CH2MHILL TRANSMITTAL

To: California Energy Commission
1516 Nitnth Street
Sacramento, CA 95814

From: CH2M HILL
2485 Natomas Park Dr. #600
Sacramento, CA 95833

Attn: Dr. James Reede

Date: October 24, 2007

Re: CECP Data Adequacy Supplement A, 07-AFC-6

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75	CECP Data Adequacy Supplement A (Hard Copy)
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5	Attachment WR-1A, Waste Discharge Requirements
5	Confidential Attachment CR-1A, Cultrual Resource Assessment Technical Memo

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ATTACHMENT WR-1A

Waste Discharge Requirements

Linda S. Adams
Secretary for
Environmental Protection

California Regional Water Quality Control Board

San Diego Region

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Arnold Schwarzenegger
Governor

ORDER NO. R9-2006-0043
NPDES NO. CA0001350

WASTE DISCHARGE REQUIREMENTS
FOR
CABRILLO POWER I LLC
ENCINA POWER PLANT
SAN DIEGO COUNTY

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order:

Table 1. Discharger

Discharger	**Cabrillo Power I LLC**
Name of Facility	**Encina Power Station**
Facility Address	**4600 Carlsbad Boulevard**
	Carlsbad, CA 92008-4301
	San Diego County

The Discharger is authorized to discharge from the following discharge points as set forth below:

Table 2. Discharge Locations

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	non-contact cooling water; low volume wastes, metal cleaning wastes, storm water runoff	33 º 8' 17" N	117 º 20' 22" W	Pacific Ocean

Table 3. Order Information

This Order was adopted by the Regional Water Board on:	**August 16, 2006**
This Order shall become effective on:	**October 1, 2006**
This Order shall expire on:	**October 1, 2011**
The U.S. Environmental Protection Agency (U.S. EPA) 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IT IS HEREBY ORDERED, that Order No. 2000-03 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the CWC and regulations adopted thereunder, and the provisions of the federal CWA, and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements herein.

I, John Robertus, Executive Officer, do hereby certify the following is a San Diego Region, on **August 16, 2006**.

John Robertus, Executive Officer

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

ORDER NO. R9-2006-0043
NPDES NO. CA0001350

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I. FACILITY INFORMATION

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order:

Table 4. Facility Information

Discharger	Cabrillo Power I LLC
Name of Facility	Encina Power Station
Facility Address	4600 Carlsbad Boulevard Carlsbad, CA 92008 San Diego County
Facility Contact, Title, and Phone	Sheila Henika , P.E., Environmental Engineer, (760) 268-4018
Mailing Address	Same
Type of Facility	Industrial
Facility Design Flow	863.5 mgd

II. FINDINGS

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

A. **Background.** Cabrillo Power I LLC (hereinafter Discharger) is currently discharging wastewater pursuant to Order No. 2000-03, National Pollutant Discharge Elimination System (NPDES) Permit No. CA0001350. The Discharger submitted a Report of Waste Discharge, dated June 23, 2004, and applied for a NPDES permit renewal to discharge up to 863.5 million gallons per day (mgd) of wastewater from Encina Power Station, hereinafter Facility. The application was deemed complete on July 16, 2004.

B. **Facility Description.** The Discharger owns and operates a steam electric generating station. The intake system consists of screening mechanisms to remove fish and debris from once-through cooling water. Sedimentation, flocculation, and neutralization are used to treat low volume and metal cleaning wastewaters. Other in-plant waste streams (storm water, lubrication water, reverse osmosis reject) are discharged directly without treatment. Wastewater is discharged from Discharge Point 001 (see table on cover page) to the Pacific Ocean a water of the United States. Attachment B provides a topographic map of the area around the facility. Attachment C provides a flow schematic of the facility. Attachment F provides a more detailed description of the facility, including all waste streams and discharges.

C. **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 this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4 of the CWC for discharges that are not subject to regulation under CWA section 402.

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 through special studies. Attachment **F**, which contains background information and rationale for Order requirements, are hereby incorporated into this Order and, 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 (Public Resources Code, Chapter3, Division 13 commencing with Section 21100) in accordance with Section 13389 of the CWC.

F. **Technology-based Effluent Limitations.** The Code of Federal Regulations (CFR) at 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards. This Order includes technology-based effluent limitations based on Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category 40 CFR Part 423 and Best Professional Judgment (BPJ) in accordance with 40 CFR §125.3. 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 criteria 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 specified in Table 5.

Table 5. Beneficial Uses of the Pacific Ocean

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Pacific Ocean	Industrial service supply Navigation Water contact recreation Non-contact recreation Ocean commercial and sport fishing Preservation of Areas of Special Biological Significance Preservation of rare and endangered species Marine habitat Fish migration Shellfish harvesting Wildlife habitat Fish spawning Aquaculture

The Basin Plan relies primarily on the requirements of the *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan, 2005) 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. In addition, requirements of this Order implement provisions of the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California* (Thermal Plan, 1975).

I. **Thermal Plan Exception.** Under the terms and conditions of the Thermal Plan, the thermal discharges from Units 1 through 4 are classified as existing discharges and exempt from most of the requirements. However, the discharge from Unit 5 is classified as a new discharge and subject to the requirements in the plan. San Diego Gas & Electric (SDG&E), the previous owner of the Encina Power Plant, initiated a study in 1975 for the purpose of making a demonstration under 316(a) of the CWA in support of its application for an exception to the Thermal Plan. In 1981, SDG&E reported that the discharge from Encina Power Plant Unit 5, when added to the discharges from Units 1-4, had not resulted in "Appreciable Harm" to the balances indigenous communities of the receiving waters. SDG&E submitted a supplemental 316(a) Summary Report in 1990 that provided additional data for the period from 1981 to 1990. In 1994, USEPA and this Regional Board required SDG&E to conduct an additional study to supplement its demonstration of compliance with CWA Section 316(b). In 1997, SDG&E submitted the Supplemental 316(a) Assessment Report, which concluded that the study neither observed nor predicts adverse effects of the operation on the aquatic resources and beneficial uses of the receiving waters. In July 2005, a consultant funded by USEPA submitted comments about the 1997 Supplemental Report raising concerns about the thermal modeling and biological analysis used in the study. The consultant concluded that the data presented and analyses performed were inadequate to determine whether or not the exceedance of thermal limits cause appreciable harm to the aquatic resources in the vicinity of the discharge.

