CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
REGION 9, SAN DIEGO REGION

ORDER NO. R9-2006-0065 AS AMENDED BY ORDER NO. R9-2009-0038 AND ORDER NO. R9-2010-0073
NPDES NO. CA0109223

WASTE DISCHARGE REQUIREMENTS FOR THE ~~POSEIDON RESOURCES CORPORATION~~ POSEIDON RESOURCES (CHANNELSIDE) LLC, CARLSBAD DESALINATION PROJECT, DISCHARGE TO THE PACIFIC OCEAN VIA THE ENCINA POWER STATION DISCHARGE CHANNEL

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger Information

Discharger	~~Poseidon Resources Corporation~~ Poseidon Resources (Channelside) LLC
Name of Facility	Carlsbad Desalination Project
Facility Address	4600 Carlsbad Boulevard Carlsbad, CA 92008 San Diego County

The discharge by the ~~Poseidon Resources Corporation~~ Poseidon Resources (Channelside) LLC from the discharge point identified below is subject to waste discharge requirements as set forth in this Order.

Table 2. Outfall Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
Outfall 001	Desalination Brine	33º 08' 17" N	117º 20' 22" W	Pacific Ocean

Table 3. Administrative Information

This Order was adopted by the Regional Water Board on:	**June 14, 2006**
This Order shall become effective on:	**October 1, 2006**
This Order shall expire on:	**October 1, 2011**
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Board have classified this discharge as a major discharge.	
The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of the Order expiration date as application for issuance of new waste discharge requirements.	

IT IS HEREBY ORDERED, that in order to meet the provisions contained in Division 7 of the California Water Code (CWC) and regulations adopted thereunder and the provisions of the federal Clean Water Act (CWA), and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, ~~John H. Robertus~~ **David W. Gibson**, Executive Officer, do hereby certify the following is a full, true, and correct copy of an Order originally adopted by the California Regional Water Quality Control Board, San Diego Region, on August 16, 2006 and amended on May 13, 2009 **and on May 12, 2010**.

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~~JOHN H. ROBERTUS~~ **DAVID W. GIBSON**
Executive Officer

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I. FACILITY INFORMATION

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 4. Facility Information

Discharger	~~Poseidon Resources Corporation~~ **Poseidon Resources (Channelside) LLC**
Name of Facility	Carlsbad Desalination Project
Facility Address	4600 Carlsbad Boulevard Carlsbad, CA 92008 San Diego County
Facility Contact, Title, and Phone	Peter M. MacLaggan, Senior Vice President, (619) 595-7802
Mailing Address	501 W. Broadway, Suite 840 San Diego, CA 92101
Type of Facility	Water Supply (Desalination)
Facility Design Flow	Dependant on pretreatment technology selected by Discharger: Option 1. Granular Media Filtration: -54 million gallons per day (MGD) average daily flow -60.3 MGD maximum daily flow Option 2. Membrane Filtration: -57 MGD average daily flow -64.5 MGD maximum daily flow

II. FINDINGS

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Water Board), finds:

A. **Background**. ~~Poseidon Resources Corporation~~ **Poseidon Resources (Channelside) LLC** (hereinafter Discharger) proposes to construct and operate the Carlsbad Desalination Project (CDP) on a 4 acre parcel within the site of the Encina Power Station. ~~Poseidon Resources Corporation~~ **Poseidon Resources (Channelside) LLC** has entered into a renewable 60-year lease with Cabrillo Power I LLC (the owner and operator of the Encina Power Station) for the desalination project site. The Discharger submitted a Report of Waste Discharge on October 7, 2005, and applied for a NPDES permit to discharge up to 64.5 million gallons per day (MGD) of wastewater from the CDP**,** hereinafter Facility. The application was deemed complete on November 7, 2005.

B. **Facility Description.** The Encina Power Station (EPS) generates up to 939 megawatts of electrical power using five steam generators and one gas turbine generator. The EPS steam generators are cooled by a once-through seawater flow system. EPS cooling water is discharged to the Pacific Ocean under the requirements established in Regional Water Board Order No. 2000-03, NPDES Permit No. CA0001350.

Under the proposed CDP, a portion of the EPS cooling water effluent would be diverted to CDP for seawater desalination treatment. CDP proposes to use 100 MGD of EPS cooling water effluent as source water. An average daily flow of 50 MGD of fresh potable water would be produced by the CDP. Treatment processes at CDP will consist of pretreatment, reverse osmosis desalination, and disinfection and product water stabilization. The Discharger has not constructed the facility or made a final selection on the type of pretreatment technology that will be used for the source water prior to the reverse osmosis process. The Discharger is considering granular media filtration and membrane filtration as the two options for pretreatment technologies. The Facility expects to have 13 reverse osmosis units operating in parallel at the facility with a combined capacity of 54 mgd. Under normal operating conditions, one reverse osmosis unit at a time is expected to be offline for membrane cleaning or maintenance. The expected average daily flow of 50 MGD of reverse osmosis brine is based on the assumption that one reverse osmosis unit will be down at all times for cleaning or maintenance.

The 50 MGD of fresh potable water produced by CDP would be delivered to the City of Carlsbad potable water system for distribution to Carlsbad water customers and conveyance to adjacent North San Diego County water agencies. The production of 50 MGD of fresh potable water would result in the generation of approximately 55 MGD of combined filter backwash water and concentrated saline wastewater that would be discharged back into the EPS cooling water discharge channel for discharge to the Pacific Ocean. The actual discharge volume will depend on the pretreatment technology option selected (as explained in more detail in the Fact Sheet, Attachment F, to this Order). If the granular media filtration pretreatment technology is selected, the average discharge volume is estimated to be 54 MGD (maximum flow is estimated to be 60.3 MGD); if the membrane filtration pretreatment technology is selected, the average discharge volume is estimated to be 57 MGD (maximum flow is estimated to be 64.5 MGD).

The CDP discharge would contain virtually all dissolved solids and some of the suspended solids contained in the CDP intake water. Thus, the total wastewater flow volumes within the EPS discharge channel would be reduced by 50 MGD, however the combined discharges is expected to contain a greater concentration of dissolved solids (mostly salts).

During initial start-up operations and immediately before or after certain onsite maintenance operations, it may be necessary to temporarily return all or a portion of the filtered pretreated seawater back into the EPS effluent channel instead of routing the filtered seawater flow to the reverse osmosis units. Additionally, during such start-up periods or periods when it is not feasible to deliver product water to the regional potable water system, it may be necessary to temporarily discharge product water from the reverse osmosis process back into the EPS effluent channel.

During such temporary periods, the Discharger is required to conduct additional monitoring and the maximum allowable flows returned to the ocean shall not exceed 120.6 MGD for the granular media filtration option, or 129 MGD for the membrane filtration pretreatment option. The flow and salinity of the additional CDP effluent under operating conditions when either pretreatment process water or reverse osmosis product water is directed back into the EPS effluent channel would be identical to the flow and salinity of the source water directed to the CDP during such temporary periods. As a result, no water quality impacts would occur as a result of such temporary process water diversions.

An initial dilution factor of 15.5:1 has been assigned for the discharge from CDP. Details regarding the establishment of the dilution credit are provided in the Fact Sheet, Attachment F to this Order.

C. **Legal Authorities.** This Order is issued pursuant to section 402 of the Federal Clean Water Act (CWA) and implements regulations contained in the Code of Federal Regulations (CFR) adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California Water Code (CWC). It shall serve as a NPDES permit for point source discharges from Facilities owned by the Discharger to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4 of the CWC.

D. **Background and Rationale for Requirements.** The Regional 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 environmental data. The Fact Sheet, Attachment F, which contains background information and rationale for Order requirements and other provisions, are hereby incorporated into this Order and, thus, constitute part of the Findings for this Order. Attachments A, D, and E are also incorporated into this Order.

E. **California Environmental Quality Act (CEQA).** This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with Section 13389 of the CWC. As documented in the Fact Sheet (Attachment F), this Regional Board has reviewed the final Environmental Impact Report (EIR), which was approved by the City of Carlsbad on June 13, 2006. The EIR identifies no significant impacts with mitigation measures for *hazards and hazardous materials*, and

stormwater drainage. The provisions of this Order, together with statewide NPDES Industrial Stormwater Permit require similar mitigation measures. No significant impacts were identified and no mitigation required for the other potential issues related to water quality, except for *growth inducement,* which the City found were significant, but unavoidable. Water quality issues related to urban growth are addressed by this Regional Water Board through enforcement of the new development component of its Municipal Separate Storm Sewer System (MS4) NPDES permits.

F. **Technology-Based Effluent Limitations.** 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards. This Order includes technology-based effluent limitations based on Table A of the Ocean Plan and BPJ, pursuant to section 402(a)(1) of the CWA and 40 CFR 125.3 of the NPDES regulations. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

G. **Water Quality-Based Effluent Limitations.** Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality objective to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, 40 CFR 122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a), proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information, or an indicator parameter.

H. **Water Quality Control Plans.** The Regional Water Board adopted a Water Quality Control Plan for the San Diego Basin (hereinafter Basin Plan) on September 8, 1994. The Basin Plan was subsequently approved by the State Water Resources Control Board (State Water Board) on December 13, 1994. Subsequent revisions to the Basin Plan have also been adopted by the Regional Water Board and approved by the State Water Board. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Beneficial uses applicable to the Pacific Ocean are as follows:

Table 5. Basin Plan Beneficial Uses of the Pacific Ocean

Discharge Point	Receiving Water	Beneficial Uses
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, Reproduction, and/or Early Development; Shellfish Harvesting

The Basin Plan relies primarily on the requirements of the *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan) for protection of the beneficial uses of the State ocean waters. The terms and conditions of the Ocean Plan and any revisions thereto are incorporated into the Basin Plan by reference. The Basin Plan, however, may contain additional water quality objectives applicable to the Discharger.

The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water 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 coastal waters.

Requirements of this Order specifically implement the applicable Water Quality Control Plans.

I. **California Ocean Plan.** The State Water Board adopted the Water Quality Control Plan for Ocean Waters of California, California Ocean Plan (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, and 2005. The State Water Board adopted the latest amendment on April 21, 2005 and was approved by USEPA on February 14, 2006. 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 below:

Table 6. Ocean Plan Beneficial Uses

Discharge Point	Receiving Water	Beneficial Uses
Outfall 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; rare and endangered species; marine habitat; fish spawning and shellfish harvesting

In order 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.

J. **Stringency of Requirements for Individual Pollutants.** This Order contains restrictions on individual pollutants that are no more stringent than required to implement the technology-based requirements based on Table A of the California Ocean Plan and the water-quality based requirements necessary to implement the water quality objectives established in Table B of the California Ocean Plan.

K. **Antidegradation Policy.** 40 CFR 131.12 requires that State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16, which incorporates the requirements of the federal antidegradation policy. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Discharger submitted a number of studies, and modeling reports demonstrating that the discharge will not result in significant degradation of water quality. The discharge from CDP is not expected to affect the beneficial uses of the receiving water. As discussed in detail in the Fact Sheet (Attachment F), a discharge in compliance with this Order is

consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

L. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. 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.

M. **Monitoring and Reporting.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program (Attachment E) establishes monitoring and reporting requirements to implement federal and State requirements.

N. **Standard and Special Provisions.** Standard Provisions, which in accordance with 40 CFR 122.41and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet (Attachment F).

O. **Notification of Interested Parties.** The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet (Attachment F) of this Order.

P. **Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet (Attachment F) of this Order.

THE REQUIREMENTS AND PROVISIONS BELOW CONSTITUTE THE ENFORCEABLE PORTION OF THIS ORDER. Attachments A, D, and E, which are specifically referenced in the requirements and provisions, are also part of the enforceable portion of this Order.

III. DISCHARGE PROHIBITIONS

A. The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination, or nuisance as defined in California Water Code Section 13050, is prohibited.

B. The discharge of waste from CDP not in compliance with the effluent limitations specified in Section IV.B of this Order, and/or to a location other than Discharge Point No. 001, unless specifically regulated by this Order or separate waste discharge requirements, is prohibited.

C. The discharge of waste from periodic cleaning of RO membrane to Discharge Point No. 001 is prohibited.

D. The Discharger shall comply with the following waste discharge prohibitions of the Basin Plan:

1. The dumping, deposition, or discharge of waste directly into waters of the state, or adjacent to such waters in any manner that may permit its being transported into the waters, is prohibited unless authorized by the Regional Water Board.

2. Any discharge to a storm water conveyance system that is not composed entirely of "storm water" is prohibited unless authorized by this Regional Water Board. [Federal Regulations 40 CFR 122.26 (b) defines storm water as storm water runoff, snow melt runoff, and surface runoff and drainage.]

3. The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities that cause deleterious bottom deposits, turbidity or discoloration in waters of the state or that unreasonably affect, or threaten to affect, beneficial uses of such waters is prohibited.

E. The discharge of waste to Areas of Special Biological Significance, as designated by the State Water Board, is prohibited.

IV. DISCHARGE SPECIFICATIONS AND EFFLUENT LIMITATIONS

A. Discharge Specifications

The discharge of effluent from the Discharger's facilities through Discharge Point No. 001 shall comply with the following:

1. Waste discharged to the Pacific Ocean through Discharge Point No. 001 must be essentially free of:

   a. Material that is floatable or will become floatable upon discharge.

   b. Settleable material or substances that may form sediments, which will degrade benthic communities or other aquatic life.

   c. Substances, which will accumulate to toxic levels in marine waters, sediments, or biota.

   d. Substances that significantly decrease the natural light to benthic communities and other marine life.

   e. Materials that result in aesthetically undesirable discoloration of the ocean surface.

2. Wastewater from the Discharger's Facilities must be discharged through Discharge Point No. 001 in a manner that provides sufficient initial dilution to achieve the effluent limitations contained in this permit.

3. 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.

4. The calendar-monthly average of daily effluent discharge flow rates from the Discharger's Facilities to the Pacific Ocean shall not exceed the flow rates established in Table 7, *Monthly Average Flow Limitation Based on Pretreatment Technology*.

Table 7. Monthly Average Flow Limitation Based on Pretreatment Technology

Pretreatment Technology[1]	Maximum Monthly Average Flow Rate[2]
Granular Media Filtration	54 MGD
Membrane Filtration	57 MGD

1 The effluent flow shall be limited to the flow rates indicated in this tables based on the pretreatment technology option selected by the Discharger and reported to the Regional Water Board as specified in Section VI.C.2.a of this permit.

2 Pretreatment process flows or reverse osmosis product flows may be temporarily discharged back into the Pacific Ocean during initial plant start-up, during or after plant maintenance, or periods when it is otherwise not possible to deliver demineralized product water to the regional water system. During such temporary periods, maximum allowable flows returned to the ocean shall not exceed 120.6 MGD for the granular media filtration option or 129 MGD for the membrane filtration pretreatment option. Temporarily returning pretreatment process flows or reverse osmosis flows to the ocean during such periods does not constitute a "bypass" as defined by Section G of Appendix D of this permit.

B. Effluent Limitations and Performance Goals

The discharge of effluent from Discharge Point No. 001 shall be measured at Monitoring Location M-001 as described in the Attachment E, Monitoring and Reporting Program. The effluent limitations below are enforceable to the number of significant digits given in the effluent limitation.

1. The discharge of effluent from CDP to Discharge Point No. 001, as monitored at Monitoring Location M-001, shall maintain compliance with the following effluent limitations:

Table 8. Effluent Limitations

Constituent	Units	Effluent Limitations					
		Max Daily	Average Monthly	Average Weekly	Instantaneous Min	Instantaneous Max	6 Month Median
Total Suspended Solids	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	
Chronic Toxicity [1]	TU_c	16.5					

[1] Chronic toxicity expressed as Chronic Toxicity Units (TU_c) = 100 / NOEL, where NOEL (No Observed Effect Level) is expressed as the maximum percent effluent or receiving water that causes no observable

effect on a test organism, as determined by the result of critical life stage toxicity tests identified in Section VI of Monitoring and Reporting Program No. R9-2006-0065.

2. The discharge of CDP effluent shall not cause the combined CDP and EPS effluent to exceed the following salinity concentrations, as measured at Monitoring Location M-002:

Table 9. Limitations for Combined CDP and EPS Effluent

Constituent	Units	Limitations at Monitoring Location M-002[1]				
		Average Monthly	Average Weekly	Average Daily	Average Hourly	6 Month Median
Total Dissolved Solids (Salinity)	ppt			40	44	

1 EPS operations do not appreciably increase the salinity of the intake water, and any violation of the combined EPS and CDP salinity limits shown above shall be a violation attributed to the CDP discharge.

3. Constituents that do not have reasonable potential or had inconclusive reasonable potential analysis results are referred to as performance goal constituents and assigned the performance goals listed in the following table. Performance goal constituents shall also be monitored at M-001, but the results will be used for informational purposes only, not compliance determination.

Table 10. Performance Goals based on the California Ocean Plan

Constituent	Units	Performance Goals[1]					
		Max Daily	Average Monthly	Average Weekly	Instantaneous		6 Month Median
					Min	Max	
Arsenic	µg/L	4.81E+2				1.27+E03	8.55+E01
Cadmium	µg/L	6.60E+01				1.65E+02	1.65E+01
Chromium VI[2]	µg/L	1.32E+02				3.30E+02	3.30E+01
Copper	µg/L	1.67E+02				4.64E+02	1.85E+01
Lead	µg/L	1.32E+02				3.30E+02	3.30E+01
Mercury	µg/L	2.63E+00				6.59E+00	6.52E-01
Nickel	µg/L	3.30E+02				8.25E+02	8.25E+01
Selenium	µg/L	9.90E+02				2.47E+03	2.47E+02
Silver	µg/L	4.37E+01				1.13E+02	9.07E+00
Zinc	µg/L	1.20E+03				3.18E+03	2.06E+02
Cyanide[3]	µg/L	6.60E+01				1.65E+02	1.65E+01
Total Chlorine Residual	µg/L	1.32E+02				9.90E+02	3.30E+01
Ammonia (expressed as nitrogen)	µg/L	3.96E+04				9.90E+04	9.90E+03
Acute Toxicity[4]	TU_a	7.65E-01					
Phenolic Compounds (non-chlorinated)[5]	µg/L	1.98E+03				4.95E+03	4.95E+02

Constituent	Units	Performance Goals[1]					
		Max Daily	Average Monthly	Average Weekly	Instantaneous		6 Month Median
					Min	Max	
Phenolic Compounds (chlorinated)[6]	µg/L	6.6E+01				1.65E+02	1.65E+01
Endosulfan[7]	µg/L	2.97E-01				4.46E-01	1.48E-01
Endrin	µg/L	6.60E-02				9.90E-02	3.30E-02
HCH[8]	µg/L	1.32E-01				1.98E-01	6.6E-02
Radioactivity[9]	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30253 of the California Code of Regulations. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.						
Acrolein	µg/L		3.63E+03				
Antimony	µg/L		1.98E+04				
Bis (2-chloroethoxy) Methane	µg/L		7.26E+01				
Bis (2-chloroisopropyl)	µg/L		1.98E+04				
Chlorobenzene	µg/L		9.41E+03				
Chromium (III)	µg/L		3.14E+06				
Di-n-butyl Phthalate	µg/L		5.78E+04				
Dichlorobenzenes[10]	µg/L		8.42E+04				
Diethyl Phthalate	µg/L		5.45E+05				
Dimethyl Phthalate	µg/L		1.35E+07				
4,6-Dinitro-2-Methylphenol	µg/L		3.63E+03				
2,4-Dinitrophenol	µg/L		6.60E+02				
Ethylbenzene	µg/L		6.77E+04				
Fluoranthene	µg/L		2.48E+02				
Hexachlorocyclo-pentadiene	µg/L		9.57E+02				
Nitrobenzene	µg/L		8.09E+01				
Thallium	µg/L		3.30E+01				
Toluene	µg/L		1.40E+06				
Tributyltin	µg/L		2.31E-02				
1,1,1-Trichloroethane	µg/L		8.91E+06				

Constituent	Units	Performance Goals[1]					
		Max Daily	Average Monthly	Average Weekly	Instantaneous		6 Month Median
					Min	Max	
Acrylonitrile	µg/L		1.65E+00				
Aldrin	µg/L		3.63E-04				
Benzene	µg/L		9.74E+01				
Benzidine	µg/L		1.14E-03				
Beryllium	µg/L		5.45E-01				
Bis (2-chloroethyl) Ether	µg/L		7.43E-01				
Bis (2-ethlyhexyl) Phthalate	µg/L		5.78E+01				
Carbon Tetrachloride	µg/L		1.49E+01				
Chlordane[11]	µg/L		3.80E-04				
Chlorodibromo-methane	µg/L		1.42E+02				
Chloroform	µg/L		2.15E+03				
DDT[12]	µg/L		2.81E-03				
1,4-Dichlorobenzene	µg/L		2.97E+02				
3,3'-Dichlorobenzidine	µg/L		1.34E-01				
1,2-Dichloroethane	µg/L		4.62E+02				
1,1-Dichloroethylene	µg/L		1.49E+01				
Dichlorobromo-methane	µg/L		1.02E+02				
Dichloromethane	µg/L		7.43E+03				
1,3-Dichloropropene	µg/L		1.47E+02				
Dieldrin	µg/L		6.60E-04				
2,4-Dinitrotoluene	µg/L		4.29E+01				
1,2-Diphenylhydrazine	µg/L		2.64E+00				
Halomethanes[13]	µg/L		2.15E+03				
Heptachlor	µg/L		8.25E-04				
Heptachlor Epoxide	µg/L		3.3E-04				
Hexachlorobenzene	µg/L		3.47E-03				

Constituent	Units	Performance Goals[1]					
		Max Daily	Average Monthly	Average Weekly	Instantaneous		6 Month Median
					Min	Max	
Hexachlorobutadiene	µg/L		2.31E+02				
Hexachloroethane	µg/L		4.13E+01				
Isophorone	µg/L		1.20E+04				
N-Nitroso-dimethylamine	µg/L		1.20E+02				
N-Nitrosodi-N-propylamine	µg/L		6.27E+00				
N-Nitrosodiphenyl-amine	µg/L		4.13E+01				
PAHs[14]	µg/L		1.45E-01				
PCBs[15]	µg/L		3.14E-04				
TCDD equivalents	µg/L		6.44E-08				
1,1,2,2-Tetrachloroethane	µg/L		3.80E+01				
Tetrachloroethylene	µg/L		3.30E+01				
Toxaphene	µg/L		3.47E-03				
Trichloroethylene	µg/L		4.46E+02				
1,1,2-Trichloroethane	µg/L		1.55E+02				
2,4,6-Trichlorophenol	µg/L		4.79E+00				
Vinyl Chloride	µg/L		5.94E+02				

[1] In scientific "E" notation, the number following the "E" indicates the 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 6.1 E–02 represents a value of 6.1×10^{-2} or 0.061, 6.1E+2 represents 6.1×10^{2} or 610, and 6.1E+0 represents 6.1×10^{0} or 6.1.

[2] Dischargers may, at their option, apply this performance goal as a total chromium performance goal.

[3] If a Discharger can demonstrate to the satisfaction of the Regional Water Board (subject to USEPA approval) 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 metal cyanides, and weakly complexed organometalic 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 136, as revised May 14, 1999.

[4] Acute toxicity expressed as Acute Toxicity Units (TU_a) = 100 / LC50, where LC50 (Lethal Concentration 50%) is expressed as the percent waste giving 50% survival of test organism, as determined by the result of toxicity tests performed per Provision VI.C.2.c, Salinity and Acute Toxicity Study. Effluent limit B.2 establishes an average daily salinity limit of 40 ppt for the combined EPS and CDP discharge. To reflect maximum salinity concentrations in the effluent prior to discharge to the ocean, compliance with the listed acute toxicity performance goal shall be determined by samples collected at Monitoring Location M-001 that are adjusted to a salinity concentration of 40 ppt (the maximum daily average salinity concentration limit for the combined EPS and CDP discharges). In addition to assessing acute toxicity at this 40 ppt salinity, Provision VI.C.2.c requires the Discharger to develop and implement a study to assess salinity-related acute toxicity thresholds at effluent salinity concentrations that range from 36 to 60 ppt.

[5] Non-chlorinated phenolic compounds shall mean the sum of 2-nitrophenol, 4-nitrophenol, and phenol.

[6] Chlorinated phenolic compounds shall mean the sum of 2-chlorophenol, 2,4-dichlorophenol, 3-methyl-4-chlorophenol, and pentachlorophenol.

[7] Endosulfan shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.

[8] HCH shall mean the sum of the alpha, beta, gamma (lindane), and delta isomers of hexachlorocyclohexane.

[9] Radioactivity performance goals are as specified in Title 17 California Code of Regulations, Section 30253, Standards for Protection Against Radiation. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.

[10] Dichlorobenzenes shall mean the sum of 1,2-dichlorobenzene and 1,3-dichlorobenzene.

[11] Chlordane shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

[12] DDT shall mean the sum of 4,4'DDT; 2,4'DDT; 4,4'DDE; 2,4'DDE; 4,4'DDD; and 2,4'DDD.

[13] Halomethanes shall mean the sum of bromoform, bromomethane (methyl bromide), and chloromethane (methyl chloride).

[14] PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenapthalene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorine, indeno[1,2,3-cd]pyrene, phenanthrene, and pyrene.

[15] PCBs (polychlorinated biphenyls) shall mean he 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.

V. RECEIVING WATER LIMITATIONS

Unless specifically excepted by this Order, the discharge, by itself or jointly with any other discharge(s), shall not cause violation of the following water quality objectives. Compliance with these objectives shall be determined by samples collected at stations representative of the area within the waste field where initial dilution is completed.

A. Water Quality Objectives Established by the Thermal Plan

Elevated temperature wastes shall comply with limitations necessary assure protection of the beneficial uses and Areas of Special Biological Significance.

B. Bacterial Characteristics

1. Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Water Board, but including all kelp beds, the following bacterial objectives shall be maintained throughout the water column.

    a. Samples of water from each sampling station shall have a density of total coliform organisms less than 1,000 per 100 ml (10 per ml); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 per 100 ml (10 per ml), and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 ml (100 per ml).

b. The fecal coliform density, based on a minimum of not less than five samples for any 30-day period, shall not exceed a geometric mean of 200 per 100 ml nor shall more than 10 percent of the total samples during any 60-day period exceed 400 per 100 ml.

2. The Initial Dilution Zone for any wastewater outfall shall be excluded from designation as kelp beds for purposes of bacterial standards. Adventitious assemblages of kelp plants on waste discharge structures (e.g., outfall pipes and diffusers) do not constitute kelp beds for purposes of bacterial standards.

3. At all areas where shellfish may be harvested for human consumption, as determined by the Regional Water Board, the median total coliform density shall not exceed 70 per 100 ml throughout the water column, and not more than 10 percent of the samples shall exceed 230 per 100 ml.

C. **Chemical Characteristics**

1. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste materials.

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

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

4. The concentration of substances set forth in Chapter II, Table B of the Ocean Plan (2001), shall not be increased in marine sediments to levels that would degrade indigenous biota.

5. The concentration of organic materials in marine sediments shall not be increased to levels that would degrade marine life.

