As a result, the use of the new intake structure will not cause the Facility to be considered as a new or expanded facility as defined in Ocean Plan chapter III.M.1.b.(2).

Social Factors

The Ocean Plan defines "feasible" as including consideration of "social factors." Development of seawater desalination in San Diego County assists the region in diversifying its water resources, reducing dependence on imported water supplies, and providing a drought-proof, locally-sourced water supply to help meet the water demand for a growing population and economy. The Facility began operation on December 23, 2015, and can provide a highly reliable local supply of up to 56,000 acre-feet/ year within the SDCWA boundaries which encompasses the western third of San Diego County. The Discharger reports that the Facility's expected potable water output can be increased to 60 MGD with appropriate permit modifications. According to the SDCWA's 2015 Urban Water Management Plan[17], this will supply about 29 percent of the local water supply. The San Diego Water Board recognizes the importance and urgency of providing a reliable and continuous water supply to support the San Diego Region's quality of life and to protect public health during a time of declining availability of imported water. Regional initiatives to emphasize water conservation, reuse water through recycling, and desalination provide a drought resistant mix of water supply resources and increase the region's ability to reduce reliance on imported water supplies from outside the region.

As previously discussed, comparing the cost of the Discharger's previously preferred Design Alternatives 1 and 15 to Design Alternative 21 demonstrates that Design Alternative 21 has a comparable construction capital cost at $66.1 to $82.8 million and a projected operation and maintenance cost of $5.8 to $6.6 million per year. If the capital cost is paid off over a 30-year life of the intake structure, the per year cost of Design Alternative 21 including maintenance to consumers served by SDCWA would be between $8.0 to 9.36 million per year. Table H.2-6 provides a summary of the costs only of Design Alternatives 1, 15, and 21 because those were the alternatives previously preferred by the Discharger, SDCWA, and the San Diego Water Board.

Table H.2-6: Comparison Cost of Design Alternatives 1, 15, and 21

Design Alternative	Construction Capital Cost Year	Operation and Maintenance Cost/year	Total Cost per Year
1, App. EEE to the 2015 ROWD	$5.9 mill/year	$4.8 mill/year	$10.7 mill/year
15, App. EEE to the 2015 ROWD	$6.2 mill/year	$4.8 mill/year	$11.0 mill/year
21, Sept. 13, 2018 meeting	$5.7 to 7.1 mill/year	$5.8 to 6.6 mill/year	$11.5 to 13.7 mill/year

Benefits of seawater desalination come with associated risks and costs. Coastal waters affected by the operation of the Facility constitute a public trust resource held in common for public use and enjoyment, support beneficial uses, and serve vital

[17] SDCWA's 2015 Urban Water Management Plan is available at this website: https://www.sdcwa.org/wp-content/uploads/2020/12/UWMP2015.pdf (as of December 22, 2025)

environmental, social, and economic functions for society. The fundamental mission of the San Diego Water Board under the Porter-Cologne Water Quality Control Act is to protect the beneficial uses of these coastal waters for the benefit of current and future generations. Based on all these considerations of social factors, Design Alternative 21 provides a reasonable balance of costs while serving the public interest in maximizing marine life protection.

Conclusions Regarding the Best Combination of Feasible Alternatives to Minimize the Intake and Mortality of Marine Life

In making a Water Code section 13142.5(b) determination, the San Diego Water Board must independently evaluate a range of feasible alternatives for the best available site, design, technology, and mitigation measures to minimize intake and mortality of all forms of marine life and then determine the best combination of feasible alternatives to minimize intake and mortality of all forms of marine life (Ocean Plan chapter III.M.2.a(2).). Based on the foregoing analysis of feasible alternatives, the San Diego Water Board previously determined that based on available information,[18] Design Alternative 21 provided the best combination of available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life while considering construction, operation, and maintenance costs.

Following adoption of the 2019 Order, the San Diego Water Board has approved a new intake design which will not result in an increase in intake and mortality beyond that approved by the 2019 Order and determination.

[18] As discussed in the Finding II.D and in Finding 31, Attachment H-1 the 2019 Order, the 2019 Determination was made conditional on the results of the Multiport Diffuser Analysis required to be completed within the first two years following the effective date of the 2019 Order confirming that flow augmentation technology is supported by the comparison required in Ocean Plan chapter III.M.2.d.(2)(c).