J. **Stringency of Requirements for Individual Pollutants.** This Order contains restrictions on individual pollutants that are no more stringent than the technology-based restrictions established by U.S. EPA for the steam electric power point source category, for existing and new sources, at 40 CFR Part 423 and water quality-based effluent limitations based upon water quality objectives contained in the Ocean Plan (2005) approved by US EPA on February 14, 2006.

K. **Antidegradation Policy.** Section 131.12 of 40 CFR 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 68-16, which incorporates the requirements of the federal antidegradation policy. Resolution 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. As discussed in the Fact Sheet (Attachment F) the permitted discharge is consistent with the antidegradation provision of 40 CFR §131.12 and State Water Board Resolution 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. Some effluent limitations in this Order are less stringent than those in the previous Order. As discussed in detail in the Fact Sheet (Attachment F) this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

M. **Monitoring and Reporting.** Section 122.48 of 40 CFR 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 establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment E.

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.

III. DISCHARGE PROHIBITIONS

A. Discharges of waste in a manner or to a location that has not been specifically described to the Regional Water Board and for which valid waste discharge requirements are not in force are prohibited.

B. Discharge of oil or any residuary product of petroleum to waters of the State, except in accordance with waste discharge requirements or other provisions of Division 7 of the CWC, is prohibited.

C. The discharge of polychlorinated biphenyl compounds, such as those commonly used for transformer fluid is prohibited.

D. The discharge of waste to Areas of Special Biological Significance[1/], as designated by the State Board, is prohibited.

E. The bypassing of untreated wastes containing concentrations of pollutants in excess of those in Table B of the California Ocean Plan (2005)[2/] is prohibited, except under upset conditions, as described in *State and Federal Standard Provisions – Permit Compliance,* A.8 (see Attachment D of this Order).

F. A discharge flow rate (30-day running average) in excess of 863.5 million gallons per day (mgd) is prohibited

G. Total residual oxidants (chlorine, bromine, or others used for control of fouling within the main condenser cooling system) may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the Regional Water Board that the discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination/bromination is permitted.

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

I. The discharge of industrial waste sludge directly to the ocean or into a waste stream that discharges to the ocean is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Discharge Specifications – Discharge Point 001

1. The Encina Power Station waste management systems that discharge to the Pacific Ocean through Discharge Point 001 must be designed and operated in a manner that will maintain indigenous marine life and a healthy and diverse marine community.

2. Waste discharged to the Pacific Ocean through Discharge Point 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 that 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.

3. Wastewater must be discharged through Discharge Point 001 in a manner that provides sufficient initial dilution to minimize concentrations of substances not removed in the treatment process.

4. 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.

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

6. Collected screenings, sludges, and other solids removed from liquid wastes, shall be disposed of in accordance with all applicable requirements.

7. The Encina Power Station discharge of elevated temperature wastes to the Pacific Ocean shall comply with limitations necessary to assure protection of beneficial uses and designated Areas of Special Biological Significance[1/].

8. At all times except during heat treatment operations, as described in Attachment F (Fact Sheet) of this Order, the temperature of the combined discharge from the Encina Power Station to the Pacific Ocean shall not average more than 20°F (11.1°C) above that of the incoming lagoon water during any 24-hour period. The combined discharge shall not at any time exceed 25°F (13.9°C) above that of the incoming lagoon water.

9. During heat treatment operations, heat added to the cooling water shall not cause the temperature of the combined discharge to the Pacific Ocean to exceed 120°F (48.9°C). This maximum temperature of 120°F (48.9°C) shall not be maintained for more than two hours.

B. Effluent Limitations and Performance Goals – Combined Discharge (Discharge Point 001)

1. The combined discharge[4/, 5/] of once-through (non-contact) cooling water, low volume wastes, metal cleaning wastes, and stormwater runoff shall not exceed the effluent limitations listed in Table 6 at Discharge Point 001, with compliance measured at Monitoring Location M-001 as described in the attached Monitoring and Reporting Program (Attachment E):

Table 6. Effluent Limitations for Discharge Point 001 (Combined Discharge)

Parameter	Units[6/]	Effluent Limitations				
		Daily Max	Monthly Average	Weekly Average	Instantaneous Maximum[8/]	6 Month Median[9/]
pH	Standard units	Within the limits of 6.0 to 9.0 at all times				
Turbidity[10/]	NTU		75	100	225	
Total Chlorine Residual[11/]	µg/L	132			200	33
Chronic Toxicity	TUc[12/]	16.5				

2. Constituents that do not have reasonable potential are referred to as performance goal constituents and assigned the performance goals listed in the following Table 7. Performance goal constituents shall also be monitored at M-001, but the results will be used for informational purposes only and for later reasonable potential analysis, not compliance determination. The listed effluent performance goals are not enforceable effluent limitations or standards.