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

7. Numerical water quality objectives established in Chapter II, Table B of the California Ocean Plan shall not be exceeded outside of the zone of initial dilution as a result of discharges from the Facility.

D. **Physical Characteristics**

1. Floating particulates and grease and oil shall not be visible.

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

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

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

E. **Biological Characteristics**

1. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded.

2. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered.

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.

VI. PROVISIONS

A. **Standard Provisions**

1. **Standard Provisions.** The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

2. **Regional Water Board Standard Provisions.** The Discharger shall comply with the following provisions:

   a. The Discharger shall comply with all requirements and conditions of this Order. Any permit non-compliance constitutes a violation of the CWA and/or the CWC and is grounds for enforcement action, permit termination, revocation and reissuance, or modification, or for denial of an application for permit renewal, modification, or reissuance.

   b. All waste treatment, containment, and disposal facilities shall be protected against 100-year peak stream flows as defined by the San Diego County flood control agency.

   c. All waste treatment, containment, and disposal facilities shall be protected against erosion, overland runoff and other impacts resulting from a 100-year, 24-hour storm event.

   d. This Order expires on October 1, 2011, after which, the terms and conditions of this permit are automatically continued pending issuance of a new permit, provided that all requirements of USEPA's NPDES regulations at 40 CFR 122.6 and the State's regulations at CCR Title 23, Section 2235.4 regarding the continuation of expired permits and waste discharge requirements are met.

e. A copy of this Order shall be posted at a prominent location at or near the treatment and disposal facilities and shall be available to operating personnel at all times.

B. **Monitoring and Reporting Program Requirements**

The Discharger shall comply with the Monitoring and Reporting Program (Attachment E) of this Order.

C. **Special Provisions**

1. Reopener Provisions: This Order may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

   a. Violation of any terms or conditions of this Order.

   b. Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts.

   c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

      The filing of a request by the Discharger for modifications, revocation and reissuance, or termination of this Order, or a notification of planned change in or anticipated noncompliance with this Order does not stay any condition of this Order.

   d. To incorporate requirements for the implementation of the watershed management approach, in accordance with the provisions set forth in 40 CFR Parts 122 and 124.

   e. To include new Minimum Levels (ML), in accordance with the provisions set forth in 40 CFR Parts 122 and 124.

   f. To revise effluent limitations as a result of future Basin Plan Amendments, or the adoption of a total maximum daily load allocation (TMDL) for the receiving water.

   g. To provide for alternate dilution credits or mixing zone requirements, as determined by this Regional Water Board as appropriate, upon submission by the Discharger of adequate information.

   h. To revise the toxicity language once that language becomes standardized.

   i. To include an effluent limitation if monitoring establishes that the discharge causes, has the reasonable potential to cause, or contributes to an excursion above an Ocean Plan Table B water quality objective.

   j. Failure to comply with any condition of this Order and permit, and endangerment to human health or the environment resulting from the permitted activity, in accordance with the provisions of 40 CFR sections 122.44, 122.62 to 122.64, 125.62, and 125.64.

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

   a. Pretreatment Technology Report

      The Discharger is required to notify the Regional Water Board of the pretreatment technology option selected for use at the CDP (either granular media filtration or membrane filtration) at least 90 days before discharge operations begin. The Discharger shall include a detailed description of the selected pretreatment process, and a detailed and accurate flow diagram with maximum and expected daily average flow volumes. The flow diagram shall include all flows contributing to the discharge of effluent at Discharge Point No. 001.

   b. Toxicity Reduction Evaluation (TRE)

      1) The Discharger shall develop a Toxicity Reduction Evaluation (TRE) workplan in accordance with the TRE procedures established by the USEPA in the following guidance manuals:

         a) Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (EPA/600/2-88/070).

         b) 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).

      2) The Discharger shall submit the TRE workplan to the Regional Water Board no later than 180 days prior to startup of the CDP. The TRE workplan shall be subject to the approval of the Regional Water Board and shall be modified as directed by the Regional Water Board.

      3) If the toxicity effluent limitation or performance goal identified in Section IV.B of this Order are exceeded, then within 15 days of the exceedance, the Discharger shall begin conducting six additional toxicity tests over a 6-month (at least one sample per calendar month, for a total of two samples per calendar month) period and provide the results to the Regional Water Board. The additional monthly toxicity tests will be incorporated into the semiannual discharge monitoring reports submitted pursuant to MRP No. R9-2006-0065.

      4) If the additional monthly tests indicate that toxicity effluent limitations are being consistently exceeded (at least three exceedances out of the six tests), the Regional Water Board may recommend that the Discharger conduct a TRE and a Toxic Identification Evaluation (TIE), as identified in the approved TRE workplan.

      5) Within 30 days of completion of the TRE/TIE, the Discharger shall submit the results of the TRE/TIE, including a summary of the findings, data generated, a list of corrective actions necessary to achieve consistent compliance with the toxicity

effluent limitation of this Order or conformance with the toxicity performance goal of this Order and prevent recurrence of exceedances of the limitation or performance goal, and a time schedule for implementation of such corrective actions. The corrective actions and time schedule shall be modified at the direction of the Executive Officer.

c. Salinity and Acute Toxicity Studies

The Discharger shall conduct two salinity-related acute toxicity studies to evaluate compliance with the acute toxicity performance goal, to confirm the results of prior studies on which effluent salinity limitations have been based, and to identify the maximum amount of salinity that can be discharged without causing acute toxicity.

1) Salinity-Related Toxicity Threshold for Short-Term Exposure

The Discharger shall conduct a study using CDP pilot plant effluent to assess short-term exposure of test species to salinity concentrations that range from 36 to 60 ppt. The Discharger shall submit a study plan for the short-term toxicity threshold evaluation study within 180 days of adoption of this order. The study plan shall identify how pilot plant effluent samples are to be collected, the range of salinity concentrations to be evaluated, how salinity concentrations are to be adjusted, short-term exposure periods to be assessed, and how short-term exposure tests are to be conducted. The short-term toxicity threshold evaluation shall be completed and approved by the Executive Officer prior to CDP startup.

2) Salinity and Acute Toxicity Study

The discharger shall conduct a study using CDP effluent to assess salinity-related acute toxicity effects associated with long-term exposure to a range of salinity concentrations. The Discharger shall submit a study plan for the salinity and acute toxicity study no later than 180 days prior to CDP startup. At a minimum, the acute toxicity study plan shall include quarterly collection and analysis of acute toxicity samples from Discharge Location M-001 for a 24-month period. The study plan shall specify how effluent samples are to be collected, how salinity concentrations in the samples are to be adjusted, and the range of salinity concentrations to be evaluated. At a minimum the study shall assess salinity-related toxicity effects on salinity concentrations ranging from 36 to 44 ppt. Acute toxicity testing shall be performed using either a marine fish or invertebrate species in accordance with procedures established by the USEPA guidance manual, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 5th Edition, October 2002 (EPA-821-R-02-012). Depending on the results of the salinity and acute toxicity study, the Regional Board may consider modification of monitoring requirements within Monitoring and Reporting Program No. R9-2006-0065 or may consider modification of salinity requirements established in Effluent Limitation Performance Goal B.II.

d. Receiving Water Violation Assessment

In the event of violation of any receiving water requirements established within this Order, the Regional Board may require the Discharger to perform a special study to investigate nature and cause of the receiving water violation. The receiving water study shall include an evaluation of the nature of the receiving water violation, an assessment of the cause of the violation (including whether the violation resulted from the CDP or EPS effluent discharges), and shall identify compliance measures required to insure future conformance with receiving water standards. The Discharger shall submit the required study to the Regional Board within 90 days of receipt of Regional Board notification of the need to perform the receiving water study.

e. Flow, Entrainment and Impingement Minimization Plan

On March 27, 2009, the Discharger submitted a Flow, Entrainment and Impingement Minimization Plan (March 27, 2009 Minimization Plan) which was approved by the Regional Board on May 13, 2009. The approved Plan identifies the best available site, design, technology, and mitigation feasible to be used by the Discharger to minimize the intake and mortality of all forms of marine life during CDP operations when the CDP is co-located with EPS, but the CDP intake requirements exceed the volume of water being discharged by the EPS and EPS operates its seawater intake and outfall for the benefit of the CDP. The Discharger shall implement and comply with the terms of the Minimization Plan as approved by the Regional Board. In the event that the EPS permanently ceases operations, and the Discharger proposes to operate the seawater intake and outfall independently for the benefit of the CDP as a stand-alone facility, additional review to determine whether the CDP complies with Section 13142.5 (b) of the Water Code will be required.

The March 27, 2009 Minimization Plan submitted pursuant to Provision VI.C.2.e. of this Order was approved subject to the following conditions:

a. Biological Performance Standard:

The March 27, 2009 Minimization Plan is amended at p. 6-10 to establish a biological performance standard (requirement) of fish productivity (i.e., the production of new fish biomass) of 1,715.5 kilograms (kg)/year to be achieved in the wetlands mitigation site(s) created or restored through the MLMP. A new row is added at the end of section 5.4 ("Post-restoration Monitoring and Remediation") with the following language inserted in column 3 as follows:

"5.4.b. ('Biological Performance Standards') *7. Impinged Fish Productivity.* Commencing four years after construction of the wetlands has been completed, the Discharger shall demonstrate that the wetland site(s) achieve no less than 1,715.5 kg of fish productivity per year (as determined through the monitoring and accounting method set forth in section 6.5.1 of the Minimization Plan). The Executive Officer shall consider any adjustment to the biological performance standard/fish productivity standard proposed by the Discharger pursuant to section 6.5.2, and any other relevant information, in determining whether to adjust the standard of 1,715.5 kg/year for the

next permit cycle. The Discharger may seek review of the Executive Officer's determination by an appeal to the Regional Board."

b. Productivity Monitoring Plan. The March 27, 2009 Minimization Plan is amended at page 6-8 to add new section 6.5.1 that requires the Discharger to submit a proposed Productivity Monitoring Plan consistent with the Minimization Plan at section 6.2.1. as follows:

"The Discharger shall submit a Productivity Monitoring Plan (PMP) concurrently with the Wetland Restoration Plan required by Section 2.0 of the MLMP to the Scientific Advisory Panel (SAP) for review and to the Executive Officer for review and approval. The measurement of productivity shall be conducted in accordance with the methodologies used in Allen, "Seasonal Abundance, Composition, and Productivity . . . ," Fishery Bulletin, Vol. 80, No. 4 1982, pages 769-790 (set forth in Attachment 7 of the March 27, 2009 Minimization Plan). Implementation of productivity monitoring in accordance with Allen's methodology shall be for the purpose of determining productivity, defined by Allen as rate of production of biomass per unit of time (measured in grams per unit area per unit time) and shall follow, but need not be limited to, Allen's methodologies as set forth in pages 771-773 and 779-783. Monitoring shall be conducted once per month for a 13-month period beginning four years after completion of construction of the mitigation wetland site(s), and every fifth year thereafter. The Executive Officer, upon consultation with the SAP, may designate a different representative 13-month period. To the extent feasible, the 13-month period shall be coordinated to match the 12-month period set forth in 1.c.(1) below for impingement monitoring. The Discharger may propose modifications to or variations from Allen's productivity methodologies when it submits the PMP or through a subsequent proposed revision to the PMP. Any proposed revisions following initial approval of the PMP are also subject to review by the SAP and review and approval by the Executive Officer. If the Executive Officer, after consulting with the SAP, determines that the project is successful in meeting the biological productivity standard, the monitoring program may be waived.

The PMP shall describe the design and proposed implementation of the PMP, including a description of the proposed sampling timing, frequency, locations and methodology and shall describe the fish biomass available to contribute to the fish productivity requirement based on the following accounting:

a. Most Commonly Entrained Lagoon Species: Gobies, Blennies, and Garibaldi;

b. Most Commonly Entrained Ocean Species: White croaker, Spotfin croaker, Queenfish, Northern anchovy, California halibut;

c. All Other Species: All other entrained and non-entrained fish.

The biomass from Lagoon, Ocean, and Other Species shall be deemed available to contribute to the annual fish productivity requirement in the following proportions:

0% (Most Commonly Entrained Lagoon Species); 88% (Most Commonly Entrained Ocean), and 100% (All Other Species).

Available Fish Biomass (i.e., biomass available to contribute to the annual fish productivity requirement) shall be calculated as follows:

Available Fish Biomass = (88% x Biomass of Most Commonly Entrained Ocean Species) + (100% x Biomass of All Other Species)

The PMP shall explain when and how baseline productivity will be assessed and the methods and frequency for evaluating productivity. The SAP will review the proposed PMP and make recommendations on design and implementation to the Executive Officer prior to approval.

The PMP is subject to the framework established in Conditions B and C of the MLMP and to the Regional Board's corresponding authorities under Condition B for purposes of administration. The Discharger agrees to fund the SAP's work in reviewing the proposed PMP (and any later proposed revisions thereto) and subsequent review of monitoring results when consulted by the Executive Officer, up to $25,000 beyond the annual cap of $100,000 established in the MLMP."

c. Impingement Monitoring Program. The March 27, 2009 Minimization Plan is amended at page 6-8 to add new section 6.5.2 to require the Discharger to conduct impingement sampling at the EPS seawater intake and report results pursuant to an Impingement Monitoring Program (IMP) and pursuant to the additional reporting requirements established below.

(1) Compliance Schedule. Monitoring shall be conducted one day per week for 52 continuous weeks during the first 12 months after the CDP commences full operations that also occurs entirely within the next permit cycle. Thereafter, monitoring shall be conducted in the first year of each permit cycle. The Executive Officer may designate a different representative 12-month period prior to the commencement of CDP operations.

(2) Impingement Sampling. The Discharger shall sample impingement in accordance with the methodology described in Attachment 4 of the March 27, 2009 Minimization Plan (Sections 9.3 and 10.2, and Section 4.2 of Attachment C, referenced in both Sections 9.3 and 10.2) such that impingement monitoring shall be of fish and macroinvertebrates following the 2004-2005 sampling protocol, excluding the requirement for impingement sampling during heat treatment.

(3) Reporting. A report containing a detailed analysis of the fish impingement sampling data shall be submitted in hard copy and in an electronic copy in workable format (e.g. Word or Excel) to the Regional Board within 6 months after the sampling program is complete. The Discharger shall report all impingement data as follows:

(a) Impingement shall be adjusted to reflect the flow proportional approach, as described in and consistent with Proportional Approach 3-B of the March 27, 2009 Minimization Plan, unless the Regional Board determines that a different approach is appropriate and shall be used.

(b) Impingement shall not be proportionally adjusted in accordance with section c.3.(a) of this section when impingement results from a non-flow related event. Whether an event is non-flow related shall be determined by the Discharger in consultation with the Executive Officer and shall be based upon information provided by the Discharger about survey rainfall data, tide data, turbidity data, salinity data, dredge operation status and unusual conditions within the lagoon or related to the EPS/CDP plant operations.

(c) The Discharger shall report all recorded data and provide a report that presents (i) a clear presentation of fish and invertebrate impingement at the shared intake for normal (non-heat treatment) operations during the sampled year; (ii) an analysis of impingement and flow volume; (iii) an analysis of the impingement and velocity; (iv) dates on which a modified pump configuration was in operation during the year sampled, if any; and (v) any other information deemed reasonable and necessary by the Executive Officer, and reasonably available to the Discharger, upon review of the report. The Discharger shall include in the report any proposed adjustment to the biological performance standard/fish productivity standard of 1,715.5 kg/yr for the next permit cycle.

f. Within ninety days after the EPS provides written notice to the California Independent System Operator of its intent to shutdown permanently all of its generating units, the Discharger shall submit a Report of Waste Discharge to the Regional Board for authorization to operate in stand-alone mode with permanent shutdown of the EPS facility and shall seek review under California Water Code section 13142.5(b) for such stand-alone operation.

a. The conditions of Order No. R9-2006-0065, as amended by this Order, or as amended or replaced by subsequent orders, shall remain in force until the Regional Board takes final action on the Discharger's Report of Waste Discharge to operate in stand-alone mode.

g. After commencement of discharge from the CDP, the Discharger shall submit a technical report to the Regional Board Executive Officer within 45 days after the Discharger is notified by the EPS that all units at the EPS will be non-operational for power generation, without seawater intake, and unavailable to the California Independent System Operator to be called upon to produce power for a consecutive period of 180 days or more. The technical report shall include a detailed description of any feasible design or technology measures, in addition to those identified in the March 27, 2009 Minimization Plan for

temporary shut down, that Poseidon will use to minimize the intake and mortality of all forms of marine life while EPS is in a period of prolonged temporary shutdown. Upon approval by the Executive Officer, Poseidon shall implement the additional minimization measures in accordance with the technical report as soon as practicable and for the duration of the prolonged temporary shutdown.

3. Best Management Practices Plan and Pollution Prevention

The Discharger shall develop and implement a best management practices (BMP) plan no later than 180 days prior to startup of the CDP. The BMP plan shall entail site-specific plans, procedures, and practices implemented and/or to be implemented to prevent or minimize, the potential for, release of significant amounts of toxic or hazardous pollutants to waters of the State through normal operations and ancillary activities. The BMP plan shall be developed consistent with the guidance contained in the USEPA *Guidance Manual for Developing Best Management Practices (BMPs)* (EPA 833-B-93-004).

The Discharger shall review all facility components or systems (including material storage areas; plant site-runoff, in-plant transfer, process and material handling areas, loading and unloading operations, spillage or leaks, and sludge 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 State. Whenever, the potential for a significant release of hazardous wastes or pollutants to waters of the State is determined to be present, the Discharger shall identify BMPs that have been established to minimize potential releases. Where BMPs are inadequate or absent, appropriate BMPs shall be established.

The BMP plan shall be reviewed on an annual basis, and updated whenever changes at the facility materially increase the potential for discharge of significant amounts of toxic or hazardous pollutants to waters of the State.

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in Section IV of this Order will be determined as specified below:

A. **Compliance with Average Monthly Effluent Limitation (AMEL).**

The Discharger shall determine the average monthly effluent value (AMEV) for a given parameter by calculating the arithmetic average of all daily effluent values (DEVs) for each parameter within each calendar month. The AMEV calculation for a given calendar month shall not include DEVs from any other calendar month. If only a single DEV is obtained for a parameter during a calendar month, that DEV shall be considered the AMEV for that parameter for that calendar month. The AMEV shall be attributed to each day of the calendar month for determination of compliance with the Average Monthly Effluent Limitation (AMEL) for a given

parameter for each day of that given calendar month. The AMEV cannot be determined for any calendar month during which no DEV is obtained.

B. **Compliance with Average Weekly Effluent Limitation (AWEL).**

The Discharger shall determine the average weekly effluent value (AWEV) for a given parameter by calculating the arithmetic average of all daily effluent values (DEVs) for each parameter within each calendar week (Sunday through Saturday). The AWEV calculation for a given calendar week shall not include DEVs from any other calendar week. If only a single DEV is obtained for a parameter during a calendar week, that DEV shall be considered the AWEV for that parameter for that calendar week. The AWEV shall be attributed to each day of the calendar week for determination of compliance with the Average Weekly Effluent Limitation (AWEL) for a given parameter for each day of that given calendar week. The AWEV cannot be determined for any calendar week during which no DEV is obtained.

C. **Compliance with Maximum Daily Effluent Limitation (MDEL).**

The Discharger shall determine the daily effluent value (DEV) for a given parameter from the results of a flow-weighted 24-hour composite sample collected during a calendar day (12:00 am through 11:59 pm) or any continuous 24-hour period that ends on and reasonably represents a given calendar day for purposes of sampling. Upon approval by the Regional Board, the Discharger may also determine the DEV for a given parameter from the arithmetic mean of results from one or more flow-weighted grab samples taken over the course of one calendar day or a 24-hour period that ends on and reasonably represents the calendar day. The DEV shall not include results from any sample outside of the 24-hour period that represents the calendar day. The DEV shall be used for determination of compliance with the Maximum Daily Effluent Limit (MDEL) for a given parameter for that given calendar day. For any calendar day during which a 24-hour flow-weighted composite sample, or flow-weighted grab samples in lieu of a 24-hour composite sample, are not obtained, a DEV cannot be determined for that calendar day.

D. **Compliance with Instantaneous Minimum Effluent Limitation.**

The Discharger shall determine the instantaneous effluent value (IEV) for a given parameter from the results of any grab sample. The IEV for a given grab sample shall not include IEVs from any other grab sample. An IEV shall be used for determination of compliance with the Instantaneous Minimum Effluent Limitation for a given parameter for each grab sample.

E. **Compliance with Instantaneous Maximum Effluent Limitation.**

The Discharger shall determine the instantaneous effluent value (IEV) for a given parameter from the results of any grab sample. The IEV for a given grab sample shall not include IEVs from any other grab sample. An IEV shall be used for determination of compliance with the Instantaneous Maximum Effluent Limitation for a given parameter for each grab sample.

F. **Compliance with Six-month Median Effluent Limitation.**

The Discharger shall determine the six-month median effluent value (SMEV) for a given parameter by calculating the statistical median of all daily effluent values (DEVs) for each parameter within each six-month calendar period (January-June and July-December). The SMEV determination for a given six-month calendar period shall not include DEVs from any other six-month calendar period. If only a single DEV is obtained for a parameter during a six-month calendar period, that DEV shall be considered the SMEV for that parameter for that given six-month calendar period. The SMEV determined shall be attributed to each day of the six-month calendar period for determination of compliance with the six-month median effluent limitation (SMEL) for a given parameter for that given six-month calendar period. For any six-month calendar period during which no DEV is obtained, the SMEV cannot be determined for that six-month calendar period.

G. **Ocean Plan Provisions for Table B Constituents.**

1. Compliance Determination

Sufficient sampling and analysis shall be required to determine compliance with the effluent limitation.

a. Compliance with Single-Constituent Effluent Limitations

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

b. Compliance with Effluent Limitations expressed as a Sum of Several Constituents

Dischargers are out of compliance with an effluent limitation that applies to the sum of a group of chemicals (e.g., PCB's) 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.

c. 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 shall be 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 will be the lower of the two middle values.

2. Pollutant Minimization Program

   a. Pollutant Minimization Program Goal

      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, in order 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 California Water Code Section 13263.3 (d) will fulfill the Pollution Minimization Program requirements in this section.

   b. Determining the need for a Pollutant Minimization Program

      1) The Discharger must develop and conduct a Pollutant Minimization Program if all of the following conditions are true:

         (a) The calculated effluent limitation is less than the reported ML.

         (b) The concentration of the pollutant is reported as DNQ.

         (c) There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation.

      2) Alternatively, the Discharger must develop and conduct a Pollutant Minimization Program if all of the following conditions are true:

         (a) The calculated effluent limitation is less than the Method Detection Limit.

         (b) The concentration of the pollutant is reported as ND.

         (c) There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation.

   c. Regional Water Board may include special provisions in the discharge requirements to require the gathering of evidence to determine whether the pollutant is present in the effluent at levels above the calculated effluent limitation. Examples of evidence may include:

      1) Health advisories for fish consumption,
      2) Presence of whole effluent toxicity,
      3) Results of benthic or aquatic organism tissue sampling,

4) Sample results from analytical methods more sensitive than methods included in the permit.

5) The concentration of the pollutant is reported as DNQ and the effluent limitation is less than the MDL

d. Elements of a Pollutant Minimization Program

The Regional Board may consider cost-effectiveness when establishing the requirements of a Pollutant Minimization Program. The program shall include actions and submittals acceptable to the Regional Board including, but not limited to, the following:

1) An annual review and semi-annual monitoring of potential sources of the reportable pollutant, which may include fish tissue monitoring and other biouptake sampling;

2) Quarterly monitoring for the reportable pollutant in the influent to the wastewater treatment system;

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

4) Implementation of appropriate cost-effective control measures for the pollutant, consistent with the control strategy; and,

5) An annual status report that shall be sent to the Regional Board including:

(a) All Pollutant Minimization Program monitoring results for the previous year;

(b) A list of potential sources of the reportable pollutant;

(c) A summary of all action taken in accordance with the control strategy; and,

(d) A description of actions to be taken in the following year.

H. **Receiving Water Sampling Protocol.**
The instantaneous maximum and daily maximum receiving water limitations shall apply to grab sample determinations.

I. **Acute Toxicity**.

1. Evaluation with the acute toxicity performance goal for Discharge Point No. 001 (Section IV.B.2 of this Order) shall be determined using an established protocol, e.g., American Society for Testing Materials (ASTM), USEPA, American Public Health Association, or State Board. Acute toxicity shall be expressed in Toxic Units Acute (TU_a), where:

$TU_a = 100 / 96\text{-hr LC50}$

Where LC50 is the Lethal Concentration 50%, and the percent waste giving 50% survival of test organisms. LC50 shall be determined by static or continuous flow bioassay techniques

using standard test species. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC50 may be determined after the test samples are adjusted to remove the influence of those substances.

2. When it is not possible to measure the 96-hour LC50 due to greater than 50% survival of the test species in 100% waste, the toxicity concentration shall be calculated by the following:

$$TU_a = \log (100-S) / 1.7$$

where S is the percentage survival in 100% waste. If S > 99, TU_a shall be reported as zero.

3. In addition, when there is greater than 50% survival of the test species in 100% waste, the percentage survival in 100% waste sample shall be statistically compared to the percentage survival in the test control sample, and the acute toxicity result shall also be reported as follows:

   1) "Pass" when the percentage survival in 100% waste is not statistically different from the percentage survival in the test control sample.

   2) "Fail" when the percentage survival in 100% waste is less than and statistically different from the percentage survival in the test control sample.

J. **Chronic Toxicity**.

Chronic toxicity is used to measure the acceptability of waters for supporting a healthy marine biota until approved methods are developed to evaluate biological response. Potential to exceed the chronic toxicity effluent limitation established in Section IV.B.1 of this Order for Discharge Point No. 001 shall be determined using critical life stage toxicity tests in accordance with procedures prescribed by the Ocean Plan and restated in MRP No. R9-2006-0065. Chronic Toxicity (TU_c) shall be expressed as Toxic Units Chronic (TU_c), where:

$$TU_c = 100 / NOEL$$

where NOEL is the No Observed Effect Level and is expressed as the maximum percent of effluent that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test.

If the toxicity testing result shows an exceedance of the chronic toxicity effluent limitation for Discharge Point 001 specified in Section IV.B.1 of this Order, the Discharger shall:

1. Take all reasonable measures necessary to immediately minimize toxicity; and

2. Increase the frequency of the toxicity test(s) that showed a violation to at least weekly for a minimum of 6-weeks and until the results of at least two consecutive toxicity tests do not show violations.

The additional weekly toxicity tests will be incorporated into the monthly discharge monitoring report within one month after the completion of the accelerated monitoring and submitted to the Regional Water Board pursuant to Attachment E – Monitoring and Reporting Program.

If the additional weekly tests indicate that toxicity effluent limitations are being consistently violated (at least three exceedances out of the six tests), the Discharger shall conduct a Toxicity Reduction Evaluation (TRE) and a Toxic Identification Evaluation (TIE), as identified in the approved TRE workplan as required in Section VI.C.2.b of this Order.