Table 7. Performance Goals for Discharge Point 001 (Combined Discharge)

Parameter	Units[6/]	Performance Goals		
		Daily	Instantaneous Maximum[8/]	Six-Month Median[9/]
Arsenic	µg/L	480	1300	86
Cadmium	µg/L	66	170	17
Chromium (Hexavalent)[13/]	µg/L	130	330	33
Copper	µg/L	170	460	19
Lead	µg/L	130	330	33
Mercury	µg/L	2.6	6.6	0.65
Nickel	µg/L	330	830	83
Selenium	µg/L	990	2500	250
Silver	µg/L	44	110	9.1
Zinc	µg/L	1200	3200	210
Cyanide[14/]	µg/L	66	170	17
Ammonia	µg/L	40000	99000	9900
Non-Chlorinated Phenolic Compounds	µg/L	2000	5000	500

Parameter	Units[6/]	Performance Goals		
		Daily	Instantaneous Maximum[8/]	Six-Month Median[8/]
Chlorinated Phenolic Compounds	µg/L	66	170	17
Endosulfan	µg/L	0.3	0.45	0.15
Endrin	µg/L	0.066	0.099	0.033
HCH	µg/L	0.13	0.20	0.066

C. **Effluent Limitations – Metal Cleaning Wastes (Discharge Point 001-A)**

The discharge of metal cleaning wastes[15/] (chemical and non-chemical) shall not exceed the effluent limitations listed in Table at Discharge Point 001-A, with compliance measured at Monitoring Location M-001-A as described in the attached Monitoring and Reporting Program (Attachment E):

[Mass-based limitations for TSS, oil and grease, copper and iron in the tables below are based on maximum chemical/non-chemical metal cleaning flows. Compliance determination will account for the actual low volume wastewater flow rate on the day of sampling; i.e., the actual limitation shall be determined for the period of sampling in accordance with the following equation:

$L_f = (Q_a / Q_m)\ Lt$; where

L_f = the final limitation, in lbs/day, used for compliance determination
Q_a = actual metal cleaning flows (chemical and non-chemical), in mgd, at the time of sampling
Q_m = 0.7971 mgd, the maximum possible flow of combined metal cleaning wastewaters for Discharge Point 001-A
Lt = the appropriate, maximum limitations, in lbs/day, shown in the Table]

Table 8. Effluent Limitations for Discharge Point 001-A (Metal Cleaning Wastes)

Discharge Point	Units	Effluent Limitations							
		TSS		Oil/Grease		Copper		Iron	
		30-Day Avg.[8/]	Daily Max[7/]	30-Day Avg.	Daily Max	30-Day Avg.	Daily Max	30-Day Avg.	Daily Max
001-A	mg/L	30	100	15	20	1.0	1.0	1.0	1.0
	lbs/day	200	660	100	130	7.0	7.0	7.0	7.0

D. **Effluent Limitations –Low Volume Wastewaters (Discharge Points 001-B through 001-H)**

All low volume, in-plant wastewaters (i.e. Discharge Points 001-B through 001-H) shall be composited on a flow-weighted basis. The composite sample shall not exceed the effluent limitations listed in Table 9 at Discharge Points 001-B through 001-H, with compliance measured at Monitoring Locations M-001-B through M-001-H as described in the attached Monitoring and Reporting Program (Attachment E):

[Mass-based limitations for TSS, oil and grease, and toxics are based on a total maximum low volume wastewater flow of 4.09 mgd. Compliance determination will account for the actual (preferred) or estimated combined low volume wastewater flow rate on the day of sampling; i.e. the actual limitation shall be determined for the period of sampling in accordance with the following equation:

$L_f = (Q_a / Q_m) L_t$; where

L_f = the final limitation, in lbs/day, used for compliance determination
Q_a = the combined discharge flow rate, in mgd, of all low volume, in-plant wastewaters at the time of sampling
Q_m = 4.09 mgd, the maximum possible combined flow of low volume, in-plant wastewaters for Discharge Points 001-B through 001-H
L_t = the appropriate maximum mass-based limitation, in lbs/day, show in Table 9]

Table 9. Effluent Limitations for Low Volume Wastewaters (Discharge Points 001-B through 001-H)

Parameter	Units	Effluent Limitations[12/]		
		Daily Maximum[7/]	30-Day Average[8/]	Six-Month Median[9/]
pH	standard units	Within the limits of 6.0 to 9.0 at all times		
Total Suspended Solids (TSS)	mg/L		100	30
	lbs/day		3,200	950
Oil and Grease	mg/L		20	15
	lbs/day		630	480
Chromium (Hexavalent)[13/]	lbs/day	4.5		1.1
Copper	lbs/day	5.7		0.63
Mercury	lbs/day	0.089		0.022
Nickel	lbs/day	11		2.8

V. COOLING WATER INTAKE SPECIFICATIONS

A. The Discharger shall maintain velocities at design levels in front of the intake structure and routinely clean the bar racks at the Encina Power Station. The Discharger shall rotate and clean intake screen assemblies as needed when the cooling water pumps are in operation, for the purpose of maintaining intake water velocities as close as practical to design levels.

B. The Discharger shall minimize once-through cooling water flow where possible when units are operating at reduced load or out of service, except as required to ensure equipment and personnel safety.

C. The Discharger shall avoid sudden increases in once-through cooling water flow whenever possible.

VI. RECEIVING WATER LIMITATIONS

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in receiving waters of the Pacific Ocean:

A. Water Quality Objectives Established by the Thermal Plan

Discharges from Encina Power Station through Discharge Point 001 to the Pacific Ocean , by itself or jointly with any other discharge or discharges, shall not cause violation of the following water quality objective for coastal waters 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. Water Quality Objectives Established by the Ocean Plan

Discharges from Encina Power Station through Discharge Point 001 to the Pacific Ocean shall not, by itself or jointly with any other discharge or discharges, cause violation of the following receiving water quality objectives established by the Ocean Plan. Compliance with these objectives shall be determined by samples collected as stations representative of the area within the waste field where initial dilution is completed.

1. Bacterial Characteristics

a. 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:

i. 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).

ii. 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.

iii. The Initial Zone of Dilution of wastewater outfalls shall be excluded from designation as kelp beds for purposes of bacterial standards, and Regional Water Boards should recommend extension of such exclusion zones, where warranted, to the State Board (for consideration as Areas of Special Biological Significance/State Water Quality Protection Areas). 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.

b. 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.

2. **Physical Characteristics**

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

b. The discharges of waste shall not cause aesthetically undesirable discoloration of the ocean surface.

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

d. 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.

3. **Chemical Characteristics**

a. The dissolved oxygen concentrations 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.

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

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

d. The concentration of substances set forth in Chapter II, Table B, of the 2005 Ocean Plan shall not be increased in marine sediments to levels that would degrade indigenous biota.

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

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

g. Numerical water quality objectives established in Chapter II, Table B, of the 2001 California Ocean Plan shall not be exceeded as a result of discharges from Encina Power Station through Discharge Point 001.

4. **Biological Characteristics**

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

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

   c. 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.

VII. PROVISIONS

A. Standard Provisions

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

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

   a. Neither the treatment nor the discharge of pollutants shall create a pollution, contamination, or nuisance as defined by Section 13050 of the CWC.

   b. The Discharger shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncomplying discharge.

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

      i. Violation of any terms or conditions of this Order;

      ii. Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts, or;

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

   d. In addition to any other grounds specified herein, this permit may be modified or revoked at any time if, on the basis of any data, the Regional Water Board determines that continued discharges may cause unreasonable degradation of the marine environment.

   e. In an effluent standard or discharge prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307 (a) of the Clean Water Act (CWA) for a toxic pollutant that is present in the discharge, and such standard or prohibition is more stringent than

any limitation for that pollutant in this Order, this Order may be modified or revoked and reissued to conform to the effluent standard or discharge prohibition.

f. This discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Regional Water Board or State Board as required by the CWA and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA or amendments thereto, the Regional Water Board may modify this Order in accordance with more stringent standards.

g. All analytical data shall be reported uncensored with detection limits and quantitation limits identified. For any effluent limitation, compliance shall be determined using appropriate statistical methods to evaluate multiple samples. Sufficient sampling and analysis shall be conducted to determine compliance.

h. The provisions of this Order are severable, and if any provisions of this Order, or the application of any provision of this Order to any circumstances, is held invalid, the application of such provision to other circumstances, and to the remainder of this Order, shall not be affected thereby.

B. Monitoring and Reporting Program Requirements

1. The Discharger shall notify the Regional Water Board and San Diego offices of the California Department of Fish and Game, where practicable, at least 48 hours in advance of any heat treatment at the Encina Power Station.

2. The discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

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

a. CWA Section 316 (a) Assessment Report

Within 90 days of adoption of this Order, the Discharger shall submit a plan and time schedule to address the comments on the 1997 *Encina Power Plant Supplemental 316 (a) Assessment Report* contained in the July 8, 2005 Tetra Tech, Inc. memorandum.

b. CWA Section 316 (b) Demonstration Study

The Discharger shall comply with applicable requirements of U.S. EPA regulations pertaining to cooling water intake structures, which implement section 316 (b) of the CWA and are codified at 40 CFR Part 125, Subpart J – *Requirements Applicable to Cooling Water Intake Structures for Phase II Existing Facilities under Section 316 (b) of the Clean Water Act.* To the extent that the requirements of this Order are inconsistent with or are not as comprehensive as the requirements presented by the U.S. EPA regulations cited, the requirements of 40 CFR Part 125, Subpart J will apply.

The Discharger shall satisfy the following requirements pertaining to Section 316 (b) of the CWA:

i. Before January 9, 2008, submit to the Regional Water Board a *Comprehensive Demonstration Study* to characterize impingement mortality and entrainment, to describe the operation of the Encina Power Station cooling water intake structure, and to confirm that the technologies, operational measures, and/or restoration measures selected and installed, or planned for installation, will meet the applicable requirements of 40 CFR 125.94. The *Comprehensive Demonstration Study* will for the basis for the Regional Water Board's determination of specific requirements, for inclusion in the Discharger's NPDES permit, that establish best technology available (BTA) to minimize adverse environmental impacts associated with the operation of the cooling water intake structure. The Study shall include the following components, if applicable:

(1) *Source Waterbody Flow Information*, as described at 40 CFR 125.95(b)(2);

(2) *Impingement Mortality and/or Entrainment Characterization Study*, as described at 40 CFR 125.95(b)(3), to support development of a calculation baseline for evaluating impingement mortality and entrainment and to characterize current impingement mortality and entrainment;

(3) *Design and Construction Technology Plan* and a *Technology Installation and Operation Plan*, as described at 40 CFR 125.95(b)(4);

(4) *Restoration Plan*, as described at 40 CFR 125.95(b)(5);

(5) Information to Support Site-Specific Determination of BTA, as described at 40 CFR 125.95(b)(6);

(6) *Verification Monitoring Plan*, as described at 40 CFR 125.95 (b)(6).

2. Best Management Practices and Pollution Prevention

The Discharger shall maintain the BMP Plan in accordance with 40 CFR 125.100-104 and shall update the plan whenever there is a change in facility design, construction, operation, or maintenance, which materially affects the potential for discharge from Encina Power Station of significant amounts of hazardous or toxic pollutants into waters of the United States. The BMP Plan and any updates thereto, shall be subject to the approval of the Regional Water Board and shall be modified as directed by the Regional Water Board. The Discharger shall submit the BMP Plan and any updates thereto to the Regional Water Board upon request of the Regional Water Board. A copy of the up-to-date BMP Plan shall be maintained at Encina Power Station and shall be readily available to operating personnel at all times.

VIII. COMPLIANCE DETERMINATION

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

A. **Average Monthly Effluent Limitation (AMEL).**
If the average of daily discharges over a calendar month exceeds the AMEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month). The average of daily discharges over the calendar month that exceeds the AMEL for a parameter will be considered out of compliance for that month only. If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Discharger will be considered out of compliance for that calendar month. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month.

B. **Average Weekly Effluent Limitation (AWEL).**
If the average of daily discharges over a calendar week (Sunday through Saturday) exceeds the AWEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for each day of that week for that parameter, resulting in 7 days of non-compliance. The average of daily discharges over the calendar week that exceeds the AWEL for a parameter will be considered out of compliance for that week only. If only a single sample is taken during the calendar week and the analytical result for that sample exceeds the AWEL, the Discharger will be considered out of compliance for that calendar week. For any one calendar week during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar week.