Within 30 days of completion of the TRE/TIE, the Discharger shall submit the results of the TRE/TIE, including a summary of the findings, data generated, a list of corrective actions necessary to achieve consistent compliance with all the toxicity limitation of this Order and prevent recurrence of violations of those limitation, and a time schedule for implementation of such corrective actions. The corrective actions and time schedule shall be modified at the direction of the Executive Officer.

K. **Single Operational Upset.**

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

1. A single operational upset 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 violation of multiple pollutant parameters.

2. A Discharger may assert SOU to limit liability only for those violations which the Discharger submitted notice of the upset as required in Attachment D Standard Provisions – Reporting V.E.2.b.

3. For purposes outside of CWC Section 13385 (h) and (i), determination of compliance and civil liability (including any more specific definition of SOU, the requirements for Dischargers to assert the SOU limitation of liability, and the manner of counting violations) shall be in accordance with the USEPA Memorandum "Issuance of Guidance Interpreting Single Operational Upset" (September 27, 1989).

4. For purposes of CWC Section 13385 (h) and (i), determination of compliance and civil liability (including any more specific definition of SOU, the requirements for Dischargers to assert the SOU limitation of liability, and the manner of counting violations) shall be in accordance with CWC Section 13385 (f)(2).

ATTACHMENT A – DEFINITIONS AND ACRONYMS

Anti-Backsliding. Provisions in the Clean Water Act and U.S. EPA regulations [CWA 303 (d) (4); CWA 402 (o); CFR 122.44 (l)] that require a reissued permit to be as stringent as the previous permit with some exceptions.

Antidegradation. Policies which ensure protection of water quality for a particular water 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. Antidegradation plans are adopted by the State to minimize adverse effects on water.

Applicable Standards and Limitations means all State, interstate, and federal standards and limitations to which a discharge, a sewage sludge [biosolids] use or disposal practice, or a related activity is subject under the CWA, including effluent limitations, water quality standards, standards of performance, toxic effluent standards or prohibitions, best management practices, pretreatment standards, and standards for sewage sludge [biosolids] use or disposal under sections 301, 302, 303, 304, 306, 307, 308, 403 and 405 of CWA.

Areas of Special Biological Significance (ASBS) are those areas designated by the State Water Board as requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable.

Average Monthly Effluent Limitation (AMEL): 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 (AWEL): 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 of the waters of the State that may be protected against quality degradation 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.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge [biosolids] or waste disposal, or drainage from raw material storage.

Best Professional Judgment (BPJ). The method used by permit writers to develop technology-based NPDES permit conditions on a case-by-case basis using all reasonably available and relevant data.

Bioaccumulative pollutants are those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Bioassay. A test used to evaluate the relative potency of a chemical or a mixture of chemicals by comparing its effect on a living organism with the effect of a standard preparation on the same type of organism.

Biochemical Oxygen Demand (BOD). A measurement of the amount of oxygen utilized by the decomposition of organic material, over a specified time period (usually 5 days) in a wastewater sample; it is used as a measurement of the readily decomposable organic content of a wastewater.

Biosolids. Sewage sludge that is used or disposed through land application, surface disposal, incineration, or disposal in a municipal solid waste landfill. Sewage sludge is defined as solid, semi-solid, or liquid untreated residue generated during the treatment of domestic sewage in a treatment facility.

Bypass. The intentional diversion of wastestreams from any portion of a treatment (or pretreatment) facility.

Carbonaceous Biochemical Oxygen Demand (CBOD). The measurement of oxygen required for carbonaceous oxidation of a nonspecific mixture of organic compounds. Interference caused by nitrifying bacteria in the standard 5-day BOD test is eliminated by suppressing the nitrification reaction.

Composite Sample. Sample composed of two or more discrete samples of at least 100 milliliters collected at periodic intervals during the operating hours of a facility over a 24-hour period. The aggregate sample will reflect the average water quality covering the compositing or sample period. For volatile pollutants, aliquots must be combined in the laboratory immediately before analysis. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.

Conventional Pollutants. Pollutants for which municipal secondary treatment plants are typically designed; defined at 40 CFR 401.16 as BOD, TSS, fecal coliform bacteria, oil and grease, and pH.

Degrade (Degradation). Degradation shall 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.

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Dilution Ratio is the critical low flow of the upstream receiving water divided by the flow of the effluent discharged.

Discharge when used without qualification means the discharge of a pollutant. Discharge of a pollutant means:

1. Any addition of any pollutant or combination of pollutants to waters of the United States from any point source, or

2. Any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft that is being used as a means of transportation.

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a state, municipality, or other person which do not lead to a treatment works. This term does not include an addition of pollutants by any indirect Discharger.

Discharge Monitoring Report (DMR) means the U.S. EPA uniform form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by approved states as well as by U.S. EPA. The U.S. EPA will supply DMRs to any approved state upon request. The U.S. EPA national forms may be modified to substitute the state agency name, address, logo, and other similar information, as appropriate, in place of U.S. EPA's.

Effluent Limitation means any restriction imposed by an Order on quantities, discharge rates, and concentrations of pollutants that are discharged from point sources into waters of the United States, the waters of the contiguous zone, or the ocean.

Grab Sample. An individual sample of at least 100 milliliters collected at a randomly selected time over a period not exceeding 15 minutes. The sample is taken from a waste stream on a one-time basis without consideration of the flow rate of the waste stream and without consideration of time of day.

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).

Maximum Daily Effluent Limitation (MDEL): the highest allowable daily discharge of a pollutant.

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero.

Minimum Level (ML) is 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.

Sanitary Sewer. A pipe or conduit (sewer) intended to carry wastewater or water-borne wastes from homes, businesses, and industries to the POTW.

Sanitary Sewer Overflows (SSO). Untreated or partially treated sewage overflows from a sanitary sewer collection system.

Secondary Treatment Standards. Technology-based requirements for direct discharging municipal sewage treatment facilities. Standards are based on a combination of physical and biological processes typical for the treatment of pollutants in municipal sewage. Standards are expressed as a minimum level of effluent quality in terms of: BOD_5, total suspended solids (TSS), and pH (except as provided for special considerations and treatment equivalent to secondary treatment).

Self-Monitoring Report (SMR). Any of the periodic monitoring reports required to be submitted by the Discharger to the Regional Board to report the results of monitoring conducted by the Discharger as required in Attachment E – Monitoring and Reporting Program.

Six-month Median Effluent Limitation: the highest allowable median of all daily discharges, based on 24-hour flow-weighted composite samples, for any 180-day period.

Surface Waters include navigable waters, rivers, streams (including ephemeral streams), lakes, playa lakes, natural ponds, bays, the Pacific Ocean, lagoons, estuaries, man-made canals, ditches, dry arroyos, mudflats, sandflats, wet meadows, wetlands, swamps, marshes, sloughs and water courses, and storm drains tributary to surface waters. Surface Waters include waters of the United States as used in the federal Clean Water Act (see 40 CFR 122.2).

Technology-Based Effluent Limit. A permit limit for a pollutant that is based on the capability of a treatment method to reduce the pollutant to a certain concentration.

Toxic Pollutant. Pollutants or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the Administrator of U.S. EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions, (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring. Toxic pollutants also include those pollutants listed by the Administrator under CWA Section 307 (a) (1) or any pollutant listed under Section 405 (d) which relates to sludge [biosolids] management.

Toxicity Reduction Evaluation (TRE). A site-specific study conducted in a stepwise process designed to identify the causative agent(s) of effluent toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in effluent toxicity.

Upset is defined as (a) An unusual event that temporarily disrupts the usually satisfactory operation of a system. This definition constitutes the plain meaning or broad definition of the term "upset." (b) An event more narrowly defined at 40 CFR 122.41 (n)(1) and which belongs to a subset of events that fit the definition of the term "upset" provided in (a).

Water Quality Control Plan consists of a designation or establishment for the waters within a specified area of all of the following:

1. Beneficial uses to be protected.
2. Water quality objectives.
3. A program of implementation needed for achieving water quality objectives.

Water Quality Objectives means the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.

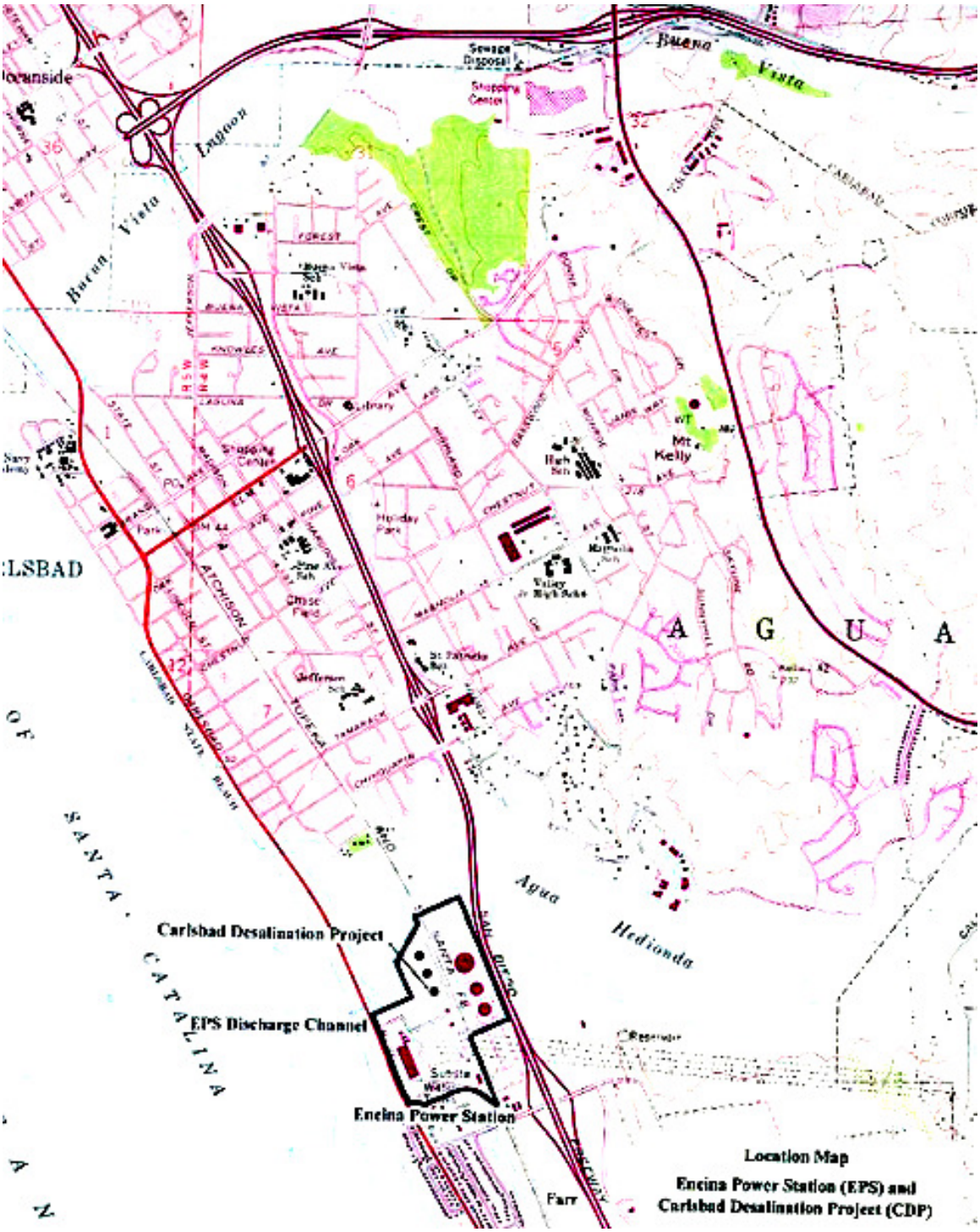
Whole Effluent Toxicity (WET). The total toxic effect of an effluent measured directly with a toxicity test.

ACRONYMS AND ABBREVIATIONS

AMEL	Average Monthly Effluent Limitation
B	Background Concentration
BAT	Best Available Technology Economically Achievable
Basin Plan	*Water Quality Control Plan for the San Diego Basin*
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BMPPP	Best Management Practices Plan
BPJ	Best Professional Judgment
BOD	Biochemical Oxygen Demand 5-day @ 20 °C
BPT	Best Practicable Treatment Control Technology
C	Water Quality Objective
CCR	California Code of Regulations
CDP	Carlsbad Seawater Desalination Project
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CTR	California Toxics Rule
CV	Coefficient of Variation
CWA	Clean Water Act
CWC	California Water Code
Discharger	~~Poseidon Resources Corporation~~ **Poseidon Resources (Channelside) LLC**
DMR	Discharge Monitoring Report
DNQ	Detected But Not Quantified
ELAP	California Department of Health Services Environmental Laboratory Accreditation Program
ELG	Effluent Limitations, Guidelines and Standards
Facility	Carlsbad Desalination Project
gpd	gallons per day
IC	Inhibition Coefficient
IC_{15}	Concentration at which the organism is 15% inhibited
IC_{25}	Concentration at which the organism is 25% inhibited
IC_{40}	Concentration at which the organism is 40% inhibited
IC_{50}	Concentration at which the organism is 50% inhibited
LA	Load Allocations
LOEC	Lowest Observed Effect Concentration
µg/L	micrograms per Liter
mg/L	milligrams per Liter
MDEL	Maximum Daily Effluent Limitation
MEC	Maximum Effluent Concentration
MGD	Million Gallons Per Day
ML	Minimum Level
MLLW	Mean Lower Low Water
MRP	Monitoring and Reporting Program
ND	Not Detected
NOEC	No Observable Effect Concentration

NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
NTR	National Toxics Rule
OAL	Office of Administrative Law
PMEL	Proposed Maximum Daily Effluent Limitation
PMP	Pollutant Minimization Plan
POTW	Publicly Owned Treatment Works
ppt	parts per thousand
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
Ocean Plan	*Water Quality Control Plan for Ocean Waters of California*
Regional Water Board	California Regional Water Quality Control Board, San Diego Region
RPA	Reasonable Potential Analysis
SCP	Spill Contingency Plan
SDG&E	San Diego Gas and Electric
SIP	State Implementation Policy (*Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California)*
SMR	Self Monitoring Reports
State Water Board	California State Water Resources Control Board
SWPPP	Storm Water Pollution Prevention Plan
TAC	Test Acceptability Criteria
Thermal Plan	*Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California*
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TRE	Toxicity Reduction Evaluation
TSD	Technical Support Document
TSS	Total Suspended Solid
TU_c	Chronic Toxicity Unit
USEPA	United States Environmental Protection Agency
WDR	Waste Discharge Requirements
WET	Whole Effluent Toxicity
WLA	Waste Load Allocations
WQBELs	Water Quality-Based Effluent Limitations
WQS	Water Quality Standards
%	Percent

ATTACHMENT B – MAP



ATTACHMENT C – FLOW SCHEMATIC

At the time of the drafting of this permit, the treatment technology to be used by the facility had not been determined. The permit requires the Discharger to submit a flow schematic 90 days prior to the discharge of wastewater authorized under this permit. A copy of the flow schematic will be retained in the facility file at the Regional Water Board office and made available for public review.

ATTACHMENT D – FEDERAL STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or denial of a permit renewal application [*40 CFR §122.41(a)*].

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not been modified to incorporate the requirement [*40 CFR §122.41(a)(1)*].

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in 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 §122.41(c)*].

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment [*40 CFR §122.41(d)*].

D. Proper Operation and Maintenance

The Discharger shall 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 a Discharger only when necessary to achieve compliance with the conditions of this Order [*40 CFR §122.41(e)*].

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges [*40 CFR §122.41(g)*].

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 §122.5(c)*].

F. Inspection and Entry

The Discharger shall allow the Regional Water Quality Control Board (RWQCB), State Water Resources Control Board (SWRCB), 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 [*40 CFR §122.41(i)*] [*CWC 13383(c)*]:

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 [*40 CFR §122.41(i)(1)*];

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order [*40 CFR §122.41(i)(2)*];

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order [*40 CFR §122.41(i)(3)*];

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location [*40 CFR §122.41(i)(4)*].

G. Bypass

1. Definitions

   a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility [*40 CFR §122.41(m)(1)(i)*].

   b. "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 §122.41(m)(1)(ii)*].

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 I.G.3 and I.G.5 below [*40 CFR §122.41(m)(2)*].

3. Prohibition of bypass – Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless [*40 CFR §122.41(m)(4)(i)*]:

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage [*40 CFR §122.41(m)(4)(A)*];

   b. 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 §122.41(m)(4)(B)*]; and

   c. The Discharger submitted notice to the Regional Water Board as required under Standard Provision – Permit Compliance I.G.5 below [*40 CFR §122.41(m)(4)(C)*].

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above [*40 CFR §122.41(m)(4)(ii)*].

5. Notice

   a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass [*40 CFR §122.41(m)(3)(i)*].

   b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below [*40 CFR §122.41(m)(3)(ii)*].

H. 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 permittee. 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 §122.41(n)(1)*].

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 paragraph H.2 of this section 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 §122.41(n)(2)*].

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that [*40 CFR §122.41(n)(3)*]:

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset [*40 CFR §122.41(n)(3)(i)*];

   b. The permitted facility was, at the time, being properly operated [*40 CFR §122.41(n)(3)(i)*];

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b [*40 CFR §122.41(n)(3)(iii)*]; and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above [*40 CFR §122.41(n)(3)(iv)*].

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof [*40 CFR §122.41(n)(4)*].

II. STANDARD PROVISIONS – PERMIT ACTION

A. 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 §122.41(f)*].

B. Duty to Reapply

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

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional 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 CWA and the CWC [*40 CFR §122.41(l)(3)*] [*40 CFR §122.61*].

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity [*40 CFR §122.41(j)(1)*].

B. Monitoring results must be conducted according to test procedures under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order [*40 CFR §122.41(j)(4)*] [*40 CFR §122.44(i)(1)(iv)*].

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the Discharger shall 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 Regional Water Board Executive Officer at any time [*40 CFR §122.41(j)(2)*].

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements [*40 CFR §122.41(j)(3)(i)*];
2. The individual(s) who performed the sampling or measurements [*40 CFR §122.41(j)(3)(ii)*];
3. The date(s) analyses were performed [*40 CFR §122.41(j)(3)(iii)*];
4. The individual(s) who performed the analyses [*40 CFR §122.41(j)(3)(iv)*];
5. The analytical techniques or methods used [*40 CFR §122.41(j)(3)(v)*]; and
6. The results of such analyses [*40 CFR §122.41(j)(3)(vi)*].

C. Claims of confidentiality for the following information will be denied [*40 CFR §122.7(b)*]:

1. The name and address of any permit applicant or Discharger [*40 CFR §122.7(b)(1)*]; and
2. Permit applications and attachments, permits and effluent data [*40 CFR §122.7(b)(2)*].

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, SWRCB, or USEPA within a reasonable time, any information which the Regional Water Board, SWRCB, 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 shall also

furnish to the Regional Water Board, SWRCB, or USEPA copies of records required to be kept by this Order [*40 CFR §122.41(h)*] [*CWC 13267*].

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, SWRCB, and/or USEPA shall be signed and certified in accordance with paragraph (2.) and (3.) of this provision [*40 CFR §122.41(k)*].

2. All permit applications shall be signed as follows:

   a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures [*40 CFR §122.22(a)(1)*];

   b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively [*40 CFR §122.22(a)(2)*]; or

   c. For a municipality, State, federal, or other public agency: 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 §122.22(a)(3)*].

3. All reports required by this Order and other information requested by the Regional Water Board, SWRCB, or USEPA shall be signed by a person described in paragraph (b) of this provision, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in paragraph (2.) of this provision [*40 CFR §122.22(b)(1)*];

   b. The authorization specified 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 §122.22(b)(2)*]; and

c. The written authorization is submitted to the Regional Water Board, SWRCB, or USEPA [*40 CFR §122.22(b)(3)*].

4. If an authorization under paragraph (3.) of this provision 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 paragraph (3.) of this provision must be submitted to the Regional Water Board, SWRCB or USEPA prior to or together with any reports, information, or applications, to be signed by an authorized representative [40 CFR §122.22(c)].

5. Any person signing a document under paragraph (2.) or (3.) of this provision shall 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 §122.22(d)*].

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program in this Order [*40 CFR §122.41(l)(4)*].

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or SWRCB for reporting results of monitoring of sludge use or disposal practices [*40 CFR §122.41(l)(4)(i)*].

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board [*40 CFR §122.41(l)(4)(ii)*].

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order [*40 CFR §122.41(l)(4)(iii)*].

D. 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, shall be submitted no later than 14 days following each schedule date [*40 CFR §122.41(l)(5)*].

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall 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 [*40 CFR §122.41(l)(6)(i)*].

2. The following shall be included as information that must be reported within 24 hours under this paragraph [*40 CFR §122.41(l)(6)(ii)*]:

    a. Any unanticipated bypass that exceeds any effluent limitation in this Order [*40 CFR §122.41(l)(6)(ii)(A)*].

    b. Any upset that exceeds any effluent limitation in this Order [*40 CFR §122.41(l)(6)(ii)(B)*].

    c. Violation of a maximum daily discharge limitation for any of the pollutants listed in this Order to be reported within 24 hours [*40 CFR §122.41(l)(6)(ii)(C)*].

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours [*40 CFR §122.41(l)(6)(iii)*].

F. Planned Changes

The Discharger shall give notice to the Regional 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 §122.41(l)(1)*]:

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 §122.29(b) [*40 CFR §122.41(l)(1)(i)*]; or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in this Order nor to notification requirements under 40 CFR Part

122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1) [*40 CFR §122.41(l)(1)(ii)*].

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan [*40 CFR §122.41(l)(1)(iii)*].

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or SWRCB of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements [*40 CFR §122.41(l)(2)]*.

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting E.3, E.4, and E.5 at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E [*40 CFR §122.41(l)(7)*].

I. 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 Regional Water Board, SWRCB, or USEPA, the Discharger shall promptly submit such facts or information [*40 CFR §122.41(l)(8)*].

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The CWA provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The CWA provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000

per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the Clean Water Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions [*40 CFR §122.41(a)(2)*] [*CWC 13385 and 13387*].

B. Any person may be assessed an administrative penalty by the Regional Water Board for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000 [*40 CFR §122.41(a)(3)*].

C. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both [*40 CFR §122.41(j)(5)*].

D. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both [*40 CFR §122.41(k)(2)*].

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the Regional Water Board as soon as they know or have reason to believe [*40 CFR §122.42(a)*]:

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" [*40 CFR §122.42(a)(1)*]:

   a. 100 micrograms per liter (µg/L) [*40 CFR §122.42(a)(1)(i)*];

   b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony [*40 CFR §122.42(a)(1)(ii)*];

   c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [*40 CFR §122.42(a)(1)(iii)*]; or

   d. The level established by the Regional Water Board in accordance with 40 CFR §122.44(f) [*40 CFR §122.42(a)(1)(iv)*].

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following “notification levels" [*40 CFR §122.42(a)(2)*]:

   a. 500 micrograms per liter (µg/L) [*40 CFR §122.42(a)(2)(i)*];

   b. 1 milligram per liter (mg/L) for antimony [*40 CFR §122.42(a)(2)(ii)*];

   c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [*40 CFR §122.42(a)(2)(iii)*]; or

   d. The level established by the Regional Water Board in accordance with 40 CFR §122.44(f) [*40 CFR §122.42(a)(2)(iv)*].

B. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following [*40 CFR §122.42(b)*]:

1. Any new introduction of pollutants into the POTW from an indirect Discharger that would be subject to Sections 301 or 306 of the CWA if it were directly discharging those pollutants [*40 CFR §122.42(b)(1)*]; and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order [*40 CFR §122.42(b)(2)*].

Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW [*40 CFR §122.42(b)(3)*].

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The federal regulations at 40 CFR 122.48 requires that all NPDES permits specify monitoring and reporting requirements. CWC sections 13267 and 13383 also authorize the Regional Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring points specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Regional Water Board. Samples shall be collected at times representative of "worst case" conditions with respect to compliance with the requirements of Order No. R9-2006-0065.

B. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to ensure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall 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.

C. Monitoring must be conducted according to 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 unless other test procedures are specified in Order No. R9-2006-0065 and/or in this MRP and/or by the Regional Water Board.

D. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services or a laboratory approved by the Regional Water Board.

E. Records of monitoring information shall include information required under Standard Provision, Attachment D, Section IV.

F. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year, or more frequently, to ensure continued accuracy of the devices.

G. The Discharger shall have, and implement, an acceptable written quality assurance (QA) plan for laboratory analyses. Duplicate chemical analyses must be conducted on a minimum of ten percent of the samples or at least one sample per month, whichever is greater. A similar frequency shall be maintained for analyzing spiked samples. When requested by USEPA or the Regional Water Board, the Discharger will participate in the NPDES discharge monitoring report

QA performance study. The Discharger should have a success rate equal or greater than 80 percent.

H. Analysis for toxic pollutants, including chronic toxicity, or effluent limitations and performance goals based on water quality objectives of the California Ocean Plan shall be conducted in accordance with procedures described in the Ocean Plan and restated in this MRP.

I. This permit may be modified in accordance with the requirements set forth at 40 CFR Parts 122 and 124, to include appropriate conditions or limits to address demonstrated effluent toxicity based on newly available information, or to implement any USEPA approved, new, state water quality standards applicable to effluent toxicity.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, performance goals, discharge specifications, and other requirements in this Order:

Table 1. Influent and Effluent Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
	M-INF	At a location up stream of all in-plant return flows where a representative influent sample can be obtained.
001	M-001	At a location down stream of all contributing flows to the CDP effluent, prior to combining with EPS effluent.
	M-002	At the EPS final effluent pond that contains combined CDP and EPS effluent prior to discharge to the ocean via the EPS discharge channel.

Table 2. Receiving Water Monitoring Stations

Monitoring Location Name	Monitoring Location Description	Depth (ft)
A-00	7,000 feet upcoast (northerly) of the discharge channel in the surf zone	Surface
A-10	7,000 feet upcoast (northerly) of the discharge channel in the surf zone	10 feet (at mean lower low water, or MLLW)
A-20	7,000 feet upcoast (northerly) of the discharge channel in the surf zone	20 feet (MLLW)
A-30	7,000 feet upcoast (northerly) of the discharge channel in the surf zone	30 feet (MLLW)
A-40	7,000 feet upcoast (northerly) of the discharge channel, 3,400 ft. offshore	Surface
C-10	1,000 feet upcoast (northerly) of the discharge channel, 521 ft. offshore	Surface
C-20	1,000 feet upcoast (northerly) of the discharge channel, 956 ft. offshore	Surface

Monitoring Location Name	Monitoring Location Description	Depth (ft)
C-30	1,000 feet upcoast (northerly) of the discharge channel, 2,000 ft. offshore	Surface
D-10	Normal to the discharge channel, 565 ft. offshore	Surface
D-20	Normal to the discharge channel, 1,129 ft. offshore	Surface
D-30	Normal to the discharge channel, 1,600 ft. offshore	Surface
D-50	Normal to the discharge channel, 2,800 ft. offshore	Surface
E-10	1,000 feet downcoast (southerly) of the discharge channel, 652 ft. offshore	Surface
E-20	1,000 feet downcoast (southerly) of the discharge channel, 1,086 ft. offshore	Surface
E-30	1,000 feet downcoast (southerly) of the discharge channel, 2,000 ft. offshore	Surface

CORE MONITORING

III. INFLUENT MONITORING REQUIREMENTS

Monitoring Location M-INF

The Discharger shall monitor influent at M-INF, as follows:

Table 3. Influent Monitoring M-INF

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Recorder / Totalizer	Continuous
Temperature	°F	Grab	Weekly
Total dissolved solids (Salinity)	ppt	Grab	Weekly

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location M-001

The Discharger shall monitor CDP effluent at Monitoring Location M-001 as follows:

Table 4. Effluent Monitoring M-001

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Recorder / Totalizer	Continuous[1]
Oil and Grease	mg/L	Grab	Weekly[15]
Settleable Solids	ml/L	Grab	Weekly[15]
Turbidity	NTU	Grab	Weekly[15]
TSS	mg/L	Grab	Weekly[15]

Parameter	Units	Sample Type	Minimum Sampling Frequency
pH	Units	Grab	Weekly[15]
Temperature	°F	Grab	Weekly[15]
Salinity	ppt	Grab	Weekly[15]
Arsenic	µg/L	Grab	Quarterly
Cadmium	µg/L	Grab	Quarterly
Chromium (VI)	µg/L	Grab	Quarterly
Copper	µg/L	Grab	Quarterly
Lead	µg/L	Grab	Quarterly
Mercury	µg/L	Grab	Quarterly
Nickel	µg/L	Grab	Quarterly
Selenium	µg/L	Grab	Quarterly
Silver	µg/L	Grab	Quarterly
Zinc	µg/L	Grab	Quarterly
Cyanide [2]	µg/L	Grab	Quarterly
Ammonia	mg/L	Grab	Quarterly
Non-Chlorinated Phenolic Compounds [3]	µg/L	Grab	Quarterly
Chlorinated Phenolics [4]	µg/L	Grab	Quarterly
Endosulfan [5]	µg/L	Grab	Quarterly
Endrin	µg/L	Grab	Quarterly
HCH [6]	µg/L	Grab	Quarterly
Radioactivity [7]	pCi/L	Grab	Quarterly
Acrolein	µg/L	Grab	Quarterly
Antimony	µg/L	Grab	Quarterly
Bis (2-Chloroethoxy) Methane	µg/L	Grab	Quarterly
Bis (2-Chloroisopropyl) Ether	µg/L	Grab	Quarterly
Chlorobenzene	µg/L	Grab	Quarterly
Chromium (Trivalent)	µg/L	Grab	Quarterly
Di-N-Butyl Phthalate	µg/L	Grab	Quarterly
Dichlorobenzenes [8]	µg/L	Grab	Quarterly
Diethyl Phthalate	µg/L	Grab	Quarterly
Dimethyl Phthalate	µg/L	Grab	Quarterly
4,6-Dinitro-2-Methylphenol	µg/L	Grab	Quarterly
2,4-Dinitrophenol	µg/L	Grab	Quarterly
Ethylbenzene	µg/L	Grab	Quarterly
Fluoranthene	µg/L	Grab	Quarterly
Hexachlorocyclopentadiene	µg/L	Grab	Quarterly
Nitrobenzene	µg/L	Grab	Quarterly
Thallium	µg/L	Grab	Quarterly
Toluene	µg/L	Grab	Quarterly
1,1,1-Trichloroethane	µg/L	Grab	Quarterly
Tributyltin	µg/L	Grab	Quarterly

Parameter	Units	Sample Type	Minimum Sampling Frequency
Acrylonitrile	µg/L	Grab	Quarterly
Aldrin	µg/L	Grab	Quarterly
Benzene	µg/L	Grab	Quarterly
Benzidine	µg/L	Grab	Quarterly
Beryllium	µg/L	Grab	Quarterly
Bis (2-Chloroethyl) Ether	µg/L	Grab	Quarterly
Bis (2-Ethylhexyl) Phthalate	µg/L	Grab	Quarterly
Carbon Tetrachloride	µg/L	Grab	Quarterly
Chlordane [9]	µg/L	Grab	Quarterly
Chlorodibromomethane	µg/L	Grab	Quarterly
Chloroform	µg/L	Grab	Quarterly
DDT [10]	µg/L	Grab	Quarterly
1,4-Dichlorobenzene	µg/L	Grab	Quarterly
3,3'-Dichlorobenzidine	µg/L	Grab	Quarterly
1,2-Dichloroethane	µg/L	Grab	Quarterly
1,1-Dichloroethylene	µg/L	Grab	Quarterly
Dichlorobromomethane	µg/L	Grab	Quarterly
Dichloromethane	µg/L	Grab	Quarterly
1,3-Dichloropropene	µg/L	Grab	Quarterly
Dieldrin	µg/L	Grab	Quarterly
2,4-Dinitrotoluene	µg/L	Grab	Quarterly
1,2-Diphenylhydrazine	µg/L	Grab	Quarterly
Halomethanes [11]	µg/L	Grab	Quarterly
Heptachlor	µg/L	Grab	Quarterly
Heptachlor Epoxide	µg/L	Grab	Quarterly
Hexachlorobenzene	µg/L	Grab	Quarterly
Hexachlorobutadiene	µg/L	Grab	Quarterly
Hexachloroethane	µg/L	Grab	Quarterly
Isophorone	µg/L	Grab	Quarterly
N-nitrosodimethylamine	µg/L	Grab	Quarterly
N-nitrosodi-N-propylamine	µg/L	Grab	Quarterly
N-nitrosodiphenylamine	µg/L	Grab	Quarterly
PAHs [12]	µg/L	Grab	Quarterly
PCBs [13]	µg/L	Grab	Quarterly
TCDD Equivalents [14]	µg/L	Grab	Quarterly
1,1,2,2-Tetrachloroethane	µg/L	Grab	Quarterly
Tetrachloroethylene	µg/L	Grab	Quarterly
Toxaphene	µg/L	Grab	Quarterly
Trichloroethylene	µg/L	Grab	Quarterly
1,1,2-Trichloroethane	µg/L	Grab	Quarterly
2,4,6-Trichlorophenol	µg/L	Grab	Quarterly
Vinyl Chloride	µg/L	Grab	Quarterly

[1] Report the total daily effluent flow and the monthly average effluent flow.

[2] If a Discharger can demonstrate to the satisfaction of the Regional Water Board (subject to USEPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, analysis for this pollutant may be performed with the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometalic 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 136, as revised May 14, 1999.

[3] Non-chlorinated phenolic compounds shall mean the sum of 2-nitrophenol, 4-nitrophenol, and phenol.

[4] Chlorinated phenolic compounds shall mean the sum of 2-chlorophenol, 2,4-dichlorophenol, 3-methyl-4-chlorophenol, and pentachlorophenol.

[5] Endosulfan shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.

[6] HCH shall mean the sum of the alpha, beta, gamma (lindane), and delta isomers of hexachlorocyclohexane.

[7] Radioactivity performance goals are as specified in Title 17 California Code of Regulations, Section 30253, Standards for Protection Against Radiation. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.

[8] Dichlorobenzenes shall mean the sum of 1,2-dichlorobenzene and 1,3-dichlorobenzene.

[9] Chlordane shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

[10] DDT shall mean the sum of 4,4'DDT; 2,4'DDT; 4,4'DDE; 2,4'DDE; 4,4'DDD; and 2,4'DDD.

[11] Halomethanes shall mean the sum of bromoform, bromomethane (methyl bromide), and chloromethane (methyl chloride).

[12] PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenapthalene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorine, indeno[1,2,3-cd]pyrene, phenanthrene, and pyrene.

[13] PCBs (polychlorinated biphenyls) shall mean he 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.

[14] TCDD Equivalents shall mean the sum of 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 by the table below:

Isomer Group	Toxicity Equivalence Factor
2,3,7,8 - tetra CDD	1.0
2,3,7,8 - penta CDD	0.5
2,3,7,8 - hexa CDD	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

[15] Pretreatment process flows or reverse osmosis product flows may be temporarily discharged back into the Pacific Ocean during initial plant start-up, during or after plant maintenance, or periods when it is otherwise not possible to deliver demineralized product water to the regional water system. During such periods, additional sampling is required for totals suspended solids, pH, oil and grease, settleable solids, turbidity, and chronic toxicity to ensure compliance with effluent limitations and performance goals B.I. Sampling shall be conducted daily during these temporary discharge periods.

B. Monitoring Location M-002

The Discharger shall monitor CDP effluent at Monitoring Location M-002 as follows:

Table 5. Combined Effluent Monitoring M-002

Parameter	Units	Sample Type	Minimum Sampling Frequency
Electrical Conductivity	desiSiemans per meter	Recorder	Continuous[1]
Total Dissolved Solids (Salinity)	ppt	Grab	Weekly

1 The Discharger shall submit a plan to the Executive Officer detailing how continuous electrical conductivity monitoring is to be performed at Effluent Monitoring Location M-002, how instruments are to be calibrated, and how ongoing calibration is to be achieved. The plan shall be approved by the Executive Officer prior to facility startup.

C. Minimum Levels

For each numeric effluent limitation or performance goal for a constituent identified in Table B of the California Ocean Plan, the Discharger shall select one or more Minimum Levels (ML) and their associated analytical methods from Appendix II of the 2005 Ocean Plan. For constituents listed in Appendix II, the Discharger shall submit an appropriate ML (and its associated analytical method) for determining compliance with the effluent limitation (or conformance with the performance goal) for that constituent. All MLs must be approved by the Regional Water Board and/or the State Water Board. The "reported" ML is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from Appendix II. ML's chosen by the Discharger must be approved by the Executive Officer.

1. Selection of Minimum Levels from Appendix II

   The Discharger must select from all MLs from Appendix II that are below the effluent limitation or performance goal. If the effluent limitation or performance goal is lower than all the MLs in Appendix II, then the Discharger must select the lowest ML.

2. Use of Minimum Levels

   a. MLs, as defined in Appendix II of the 2005 Ocean Plan, represent the lowest quantifiable concentration in a sample based on the proper application of method-specific analytical procedures and the absence of matrix interferences. MLs also represent the lowest standard concentration in the calibration curve for a specific analytical technique after the application of appropriate method-specific factors.

      Common analytical practices may require different treatment of the sample relative to the calibration standard. Some examples of these practices are given in Chapter III.C.5.a of the Ocean Plan.

   b. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied when there are matrix effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied during the computation of the reporting limit. Application of such factors will alter the reported ML.

c. The Discharger shall instruct its laboratories to establish calibration standards so that the ML (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. In accordance with the Ocean Plan, the Discharger's laboratory may employ a calibration standard lower than the ML in Appendix II.

3. Sample Reporting Protocols

a. Dischargers must report with each sample result the reported Minimum Level (ML) and the laboratory's current Method Detection Limit (MDL).

b. Dischargers must also report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

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).

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 laboratory must write the estimated chemical concentration of the sample next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc.").

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

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

The Discharger shall conduct chronic toxicity testing on effluent samples collected at Monitoring Location M-001 in accordance with the following schedule and requirements:

Table 6. Whole Effluent Toxicity Testing

Test	Unit	Sample	Minimum Test Frequency
Acute Toxicity[1]	TU_a	24-Hr. Composite	Quarterly
Chronic Toxicity	TU_c	24-Hr. Composite	Monthly

1 To reflect maximum salinity concentrations in the effluent prior to discharge to the ocean, compliance with the acute toxicity performance goal shall be determined by samples collected at Monitoring Location M-001 that are adjusted to a salinity concentration of 40 ppt (the maximum daily average salinity concentration limit for the combined EPS and CDP discharges). In addition to assessing acute toxicity at this 40 ppt salinity, Provision VI.C.2.c or Order No. R9-2005-0065 requires the Discharger to develop and implement a study to assess salinity-related acute toxicity thresholds at effluent salinity concentrations that range from 36 to 60 ppt.

A. Acute toxicity testing shall be performed using either a marine fish or invertebrate species in accordance with procedures established by the USEPA guidance manual, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 5th Edition, October 2002 (EPA-821-R-02-012).

B. Critical life stage toxicity tests shall be performed to measure chronic toxicity (TU_c). Testing shall be performed using methods outlined in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (Chapman, G.A., D.L. Denton, and J.M. Lazorchak, 1995) or *Procedures Manual for Conducting Toxicity Tests Developed by the Marine Bioassay Project* (State Water Board, 1996).

C. A screening period for chronic toxicity shall be conducted every other year for 3 months, using a minimum of three test species with approved test protocols, from the following list (from the Ocean Plan). Other tests may be used, if they have been approved for such testing by the State Water Board. The test species shall include a fish, an invertebrate, and an aquatic plant. After the screening period, the most sensitive test species shall be used for the monthly testing. Repeat screening periods may be terminated after the first month if the most sensitive species is the same as found previously to be most sensitive. Dilution and control water should be obtained from an unaffected area of the receiving waters. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay test and reported with test results.

Table 7. Approved Tests for Chronic Toxicity

Species	Test	Tier [1]	Reference [2]
giant kelp, *Macrocystis pyrifera*	Percent Germination; Germ Tube Length	1	a, c
red abalone, *Haliotis rufescens*	Abnormal Shell Development	1	a, c
oyster, *Crassostrea gigas*; mussels, *Mytilus spp.*	Abnormal Shell Development; Percent Survival	1	a, c
urchin, *Strongylocentrotus purpuratus*; sand dollar, *Dendraster excentricus*	Percent Normal Development	1	a, c
urchin, *Strongylocentrotus purpuratus*; sand dollar, *Dendraster excentricus*	Percent Fertilization	1	a, c
shrimp, *Homesimysis costata*	Percent Survival; Growth	1	a, c
shrimp, *Mysidopsis bahia*	Percent Survival; Fecundity	2	b, d
topsmelt, *Atherinops affinis*	Larval Growth Rate; Percent Survival	1	a, c
Silversides, *Menidia beryllina*	Larval Growth Rate; Percent Survival	2	b, d

[1] First tier methods are preferred for compliance monitoring. If first tier organisms are not available, the Discharger can use a second tier test method following approval by the Regional Water Board.

[2] Protocol References:

a. Chapman, G.A., D.L. Denton, and J.M. Lazorchak. 1995. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms*. USEPA Report No. EPA/600/R-95/136.

b. Klemm, D.J., G.E. Morrison, T.J. Norberg-King, W.J. Peltier, and M.A. Heber. 1994. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Marine and Estuarine Organisms*. USEPA Report No. EPA-600-4-91-003.
c. State Water Board 1996. *Procedures Manual for Conducting Toxicity Tests Developed by the Marine Bioassay Project*. 96-1WQ.
d. Weber, C.I., W.B. Horning, I.I., D.J. Klemm, T.W. Nieheisel, P.A. Lewis, E.L. Robinson, J. Menkedick and F. Kessler 9eds). 1998. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*. EPA/600/4-87/028. National Information Service, Springfield, VA.

VI. RECEIVING WATER MONITORING REQUIREMENTS

The receiving water monitoring program required herein is also required by Regional Water Board Order No. R9-2006-0065, which establishes limitations and conditions for discharges from the Facility. Receiving water monitoring in the vicinity of the outfall shall be conducted as specified below. Station location, sampling, sample preservation and analyses, when not specified, shall be by methods approved by the Executive Officer. The monitoring program may be modified by the Executive Officer at any time.

The receiving water monitoring program for the CDP discharge into the Encina Power Station discharge channel may be conducted jointly with other dischargers.

During monitoring events, if possible, sample stations shall be located using a land-based microwave positioning system or a satellite positioning system such as global positioning system. If an alternate navigation system is proposed, its accuracy should be compared to that of microwave and satellite based systems, and any compromises in accuracy shall be justified.

The receiving water monitoring may be reopened at anytime by the Regional Water Board to establish monitoring requirements consistent with those required for the Encina Power Station.

A. Light Transmittance Monitoring

The light transmittance shall be monitored semiannually via a Secchi disk at Monitoring Locations A-10, A-20, A-30, A-50, C-10, C-20, C-30, D-10, D-20, D-30, D-50, E-10, E-20, and E-30.

B. Water Quality Monitoring

The dissolved oxygen concentration and pH shall be monitored semiannually via grab samples at the surface at Monitoring Locations A-00, A-50, C-10, C-20, C-30, D-10, D-20, D-30, D-50, E-10, E-20, and E-30. Dissolved oxygen shall be reported as milligrams per liter (mg/L). pH shall be reported as pH Units.

C. **Temperature and Salinity Monitoring**

Temperature and salinity shall be monitored semiannually, at every 10 feet from the surface to the seafloor at Monitoring Locations A-00, A-50, C-10, C-20, C-30, D-10, D-20, D-30, D-50, E-10, E-20, and E-30. Temperature shall be reported in degrees Fahrenheit (°F). Salinity shall be reported as parts per thousand (ppt).

D. **Thermal Plume**

The thermal plume shall be characterized via aerial infrared mapping on a semiannual basis.

REGIONAL MONITORING

E. **Kelp Bed Monitoring**

The Discharger shall participate with other ocean dischargers in the San Diego Region in an annual regional kelp bed photographic survey. Kelp beds shall be monitored annually by means of vertical aerial infrared photography to determine the maximum aerial extent of the region's coastal kelp beds within the calendar year. Surveys shall be conducted as close as possible to the time when kelp bed canopies cover the greatest area. The entire San Diego Region coastline, from the international boundary to the San Diego Region / Santa Ana Region boundary, shall be photographed on the same day.

The images produced by the surveys shall be presented in the form of a 1:24,000 scale photo-mosaic of the entire San Diego Region coastline. Onshore reference points, locations of all ocean outfalls and diffusers, and the 30-foot (MLLW) and 60-foot (MLLW) depth contours shall be shown

The areal extent of the various kelp beds photographed in each survey shall be compared to that noted in surveys of previous years. Any significant losses, which persist for more than 1 year, shall be investigated by divers to determine the probable reason for the loss.

F. **Regional Watershed/Ocean Monitoring**

The Discharger shall participate and coordinate with state and local agencies and other dischargers in the San Diego Region in development and implementation of a regional watershed or ocean monitoring program for the Pacific Ocean as directed by the Regional Water Board. The intent of a 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 resources of the region. During the coordinated monitoring effort, the Discharger's monitoring program may be expanded to provide a regional assessment of the impact of discharges to the watershed or Pacific Ocean.

VII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

2. The Discharger shall report all instances of noncompliance not reported under (Attachment E) E.III, E.IV, E.VI, and E.VII of Order No. R9-2006-0065 at the time monitoring reports are submitted.

3. Each year the Discharger shall submit an annual report to the Regional Water Board and USEPA Region 9 that contains tabular and graphical summaries of the monitoring data obtained during the previous year. The discharger shall discuss the compliance record and corrective actions taken, or which may be taken, or which may be needed to bring the discharge into full compliance with the requirements of Order No. R9-2006-0065 and this MRP.

4. Laboratory method detection limits (MDLs), and minimum Levels (MLs) shall be identified for each constituent in the matrix being analyzed with all reported analytical data in accordance with MRP Provision IV.B. Acceptance of data shall be based on demonstrated laboratory performance.

B. Self Monitoring Reports (SMRs)

1. This Discharger shall submit Self-Monitoring Report (SMRs) in accordance with subsection B.2 and B.3 below. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the discharger shall submit hard copy SMRs in accordance with subsection B.4 below.

2. The Discharger shall report in a SMR the results for all monitoring specified in this MRP under Sections III through VII. Additionally, the Discharger shall report in the SMR the result of any special studies, technical reports and additional monitoring requirements required by Section VI.C of Order No. R9-2006-0065. The Discharger shall submit monthly, quarterly, semiannual, and annual SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. Monthly reports shall be due on the 1st day of the second month following the end of each calendar month; Quarterly reports shall be due on May 1, August 1, November 1, and February 1 following each calendar quarter; Semi-annual reports shall be due on August 1 and March 1 following each semi-annual period; Annual reports shall be due on March 1 following each calendar year.

3. Monitoring reports shall be submitted at intervals and in a manner specified in Order No. R9-2006-0065 and in this MRP. Unless otherwise specified, monitoring reports shall be submitted to the Regional Water Board and to the USEPA Region 9 according to the following schedule:

Table 8. Reporting Schedule

Monitoring Frequency	Reporting Period	Report Due
Continuous, Daily, Weekly, or Monthly	All	By the first day of the second month after the month of sampling
Quarterly	January – March April – June July – September October - December	May 1 August 1 November 1 February 1
Semiannually	January – June July - December	August 1 March 1
Annually	Jan – December	March 1

4. The Discharger shall submit hard copy SMRs as required by subsection B.1 above in accordance with the following requirements:

   a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the Facilities are operating in compliance with interim and/or final effluent limitations.

   b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; 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.

   c. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

Submit monitoring reports to:
California Regional Water Quality Control Board
San Diego Region
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

With a copy sent to:
Regional Administrator
U.S. Environmental Protection Agency
Region 9, Attn: 65/MR, W-3
75 Hawthorne Street
San Francisco, CA 94105

C. Discharge Monitoring Reports (DMRs)

1. As described in Section VIII.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit self-monitoring reports. Until such notification is given, the Discharger shall submit discharge monitoring reports (DMRs) in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the Standard Provisions (Attachment D). The Discharge shall submit the original DMR and one copy of the DMR to the address listed below:

   State Water Resources Control Board
   Discharge Monitoring Report Processing Center
   Post Office Box 671
   Sacramento, CA 95812

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated or modified cannot be accepted.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in Section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table 1. Facility Information

WDID	**9000001429**
Discharger	**~~Poseidon Resources Corporation~~Poseidon Resources (Channelside) LLC**
Name of Facility	**Carlsbad Desalination Project**
Facility Address	**4600 Carlsbad Boulevard Carlsbad, CA 92008 San Diego County**
Facility Contact, Title and Phone	**Peter M. MacLaggan, Senior Vice President, (619) 595-7802**
Authorized Persons to Sign and Submit Reports	**Peter M. MacLaggan, Senior Vice President, (619) 595-7802**
Mailing Address	**501 W. Broadway, Suite 840 San Diego, CA 92101**
Billing Address	**501 W. Broadway, Suite 840 San Diego, CA 92101**
Type of Facility	**Water Supply (Desalination Plant)**
Major or Minor Facility	**Major**
Threat to Water Quality	**2**
Complexity	**B**
Pretreatment Program	**Not Applicable**
Reclamation Requirements	**None**
Facility Permitted Flow	**Based on Facility Design Flow and Pretreatment Technology Option Selected**
Facility Design Flow	**Dependant on pretreatment technology selected: Option 1. Granular Media Filtration: -54 (million gallons per day) MGD average daily flow -60.3 MGD maximum daily flow Option 2. Membrane Filtration: -57 MGD average daily flow -64.5 MGD maximum daily flow**
Watershed	**Pacific Ocean**
Receiving Water	**Pacific Ocean via Encina Power Station discharge channel**
Receiving Water Type	**Ocean**

A. ~~Poseidon Resources Corporation~~ **Poseidon Resources (Channelside) LLC** (hereinafter Discharger) is the owner and operator of the Carlsbad Desalination Project (hereinafter Facility). The Facility will produce up to 50 MGD of potable water for distribution in the City of Carlsbad and surrounding areas.

B. The Discharger proposes to discharge effluent consisting of reverse osmosis (RO) reject brine, and filter backwash from the Facility and through the Encina Power Station discharge channel to the Pacific Ocean, a water of the United States.

C. The Discharger filed a Report of Waste Discharge (RWD) and submitted an application for Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on October 7, 2005.

II. FACILITY DESCRIPTION

A. Description of Wastewater and Biosolids Treatment or Controls

~~Poseidon Resources Corporation~~ **Poseidon Resources (Channelside) LLC** proposes to construct and operate the Carlsbad Desalination Project (CDP) on a 4 acre parcel within the site of the Encina Power Station. ~~Poseidon Resource Corporation~~ **Poseidon Resources (Channelside) LLC** has entered into a renewable 60-year lease with Cabrillo Power I LLC (the owner and operator of the Encina Power Station) for the desalination project site.

The Encina Power Station (EPS) generates up to 939 megawatts of electrical power using five steam generators and one gas turbine generator. The EPS steam generators are cooled by a once-through seawater flow system. EPS cooling water is discharged to the Pacific Ocean under the requirements established in Regional Water Board Order No. 2000-03.

Under the proposed CDP, a portion of the EPS cooling water effluent would be diverted to CDP for seawater desalination treatment. CDP proposes to use 100 MGD of EPS cooling water effluent as source water. An average daily flow of 50 MGD of fresh potable water would be produced by the CDP. Treatment processes at CDP will consist of pretreatment, reverse osmosis desalination, and disinfection and product water stabilization. The Facility expects to have 13 RO units operating in parallel at the facility. One RO unit at a time is expected to be offline for membrane cleaning or maintenance. The expected average daily flow of 50 MGD of RO brine is based on the assumption that one RO unit will be down at all times for cleaning or maintenance.

The 50 MGD of fresh potable water produced by CDP would be discharged to the City of Carlsbad potable water system for distribution to Carlsbad water customers and conveyance to adjacent North San Diego County water agencies. The production of 50 MGD of fresh potable water would result in the generation of approximately 55 MGD of combined filter backwash water and concentrated saline wastewater that would be discharged back into the EPS cooling water discharge channel for discharge to the Pacific Ocean. The discharge would contain virtually all dissolved solids and some of the suspended solids contained in the CDP intake

water. Thus, the wastewater flow volumes within the EPS discharge channel would be reduced by 50 MGD, however contain a greater concentration of dissolved solids (mostly salts).

The Discharger has proposed an average daily flow of up to 57 MGD, and a daily maximum flow of up to 64.5 MGD, of saline reject flow and filter backwash.

At the time of drafting this permit, the facility had not constructed the facility or determined a pretreatment technology for the source water prior to the reverse osmosis process. The Discharger is considering granular media filtration and membrane filtration as the two pretreatment technologies. Daily average flows and maximum daily flows for each pre-treatment technology are provided in Table 2, *Summary of Proposed CDP Flows Directed Back into the EPS Cooling Water Discharge Channel*.

Table 2. Summary of Proposed CDP Flows Directed Back into the EPS Cooling Water Discharge Channel

Flow Component	Granular Media Filtration		Membrane Filtration	
	Daily Average Flow (MGD)[1]	Maximum Daily Flow (MGD)[2]	Daily Average Flow (MGD)[1]	Maximum Daily Flow (MGD)[2]
Potable Water Production Capacity	50	54	50	54
Wastewater Flow Component: • Pretreatment Backwash Flows Discharged to the EPS Cooling Water Discharge Channel	4.0	6.3	7.0	10.5
• Reverse Osmosis Concentrate Flows Discharged to the EPS Cooling Water Discharge Channel	50	54	50	54
• Total Flows Discharged Back into the EPA Cooling Water Discharge Channel	54	60.3	57	64.5

[1] During expected normal operation, when 12 of the 13 reverse osmosis units are online.
[2] During optimal operations when all 13 reverse osmosis units are online and operating at full capacity. The situation when all 13 reverse osmosis units being online is not expected to occur often. In the event that all 13 reverse osmosis units are online, this operation is not considered to be sustainable for long periods of time.