C. **Maximum Daily Effluent Limitation (MDEL).**
The MDEL shall apply to flow weighted 24-hour composite samples. If a daily discharge exceeds the MDEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period. For any 1 day during which no sample is taken, no compliance determination can be made for that day.

D. **Instantaneous Minimum Effluent Limitation.**
The instantaneous minimum effluent concentration limitation shall apply to grab sample determinations. If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, a violation will be flagged and the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

E. **Instantaneous Maximum Effluent Limitation.**
The instantaneous maximum effluent concentration limitation shall apply to grab sample determinations. If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, a violation will be flagged

and the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

F. **Six-month Median Effluent Limitation.**
If the median of daily discharges over any 180-day period exceeds the six-month median effluent limitation for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for each day of that 180-day period for that parameter. The next assessment of compliance will occur after the next sample is taken. If only a single sample is taken during a given 180-day period and the analytical result for that sample exceeds the six-month median, the Discharger will be considered out of compliance for the 180-day period. For any 180-period during which no sample is taken, no compliance determination can be made for the six-month median limitation.

G. **Effluent Limitations/Performance Goals for Discharge Point 001 (Combined Discharge)**
Samples of the combined discharge shall be monitored and the results reported in accordance with Effluent Monitoring Requirement A.1. Upon commencement of discharges from the Poseidon Resources Desalination Project via Discharge Point 001, as an alternative to moving the discharge point, Cabrillo Power I LLC may assess compliance of the combined discharge from the Encina Power Station with the Effluent Limitations specified in Table 6 and consistency with the Performance Goals specified in Table 7 by taking into account the pollutant loading of the combined Encina/Poseidon discharge at Discharge Point 001 less the pollutant loading at Discharge Point 001 from the Poseidon Desalination Project. This alternative assessment method may be conducted provided sampling at Discharge Point 001 and at Poseidon's Monitoring Point 001 as prescribed in NPDES Permit CA0109223 are conducted simultaneously and all data and calculations are submitted as part of the monitoring reports prescribed under this Order.

IX. ENDNOTES

1. An Area of Special Biological Significance may also be known as a State Water Quality Protection Area, in accordance with Section 36700 of the California Public Resources Code.

2. The California Ocean Plan (Water Quality Control Plan for Ocean Waters of California adopted by the State Water Resources Control Board, 2005) includes two tables of numeric water quality objectives for ocean waters. Tables A and B of the Ocean Plan contain, respectively:

    - Effluent limitations for publicly owned treatment works and industrial dischargers to the ocean for which Effluent Limitations Guidelines have not been established pursuant to sections 301, 302, 304, or 306 of the CWA.

    - Water quality objectives for chemical characteristics in ocean waters for protection of aquatic life and human health.

3. Flow rates are based on information provided by the Discharger in materials submitted for application to renew Waste Discharge Requirements.

4. "Combined discharges through Discharge Point 001" are the combined flows of once through main condenser cooling water, low volume wastewaters, and all other wastewater flows that are discharged to the Pacific Ocean through Discharge Point 001.

5. Numeric effluent limitations established by this Order and derived from water quality objectives of the California Ocean Plan for chronic toxicity, chlorine, and toxic pollutants (the Table B pollutants) have been determined using methods required by the Ocean Plan. An initial dilution of 15.5 to 1 for discharges through Discharge Point 001 has been used in these calculations.

   Section III. C. 7. d of the Ocean Plan establishes procedures for determining compliance with Table B water quality objectives for power plants. It requires application of all Table B effluent limitations (derived from the water quality objectives of Table B) to "all in-plant waste streams taken together which discharge into the cooling water flow, except that limits for total chlorine residual, acute [if applicable per section (3) (c)] and chronic toxicity and instantaneous maximum concentrations in Table B shall apply to, and be measured in, the combined final effluent, as adjusted for dilution with ocean water."

   The following equation from section III. C.3.a of the Ocean Plan was used to calculate all water quality based effluent limitations for Table B pollutants (except chlorine) established by this Order.

   $$Ce = Co + Dm (Co - Cs)$$

   Where:

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

   Background concentrations for all Table B parameters were assumed to be zero (Cs = 0), except for the following five metals.

Constituent	Background Concentration (µg/L)
Arsenic	3.
Copper	2.
Mercury	0.0005
Silver	0.16
Zinc	8.

   A minimum probable initial dilution of 15.5 to 1 for discharges through Discharge Point 001 was used in these calculations (Dm = 15.5).

6. Units are defined as follows:
   a. mg/L = milligrams per liter
   b. µg/L = micrograms per liter
   c. NTU = Nephelometric Turbidity Units
   d. lbs/day = pounds per day

7. Maximum daily limitation is the highest allowable daily discharge of a pollutant.

8. A 30-day average limitation is the highest allowable average of daily discharges over a running 30-day period, calculated as the sum of all daily discharges measured during a running 30-day period divided by the number of daily discharges measured during that 30-day period.

9. Instantaneous maximum limitation is 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).

10. Compliance with the turbidity limitation shall be based on the difference (delta) between the intake and discharge values. Therefore the incremental contribution to turbidity caused by the operation of the Encina Power Station and onsite discharges (including stormwater) must be less than the values stated in Discharge Specification IV.A.2 of this Order.

11. These limitations for chlorine are water quality based effluent limitations derived from the Ocean Plan's Table B water quality objectives for chlorine:

Total Chlorine – Water Quality Objectives (µg/L)	
6-Month Median	Daily Maximum
2	8

6-month median and daily maximum effluent limitations were calculated in accordance with procedures established in section III. C. 3. a of the Ocean Plan (and described in endnote reference 5, above). The instantaneous maximum limitation was calculated for intermittent discharges of chlorine in accordance with note c to Table B of the Ocean Plan.