The flow and handling of pretreatment backwash will depend upon the choice of the pretreatment technology to be used by the Facility. The backwash from the pretreatment technology of granular media filtration would be directed to the desalination plant inlet or directly to the EPS discharge channel. The backwash for the membrane filtration pretreatment technology would be directed to the EPS cooling water discharge channel.

Under the granular media filtration option, however, ferric chloride or ferric sulfate will be added to the influent to enhance removal of particulate matter. These added chemicals would be backwashed, collected in a sedimentation basin (clarifier), removed as waste sludge, and disposed of at a landfill. Under the membrane filtration option on the other hand, chemicals would be used during membrane cleaning. The membrane backwash cleaning solutions would be collected in a separate tank, neutralized for pH value, and discharged to the sanitary sewer system. The RO process would generate membrane backwash cleaning solutions, which would be collected in a separate tank, neutralized for pH value, and discharged to the sanitary sewer system. Spent

cartridges filters from the RO process train that contain removed particulates would be disposed of at a landfill. The discharge should consist dissolved solids originally contained in the seawater intake, but at higher concentrations.

A 40,000 gallon per day (gpd) desalination pilot plant has been in operation at the CDP site since the end of 2002 to demonstrate project feasibility, collect performance data, evaluate alternative pretreatment technologies, and allow the collection of influent and effluent data. The pilot plant is a scale version of the proposed 50 MGD CDP. To allow assessment of alternative pretreatment technologies, the pilot plant includes both granular media filtration pretreatment and microscreen/membrane filtration pretreatment.

B. Discharge Points and Receiving Waters

The Facility proposes to discharge 50 MGD of RO brine and filter backwash to the Pacific Ocean via the EPS discharge channel. The EPS discharge channel is owned and operated by Cabrillo Power I LLC, the owner and operator of the EPS. Prior to discharging into the receiving water, the Facility's discharge will combine with EPS effluent in the discharge channel. EPS cooling water flows average approximately 576 MGD, and exceed 304 MGD greater than 99 percent of the time. Because the CDP is expected to use 100 MGD of the EPS cooling water as source water, the 50 MGD discharge from CDP is expected to combine with an approximate average discharge flow of 476 MGD (and greater than 204 MGD 99 percent of the time) from EPS prior to discharge into the Pacific Ocean, a water of the United States [Latitude 33° 08' 17" North, Longitude 117° 20' 22" West].

The current EPS NPDES permit (Order No. 2000-03) assigns an initial dilution of 15.5:1 for the existing EPS discharge. The combined CDP and EPS effluent is expected to be denser and sink through the water column, increasing the amount of mixing that occurs as a result of buoyancy. Based on modeling performed by the Discharger (and explained more fully in Section II.C below), average day conditions from 1980 through 2000 project an initial dilution of 70:1. The modeling results further indicate that initial dilutions under the conditions of the worst case month, for any single month of the year at the edge of the zone of initial dilution (ZID) will exceed 20:1. The worst case month dilution is typically used as the dilution applied for water quality-based effluent limitations by the Regional Water Board. Theoretical extremes for heated and unheated flow resulted in more conservative dilution factors (12:1 and 7.1:1, respectively), however the application of these values is not practical and considered overly stringent due to the fact that these scenarios are based on theoretical extremes that have not been demonstrated to occur and have a probability of occurrence of less than 0.01 percent.

The Discharger has demonstrated to a high degree of certainty, through a comprehensive data collection and modeling effort, that the applicable worst case month dilution will be approximately 20:1. However, because the modeling effort is based on theoretical temperature and salinity of the combined CDP and EPS effluent, the more conservative dilution credit of 15.5:1 shall continue to be applied for this outfall at the edge of the ZID. The permit may be reopened by the Regional Water Board to re-evaluate the initial dilution at the outfall when actual CDP/EPS effluent data is available.

In summary, the EPS discharge channel has been granted a dilution factor of 15.5:1 by the Regional Water Board. The effect of the Facility's discharge on the combined effluent is expected to increase initial dilution in excess of 20:1 during theoretical worst case scenarios. Thus, the continued application of the previous outfall dilution factor of 15.5:1 is considered conservative and protective of water quality.

Additional information regarding the data collection and modeling results submitted to the Regional Water Board are contained within the facility file at the Regional Water Board.

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

The Discharger is not yet operational and has not been subject to WDRs or NPDES monitoring requirements for the Facility in the past. Expected effluent characteristics of the CDP discharge, as well as analysis of the potential impact to receiving waters, are described in this section.

1. Expected Effluent Characteristics

As part of the CDP pilot plant operations, a comprehensive data collection program was performed to characterize water quality associated with the CDP. According to the Discharger, effluent quality from the pilot plant is expected to be representative of effluent quality for the CDP. From pilot plant data, effluent quality of the CDP and the combined CDP and EPS effluent was projected. The projected data in Table 3 through 5 does not represent actual effluent data and has been derived based on the representative effluent quality from the pilot plant and expected flow volumes for both the CDP and EPS.

The salinity of the CDP effluent will be dependent on influent seawater salinity concentrations and the RO recovery rate. During times of typical EPS cooling water flows, salinity concentrations in the EPS discharge channel after combining with the proposed CDP effluent will be increased by approximately 10 percent. At maximum EPS cooling water flows, salinity concentrations in the discharge channel are projected to be increased by approximately 6 percent after combining with the proposed CDP effluent. The mean seawater salinity between 1980 through 2000 is reported by the Discharger to be 33.5 parts per thousand (ppt). Salinity concentrations between 31.26 through 34.44 have been reported at the discharge location. Table 3. *Projected Salinity of CDP Effluent Streams at a Seawater Salinity of 33.5 ppt* provides projected salinity concentrations in the CDP effluent assuming an average salinity of 33.5 ppt for each of the potential pretreatment technologies:

Table 3. Projected Salinity of CDP Effluent Streams at a Seawater Salinity of 33.5 ppt

Flow Condition	Pretreatment Option	Discharge	Projected Flow (MGD)	Effluent Salinity Concentration (ppt)
Average Daily CDP Flows	Granular Media Filtration	CDP filter backwash	4	33.5
		CDP RO concentrate	50	67.0[1]
	Microscreen & Membrane Filtration	CDP microscreen and membrane filtration backwash	7	33.5
		CDP RO concentrate	50	67.0[1]
Maximum	Granular Media	CDP filter backwash	6.3	33.5

Flow Condition	Pretreatment Option	Discharge	Projected Flow (MGD)	Effluent Salinity Concentration (ppt)
Daily CDP Flows	Filtration	CDP RO concentrate	54	67.0[1]
	Microscreen & Membrane Filtration	CDP microscreen and membrane filtration backwash	10.5	33.5
		CDP RO concentrate	54	67.0[1]

[1] Based on RO membranes achieving a 99.6 percent salt rejection and 50 percent recovery.

Projected salinity of the combined CDP and EPS discharge when the seawater salinity is 33.5 ppt is contained in Table 4. *Projected Salinity of Combined CDP/EPS Discharge at Seawater Salinity of 33.5 ppt.*

Table 4. Projected Salinity of Combined CDP/EPS Discharge at Seawater Salinity of 33.5 ppt

CDP Potable Water Production Rate	Pretreatment Option	Projected Salinity of Combined EPS/CDP Discharge[1] (ppt)		
		EPS Influent Flow of 304 MGD (Minimum Value)[2]	EPS Influent Flow of 575 MGD (Mean Value)	EPS Influent Flow of 857 MGD (Maximum Permitted)
50 MGD (Average Day)	Granular Media Filtration	40.1	36.7	35.6
	Microscreen/Membrane Filtration	40.1	36.7	35.6
54 MGD (Maximum Day)	Granular Media Filtration	40.7	37.0	35.8
	Microscreen/Membrane Filtration	40.7	37.0	35.8

[1]Salinity levels are based on the CDP reverse osmosis concentrate having a salinity of 67.0 ppt and CDP pretreatment process flows returned to the EPS discharge channel having a salinity of 33.5 ppt.
[2] During 1980 – 2000, daily average EPS cooling water flows exceeded 304 MGD more than 99 percent of the time.

The expected maximum concentrations of various parameters in the combined CDP effluent and pretreatment discharge are summarized in Table 5. *Maximum Parameter Concentrations*. It should be noted that for certain parameters, drinking water analytical methods were used by CDP to monitor for the presence of pollutants. Drinking water analytical methods can only be used for the analysis of wastewater if approved under 40 CFR Part 136. Analytical results reported by CDP indicate that the method detection limits reported for several pollutants were, at times, greater than the corresponding Minimum Level established by the Ocean Plan (2001).

Table 5. Maximum Parameter Concentrations

Parameter	Unit	Maximum Parameter Concentrations in the CDP Effluent Discharging into the EPS Cooling Water Discharge Channel	
		Granular Media Filtration Pretreatment Option	Membrane Filtration Pretreatment Option
General Physical/Chemical			
Ammonia	mg/L	<0.12	<0.18

Parameter	Unit	Maximum Parameter Concentrations in the CDP Effluent Discharging into the EPS Cooling Water Discharge Channel	
		Granular Media Filtration Pretreatment Option	Membrane Filtration Pretreatment Option
BOD	mg/L	<10	<12
COD	mg/L	<98	<99
Temperature	˚C	24.7	24.7
Total Organic Carbon	mg/L	<0.8	<4
Total Suspended Solids	mg/L	<8	<12
Oil and Grease	mg/L	<5	<5
Surfactants	mg/L	0.08	NA[1]
PH	Units	7.5	7.5
Mineral/Radioactivity/Physical/Metals			
Boron	mg/L	7.2	NA
Bromide	mg/L	114	NA
Chlorine Residual, Total	mg/L	<0.02	<0.02
Color	Units	3.0	NA
Coliforms, Fecal	#/100 mL	<4	<2
Fluoride	mg/L	<2	NA
Nitrate (as N)	mg/L	<0.5	NA
Phosphorus (as P) Total	mg/L	<0.1	<0.7
Sulfate	mg/L	5,000	NA
Sulfide	mg/L	<0.1	NA
Sulfite	mg/L	<2	NA
Surfactants	mg/L	<0.08	NA
Aluminum	µg/L	110	NA
Barium	µg/L	14	NA
Cobalt	µg/L	<2.7	NA
Iron	µg/L	<950	NA
Magnesium	µg/L	2,900	NA
Manganese	µg/L	17	NA
Molybdenum	µg/L	26	NA
Tin	µg/L	<2.5	NA
Titanium	µg/L	<10	NA
Toxic Metals/Cyanide and TCDD			
Antimony	µg/L	<5.0	<6
Arsenic	µg/L	<2.8	<1.7
Beryllium	µg/L	<0.3	<0.3
Cadmium	µg/L	<0.5	<0.5
Chromium, Total	µg/L	<4	<3.4
Copper	µg/L	<2	<1.7
Lead	µg/L	<1	<0.9
Mercury	µg/L	<0.2	<0.2
Nickel	µg/L	19	<16
Selenium	µg/L	<0.4	<8.5
Silver	µg/L	<0.5	<0.5
Thallium	µg/L	<2.3	<3.8
Zinc	µg/L	<10	NA
Cyanide	µg/L	<50	<43
2,3,7,8-TCDD	µg/L	<0.001	NA
Volatile Organic Compounds			
2-Butanone	µg/L	<5	<6
Bromoform	µg/L	<1.3	11

Parameter	Unit	Maximum Parameter Concentrations in the CDP Effluent Discharging into the EPS Cooling Water Discharge Channel	
		Granular Media Filtration Pretreatment Option	Membrane Filtration Pretreatment Option
All other volatiles	µg/L	ND[2]	ND
Acid Extractable Compounds			
2-Chlorophenol	µg/L	<5	<5
4-Chloro-3-methylphenol	µg/L	<5	<5
2,4-Dichlorophenol	µg/L	<5	<5
2,4-Dimethylphenol	µg/L	<5	<5
2,4-Dinitrophenol	µg/L	<20	<20
2-Methyl-4,6-dinitrophenol	µg/L	<10	<10
2-Nitrophenol	µg/L	<10	<10
4-Nitrophenol	µg/L	<10	<10
Pentachlorophenol	µg/L	<5	<5
Phenol	µg/L	<5	<5
2,4,6-Trichlorophenol	µg/L	<10	<10
Base Neutral Compounds			
Acenaphthene	µg/L	<5	<5
Acenaphthylene	µg/L	<5	<5
Anthracene	µg/L	<5	<5
Benzidine	µg/L	<5	<12
Benzo(a)anthracene	µg/L	<5	<5
Benzo(a)pyrene	µg/L	<5	<5
Benzo(b)fluoranthene	µg/L	<5	<5
Benzo(g,h,I)perylene	µg/L	<5	<5.8
Benzo(k)fluoranthene	µg/L	<5	<5
Bis(2-chloroethoxy)methane	µg/L	<5	<5.8
Bis(2-chloroethyl)ether	µg/L	<5	<5
Bis(2-chloroisopropyl)ether	µg/L	<5	<5.8
Bis(2-ethylhexyl)phthalate	µg/L	<5	<5
4-Bromophenyl phenyl ether	µg/L	<5	<5
Butylbenzyl phthalate	µg/L	<5	<5
2-Chloronaphthalene	µg/L	<5	<5
4-Chlorophenyl phenyl ether	µg/L	<5	<5
Chrysene	µg/L	<5	<5
Dibenzo(a,h)anthracene	µg/L	<5	<5.8
1,2-Dichlorobenzene	µg/L	<5	<4.3
1,3-Dichlorobenzene	µg/L	<5	<4.3
1,4-Dichlorobenzene	µg/L	<5	<4.3
3,3-Dichlorobenzidine	µg/L	<5	<12
Diethyl phthalate	µg/L	<5	<5
Dimethyl phthalate	µg/L	<5	<5
Di-n-butyl phthalate	µg/L	<5	<5
2,4-Dinitrotoluene	µg/L	<5	<5
2,6-Dinitrotoluene	µg/L	<5	<5
Di-n-octyl phthalate	µg/L	<5	<5.8
1,2-Diphenyl hydrazine	µg/L	<5	<5
Fluoranthene	µg/L	<5	<5
Fluorene	µg/L	<5	<5
Hexachlorobenzene	µg/L	<0.5	<1.2

Parameter	Unit	Maximum Parameter Concentrations in the CDP Effluent Discharging into the EPS Cooling Water Discharge Channel	
		Granular Media Filtration Pretreatment Option	Membrane Filtration Pretreatment Option
Hexachlorobutadiene	µg/L	<5	<5.8
Hexachlorocyclopentadiene	µg/L	<1	<2.5
Hexachloroethane	µg/L	<5	<5
Indeno(1,2,3-c)pyrene	µg/L	<5	<5.8
Isophorone	µg/L	<5	<5
Napthalene	µg/L	<5	<5
Nitrobenzene	µg/L	<5	<5
N-nitrosodi-n-propylamine	µg/L	<5	<5
N-Nitrosodimethylamine	µg/L	<5	<5
N-Nitrosodiphenylamine	µg/L	<5	<5
Phenanthrene	µg/L	<5	<5
Pyrene	µg/L	<5	<5
1,2,4-Trichlorobenzene	µg/L	<5	<5
Chlorinated Pesticides			
Aldrin	µg/L	<0.075	<0.066
BHC-alpha	µg/L	<0.05	<0.045
BHC-beta	µg/L	<0.05	<0.045
BHC-delta	µg/L	<0.05	<0.42
BHC-gamma (Lindane)	µg/L	<0.02	<0.17
Chlordane-alpha	µg/L	<0.1	<0.085
Chlordane-gamma	µg/L	<0.1	<0.085
2,4'-DDD	µg/L	<1	<0.84
2,4'-DDE	µg/L	<1	<0.84
2,4'-DDT	µg/L	<1	<0.84
4,4'-DDD	µg/L	<0.02	<0.02
4,4'-DDE	µg/L	<0.01	<0.01
4,4'-DDT	µg/L	<0.02	<0.02
Dieldrin	µg/L	<0.02	<0.02
Endosulfan I	µg/L	<0.02	<0.02
Endosulfan II	µg/L	<0.01	<0.012
Endosulfan sulfate	µg/L	<0.05	<0.045
Endrin	µg/L	<0.1	<0.085
Endrin aldehyde	µg/L	<0.05	<0.045
Heptachlor	µg/L	<0.01	<0.01
Heptachlor epoxide	µg/L	<0.01	<0.01
PCBs	µg/L	<0.1	<0.1
Toxaphene	µg/L	<1	<0.9
Other Compounds			
Benzo(e)pyrene	µg/L	<5	<5
Biphenyl hydrazine	µg/L	<5	<5
2,6-Dimethylnaphthalene	µg/L	<5	<5
Methoxychlor	µg/L	<10	<8.4
1-Methylnaphthalene	µg/L	<5	<5
2-Methylnaphthalene	µg/L	<5	<5
1-Methylphenanthrene	µg/L	<5	<5
Mirex	µg/L	<0.02	<0.025
Perylene	µg/L	<5	<5
2,3,5-Trimethylnaphthalene	µg/L	<5	<5
Trans-Nonachlor	µg/L	<0.01	<0.012

Parameter	Unit	Maximum Parameter Concentrations in the CDP Effluent Discharging into the EPS Cooling Water Discharge Channel	
		Granular Media Filtration Pretreatment Option	Membrane Filtration Pretreatment Option
Tributyltin	µg/L	<0.005	<0.005

[1] NA - Not Available
[2] ND – Not Detected

Acute and chronic toxicity samples were collected and analyzed as part of the CDP pilot plant operations. To represent anticipated conditions in the blend of EPS cooling water and CDP effluent, acute and chronic toxicity tests were performed on a blend of EPS cooling water and CDP pilot plant concentrate, and a blend of CDP pilot plant concentrate adjusted to the anticipated salinity within the EPS discharge channel. It should be noted that the whole effluent toxicity tests submitted by the Discharger were of EPS and CDP combined effluent, and diluted (with deionized water) CDP effluent. Effluent limitations contained in Order No. R9-2006-0065 are applicable directly to the CDP effluent, not the combined EPS and CDP effluent.

Acute toxicity tests were conducted using topsmelt (*Atherinops affinis*) as a test species. The results of the toxicity tests are summarized in Table 6. *Acute Toxicity Results*.

Table 6. Acute Toxicity Results

Species	Source of Sample	Test	Acute Toxicity (TU_a)
Topsmelt (*Atherinops affinis*)	EPS cooling water and CDP pilot plant RO concentrate[1]	96-Hour Survival	0.23
	Diluted CDP pilot plant concentrate[2]	96-Hour Survival	0.51

[1] Sample comprised of 10 parts EPS cooling water effluent and 1 part concentrate from the CDP pilot plant. This blend is representative of typical anticipated CDP operating conditions in which average daily flows of 50 MGD of reverse osmosis concentrate is discharged to the EPS discharge channel along with 500 MGD of EPS cooling water effluent.
[2] Samples comprised of reverse osmosis concentrate from the CDP pilot plant, blended with deionized water to adjust the salinity of the blend to 36 ppt. A salinity of 36 ppt is representative of the EPS/CDP effluent salinity (prior to initial dilution) under typical CDP seawater desalination operations.

Chronic toxicity tests were performed using three test species on the EPS cooling water and CDP pilot plant reverse osmosis concentrate. The results of the toxicity tests are summarized in Table 7. *Chronic Toxicity Results*.

Table 7. Chronic Toxicity Results

Species	Source of Sample	Test	Chronic Toxicity (TU_c)
Giant Kelp (*Macrocystis pyrifera*)	EPS cooling water and CDP pilot plant RO concentrate[1]	Germination	1.0
		Growth	1.0
	CDP pilot plant concentrate[2]	Germination	1.0
		Growth	1.0
Topsmelt (*Atherinops affinis*)	EPS cooling water and CDP pilot plant RO concentrate[1]	Survival	1.0
		Growth	1.0
	CDP pilot plant concentrate[2]	Survival	1.0
		Growth	1.0
Red Abalone (*Haliotis rufescens*)	EPS cooling water and CDP pilot plant RO concentrate[1]	Development	1.0

Species	Source of Sample	Test	Chronic Toxicity (TU_c)
	CDP pilot plant concentrate[2]	Development	2.0

[1] Sample comprised of 10 parts EPS cooling water effluent and 1 part concentrate from the CDP pilot plant. This blend is representative of typical anticipated CDP operating conditions in which average daily flows of 50 MGD of reverse osmosis concentrate is discharged to the EPS discharge channel along with 500 MGD of EPS cooling water effluent.

[2] Samples comprised of reverse osmosis concentrate from the CDP pilot plant, blended with deionized water to adjust the salinity of the blend to 36 ppt. A salinity of 36 ppt is representative of the EPS/CDP effluent salinity (prior to initial dilution) under typical CDP seawater desalination operations.

2. Projected Effects of the Discharge on the Receiving Water and Applicable Initial Dilution.

Proposed CDP seawater desalination operations will not result in any discernible change in the temperature of EPS cooling waters discharged to the ocean. The total amount of heat discharged to the ocean, however, will be decreased as a result of the decrease in discharge flow. Because the temperature in the combined EPS/CDP discharge will not be changed but salinity concentrations will increase, the overall density of the EPS/CDP discharge will increase as a result of CDP seawater desalination operations.

The Discharger used a comprehensive model to predict the dilution effects of the expected EPS/CDP effluent on the receiving water. The model was run Jenkins and Wasyl (*Hydrodynamic Modeling of Dispersion and Dilution of Concentrated Seawater Produced by the Ocean Desalination Project at the Encina Power Plant, Carlsbad, CA*; and *Hydrodynamic Modeling of Dispersion and Dilution of Concentrated Seawater Produced by the Ocean Desalination Project at the Encina Power Plant, Carlsbad, CA, Part II: Saline Anomalies Due to Theoretical Extreme Case Hydraulic Scenarios*). The various models used to comprise the overall coupled modeling effort are summarized in Table 8. *Dilution Models*.

Table 8. Dilution Models

Model	Application
OCEANRDS	Computes tidal currents and wave-driven currents from the shoaling wave field.
TIDE-FEM	Evaluates tidal currents inside Agua Hedionda Lagoon and along the nearshore region.
WINDWAVE	Completes the refraction-diffraction analysis of wind and wave effects determined by OCEARDS.
SEDXPORT	Time-stepped, stratified finite element model, computes dilution and dispersion of the waste plume within the receiving waters once the tidal and wave driven currents are resolved by TIDE-FEM, OCEANRDS, and WINDWAVE.
MULTINODE	Couples the computational nodes of TIDE-FEM, OCEANRDS, and SEDXPORT.

The comprehensive model is based on seven principal variables that affect dilution, including: ocean temperature, ocean salinity, tides, discharge flow rate, winds, waves, and currents. Compiled historic data for the seven variables from January 1980 through July 2000 were used to run the model. Input data for each of the variables over the 20.5 year period simulated a total of 7,523 model solutions representing the 7,523 consecutive days between 1980 and 2000. The Discharger provided modeling information and results for the effects of salinity, temperature, and initial dilution under various conditions. The modeling conditions are summarized in Table 9. *Modeling Conditions*.

Table 9. Modeling Conditions

Conditions	Defined
Average Day and Month	Average day conditions and average month conditions during the 7,523 model solutions.
Worst Case Month	Most extreme salinity and temperature conditions occurring during a 30 consecutive day period (worst case month) identified during the 7,523 model solutions.
Worst Case Day	The most extreme flow, salinity, and temperature conditions occurring during any 24-hour period (worst case day [August 17, 1992]) identified during the 7,523 model solutions. These conditions are estimated by the Discharger to have a probability of occurrence of 0.01 percent.
Theoretical Extreme Day – 304 MGD Heated	Worst case day (August 17, 1992) with low EPS cooling water flow. The Discharger reports that while worst case day conditions have been identified as occurring in August, EPS flows are typically near maximum in August due to high regional power demands. It is unlikely that low EPS flows could occur at the same time as the theoretical worst case wind and ocean conditions. During 1980 – 2000, daily average EPS cooling water flows exceeded 304 MGD more than 99 percent of the time.
Theoretical Extreme Day – 304 MGD Unheated	An unheated EPS discharge flow of 304 MGD on worst case day wind and ocean conditions, and EPS not generating power. The Discharger reports these events are highly unlikely to occur simultaneously.

An average day RO concentrate flow of 50 MGD was used for each model scenario. An average daily difference in temperature between the EPS cooling water influent and effluent (delta T) value of 5.5 ˚C was used for each modeling event.

a. Salinity

Salinity concentrations within the receiving waters in the area of EPS varied by approximately 10 percent over the 20.5 years of data. Salinity may be affected by freshwater storm runoff during winter months (lower salinity) and by El Nino periods (higher salinity due to the influx of high salinity water mass from Southern Baja California).

The discharge plume from the existing EPS cooling water discharge rapidly surfaces and spreads out along the ocean surface due to the thermally buoyant properties of the effluent. CDP operations, however, will result in increased salinity concentrations in the combined EPS/CDP discharge. The dilution model demonstrates that the increase in effluent density will cause the combined EPS/CDP discharge to sink rather than surface. The EPS/CDP effluent discharge sinks and disperses along the seafloor.

The expected salinity effects on the receiving water are summarized in Table 10. *Expected Salinity Effects On the Receiving Water.*

Table 10. Expected Salinity Effects On the Receiving Water

Modeling Conditions	Seafloor Salinity at Edge of ZID[1]		Depth-averaged Water Column Salinity at Edge of ZID[1]		Reported Probability of Occurrence of Model Scenario (%)
	Projected Salinity (ppt)	Percent Increase Over Ambient Conditions (%)[2]	Projected Salinity (ppt)	Percent Increase Over Ambient Conditions (%)[2]	
Worst Case Day	35.2	5.1	NR[3]	NR[3]	0.01
Average Day	34.6	3.3	34.0	1.5	50
Worst Case	34.8	3.8	NR[3]	NR[3]	0.04

Modeling Conditions	Seafloor Salinity at Edge of ZID[1]		Depth-averaged Water Column Salinity at Edge of ZID[1]		Reported Probability of Occurrence of Model Scenario (%)
	Projected Salinity (ppt)	Percent Increase Over Ambient Conditions (%)[2]	Projected Salinity (ppt)	Percent Increase Over Ambient Conditions (%)[2]	
Month					
Average Month	34.4	2.7	NR[3]	NR[3]	50
Theoretical Extreme (heated)	36.3	8.4	34.9	4.2	<0.01
Theoretical Extreme (unheated)	38.2	14.0	35.2	5.1	<0.01

[1] The discharge ZID is projected to extend approximately 1,000 feet from the EPS discharge jetties.
[2] Normal average ambient conditions are reported to be 33.5 ppt for the area.
[3] Not Reported

None of the heated discharge scenarios are expected to result in salinities along the seafloor at the edge of the ZID being increased more than 3 ppt (10 percent) above ambient. Based on historical data, conditions under which the maximum salinity increase would occur have a probability of occurrence of significantly less than 0.01 percent. In the event that EPS minimum flows are unheated, projected salinity along the seafloor at the edge of the ZID will result in a natural mean receiving water salinity that is 4.7 ppt (approximately 14 percent increase) above ambient. A joint probability analysis of historical EPS flows and ocean/wind conditions shows that 95 percent of the time, the maximum seafloor salinity levels at the edge of the ZID would be less than 36.2 ppt (less than 8.1 percent over ambient). Within the EPS discharge channel itself (prior to initial dilution), end-of-pipe salinity is projected to be less than 40 ppt more than 99 percent of the time.

Additional information regarding the data collection and modeling results submitted to the Regional Water Board are contained within the facility file at the Regional Water Board.

The Discharger commissioned several studies to assess whether the projected increases in the receiving water salinity will adversely affect marine species that exist in the vicinity of the EPS/CDP discharge point. These studies include:

1) *Salinity Tolerance Investigation*. A 5.5 month test was conducted to determine how a salinity concentration of 36 ppt would affect 18 key species. The results of this investigation reported no mortality, normal activity and feeding behavior, and no significant differences in weight gain or reproductive activity between the CDP effluent tank and the control tank.

2) *Salinity Toxicity Investigation*. A 19 day test was conducted to determine how salinity concentration of up to 40 ppt would affect three key species. The results of this investigation indicate that the test and control tanks during the 19 day test showed

that all organisms were behaving normally, and no difference existed in survivability between the control tank and the test tanks containing salinities of 37, 38, and 40 ppt.

3) *Marine Biology Effects Research*. Dr. Jeffrey B. Graham evaluated hydrodynamic model results developed by Jenkins and Wasyl and compared the model results with research information on salinity tolerance levels in marine species. Graham's evaluation concludes, based on modeling scenarios provided by the Discharger, that salinities projected to occur with implementation of CDP should not adversely affect organisms in the discharge field.

All studies indicated that the CDP will not have a significantly negative impact on aquatic life. The referenced studies are included in the facility file maintained by the Regional Water Board.

b. Temperature

The CDP effluent is not expected to significantly affect the temperature of the EPS effluent. However, the amount of heat energy discharged under combined EPS/CDP operations will be less due to the lower discharge flows (by approximately 50 MGD). The Discharger submitted modeling results for the 20.5 years of historical EPS flows. A summary of the expected effects of the EPS/CDP effluent at the edge of the ZID is provided in Table 11. *Summary of Projected Receiving Water Temperature*.

Table 11. Summary of Projected Receiving Water Temperature

Model Scenario	Maximum Projected Increase in Seabed Temperature at the Edge of the ZID[1] (°F)	Seabed Footprint with Temperature Increase in Excess of 4°F[2] (acres)	Seabed Footprint with Temperature Increase in Excess of 2°F (acres)		Probability of Occurrence of Model Scenario (%)
			No Project Conditions[2]	Implementation of CDP[3]	
Worst Case Day	3.13	0.8	114	57	<0.01
Average Day	1.51	0	10.5	9	50
Worst Case Month	2.23	0	51	35	0.04
Average Month	1.51	0	23	17	50

[1] ZID extends approximately 1,000 feet from the EPS discharge jetty.
[2] Approximate seabed footprint in acres that experiences a 2°F temperature increase under current conditions without the CDP discharge.
[3] Approximate seabed footprint in acres that experiences a 2°F temperature increase with implementation of CDP.

The maximum effects on the EPS/CDP plume over the 7,523 model runs were found to occur during modeling conditions that resulted in maximum increase in the density of the discharge, and maximum EPS cooling water flows. The EPS/CDP discharge under average day and average month conditions is expected to result in a smaller thermal footprint than would have occurred with the current EPS discharge.

Additional information regarding the data collection and modeling results submitted to the Regional Water Board are contained within the facility file at the Regional Water Board.

Overall, the implementation of CDP desalination operations is expected to result in reduced temperature effects on marine resources compared to the existing EPS cooling water discharge.

D. Compliance Summary

[Not Applicable]

E. Planned Changes

[Not Applicable]

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

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

A. Legal Authorities

This Order is issued pursuant to section 402 of the Federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California Water Code (CWC). It shall serve as a NPDES permit for point source discharges from the Discharger's Facilities to the Pacific Ocean at Outfall 001. This Order also contains discharge prohibitions, effluent limitations, discharge specifications, provisions, and other requirements pursuant to the CWC.

B. California Environmental Quality Act (CEQA)

Adoption of an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with Section 13389 of the CWC, except for new sources as defined in the Federal Water Pollution Control Act. Section 306 of CWA (40 CFR 122.2) defines a new source as being commenced after promulgation of standards of performance which are applicable to such source. No performance standards have been published under Section 306 of CWA that are applicable to seawater desalination. As such, the CDP is not a new source, and is exempt from CEQA requirements.

The City of Carlsbad is the lead agency for conducting CEQA review of the proposed CDP. An Environmental Impact Report (EIR) was prepared by the City to evaluate environmental effects of the project. The EIR went to the prescribed public noticing and review process, and was approved by the Carlsbad City Council on June 13, 2006. The final EIR can be found at the following website: http://www.carlsbad-desal.com/EIR.asp.

The Regional Board has reviewed the final EIR for water quality related issues and proposed mitigation measures. These issues and Regional Board's analysis are summarized in Table 12.

Table 12 Summary of EIR Substantial Findings Related to Water Quality

Potential Issue	EIR Finding	EIR-Required Mitigation	Regional Board Analysis
Chemical release from CDP operation	No Significant Impact. Potential effects from chemical additives during the desalination process will be negligible.	None required.	Tentative Monitoring and Reporting Program No. R9-2006-0065 will require monitoring of the effluent stream for trace contaminants and chemicals.
Hazards and Hazardous Materials	No Significant Impact. Hazards associated with the project will be minimized as a result of project features designed to reduce risks associated with chemical use and storage, and existing regulatory requirements for safe handling and storage of chemicals.	The EIR specifies several preventative mitigation measures, including regular inspection of all hazardous materials handling facilities; proper handling, storage, transportation and disposal of hazardous materials; proper storage and emergency handling of liquid chemicals; protection and leak detection of piping system; and developing safety programs.	Provision VI.C.3 of Order No. R9-2006-0065 requires the Discharger to develop and implement a best management practices plan that details site-specific plans, procedures, and practices to prevent or minimize the potential for release of toxic or hazardous pollutants to waters of the State. The Discharger is required to update the plan on an annual basis.
Receiving Water Temperature	No significant impact. Modeling studies demonstrate that no significant effects will occur associated with combining the desalination plant discharge with the existing EPS discharge. Temperature increases will be minimal and well within Thermal Plan requirements at all locations.	None required. Precautionary monitoring will be required.	To insure compliance with Thermal Plan requirements, Receiving Water Monitoring Requirement VI.C of Monitoring and Reporting Program No. R9-2006-0065 requires the discharger to perform semiannual receiving water temperature monitoring at 12 receiving water stations at depth intervals of 10 feet. Receiving Water Monitoring Requirement VI.D requires the discharger to map the thermal plume using infrared imaging on a semiannual basis.
Receiving Water Salinity	No Significant Impact. The CDP discharge will increase salinity levels in the combined CDP/EPS discharge. Results of modeling indicate that receiving water salinity will not exceed levels which would cause significant impacts to aquatic or benthic species.	Continuously monitor flow rates and salinity levels. On semi-annual frequency monitor and conduct testing for compliance with Ocean Plan acute and chronic toxicity requirements. Submit appropriate reports to the RWQCB and the City of Carlsbad.	Initial studies submitted by the discharger indicate that no salinity-related acute toxicity effects would occur at a salinity level below 40 ppt. To prevent toxicity from occurring within the receiving water body due to high salinity, Discharge Specification and Effluent Limitation III.B.2 of Order No. R9-2005-0065 limits average day effluent salinity concentrations to 40 ppt and maximum hour concentrations to 44 ppt. By complying with this effluent limit, it can be assured for

Potential Issue	EIR Finding	EIR-Required Mitigation	Regional Board Analysis
			three things (1) receiving water salinity levels are maintained below 40 ppt at all times after initial dilution, (2) the acute toxicity to marine life caused by high salinity is minimized, and (3) a minimum cooling water flow that would be necessary to dilute the brine is guaranteed. Provision VI.C.2.c of Order No. R9-2006-0065 requires the discharger to conduct Salinity and Acute Toxicity Studies to further assess toxicity effects associated with short-term and long-term exposures to higher salinity. Additionally, Receiving Water Monitoring Requirement VI.C of Monitoring and Reporting Program No. R9-2006-0065 requires the discharger to perform semiannual receiving water salinity monitoring at 12 receiving water stations at depth intervals of 10 feet.
Entrainment & Impingement	No Significant Impact. When operating in conjunction with EPS, the operation of CDP will not change EPS flows and flow velocities, nor cause additional impingement losses. Additional entrainment loss is ~ 0.01% to 0.28%. When operating independent of EPS, flow volume and velocity would be substantially reduced, meeting federal performance standards for impingement. Entrainment loss would range from 2% to 34% of that of EPS.	In the event the EPS were to permanently cease operations, and the Developer were to independently operate the existing EPS seawater intake and outfall for the benefit of the project, such independent operation will require CEQA compliance and permits to operate as required by then-applicable rules and regulations for the City and other relevant agencies.	The CDP is not subject to 316(b) regulations. To ensure compliance with California Water Code Section 13142.5(b) requirements when the CDP is co-located with the EPS but the CDP intake requirements exceed the volume of water being discharged by the EPS and EPS operates for the benefit of the CDP the discharger must implement and comply with the March 27, 2009 Flow, Entrainment and Impingement Minimization Plan approved by the Regional Board on May 13, 2009. If EPS ceases operations and the Discharger proposes to operate the seawater intake structure and outfall independently for the benefit of the CDP as a stand-alone facility, the Regional Board will require reevaluation of the requirements of Water Code section 13142.5(b).

Potential Issue	EIR Finding	EIR-Required Mitigation	Regional Board Analysis
Storm Water Drainage.	Impact Mitigated to Less than Significant. Potentially significant short-term water quality impacts could occur if the construction areas are not properly management to contain loose soils and contaminants.	Prior to issuance of permits, applicant shall demonstrate compliance with NPDES permit requirements for urban runoff and storm water discharge and any regulations adopted by the City of Carlsbad, Oceanside, and Vista. The applicant shall file a Notice of Intent (NOI) with the State Water Resources Control Board to obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction Activity and shall implement a Storm Water Pollution Prevention Plan (SWPPP). The applicant shall implement best management practices. The applicant shall submit for City approval a Storm Water Management Plan (SWMP), demonstrate compliance with the City of Carlsbad Standard Urban Storm Water Mitigation Plan (SUSMP), Order 2001-01, issued by the San Diego Region of the California Regional Water Quality Control Board and City of Carlsbad Municipal Code.	The discharger will be required to conform to applicable requirements governing urban runoff and storm water drainage associated with construction activities through compliance with provisions of the State Board Order No. 99-08-DWQ General Permit for Storm Water Discharges Associated with Construction Activity. The Discharger will also have to comply with municipal storm water permit regulations established within Regional Board Order No. 2001-0001 (and Tentative Order No. 2006-0011 when adopted).
Lagoon Impacts	No Significant Impact. Discharged waters would not be recirculated back into Agua Hedionda Lagoon to any discernible degree. Under worst-case conditions, salinities at the inlet of the lagoon would be less than 33.7 ppt, a near-ambient value.	None required.	To assess the fate of the discharge plume, receiving water monitoring of Receiving Water Monitoring Requirement VI.C of Monitoring and Reporting Program No. R9-2006-0065 requires the discharger to perform semiannual receiving water salinity and temperature monitoring at 12 receiving water stations at depth intervals of 10 feet. Receiving Water Monitoring Requirement VI.D requires the discharger to map the thermal plume using infrared imaging on a semiannual basis.
Sediment Transport	No Significant Impact. The combined discharge from the CDP/EPS will not affect sediment transport, as the total discharge flow velocity and volume will be reduced from current EPS levels.	None required.	Reduced flow volumes and flow velocities should result in reduced sediment transport compared to existing conditions. Receiving Water Monitoring Requirement VI.A of Monitoring and Reporting

Potential Issue	EIR Finding	EIR-Required Mitigation	Regional Board Analysis
			Program No. R9-2006-0065 requires the discharger to perform semiannual light transmittance monitoring at 12 receiving water stations.
Cumulative Effects on Biology and Water Quality	No Significant Impact. The cumulative effects on biology and water quality impacts are projected to be less than significant.	None required.	No discernible cumulative effects on marine biology and water quality are projected. Monitoring and Reporting Program No. R9-2006-0065, requires the Discharger to perform periodic receiving water quality monitoring for a variety of constituents to allow continued assessment of overall receiving water effects of the discharge.
Growth Inducement	Significant Unavoidable Impact. The project will not cause growth inducement locally as it (1) replaces existing imported supplies with desalinated potable water, and (2) would not result in new supplies over and above those already contemplated for the region. Additionally, the project will not affect any existing local development or growth management plans. However, the replacement of imported water supplies with local supplies may free up existing imported supplies for use elsewhere. Some of these imported supplies may not have been available in the future due to (1) over subscription of allocated Colorado River supplies, and (2) environmental water needs of the Bay Delta. Nonetheless, the EIR recognizes the possibility of indirect regional growth inducement elsewhere if State Water Project and Colorado River supplies remain available for municipal use elsewhere.	The City found that benefits significantly outweigh the identified significant unavoidable impact of indirect growth inducement.	The issuance of NPDES permit establishes limitations or requirements related to the specific discharge being regulated. The California Water Code Section 13241(e) requires the Regional Board to consider the need for developing housing within the region when establishing water quality objectives in water quality control plans.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** The Regional Water Board adopted a Water Quality Control Plan for the San Diego Basin (hereinafter Basin Plan) on September 8, 1994. The Basin Plan was subsequently approved by the State Water Resources Control Board (State Water Board) on December 13, 1994. Subsequent revisions to the Basin Plan have also been adopted by the Regional Water Board and approved by the State Water Board. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Beneficial uses applicable to the Pacific Ocean are as follows:

Table 13. Basin Plan Beneficial Uses of the Pacific Ocean

Discharge Point	Receiving Water Name	Beneficial Use
Outfall 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, Reproduction, and/or Early Development; Shellfish Harvesting

The Basin Plan relies primarily on the requirements of the *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan) for protection of the beneficial uses of the State ocean waters. The Basin Plan, however, may contain additional water quality objectives applicable to the Discharger.

On November 16, 2000 the State Water Board adopted a revised Ocean Plan. The revised Ocean Plan became effective on December 3, 2001. The Ocean Plan was amended in April 2005 to address reasonable potential and Areas of Special Biological Significance. The Ocean Plan contains water quality objectives and beneficial uses for the ocean waters of California. The beneficial uses of State ocean waters to be protected are summarized below:

Table 14. Ocean Plan Beneficial Uses of the Pacific Ocean

Discharge Point	Receiving Water Name	Beneficial Use
Outfall 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; Rare and Endangered Species; Marine Habitat; Fish Migration; Fish Spawning and Shellfish Harvesting

In order to protect these beneficial uses, the Ocean Plan establishes water quality objectives (for bacterial, physical, chemical, and biological characteristics, and for radioactivity), general requirements for management of waste discharged to the ocean, quality requirements for waste discharges (effluent quality requirements), discharge prohibitions, and general provisions.

The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal

Plan) on May 18, 1972, and amended this plan on September 18, 1975. The Thermal Plan contains temperature objectives for coastal waters.

Requirements of this Order specifically implement the applicable Water Quality Control Plans.

2. **Antidegradation Policy.** 40 CFR 131.12 requires that State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16, which incorporates the requirements of the federal antidegradation policy. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. As discussed in detail in this Fact Sheet, the proposed discharge is consistent with the antidegradation provision of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

3. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and 40 CFR 122.44(l) prohibit backsliding in NPDES permits. 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.

4. **Monitoring and Reporting Requirements.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program (Attachment E) establishes monitoring and reporting requirements to implement federal and State requirements.

5. **Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised State and Tribal water quality standards (WQS) become effective for CWA purposes (40 CFR 131.21, 65 FR 24641, April 27, 2000). Under USEPA's new regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

D. Impaired Water Bodies on CWA 303(d) List

On June 5 and July 25, 2003, the 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 for point sources. The 303(d) list includes the shoreline of the Pacific Ocean extending through the Loma Alta Hydrologic Area, at the Loma Alta Creek Mouth as impaired for bacterial indicators. Further, the Agua Hedionda Lagoon, located adjacent to the discharge location, is listed as impaired for bacterial indicators and sedimentation/siltation. The discharge is not expected to contribute to the impairment of the receiving waters.

E. Other Plans, Polices and Regulations

[Not Applicable]

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source discharges 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: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality objectives to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, three options exist to protect water quality using narrative water quality objectives: 1) 40 CFR 122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a); 2) proposed State criteria or a State policy interpreting narrative objectives supplemented with other relevant information may be used; or 3) an indicator parameter may be established.

A. Discharge Prohibitions

1. Prohibition A of Order No. R9-2006-0065 prohibits the discharge of wastes in a manner or to locations which have not been specifically authorized by this Order and for which valid waste discharge requirements are not in force are prohibited.
2. Section III.B of this Order lists additional discharge prohibitions from the Basin Plan. California Water Code Section 13243 provides that the Regional Board, in a water quality control plan or in waste discharge requirements, may specify certain conditions where the discharge of wastes or certain types of wastes that could affect the quality of waters of the state is prohibited. Inclusion of the Basin Plan prohibitions in the Order implements the requirements of the Basin Plan. The Basin Plan prohibitions included in this Order are a subset of the complete set of Basin Plan prohibitions. Certain Basin Plan prohibitions did not apply to CDP's discharge and were not included in this Order.

3. Prohibitions C, D and E in Section III of this Order are additional discharge prohibitions from the California Ocean Plan. Prohibition C prohibits the discharge of waste that violates the water quality objectives established by Chapter 2 of the Ocean plan. Prohibition D prohibits the discharge of waste to Areas of Special Biological Significance. Prohibition E requires compliance with Discharge Prohibitions contained in Section III.H of the Ocean Plan.

4. The monthly average of daily effluent discharge flow rates of wastewater from the Discharger's Facilities to the Pacific Ocean shall not exceed the flow rates established in Table 14, *Monthly Average Flow Limitation Based on Pretreatment Technology*, unless the Discharger obtains revised waste discharge requirements authorizing an increased discharge.

Table 15. Monthly Average Flow Limitation Based on Pretreatment Technology

Pretreatment Technology[1]	Maximum Monthly Average Flow Rate
Granular Media Filtration	54 MGD
Membrane Filtration	57 MGD

[1] The effluent flow shall be limited to the flow rates indicated in this table based on the pretreatment technology option selected by the Discharger and reported to the Regional Water Board as specified in Section VI.C.2.a of Order No. R9-2006-0065

B. Technology-Based Effluent Limitations

1. Scope and Authority

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

a. Best practicable treatment control technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and nonconventional pollutants.

b. 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 nonconventional pollutants.

c. Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the "cost reasonableness" of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

d. 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.

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 125.3 of the NPDES regulations authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations 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 permit writer must consider specific factors outlined in 40 CFR 125.3.

Section III.B of the Ocean Plan prescribes effluent limitations that apply to industrial discharges for which effluent limitations guidelines have not been established pursuant to Sections 301, 302, 304, or 306 of the federal CWA. Specifically Section III.B.3 of the Ocean Plan states that compliance with Table A effluent limitations shall be the minimum level of treatment acceptable under the Ocean Plan, and shall define reasonable treatment and waste control technology.

2. Applicable Technology-Based Effluent Limitations

Applicable ELGs for discharges of brine from desalination plants have not yet been developed by USEPA

Table A of the Ocean Plan (Table A) contains technology-based effluent limitations for oil and grease, suspended solids, settleable solids, turbidity, and pH. Table A effluent limitations apply to industrial discharges for which ELGs have not been established. Applicable technology-based effluent limitations in Table A are summarized in Table 15. *Summary of Technology-based Effluent Limitations for Discharge Point No. 001*.

Table 16. Summary of Technology-based Effluent Limitations for Discharge Point No. 001.

Parameter	Units	Ocean Plan Table A Limitations		
		30-Day Average	7-Day Average	Instantaneous Maximum
Oil and Grease	mg/L	25	40	75
Settleable Solids	ml/L	1.0	1.5	3.0
Total Suspended Solids (TSS)	mg/L	60[1]	--	--
Turbidity	NTU	75	100	225
pH	Units	--	--	[2]

[1] Dischargers shall, as a 30-day average, remove 75% of suspended solids from the influent stream before discharging wastewaters to the ocean, except that the effluent limitation to be met shall not be lower then 60 mg/l.

[2] The pH of wastes discharged shall at all times be within the range of 6.0 to 9.0 pH units.

The effluent limitation for TSS contained in Table A of the Ocean Plan requires dischargers, as a 30-day average, to remove 75 percent of TSS from the influent before discharging wastewater to the ocean, except that the effluent limitation to be met shall not be lower than 60 mg/L. Because the effluent from CDP will not undergo treatment for removal of TSS, a TSS 30-day average effluent limitation of 60 mg/L has been established for the CDP discharge in accordance with Table A of the Ocean Plan, and percent removal requirements are not included in this permit.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

USEPA regulations at 40 CFR 122.44 (d)(1)(i) require permits to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels, which cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard. The establishment of WQBELs in this Order, based on water quality objectives contained in the 2005 Ocean Plan is in accordance with the U.S. EPA regulations.

CWC Section 13263 requires the Regional Board to consider CWC Section 13241 when prescribing requirements. The Regional Board has not made a detailed consideration of all the factors to be considered under CWC Section 13241 in prescribing WQBELs. However, CDP

operations are designed to meet federal standards and state water recycling criteria, CDP is capable of complying with the WQBELs, the WQBELs are necessary to protect beneficial uses and the quality of waters of the state, and there is no evidence that meeting the WQBELs is a burden.

2. Applicable Beneficial Uses and Water Quality Objectives

   a. Basin Plan

      For all ocean waters of the State, the Basin Plan and its subsequent revisions establish the beneficial uses described previously in this Fact Sheet. The Basin Plan includes the following water quality objectives for dissolved oxygen and pH in ocean waters, which have been incorporated into Order R9-2006-0065 as receiving water limitations:

      1) Dissolved Oxygen. The dissolved oxygen concentration in ocean waters shall not at any time be depressed more than 10 percent from that which occurs naturally, as a result of the discharge of oxygen demanding waste materials.

      2) pH. The pH of receiving waters shall not be changed at any time more than 0.2 pH units from that which occurs naturally

   b. Ocean Plan

      Order No. R9-2006-0065 has been written using the guidance of the Ocean Plan, which was most recently updated in 2005.

      For all ocean waters of the State, the 2005 Ocean Plan establishes the beneficial uses described previously in this Fact Sheet. The Ocean Plan also includes water quality objectives for the ocean receiving water for bacterial characteristics, physical characteristics, chemical characteristics, biological characteristics, toxicity, and radioactivity. Water quality objectives from the Ocean Plan are included as receiving water limitations in Order No. R9-2006-0065.

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

      1) 6-month median, daily maximum, and instantaneous maximum objectives for 21 chemicals and chemical characteristics, including total residual chlorine and chronic toxicity, for the protection of marine aquatic life.

      2) 30-day average objectives for 20 non-carcinogenic chemicals for the protection of human health.

      3) 30-day average objectives for 42 carcinogenic chemicals for the protection of human health.

4) Daily maximum objectives for acute and chronic toxicity.

3. Expression of WQBELs

NPDES regulations at 40 CFR 122.45(d) require that all effluent limitations be expressed, unless impracticable, as both maximum daily and average monthly effluent limits (MDEL and AMEL). This Order contains WQBELs that are based on water quality objectives contained in the California Ocean Plan, and approved by USEPA, that are expressed as six-month median, maximum daily, and instantaneous maximum water quality objectives for a given constituent; the implementation provision of the Ocean Plan provides procedures for developing six-month median, maximum daily, and instantaneous maximum effluent limitation from the water quality objectives. The Ocean Plan does not provide procedures for deriving monthly average effluent limitations from the water quality objectives, and other technically- and statistically-sound procedures are not available for deriving statistically-equivalent monthly-average effluent limitations from the Ocean Plan objectives that would satisfy the six-month median, maximum daily, and instantaneous maximum objectives simultaneously. Consequently, this Order does not express effluent limitations in terms of monthly averages but contains effluent limitations derived directly from the water quality objectives according to the implementation procedures of the Ocean Plan. Performance goals, discussed in more detail in Fact Sheet Sections IV.C and IV.E, are expressed in a similar manner as WQBELs as described above. For similar reasons, effluent limitations and performance goals for constituents with water quality objectives expressed as a 30-day average only or as a maximum daily only are only provided as an AMEL or as a MDEL, respectively.

The MRP for this Order requires the effluent to be monitored for toxic constituents and parameters using a 24-hour composite sample or a grab sample, but not both. As explained in Section VII, Compliance Determination, of this Order, compliance with MDELs is determined only with composite samples while compliance with instantaneous maximum limitations is determined only with grab samples, in accordance with the Ocean Plan implementation provisions. This means, for example, if a constituent is required to be monitored with a composite sample, then the monitoring result can only be compared to the maximum daily and six-month median effluent limitations but not the instantaneous maximum limitation.

4. Determining the Need for WQBELs

40 CFR 122.44(d) requires that NPDES permits include any requirements necessary to achieve water quality standards that are in addition to or more stringent than technology-based standards. 40 CFR 122.44(d) requires that limitations must control all pollutants or pollutant parameters which are or may be discharged at a level that cause, has reasonable potential to cause, or contribute to an excursion above a water quality objective for a constituent (i.e., the permitting authority may not omit an effluent limitation for pollutants with demonstrated reasonable potential).

For Order No. R9-2006-0065 the need for effluent limitations based on water quality objectives in Table B of the Ocean plan was evaluated in accordance with 40 CFR 122.44(d) and guidance for statistically determining the "reasonable potential" for a discharged pollutant to exceed an objective, as outlined in the *Technical Support Document for Water Quality-based Toxics Control* (TSD; EPA/505/2-90-001, 1991) and the California Ocean Plan Reasonable Potential Analysis (RPA) Amendment that was 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 number 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 probable initial dilution), can then be compared to the appropriate objective to determine the potential for an exceedance of that objective and the need for an effluent limitation. The Ocean Plan RPA can yield three endpoints: 1) Endpoint 1, an effluent limitation is required and monitoring is required; 2) Endpoint 2, an effluent limitation is not required and the Regional Water Board may require monitoring; and 3) Endpoint 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.