The instantaneous maximum limitation is derived from Effluent Limitation Guidelines at 40 CFR 423.13(b)(1), which limit the maximum concentration of total residual chlorine in once-through cooling water to 0.20 mg/L (200 µg/L).

12. Chronic toxicity expressed as TUc:

TUc = 100/NOEL where

NOEL = No Observed Effect Level

The NOEL 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 a critical life stage toxicity test listed in Appendix II of the Ocean Plan.

13. Dischargers may meet this limitation as a total chromium limitation.

14. If a discharger can demonstrate to the satisfaction of the Regional Water Board (subject to U.S. EPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met by the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometallic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in 40 CFR Part 136, as revised May 14, 1999.

15. "Metal cleaning waste," as defined in the Effluent Limitations Guidelines for the Steam Electric Power Generating Point Source Category at 40 CFR 423.11, means any wastewater resulting from cleaning (with or without chemical cleaning compounds) metal process equipment including, but not limited to, boiler tube cleaning, boiler fireside cleaning, and air heater cleaning.

16. "Low volume wastewaters", as defined in the Effluent Limitations Guidelines for the Steam Electric Power Generating Point Source Category at 40 CFR 423.11, means, taken collectively as if from one source, wastewater from all sources except those for which specific limitations are otherwise established in the Effluent Limitations Guidelines.

    The individual, low volume wastewaters authorized by this Order for the Encina Power Station are:

    - Seepage and groundwater
    - Boiler blowdown
    - Freshwater R.O. Brine
    - Seawater R.O. Brine
    - Fuel line/tank hydrotest
    - Pilot desalination plant
    - Low Volume Waste Treatment Facility

    Because the Low Volume Waste Treatment Facility receives and treats several waste streams (low volume) prior to discharge to the once-through cooling flow, it is regulated as a single low volume source. The contributing waste streams to the Low Volume Waste Treatment Facility are:

    - Portable demineralizer
    - Evaporator blowdown
    - Sample drains
    - Floor drains
    - Demineralizer
    - Softeners
    - Condenser cleaning
    - Sand filter backwash
    - Portable demineralizer rinse flush
    - R.O. membrane cleaning

17. Mass-based effluent limitations for low volume discharges were calculated based on a maximum discharge flow rate of 4.09 mgd. Compliance determination will account for the actual (preferred) or estimated combined low volume wastewater flow rate on the day of sampling; i.e., the actual limitation shall be determined for the period of sampling in accordance with the following equation.

    $L_f = (Q_a / Q_m) L_t$ where

    L_f = the final limitation, in lbs/day, used for compliance determination
    Q_a = the combined discharge flow rate, in mgd, of all low volume wastewaters at the time of sampling

Q_m = 4.09 mgd, the maximum possible combined flow of low volume wastewaters for Discharge Point 001

L_t = the appropriate maximum limitation, in lbs/day, from the Discharge Specifications stated at IV.D of this Order.

18. Mass-based effluent limitations for individual low volume wastewater discharges were calculated based on maximum discharge flow rates provided by the Discharger in materials submitted for application for renewal of Waste Discharge Requirements. Actual mass-based effluent limitations shall be recalculated based on the actual low volume wastewater discharge rate on the day of monitoring.

ATTACHMENT A – DEFINITIONS

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.

Daily Discharge: Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

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

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

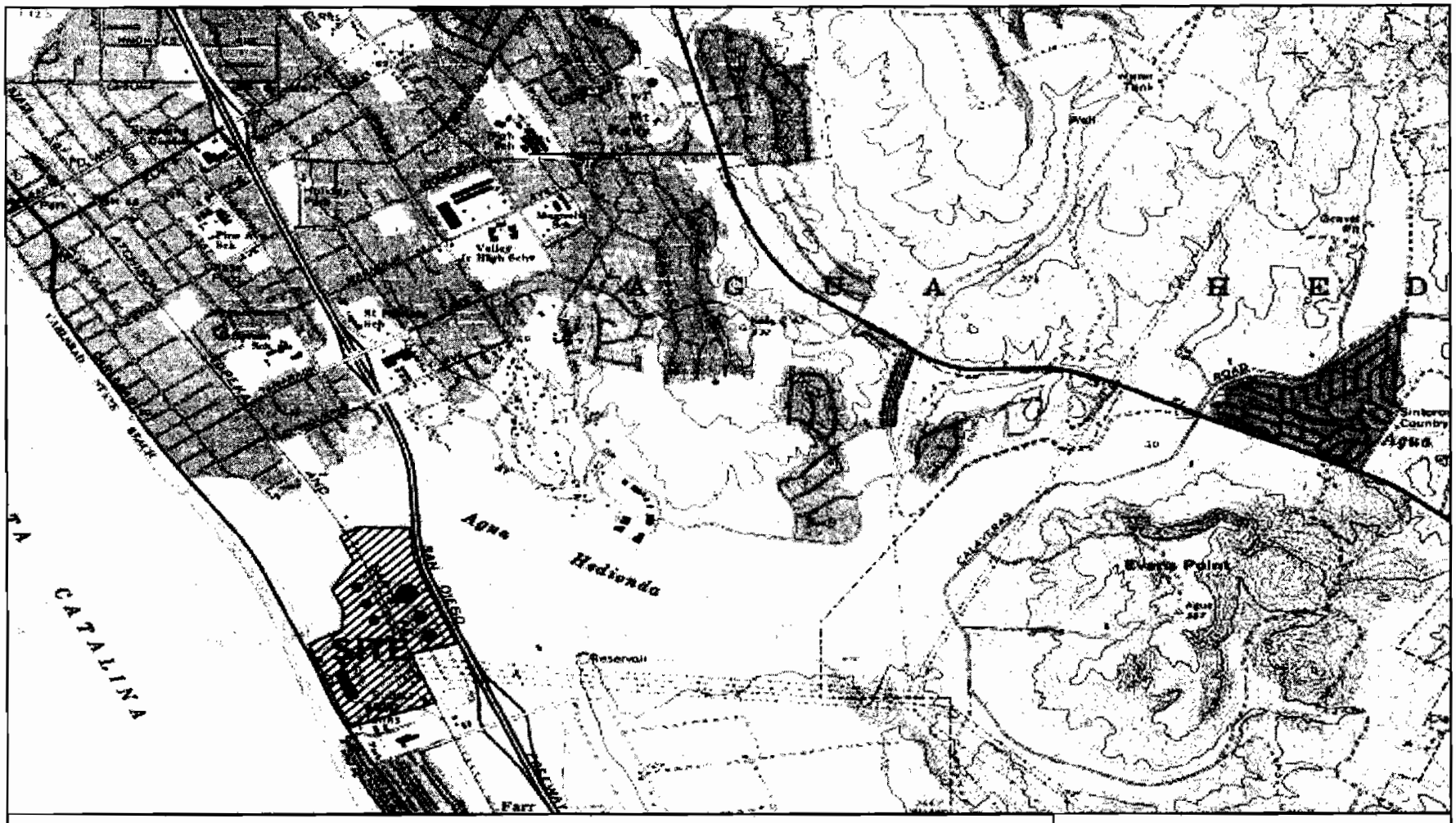
Instantaneous Maximum Effluent Limitation: the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