Actual effluent data from the facility is not available; however projected effluent quality data provided as part of the report of waste discharge was utilized in part to perform a RPA. The RPA was conducted using the RPcalc 2.0 software tool developed by the State Water Board for conducting a RPA, the applicable Table B water quality objectives, an applicable dilution credit of 15.5:1, and the projected maximum concentrations for pollutants contained in the CDP effluent for which water quality objectives exist in Table B of the Ocean Plan (as provided in Table 5. *Maximum Parameter Concentrations* of this Fact Sheet). It should be noted that the projected concentrations were not actual samples of the CDP effluent, but were derived from combining data for the RO concentrate with data from each pretreatment technology option. These data were combined by flow-weighting the effluent concentrations based on the expected flow from each contributing wastestream (as described in Table 2. *Summary of Proposed CDP Flows Directed Back into the EPS Cooling Water Discharge Channel* in this Fact Sheet).

Reasonable potential to exceed water quality objectives contained within the Ocean Plan was not determined for any parameters contained in Table 5. *Maximum Parameter Concentrations*. Based on the limited available data, the RPA was specifically inconclusive for all parameters. Because reasonable potential to exceed water quality objectives contained in Table B of the Ocean Plan can not be determined, Order No. R9-2006-0065 does not contain WQBELs for individual metals and priority pollutants listed in Table B of the Ocean Plan for the CDP effluent.

As the CDP is a new discharge, no actual effluent data for the CDP was available. The Discharger submitted projected effluent quality data that are estimates based on pilot project effluent quality. For many parameters, relatively high analytical detection levels were reported, in some instances higher than the associated water quality objectives. Due to the uncertainty of effluent characteristics, and in accordance with Step 13 contained in Appendix VI to the Ocean

Plan (Reasonable Potential Analysis Procedure for Determining Which Table B Objectives Require Effluent Limitations), performance goals will be established and a water quality-based effluent limitation will be established for chronic toxicity. As discussed further in Section IV.E of this Fact Sheet, this Order includes desirable maximum effluent concentrations, referred to in this Order as "performance goals", for Table B constituents that had inconclusive RPA results (Endpoint 3). Performance goals were derived using the WQBEL calculation procedures described in Section IV.C.6 of this Fact Sheet. As also specifically described in Section IV.C.6 below, an effluent limitation for chronic toxicity has been calculated based on the method provided for Table B parameters of the Ocean Plan. Effluent limitations for chronic toxicity will provide a minimum level of water quality protection for the CDP effluent.

5. Water Quality Limitations Based on the Thermal Plan

The Thermal Plan establishes thermal water quality objectives for coastal waters. Under the terms and conditions of the Thermal Plan, elevated temperature wastes from EPS Units 1-4 are classified as existing discharges. The waste from EPS Unit 5 is classified as a new discharge.

Section 316 (a) of the CWA requires compliance with State water quality standards for the discharge of thermal effluent. In 1973, San Diego Gas and Electric (SDG&E) (previous owner of EPS) conducted a thermal effects study as required by the Thermal Plan. The study concluded that the existing discharges from EPS Units 1-3 caused no prior appreciable harm to the aquatic communities of the coastal waters of the Pacific Ocean. The Discharger further predicated that the increased discharge from EPS Unit 4 would not cause significant changes in the existing conditions or beneficial uses. The Regional Water Board reviewed the thermal effects study and concurred with the Discharger's conclusions.

On March 6, 1975, under provisions of Section 316(a) of the CWA, SDG&E applied for an exception for the discharger from Unit 5 under the new source performance standards contained in the Thermal Plan and power plant regulations in effect in 1975, as described further below:

a. Thermal Plan Objective 3.B.(1)

Elevated temperature waste shall be discharged to the open ocean away from the shoreline to achieve dispersion through the vertical water column.

b. Thermal Plan Objective 3.B.(4)

The discharges of elevated wastes shall not result in increases in the natural water temperature exceeding 4°F at (a) the shoreline, (b) the surface of any ocean substrate, or (c) the ocean surface beyond the 1,000 feet from the discharge system. The surface temperature limitation shall be maintained at least 50 percent of the duration of any tidal cycle.

c. Power plant regulations in effect in 1974, 40 CFR 423.15(l)

There shall be no discharge of heat from the main condensers except:

1) Heat many be discharged in blowdown from recirculated cooling water systems provided the temperature at which the blowdown is discharged does not exceed at any time the lowest temperature of recirculated cooling water prior to the addition of the make-up water.

2) Heat may be discharged in blowdown from cooling ponds provided the temperature at which the blowdown is discharged does not exceed at any time the lowest temperature of the recirculated cooling water prior to the addition of the make-up water.

On July 16, 1976 the U.S Court of Appeals for the Fourth Circuit remanded certain provisions (including the thermal limitation discussed above) of the power plant regulations in effect in 1974 for further consideration. USEPA has not promulgated a new heat discharge limitation for power plants to date.

SDG&E initiated a study in 1975 for the purpose of making a demonstration under Section 316 (a) of the CWA in support of its application for the exceptions to the Thermal Plan discussed above. As a part of its application for such exceptions under the Thermal Plan, SDG&E proposed alternative thermal discharge limitations that would allow discharges from EPS Unit 5 to be made in the same "across the beach" channel used for the thermal discharges from EPS Units 1-4, and allow for an alternative to the surface water temperature limitation. SDG&E's study was undertaken to demonstrate the proposed alternatives would ensure the protection and propagation of the beneficial uses of the receiving waters, including a balanced, indigenous population of shellfish, fish, and wildlife.

SDG&E submitted the results of the 316(a) study in 1981. SDG&E concluded that the additional discharge from the EPS Unit 5, when added to the discharges from EPS Units 1-4, had not resulted in "appreciable harm" to the balanced indigenous communities of the receiving waters, or in adverse effects on the beneficial uses of the coastal waters of in the vicinity of the facility discharge.

SDG&E submitted a supplemental 316(a) Summary Report in 1990. This report provided additional data for the period from 1981 to 1990 and amended the original request based on actual operating experience.

Prior to the adoption of the 1994 NPDES permit for EPS (Order 94-59), and based upon a review of the findings of the 316(a) demonstration studies, the Regional Water Board and USEPA concluded that additional information was needed to determine if the thermal discharge from EPS will allow the propagation of a balanced indigenous community and will ensure the protection of beneficial uses of the receiving water. Order 94-59 required SDG&E to conduct an additional study to supplement its demonstration of compliance with Section 316(a). SDG&E submitted this supplemental study on August 8, 1997. The supplemental study

concludes that no adverse effects of the present operation have been observed or are predicted. Cabrillo Power resubmitted the 1997 report in February 2004.

CDP will use approximately 100 MGD of EPS effluent as the source water for desalination operations. Up to 50 MGD of this source water will be distributed for use as potable water. Approximately half of the heated 100 MGD will be discharged back into the EPS effluent and discharged to the Pacific Ocean. No additional thermal energy is expected to be added to the concentrate discharged back into the EPS effluent. Thus, the CDP is expected to result in the removal of 50 MGD of heated effluent from the EPS effluent, without adding additional thermal energy to the returned effluent. The CDP is expected to reduce the thermal footprint of the EPS discharge. Additional information regarding the effects of the CDP is provided in Section II.C of this Fact Sheet.

Because the CDP is expected to result in a smaller thermal footprint of the EPS effluent, CDP is not expected to add thermal energy to the discharge. In addition, because EPS thermal requirements have been established in Order No. 2000-03, temperature effluent limitations have not been established for the CDP discharge.

6. WQBEL and Performance Goal Calculations

From the Table B water quality objectives of the Ocean Plan, effluent limitations are calculated according to the following equation for all pollutants, and performance goals are similarly calculated, except for acute toxicity (if applicable) and radioactivity:

Ce = Co + Dm (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
Dm = minimum probable initial dilution expressed as parts seawater per part wastewater

The performance goal for acute toxicity is calculated according to the following equation:

Ce = Co + (0.1) Dm (Co – Cs)

where all variables are as indicated above. This equation applies only when Dm > 24.

The Dm is based on observed waste flow characteristics, receiving water density structure, and the assumption that no currents of sufficient strength to influence the initial dilution process flow across the discharge structure. As described previously in Section II.B of this Fact Sheet, the EPS discharge channel has been granted a dilution factor of 15.5:1 by the Regional Water Board. The effect of the Facility's discharge on the combined effluent is expected to increase initial dilution in excess of 20:1 during theoretical worst case scenarios. Thus, the continued application of the previous outfall dilution factor of 15.5:1 is considered conservative and protective of water quality.

Initial dilution is 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.

As site-specific water quality data is not available, in accordance with Table B implementing procedures, Cs equals zero for all pollutants, except the following:

Table 17. 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

As examples, the WQBEL for chronic toxicity and the performance goals for copper and chloroform are determined as follows:

Water quality objectives from the Ocean Plan are:

Table 18. Copper, Chronic Toxicity, and Chloroform Ocean Plan Objectives

Pollutant	6-Month Median	Daily Maximum	Instantaneous Maximum	30 Day Avg
Copper	3 µg/L	12 µg/L	30 µg/L	-
Chronic Toxicity	-	1 TUc	-	-
Chloroform	-	-	-	130 µg/L

Using the equation, Ce = Co + Dm (Co – Cs), the following calculations were made before rounding to two significant digits.

Copper

Ce = 3 + 15.5 (3 – 2) = 18.5 µg/L (6-Month Median)
Ce = 12 + 15.5 (12 – 2) = 167 µg/L (Daily Maximum)
Ce = 30 + 15.5 (30 – 2) = 464 µg/L (Instantaneous Maximum)

Chronic Toxicity

Ce = 1 + 15.5 (1 - 0) = 16.5 TUc (Daily Maximum)

Chloroform

Ce = 130 + 15.5 (130 – 0) = 2,145 µg/L (30-Day Average)

Based on the implementing procedures described above, effluent limitations or performance goals have been calculated for all Table B pollutants from the Ocean Plan and incorporated into Order R9-2006-0065.

7. Mass and Concentration Limits

40 C.F.R. 122.45(f)(1)(ii) states that all permit limitations, standards or prohibitions shall be expressed in terms of mass except under certain circumstances including "when applicable standards and limitations are expressed in terms of other units of measurement." This provision originates from regulations adopted by USEPA on June 7, 1979 as 40 CFR 122.15 (d) which required effluent limitations in terms of mass except under certain circumstances including "where applicable promulgated effluent guideline limitations, standards or prohibitions are expressed in other terms than mass, e.g., as concentration levels." The 1979 provision indicated that concentration was clearly one of the "other terms than mass" and that the provision was limited to technology-based effluent limitations.

The 1979 provision underwent several modifications but achieved the language of the current 40 CFR 122.45 in revised rules promulgated by USEPA on May 19, 1980. The Federal Register Preamble for the revised rule promulgation (45 FR 33342) states "[the revised regulation] now provides permit issuers greater flexibility in using concentration limits. Whenever appropriate, permits may include a concentration limit in addition to a mass limit. Limitations expressed exclusively in terms other than mass may be used (1) when applicable effluent guideline limitations are expressed other than in mass; (2) when on a case-by-case basis the mass of the discharge cannot be related to production or other measures of operation, and dilution will not be used as a substitute for treatment; or (3) for pH or other pollutants which cannot appropriately be expressed as mass. For example, total suspended solids discharges from certain mining operations may be unrelated to measures of operation. Finally, a permit can always contain a non-mass limit in addition to a mass limit, and the permittee must comply with both."

In the case of technology-based concentration effluent standards for TSS and oil and grease under Table A of the Ocean Plan, the need for mass emission rate (MER) limitations that are directly related to protection of ocean waters or proper operation has not been determined. Consequently, MER effluent limitations for TSS and oil and grease have not been included in this Order; however, if information demonstrating a need for these limitations become available in the future, they may be reinstated in this Order.

For performance goals based on water quality objectives, MER performance goals are not included in the tentative Order. The California Ocean Plan's Implementation Provisions for Table B require that "[d]ischarge requirements shall also specify effluent limitations in terms of mass emission rate limits using the general formula: Equation 3: lbs/day = 0.00834 x Ce x Q . . . ." The Ocean Plan clearly intended to also limit the discharge of toxic pollutants on a mass-loading basis. However, due to the uncertainty regarding the actual effluent flow from CDP, MER performance goals were not established in the tentative Order. Upon receipt of the Pretreatment Technology Report, as required in Section VI.C.1.a of the Order, the Regional Water Board may amend the Order to include MER performance goals.

8. Whole Effluent Toxicity (WET)

WET protects the receiving water quality from the aggregate toxic effect of a mixture of pollutants in the effluent. WET tests measure the degree of response of exposed aquatic test organisms to an effluent. The WET approach allows for protection of the narrative "no toxics in toxic amounts" criterion while implementing numeric criteria for toxicity. There are two types of WET tests: acute and chronic. An acute toxicity test is conducted over a short time period and measures mortality. A chronic toxicity test is conducted over a longer period of time and may measure mortality, reproduction, and growth.

Implementing provisions at Section III. C of the 2005 Ocean Plan require chronic toxicity monitoring for ocean waste discharges with minimum initial dilution factors below 100. Based on the implementing provisions of the 2005 Ocean Plan, a maximum daily effluent limitation of 16.5 TU_c for chronic toxicity is required.

There is no requirement to monitor for acute toxicity for discharges with minimum initial dilution factors below 100. However, based on reasonable potential analysis and the uncertainty of the data provided for this new discharge, a water quality-based acute toxicity performance goal of 0.765 TU_a is included in Order No. R9-2006-0065. The performance goal for acute toxicity is calculated according to the following equation:

$$Ce = Co + (0.1)\ Dm\ (Co)$$

where all variables are as indicated in Section IV.C.6 above.

Thus, for acute toxicity the applicable performance goal is:

$$Ce = 0.3 + (0.1)\ 15.5\ (0.3)$$

$$Ce = 0.765\ TU_a$$

The EPS discharge dilutes the salinity within the CDP discharge prior to discharge to the ocean. To account for this salinity reduction that occurs prior to discharge to the ocean, compliance with the listed acute toxicity performance goal shall be determined by samples collected at Monitoring Location M-001, adjusted to a salinity concentration of 40 ppt (the maximum daily average salinity concentration limit for the combined EPS and CDP discharges). Additionally, the discharger is required to perform a special acute toxicity and salinity study per Provision VI.C.2.c of the NPDES permit.

If chronic toxicity effluent limitations or the acute performance goal established in the Order are exceeded, then, within 15 days of the exceedance, the Discharger shall begin conducting six additional toxicity tests over a 6-week period and until the results of at least two consecutive toxicity tests do not show violations. The Discharger shall provide the results to this Regional Water Board. If the additional weekly toxicity tests indicate that toxicity effluent limitations or

performance goals are being consistently violated, the Discharger shall complete a toxicity reduction evaluation (TRE) and Toxic Identification Evaluation (TIE).

A TRE is a site-specific study conducted in a stepwise process designed to identify the causative agent(s) of effluent toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in effluent toxicity.

9. Radioactivity

Table B of the California Ocean Plan includes an objective for radioactivity which references limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Section 30253 of the California Code of Regulations (CCR). The California Ocean Plan also states that these objectives shall apply directly to the undiluted waste effluent. Title 17 CCR does not actually contain limits but instead references Title 10, Part 20 of the Code of Federal Regulations which contains effluent limitations for the discharge of radioactive nuclides in aqueous effluent under Column 2 of its Appendix B, Table 2. Incorporation of those limits in the Ocean Plan is prospective. The Ocean Plan's radioactivity objective holds all discharge of effluent that could potentially have radioactive materials to the same standards as effluents from facilities that would require a license under Title 17 CCR and Title 10 CFR regulations. It is appropriate to hold effluent from POTWs to the same standards because 10 CFR regulations do allow licensed facilities to dispose of radioactive materials to sanitary sewer systems. Radioactivity performance goals are included in Order No. R9-2006-002 which are ultimately based on radioactivity effluent limitations in the 10 CFR regulations. Performance goals for several important radionuclides based on effluent limitations from Appendix B, Table 2, 10 CFR Part 20 are provided below.

Table 19. Selected Radioactivity Performance Goals (from Table 2, Appendix B, Title 10 CFR Part 20)

Constituent	Units	Daily Maximum
Radium-226	pCi/ L	60
Radium-228	pCi/ L	60
Strontium-90	pCi/ L	500
Tritium	pCi/ L	1,000,000
Uranium	pCi/ L	300

D. Final Effluent Limitations

Effluent limitations for oil and grease, settleable solids, turbidity, and pH have been established based on the requirements of Table A of the Ocean Plan. An effluent limitation for chronic toxicity has been established based on the water quality objectives contained in the Ocean Plan.

The final effluent limitations for Discharge Point No. 001 are summarized in Table 16. *Summary of Final Effluent Limitations for Discharge Point No. 001*.

Table 20. Summary of Final Effluent Limitations for Discharge Point No. 001

Parameters	Units	Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum	Basis
Oil and Grease	mg/L	25	40		75	Ocean Plan (Table A)
Settleable Solids	ml/L	1.0	1.5		3.0	Ocean Plan (Table A)
Total Suspended Solids (TSS)	mg/L	60				Ocean Plan (Table A)
Turbidity	NTU	75	100		225	Ocean Plan (Table A)
PH	Units				[1]	Ocean Plan (Table A)
Chronic Toxicity	TU_c			16.5		Ocean Plan (Table B)

[1] The pH shall be between 6.0 and 9.0 at all times.

E. Rationale for Effluent Limitations on the Combined CDP and EPS Discharge

Marine communities may be degraded by excessive concentrations of salinity. To assess the potential for salinity-related impacts to marine communities, the discharger's Report of Waste Discharge included the results of a salinity effects study on test organisms within the CDP effluent and an assessment of technical literature that addresses salinity effects on native marine species.

Receiving water modeling analyses prepared by the Discharger indicate that receiving water salinity concentrations outside the zone of initial dilution will approach ambient conditions, and that salinity concentrations within the zone of initial dilution will be 40 ppt or less. Receiving water salinity levels at the edge of the ZID would be diluted by the assigned initial dilution of 15.5 to 1. At this initial dilution, salinity concentrations at the edge of the ZID are projected to be within 15 percent of ambient for all CDP discharge scenarios.

The salinity effects study evaluated impacts of salinity concentrations within the CDP brine discharge on the following test species known for susceptibility to environmental stress:

- purple sea urchin (*Stronglyocentrotus purpuratus*),
- sand dollar (*Dendraster excentricus*), and
- red abalone (*Haliotis rufescens*).

Test species were evaluated for survivability over a 19-day period in salinity concentrations ranging from 33.5 to 40 ppt. No differences were reported between test and control organisms during the 19-day tests with respect to species survivability or species behavior.

Additional information submitted by the discharger indicates that salinity concentrations up to 44 ppt will not likely to cause violations of Ocean Plan's acute toxicity standards. The discharger also reported the results of technical literature review that indicates that no salinity-related effects would occur in receiving waters if salinity levels in the combined CDP and EPS discharge are maintained below 40 ppt.

Excessive concentrations of salinity within the ZID, however, could cause noncompliance with Ocean Plan Table B acute toxicity requirements and could potentially degrade marine vertebrate, invertebrate, and plant species. Until additional information is developed on salinity-related toxicity within the CDP effluent, a conservative approach (that neglects diluting effects of the initial dilution process) to regulating salinity in the CDP discharge is warranted.

On the basis of review of available salinity effects information, an average daily salinity limitation for the combined CDP and EPS discharge of 40 ppt and maximum hourly effluent salinity concentrations to 44 ppt are implemented to prevent salinity-related acute toxicity effects within the ZID and to prevent degradation of marine species. The Reporting Program No. R9-2006-0065 requires the discharger to perform continuous salinity monitoring at monitoring station M-002. The Discharger is also required (per Provision VI.C.2.c of Tentative Order No. R9-2006-0065) to perform special salinity and acute toxicity studies to assess salinity/toxicity relations and thresholds, and to assess effects associated with short-term variation of salinity. Additionally, Receiving Water Monitoring Requirement VI.C of Order No. R9-2006-0065 requires semiannual salinity monitoring at 12 receiving water stations at depth intervals of 10 feet.

F. Performance Goals

Performance goals serve to encourage high effluent quality and support 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 in order 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 permit but serve as red flags that indicate water quality concerns. Repeated red flags may prompt the Regional Water Board to reopen and amend the permit to replace performance goals for constituents of concern with effluent limitations, or the Regional Water Board may coordinate such actions with the next permit renewal.

Constituents that do not have reasonable potential are listed as performance goals in this Order. The following table lists the performance goals established by Order No. R9-2006-0065. These constituents shall be monitored at M-001, but the results will be used for informational purposes only, not compliance determination.

Table 21. Performance Goals based on the California Ocean Plan

Constituent	RPA End Point[1]	Units	Performance Goals[2]					
			Max Daily	Average Monthly	Average Weekly	Instantaneous		6 Month Median
						Min	Max	
Arsenic	3	µg/L	4.81E+2				1.27+E03	8.55+E01
Cadmium	3	µg/L	6.60E+01				1.65E+02	1.65E+01
Chromium VI[3]	3	µg/L	1.32E+02				3.30E+02	3.30E+01

Constituent	RPA End Point[1]	Units	Performance Goals[2]					
			Max Daily	Average Monthly	Average Weekly	Instantaneous		6 Month Median
						Min	Max	
Copper	3	µg/L	1.67E+02				4.64E+02	1.85E+01
Lead	3	µg/L	1.32E+02				3.30E+02	3.30E+01
Mercury	3	µg/L	2.63E+00				6.59E+00	6.52E-01
Nickel	3	µg/L	3.30E+02				8.25E+02	8.25E+01
Selenium	3	µg/L	9.90E+02				2.47E+03	2.47E+02
Silver	3	µg/L	4.37E+01				1.13E+02	9.07E+00
Zinc	3	µg/L	1.20E+03				3.18E+03	2.06E+02
Cyanide[4]	3	µg/L	6.60E+01				1.65E+02	1.65E+01
Total Chlorine Residual	3	µg/L	1.32E+02				9.90E+02	3.30E+01
Ammonia (expressed as nitrogen)	3	µg/L	3.96E+04				9.90E+04	9.90E+03
Acute Toxicity[5]	3	TU_a	7.65E-01				--	--
Phenolic Compounds (non-chlorinated)[6]	3	µg/L	1.98E+03				4.95E+03	4.95E+02
Phenolic Compounds (chlorinated)[7]	3	µg/L	6.60E+01				1.65E+02	1.65E+01
Endosulfan[8]	3	µg/L	2.97E-01				4.46E-01	1.48E-01
Endrin	3	µg/L	6.60E-02				9.90E-02	3.30E-02
HCH[9]	3	µg/L	1.32E-01				1.98E-01	6.60E-02
Radioactivity[10]	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30253 of the California Code of Regulations. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.							
Acrolein	3	µg/L		3.63E+03				
Antimony	3	µg/L		1.98E+04				
Bis (2-chloroethoxy) Methane	3	µg/L		7.26E+01				
Bis (2-chloroisopropyl)	3	µg/L		1.98E+04				
Chlorobenzene	3	µg/L		9.41E+03				
Chromium (III)	3	µg/L		3.14E+06				

Constituent	RPA End Point[1]	Units	Performance Goals[2]					
			Max Daily	Average Monthly	Average Weekly	Instantaneous		6 Month Median
						Min	Max	
Di-n-butyl Phthalate	3	µg/L		5.78E+04				
Dichlorobenzenes[11]	3	µg/L		8.42E+04				
Diethyl Phthalate	3	µg/L		5.45E+05				
Dimethyl Phthalate	3	µg/L		1.35E+07				
4,6-Dinitro-2-Methylphenol	3	µg/L		3.63E+03				
2,4-Dinitrophenol	3	µg/L		6.60E+02				
Ethylbenzene	3	µg/L		6.77E+04				
Fluoranthene	3	µg/L		2.48E+02				
Hexachlorocyclo-pentadiene	3	µg/L		9.57E+02				
Nitrobenzene	3	µg/L		8.09E+01				
Thallium	3	µg/L		3.30E+01				
Toluene	3	µg/L		1.40E+06				
Tributyltin	3	µg/L		2.31E-02				
1,1,1-Trichloroethane	3	µg/L		8.91E+06				
Acrylonitrile	3	µg/L		1.65E+00				
Aldrin	3	µg/L		3.63E-04				
Benzene	3	µg/L		9.74E+01				
Benzidine	3	µg/L		1.14E-03				
Beryllium	3	µg/L		5.45E-01				
Bis (2-chloroethyl) Ether	3	µg/L		7.43E-01				
Bis (2-ethlyhexyl) Phthalate	3	µg/L		5.78E+01				
Carbon Tetrachloride	3	µg/L		1.49E+01				
Chlordane[12]	3	µg/L		3.80E-04				
Chlorodibromo-methane	3	µg/L		1.42E+02				
Chloroform	3	µg/L		2.15E+03				
DDT[13]	3	µg/L		2.81E-03				

Constituent	RPA End Point[1]	Units	Performance Goals[2]					
			Max Daily	Average Monthly	Average Weekly	Instantaneous		6 Month Median
						Min	Max	
1,4-Dichlorobenzene	3	µg/L		2.97E+02				
3,3'-Dichlorobenzidine	3	µg/L		1.34E-01				
1,2-Dichloroethane	3	µg/L		4.62E+02				
1,1-Dichloroethylene	3	µg/L		1.49E+01				
Dichlorobromo-methane	3	µg/L		1.02E+02				
Dichloromethane	3	µg/L		7.43E+03				
1,3-Dichloropropene	3	µg/L		1.47E+02				
Dieldrin	3	µg/L		6.60E-04				
2,4-Dinitrotoluene	3	µg/L		4.29E+01				
1,2-Diphenylhydrazine	3	µg/L		2.64E+00				
Halomethanes[14]	3	µg/L		2.15E+03				
Heptachlor	3	µg/L		8.25E-04				
Heptachlor Epoxide	3	µg/L		3.30E-04				
Hexachlorobenzene	3	µg/L		3.47E-03				
Hexachlorobutadiene	3	µg/L		2.31E+02				
Hexachloroethane	3	µg/L		4.13E+01				
Isophorone	3	µg/L		1.20E+04				
N-Nitroso-dimethylamine	3	µg/L		1.20E+02				
N-Nitrosodi-N-propylamine	3	µg/L		6.27E+00				
N-Nitrosodiphenyl-amine	3	µg/L		4.13E+01				
PAHs[15]	3	µg/L		1.45E-01				
PCBs[16]	3	µg/L		3.14E-04				
TCDD equivalents	3	µg/L		6.44E-08				
1,1,2,2-Tetrachloroethane	3	µg/L		3.80E+01				
Tetrachloroethylene	3	µg/L		3.30E+01				
Toxaphene	3	µg/L		3.47E-03				

Constituent	RPA End Point[1]	Units	Performance Goals[2]					
			Max Daily	Average Monthly	Average Weekly	Instantaneous		6 Month Median
						Min	Max	
Trichloroethylene	3	µg/L		4.46E+02				
1,1,2-Trichloroethane	3	µg/L		1.55E+02				
2,4,6-Trichlorophenol	3	µg/L		4.79E+00				
Vinyl Chloride	3	µg/L		5.94E+02				

[1] Parameters for which no data was provided were determined to have inconclusive RPAs and were designated an end point of 3.

[2] In scientific "E" notation, the number following the "E" indicates the 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 6.1 E–02 represents a value of 6.1×10^{-2} or 0.061, 6.1E+2 represents 6.1×10^{2} or 610, and 6.1E+0 represents 6.1×10^{0} or 6.1.

[3] Dischargers may, at their option, apply this performance goal as a total chromium performance goal.

[4] If a Discharger can demonstrate to the satisfaction of the Regional Water Board (subject to USEPA approval) 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 metal cyanides, and weakly complexed organometalic 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 136, as revised May 14, 1999.

[5] Acute toxicity expressed as Acute Toxicity Units (TU_a) = 100 / LC50, where LC50 (Lethal Concentration 50%) is expressed as the percent waste giving 50% survival of test organism, as determined by the result of toxicity tests performed per Provision VI.C.2.c, Salinity and Acute Toxicity Study. Effluent limit B.2 establishes an average daily salinity limit of 40 ppt for the combined EPS and CDP discharge. To reflect maximum salinity concentrations in the effluent prior to discharge to the ocean, compliance with the listed acute toxicity performance goal shall be determined by samples collected at Monitoring Location M-001 that are adjusted to a salinity concentration of 40 ppt (the maximum daily average salinity concentration limit for the combined EPS and CDP discharges). In addition to assessing acute toxicity at this 40 ppt salinity, Provision VI.C.2.c requires the Discharger to develop and implement a study to assess salinity-related acute toxicity thresholds at effluent salinity concentrations that range from 36 to 60 ppt.

[6] Non-chlorinated phenolic compounds shall mean the sum of 2-nitrophenol, 4-nitrophenol, and phenol.

[7] Chlorinated phenolic compounds shall mean the sum of 2-chlorophenol, 2,4-dichlorophenol, 3-methyl-4-chlorophenol, and pentachlorophenol.

[8] Endosulfan shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.

[9] HCH shall mean the sum of the alpha, beta, gamma (lindane), and delta isomers of hexachlorocyclohexane.

[10] Radioactivity performance goals are as specified in Title 17 California Code of Regulations, Section 30253, Standards for Protection Against Radiation. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.

[11] Dichlorobenzenes shall mean the sum of 1,2-dichlorobenzene and 1,3-dichlorobenzene.

[12] Chlordane shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

[13] DDT shall mean the sum of 4,4'DDT; 2,4'DDT; 4,4'DDE; 2,4'DDE; 4,4'DDD; and 2,4'DDD.

[14] Halomethanes shall mean the sum of bromoform, bromomethane (methyl bromide), and chloromethane (methyl chloride).

[15] PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenapthalene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorine, indeno[1,2,3-cd]pyrene, phenanthrene, and pyrene.

[16] PCBs (polychlorinated biphenyls) shall mean he 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.

G. Antidegradation

Waste Discharge Requirements for the CDP discharge through the EPS discharge channel must conform with federal and state antidegradation policies provided at 40 CFR 131.12 and in State Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*. 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 Regional 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.

As described in detail in Section II.C of this Fact Sheet, the Discharger submitted a number of studies, and modeling reports demonstrating that the discharge will not result in significant degradation of water quality. The discharge from CDP is not expected to affect the beneficial uses of the receiving water, and the discharge in compliance with this Order is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

Effluent limitations were not included in this Order for constituents for which reasonable potential to exceed the water quality objective was not indicated following a reasonable potential analysis. The procedures for conducting the reasonable potential analysis are explained elsewhere in this Fact Sheet. For constituents for which effluent limitations were not included, non-regulatory performance goals were included which will indicate the level of discharge at which possible water quality impacts may be significant. With the inclusion of performance goals and the monitoring program for constituents without effluent limitations, the existing water quality is expected to be maintained. For these reasons, the Regional Water Board has determined that an antidegradation analysis is not required to consider the possible impacts resulting from the addition of effluent from the CDP to the EPS discharge channel following a reasonable potential analysis.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Receiving water limitations of Order No. R9-2006-002 are derived from the water quality objectives for ocean waters established by the Basin Plan (1994) and the 2005 Ocean Plan. Where discharge specifications, effluent limitations, and performance goals contained in Section IV of the Order have been determined to be sufficient to ensure compliance with specific water quality objectives, receiving water limitations based on those water quality objectives have not been included.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 of 40 CFR requires all NPDES permits to specify recording and reporting of monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Water Boards to require technical and monitoring reports. The MRP (Attachment E) establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this Facility.

A. Influent Monitoring

Influent monitoring for temperature is necessary to insure the CDP is not contributing thermal energy to the effluent. Influent monitoring for salinity is necessary to evaluate the increase of salinity of the effluent due to desalination operations at CDP. Thus, influent monitoring for temperature and salinity have been established in the MRP.

B. Effluent Monitoring

Pursuant to 40 CFR 122.48 and Sections 13267 and 13383 of the CWC, weekly monitoring and reporting requirements have been established for oil and grease, settleable solids, TSS, turbidity, and pH in order to determine compliance with the effluent limitations contained in Order No. R9-2006-0065. In addition, monitoring and reporting requirements for performance goals based on Table B of the Ocean Plan have been established to determine if the CDP discharge has reasonable potential to exceed water quality objectives contained in Table B of the Ocean Plan. Weekly monitoring for temperature and salinity has been established to compile data to characterize actual effluent characteristics for use in future permitting efforts.

C. Whole Effluent Toxicity Testing Requirements

Evaluation with the acute toxicity performance goal for Discharge Point No. 001 (Section IV.B.2 of this Order) shall be conducted using an established protocol, e.g., American Society for Testing Materials (ASTM), USEPA, American Public Health Association, or State Water Board. Acute toxicity shall be expressed in Toxic Units Acute (TU_a), where:

$$TU_a = 100 / \text{96-hr LC50}$$

Where LC50 is the Lethal Concentration 50%, and the percent waste giving 50% survival of test organisms. LC50 shall be determined by static or continuous flow bioassay techniques using standard test species. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC50 may be determined after the test samples are adjusted to remove the influence of those substances.

When it is not possible to measure the 96-hour LC50 due to greater than 50% survival of the test species in 100% waste, the toxicity concentration shall be calculated by the following:

$$TU_a = \log (100-S) / 1.7$$

where S is the percentage survival in 100% waste. If S > 99, TU_a shall be reported as zero.

In addition, when there is greater than 50% survival of the test species in 100% waste, the percentage survival in 100% waste sample shall be statistically compared to the percentage survival in the test control sample, and the acute toxicity result shall also be reported as follows:

1. "Pass" when the percentage survival in 100% waste is not statistically different from the percentage survival in the test control sample.

2. "Fail" when the percentage survival in 100% waste is less than and statistically different from the percentage survival in the test control sample.

Implementing provisions at Section III.C.3.c of the Ocean Plan require chronic toxicity monitoring for ocean waste discharges with minimum initial dilution factors below 100. A dilution factor of 15.5 has been established for this discharge, thus chronic toxicity monitoring has been established for this discharge.

The Discharger shall conduct acute and chronic toxicity testing on 24-hour composite effluent samples collected at Effluent Monitoring Location M-001, as defined in Section II of the MRP (Attachment E). Monitoring for acute toxicity is required quarterly. Chronic toxicity is required to be monitored monthly.

Critical life stage toxicity tests shall be performed to measure chronic toxicity (TU_c). Testing shall be performed using methods outlined in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (Chapman, G.A., D.L. Denton, and J.M. Lazorchak, 1995) or *Procedures Manual for Conducting Toxicity Tests Developed by the Marine Bioassay Project* (State Water Board, 1996)

A screening period for chronic toxicity shall be conducted every other year for 3 months, using a minimum of three test species with approved test protocols, from the following list (from the Ocean Plan). Other tests may be used, if they have been approved for such testing by the State Water Board. The test species shall include a fish, an invertebrate, and an aquatic plant. After the screening period, the most sensitive test species shall be used for the monthly testing. Repeat screening periods may be terminated after the first month if the most sensitive species is the same as found previously to be most sensitive. Dilution and control water should be obtained from an unaffected area of the receiving waters. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay test and reported with test results.

D. Receiving Water Monitoring

To determine compliance with water quality objectives of the Ocean Plan and to determine if discharges cause significant impacts to water quality within the zone of initial dilution, and beyond the zone of initial dilution, MRP No. R9-2006-0065 establishes ambient semiannual monitoring for temperature, pH, salinity, dissolved oxygen, and transmissivity. The receiving water monitoring has been established consistent with the receiving water monitoring

requirements contained in the MRP for the EPS (Order No. 2000-03). The Regional Water Board may reopen and revise the receiving water monitoring requirements after this Order has been adopted to be consistent with the requirements established for the soon-to-be reissued order for the EPS.

E. Other Monitoring Requirements

1. Kelp Bed Monitoring

   To assess the extent to which the discharge of wastes may affect the areal extent and health of coastal kelp beds, Order No. R9-2006-0065 requires the Discharger to participate with other ocean Dischargers in the San Diego Region in an annual regional kelp bed photographic survey.

2. Regional Watershed/Ocean Monitoring

   The Discharger will be required to participate and coordinate with state and local agencies and other dischargers in the San Diego Region in development and implementation of a regional watershed or ocean monitoring program for the Pacific Ocean as directed by the Regional Water Board. The intent of a 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 resources of the region. During the coordinated monitoring effort, the Discharger's monitoring program may be expanded to provide a regional assessment of the impact of discharges to the watershed or Pacific Ocean.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which in accordance with 40 CFR 122.41 and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D to the Order.

B. Special Provisions

1. Re-opener Provisions

   Order No. R9-2006-0065 may be re-opened and modified, revoked, and reissued or terminated in accordance with the provisions of 40 CFR Parts 122, 123, 124, and 125. The Regional Water Board may reopen the permit to modify permit conditions and requirements. Causes for modifications include the promulgation of new regulations, modification in sludge use or disposal practices, or adoption of new regulations by the State Water Board or Regional Water Board, including revisions to the Basin Plan and Ocean Plan.

2. Special Studies and Additional Monitoring Requirements

   a. Pretreatment Technology Report

      The Discharger is required to notify the Regional Water Board of the selected pretreatment technology to be used as part of the desalination process. Order No. R9-2006-0065 establishes a requirement for the Discharger to report the selected pretreatment technology of either granular media filtration or membrane filtration to the Regional Water Board at least 90 days before discharge operations begin. The Discharger shall include a detailed description of the selected pretreatment process, and a detailed and accurate flow diagram with maximum and expected daily average flow volumes. The flow diagram shall include all flows contributing to the discharge of effluent at Discharge Point No. 001.

   b. TRE Workplan

      The Discharger is required to submit a TRE workplan to the Regional Water Board no later than 180 days prior to the start up of CDP. The TRE workplan will describe the procedures that will be used by the Discharger to identify the sources of toxicity should the chronic toxicity effluent limitation or acute toxicity performance goal be exceeded. The TRE workplan shall be subject to the approval of the Regional Water Board and shall be modified as directed by the Regional Water Board.

   c. Salinity and Acute Toxicity Study

      The Discharger's Report of Waste Discharge provides information that indicates that (1) salinity-related toxicity effects are not evident when salinity levels are maintained below 40 ppt, and (2) receiving water salinity is reduced to near ambient at the edge of the ZID. Until additional information on salinity-related toxicity is developed, however, a conservative approach that does not incorporate initial dilution is warranted for establishing salinity limits for the discharge.

      The goal of the salinity and acute toxicity special study is to assess compliance with the acute toxicity performance goal and to identify the maximum amount of salinity that can be discharged without causing acute toxicity. Recognizing that future EPS flows may be decreased, an additional goal is to identify the minimum seawater intake flows required to allow the CDP discharge to comply with salinity and acute toxicity requirements.

      The discharger shall be required to submit a study plan for the acute toxicity study within 180 days of adoption of the Order. At a minimum, the acute toxicity study plan shall include quarterly collection and analysis of acute toxicity samples from Discharge Location M-001 for a 24-month period. The study plan shall specify how effluent samples from Monitoring Location M-001 are to be adjusted to allow for an assessment of acute toxicity at a range of salinity concentrations to determine the salinity level at which acute toxicity occurs. Acute toxicity testing shall be performed using either a marine fish or invertebrate species in accordance with procedures established by the

USEPA guidance manual, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 5th Edition, October 2002 (EPA-821-R-02-012).

If the results of the 24-month acute toxicity study demonstrate any noncompliance with the acute toxicity performance goal, the Regional Board may consider adding acute toxicity monitoring as a permanent component of the discharger's effluent monitoring program.

d. Receiving Water Violation Assessment

Both the CDP and EPS discharge to the same receiving water. In the event of violation of receiving water requirements where effluent monitoring data are not sufficient to determine which discharge caused the violation, the Regional Board will require the Discharger to perform a special study to investigate nature and cause of the receiving water violation. The receiving water study shall include an evaluation of the nature of the receiving water violation, an assessment of the cause of the violation (including whether the violation resulted from the CDP or EPS effluent discharges), and shall identify compliance measures required to insure future conformance with receiving water standards. The Discharger shall submit the required study to the Regional Board within 90 days of receipt of Regional Board notification of the need to perform the receiving water study. The Regional Board may use the results of the receiving water study for determining the nature and severity of required enforcement actions.

e. Flow, Entrainment and Impingement Minimization Plan

The Discharger's Report of Waste Discharge assessed EPS cooling water flows over a 20.5-year period and concluded that historical EPS flows were sufficient to supply CDP intake flows and provide sufficient dilution water to insure that receiving water salinity is not adversely impacted. The Discharger also concluded that during temporary periods when power generation is suspended for maintenance, unheated EPS thru-flows would be adequate to supply CDP and provide sufficient dilution water to protect receiving water salinity. The Regional Water Board recognizes that future EPS flows may not follow historical trends. For this reason, the Regional Board requires the Discharger to implement and comply with the approved Flow, Entrainment and Impingement Minimization Plan to ensure that the requirements of section 13142.5(b) of the Water Code are complied with when CDP's intake requirements exceed the volume of water being discharged by the EPS and EPS operates for the benefit of the CDP.

f. Productivity Monitoring Plan

This Order modifies the March 27, 2009 Minimization Plan to add a Productivity Monitoring Plan component that will be used to evaluate whether the Discharger has achieved the annual fish productivity requirement of 1,715.5 kg/year established in the Minimization Plan.

Of the up to 55.4 acres of mitigation wetlands that the Discharger has agreed to create or restore to offset potential stand-alone entrainment, the Discharger explained that 49 acres (88%) are designated to mitigate for the entrainment of the most commonly entrained lagoon species (i.e., gobies, blennies and garibaldi), and 6.4 acres (12%) are designated to mitigate for the entrainment of the most commonly entrained ocean species (i.e., white croaker, northern anchovy, California halibut, queenfish, spotfin croaker) such that, therefore, all other species (i.e., other entrained and non-entrained species) present in the wetland are "available" to offset losses due to impingement. In order to be consistent with Section 6.2.1 of the March 27, 2009 Minimization Plan, the biomass of gobies, blennies and garibaldi shall be excluded from productivity calculations, and available fish biomass for productivity calculations shall be calculated as follows:

Available Fish Biomass = (88% x Biomass of Most Commonly Entrained Ocean Species) + (100% x Biomass of All Other Species)

g. Impingement Monitoring Program

As issued on August 16, 2006, this Order did not require the Discharger to monitor for fish impingement. In conjunction with the approval of the March 27, 2009 Minimization Plan on May 13, 2009, the Regional Board determined that monitoring for impingement is necessary. The Order modifies the March 27, 2009 Minimization Plan to add a requirement to perform and report impingement pursuant to an Impingement Monitoring Program (IMP) over a one year period per permit cycle. The IMP provisions in the Minimization Plan establish the impingement monitoring requirements.

The objective of the impingement monitoring is to obtain periodic estimates of impingement levels at the shared intake when the CDP is in co-located operation with EPS. The results of the impingement monitoring will be used to evaluate whether the 1,715.5 kg/year fish productivity requirement should be adjusted in the next permit cycle.

The current CDP impingement projection of 1,715.5 kg/year is based on sampling conducted at EPS during 2004-05, prior to the operation of the CDP. Although the current projection was adjusted to account for a CDP flow of 304 MGD (in accordance with Proportional Approach 3-B of Attachment 5 to the March 27, 2009 Minimization Plan), a projection based on sampling conducted once the CDP is in operation may be more representative than the current projection.

3. Best Management Practices and Pollution Prevention

Because CDP has yet to begin operation, the potential for CDP operations to release chemicals or other pollutants to the EPS discharge channel that may impact water quality is uncertain. Therefore, in accordance with 40 CFR 122.44(k), CDP will be required to develop and implement a best management practices (BMP) plan. The objective of the BMP plan is to prevent or minimize the generation and potential release of pollutants from the facility through normal operations and ancillary activities. The BMP plan shall be developed in

accordance with the EPA *Guidance Manual for Developing Best Management Practices (BMPs)* (EPA 833-B-93-004). The BMP plan shall be developed and implemented by CDP no later than 180 days following the effective date of the Order.

4. Intake Regulation

a. Clean Water Act Section 316(b) Applicability. Current CWA Section 316(b) implementing regulations are applicable to facilities that meet the definition of a Phase II existing facility at 40 CFR 125.91. Such facilities withdraw cooling water from a water of the United States; have, or are required to have, an NPDES permit; generate and transmit electric power as their primary business activity; have a total design intake capacity of 50 mgd or greater; and use at least 25 percent of the withdraw water exclusively for cooling purposes. Pursuant to CWA 316(b) regulations, the EPS is classified as a Phase II existing facility. However, pursuant to the definitions and applicability of the Phase I rule (40 CFR 125.8), the Phase II rule (40 CFR 125.9), and the proposed Phase III rule (Federal Register Vol. 69, No. 226, Wednesday, Nov. 24, 2004), the 316(b) regulations are not applicable to CDP. Therefore, no special conditions related to the 316(b) implementing regulations are included in this Order.

b. California Water Code Section 13142.5(b) Applicability. Water Code Section 13142.5(b) requires industrial facilities using seawater for processing to use the best available site, design, technology, and mitigation feasible to minimize the intake and mortality of all forms of marine life. The CDP is planned to operate in conjunction with the EPS by using the EPS cooling water discharge as its source water. When operating in conjunction with the power plant, the desalination plant feedwater intake would not increase the volume or the velocity of the power station cooling water intake nor would it increase the number of organisms impinged and entrained by the Encina Power Station cooling water intake structure. Recent studies have shown that nearly 98 percent of the larvae entrained by the EPS are dead at the point of the desalination plant intake. As a result, a *de minimis* of organisms remain viable which potentially would be lost due to the incremental entrainment effect of the CDP operation. Due to the fact that the most frequently entrained species are very abundant in the area of the EPS intake, Agua Hedionda Lagoon and the Southern California Bight, species of direct recreational and commercial value would constitute less than 1 percent of all the organisms entrained by the EPS. As a result, the incremental entrainment effects of the CDP operation in conjunction with the EPS would not trigger the need for additional technology or mitigation to minimize impacts to marine life.

In instances when the CDP's intake requirements exceed the volume of water being discharged by EPS, the CDP will implement the approved Flow, Entrainment and Impingement Minimization Plan to comply with the requirements of Water Code section 13142.5(b) to use the best available site, design, technology and mitigation feasible to minimize the intake and mortality of marine life. In the event that the EPS were to cease operations, and the discharger were to independently operate the seawater intake and outfall for the benefit of the CDP, such independent or stand-alone operation will require additional Regional Board review to ensure that CDP operations comply with the

requirements of Water Code Section 13142.5(b) by employing any additional and/or better design or technology features that were not feasible when EPS was in operation.

C. Compliance Determination and Enforcement Provisions

1. Average Monthly Effluent Limitation, Average Weekly Effluent Limitation, Maximum Daily Effluent Limitation, etc.

   Provisions VII.A through VII.G outline the manner by which all instances of non-compliance will be identified consistent with the definitions in Attachment A. These provisions assert that a violation of an effluent limitation based on an average or median over a period consisting of several days results in a violation or non-compliance on each day during the period considered for the average or median. This assertion is based on USEPA Memorandum "Issuance of Guidance Interpreting Single Operational Upset" dated September 27, 1989 in which USEPA clearly states that "The violation of a monthly average limitation is counted as one day of violation for each day in the month, e.g., 30days of violation in a 30-day month." These provisions only state how violations will be identified and counted but not the amount of penalty to be assessed, which depend on the type of penalty being proposed for assessment (i.e., discretionary administrative civil liability or mandatory minimum penalties) and other enforcement consideration factors.

   Provision VII.F and the corresponding definition in Attachment A for the six-month median effluent limitation deviate with the Implementation Provision C.3.f of the Ocean Plan in order to maintain consistency with Compliance and Enforcement provisions.

2. Ocean Plan Provisions

   Provisions H, I, and J of Section VII of the Order are either taken directly from the Ocean Plan or are based on provisions of the Ocean Plan.

3. Single Operational Upset

   a. The term "upset" has broad and narrow definitions in *Attachment A – Definitions* because the term is used both to refer to an "upset" in the general sense as any malfunction or operational failure at a treatment facility and also in a more specific sense to refer to an "upset" as defined at 40 CFR 122.41 (n). The determination that the term "upset" has broad and narrow definitions is discussed further below.

   b. Regulatory Upset Defense.
   Provision 8 of *Attachment D – Standard Provisions* addresses the use of the regulatory upset defense to completely relieve dischargers of liability for violations under specific situations. According to the USEPA Memorandum "Issuance of Guidance Interpreting Single Operational Upset" (September 27, 1989), upset events that fit the definition of "upset" under 40 CFR 122.41 (n) "provide those who violate technology-based effluent limitations . . . with an affirmative defense to allegations of permit noncompliance, if the exceedance results from an exceptional, unintentional incident which is beyond the

control of the party who discharges in violation of his permit. A party who successfully claims upset is not legally liable for the exceedances at issue, and has not violated the (Clean Water Act), his NPDES permit, or categorical pretreatment standards." 40 CFR 122.41 (n) states that the regulatory upset defense does not apply to those events caused by operational error, improperly designed treatment facilities, lack of preventive maintenance, or careless or improper operation. Provision 8 of Attachment D specifies the conditions that the Discharger must satisfy to claim the regulatory upset defense.

c. Single Operational Upset Defense.
Compliance Determination section VII.K of Order No. R9-2006-0065 addresses how a Discharger may be able to limit his liability in the event of a single operational upset (SOU) resulting in multiple violations. The USEPA Memorandum "Issuance of Guidance Interpreting Single Operational Upset" (September 27, 1989) provides the necessary regulatory guidance in case of SOU except for purposes of California Water Code Section 13385 (h) and (i). The USEPA SOU guidance memo spells out that multiple violations due to an SOU are treated as one violation for each day only. For example, an SOU that results in multiple violations each day over a period of 7 days will result in counting seven violations because the multiple violations on each of the seven days are treated as one violation for each day only. If the State or Regional Water Board is taking enforcement in accordance with CWC 13385 (h) and (i), commonly referred to as Mandatory Minimum Penalties, CWC Section 13385 (f)(2) expands a Discharger's ability to limit liability in the case of an SOU by allowing all violations that occur within a 30-day period, instead of each day, due to an SOU to be counted as one violation.

The regulatory upset defense completely relieves a discharger of all liability for violations of technology-based effluent limitations but not in cases where the violations are caused by operator error. In contrast, according to the USEPA SOU guidance memo, the SOU defense serves to only limit a discharger's liability for violations but applies to both technology-based and water quality-based effluent limitations even if caused by unknowing and unintentional operator error. For purposes of Mandatory Minimum Penalties in accordance with CWC Section 13385 (f)(2), the SOU defense does not apply when the upset was caused by operator error and was not due to discharger negligence.

The effect of CWC Section 13385 (f)(2) on reducing a POTW discharger's liability is illustrated in the following example:

> A facility discharged 20,000 gallons of treated effluent each day over 2 days, and the effluent quality exceeded the concentration effluent limitations and the mass emission rate limitations of the facility's NPDES permit for iron and copper on both days. The facility reported to the Regional Water Board that despite its best efforts, increased filamentous bacteria growth in the aeration tank due to a single operational upset resulted in a slight reduction in settling in the secondary clarifier which in turn resulted in the increased iron and copper content of the effluent. The Regional Water Board determined that four serious violations occurred on each day for a total of eight serious violations over the 2 days due to a single operational upset. Taking the SOU defense into account according to USEPA guidance, the Regional Water Board would

determine that the four violations on each day collapse to one violation on each day and the facility can be civilly liable for up to $10,000 per day of violation plus up to $10 per gallon discharged over 1,000 gallons [in accordance with CWC Section 13385 (c)] for a total possible maximum civil liability of $410,000 (i.e., $20,000 for two days of violations and $390,000 for the 39,000 gallons discharged over the initial 1,000 gallons). However, if the Regional Water Board determines mandatory minimum penalties in accordance with CWC Sections 13385 (h) and (i), the Regional Water Board must also consider the SOU defense in accordance with CWC Section 13385 (f)(2). In that case, the eight serious violations collapse to one violation with a Mandatory Minimum Penalty of $3,000.

d. Twenty-four Hour Reporting for Upsets.
Provision V.E.2.b of Attachment D Standard Provisions – Reporting requires that "any upset that exceeds any effluent limitation in this Order" must be reported within 24 hours from the time the Discharger becomes aware of the circumstances. This standard provision is authorized at 40 CFR 122.41(l)(6)(ii)(B) and is interpreted to require reporting of any upset, in the broad sense, that results in an exceedance of any effluent limitation. The term "upset" in this provision cannot be limited to the meaning of the term "upset" within 40 CFR 122.41 (n), which only applies to exceedances of technology-based effluent limitations, and must be interpreted broadly because an "upset", in the broad sense, can result in exceedance of water quality-based effluent limitations. Therefore, this provision also applies to the reporting of single operational upsets.

VIII. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of a WDR that will serve as a NPDES permit for the Carlsbad Desalination Project, owned by ~~Poseidon Resources Corporation~~ **Poseidon Resources (Channelside) LLC**. As a step in the WDR adoption process, the Regional Water Board staff has developed a tentative WDR. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification for the original draft WDR was provided through publication in the San Diego Union-Tribune and Orange County Register on May 8, 2006 and by letters mailed to interested parties on May 8, 2006. Notification for the revised draft WDR was provided through publication in the San Diego Union-Tribune and Orange County Register on July 10, 2006 and by letters mailed to interested parties on July 7, 2006.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning this tentative WDR. Comments should be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on August 9, 2006.

C. Public Hearing

The Regional Water Board held a public hearing on the tentative WDR during its regular Board meeting on June 14, 2006 at the Regional Water Quality Control Board, San Diego office. The Regional Board will hold another public hearing on the revised tentative WDR on the following date and time and at the following location:

Date:	August 16, 2006
Time:	9:00 am
Location:	Regional Water Quality Control Board, San Diego 9174 Sky Park Court Suite 100 San Diego, CA 92123

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDR, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our web address is **http://www.waterboards.ca.gov/sandiego** where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDR. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling 858-467-2952.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this Order should be directed to Mr. Charles Cheng at (858) 627-3930 or ccheng@waterboards.ca.gov.