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.

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

ATTACHMENT B – TOPOGRAPHIC MAP



CABRILLO POWER I LLC - ENCINA POWER PLANT

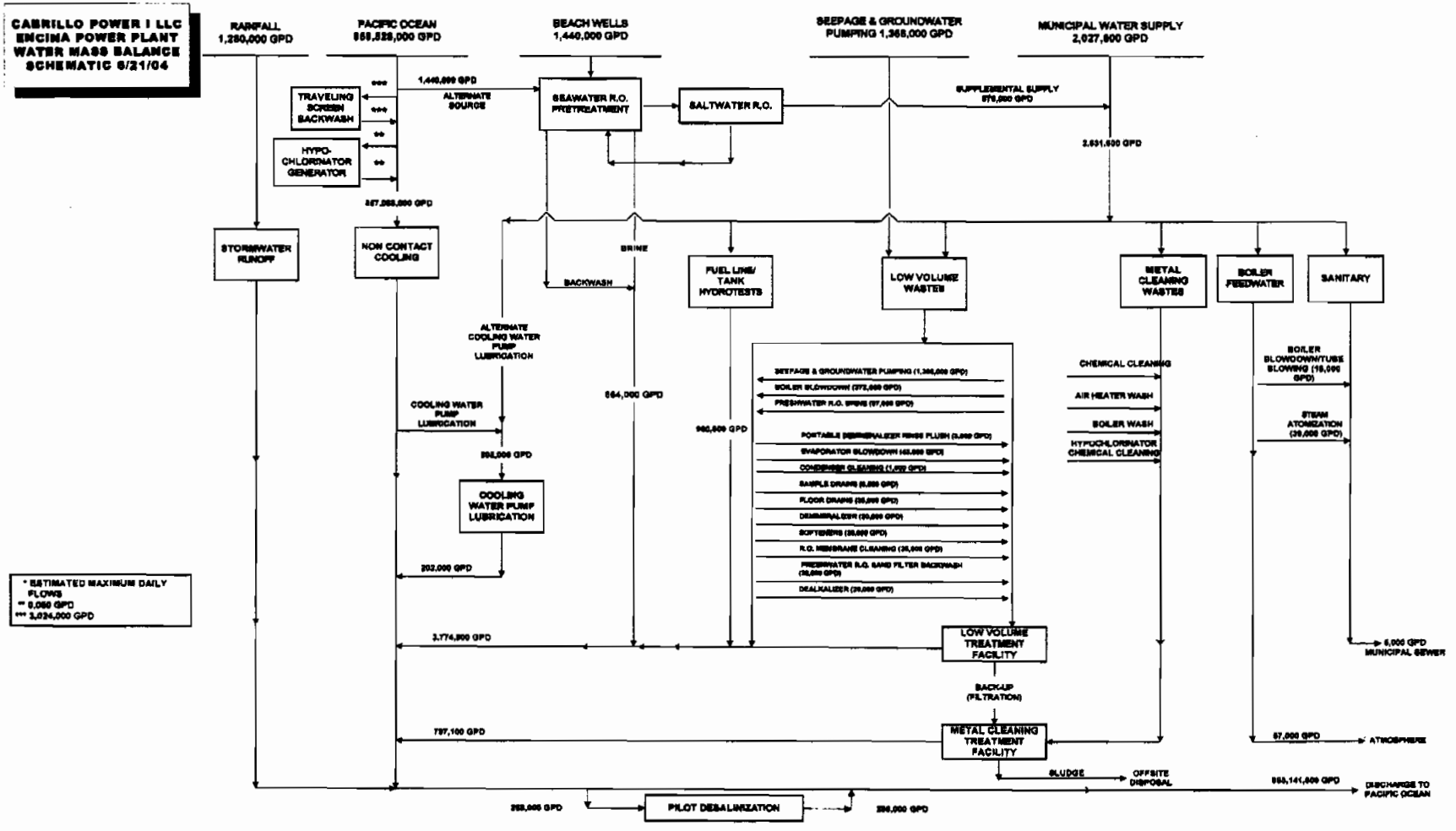
REFERENCE:
7.5 MINUTE USGS TOPOGRAPHIC MAP OF
SAN LUIS REY, CALIFORNIA QUADRANGEL
DATE: 3/29/2004

EPA FORM 1
APPENDIX B

ATTACHMENT C – FLOW SCHEMATIC

Figure 1

CABRILLO POWER I LLC
ENCINA POWER PLANT
WATER MASS BALANCE
SCHEMATIC 6/21/04



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 – Table of Contents

LIST OF TABLES

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (CFR) 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 Quality Control Board (RWQCB) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements which 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.

B. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and the reliability of measurements of 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 ± 10 percent from true discharge rates throughout the range of expected discharge volumes. Guidance in selection, installation, calibration and operation of acceptable flow volume measurement devices can be obtained from the following references:

1. *A Guide to Methods and Standards for the Measurement of Water Flow*, U.S. Department of Commerce, National Bureau of Standards, NBS Special Publication 421, May 1975, 96pp. [Available from the U.S. Government Printing Office, Washington, DC 20402. Order by SD Catalog No. C13.10:421.]

2. *Water Measurement Manual*, U.S. Department of Interior, Bureau of Reclamation, Second Edition, Revised Reprint, 1974, 327 pp. [Available from the U.S. Government Printing Office, Washington, DC 20402. Order by Catalog No. 172.19/2:W29/2, Stock No. S/N 24003-0027.]

3. *Flow Measurement in Open Channels and Closed Conduits*, U.S. Department of Commerce, National Bureau of Standards, NBS Special Publication 484, October 1977, 928 pp. [Available in paper copy of microfiche from National Technical Information Services (NTIS) Springfield, VA 22151. Order by NTIS No. PB-273 535/5ST.]

4. *NPDES Compliance Sampling Manual*, U.S. Environmental Protection Agency, Office of Water Enforcement, Publication MCD-51, 1977, 140 pp. [Available from the General Services Administration (8FFS), Centralized Mailing Lists Services, Building 41, Denver Federal Center, CO 80225.]

C. Monitoring must be conducted according to U.S. EPA test procedures approved at 40 CFR Part 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants

under the Clean Water Act as amended, unless other test procedures are specified in Order No. R9-2006-0043 and/or in this MRP and/or by the Regional Water Board.

D. Duplicate copies of the monitoring reports, signed and certified as required by *State and Federal Standard Provisions – Reporting*, E.2 (see Attachment C of Order No. R9-2006-0043) must be submitted to the SWRCB and Regional Water Board at the addresses listed in the *Reporting Requirements,* below of this MRP.

E. If the Discharger monitors any pollutant more frequently than required by Order R9-2006-0043 or this MRP, using test procedures approved under 40 CFR Part 136, or as specified in Order R9-2006-0043, or this MRP, or by the Regional Water Board, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharger's monitoring report. The increased frequency of monitoring shall be also be reported.

F. 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 Order No. R9-2006-0043, and this MRP, for a period of at least three years from the date of sample, measurement, report, or application. This period may be extended by request of the Regional Water Board at any time.

G. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in Order No. R9-2006-0043 or this MRP.

H. 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.

I. The Discharger shall report all instances of noncompliance not reported under *State and Federal Standard Provisions – Reporting*, E.3, E.4, and E.5 (see Attachment C of Order No. R9-2006-0043) at the time monitoring reports are submitted. The reports shall contain the information listed in *State and Federal Standard Provisions – Reporting*, E.5. [40 CFR 122.41(1)(7)]

J. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;

2. The individual(s) who performed the sampling or measurements;

3. The date(s) analyses were performed;

4. The individual(s) who performed the analyses;

5. The analytical techniques or methods used, including the method detection limit (MDL), for each analysis performed; and

6. The results of such analyses.

In addition, records of all cooling water intake monitoring, effluent monitoring, and receiving water monitoring shall include:

1. The applicable tide table for the day(s) on which sampling/monitoring was conducted; and

2. The moon phase (in days after the new moon) for the day(s) on which sampling was conducted.

K. 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.

L. 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 on sample per month, whichever is greater. A similar frequency shall be maintained for analyzing spiked samples. When requested by U.S. EPA 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 to or greater than 80 percent.

M. Analysis for pollutants with effluent limitations based on water quality objectives of the California Ocean Plan (2005) shall be conducted in accordance with procedures described in Attachment E of Order R9-2006-0043.

N. Toxicity Provisions

1. Chronic toxicity monitoring shall be conducted in accordance with procedures described in Attachment E of Order R9-2006-0043.

2. Toxicity Reopener

   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 U.S. EPA approved new state water quality standards applicable to effluent toxicity.

3. Monitoring results shall be reported at intervals and in a manner specified in Order R9-2006-0043 or in this MRP.

4. Revisions of Monitoring and Reporting Program by the Regional Water Board are appropriate to ensure that the Discharger is in compliance with requirements and provisions contained in this Order. Revisions may be made by the Regional Water Board at any time during the term of this Order, and may include a reduction or increase in the number of parameters to be monitored, the frequency of monitoring, or the number and size of samples collected.

II. Monitoring Locations

The Discharger shall establish the monitoring locations as specified in

Table **E-1** to assess compliance with the effluent limitations, discharge specifications, and other requirements in this Order.

Table E-1. Monitoring Locations

Discharge Point Name	Discharge Point	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
Receiving Water	--	--	All receiving water samples shall be collected at monitoring stations as described in this Order.
Cooling Water Intake	--	M-INT	32deg 57min N, 117deg 16min W
Combined Discharge	001	M-001	33deg 08min 17sec N, 117deg 20min 22sec W
Metal Cleaning Treatment Facility	001-A	M-001-A	Flow is monitored in the wastewater treatment tank area (F-6 of 137292 S-451)
Boiler Chemical Cleaning	001-A1	M-001-A	Flow is monitored in the wastewater treatment tank area (F-6 of 137292 S-451)
Hypochlorinator Chemical Cleaning	001-A2	M-001-A	Flow is monitored in the wastewater treatment tank area (F-6 of 137292 S-451)
Air Heater Wash	001-A3	M-001-A	Flow is monitored in the wastewater treatment tank area (F-6 of 137292 S-451)
Boiler Fireside Wash	001-A4	M-001-A	Flow is monitored in the wastewater treatment tank area (F-6 of 137292 S-451)
Evaporator Chemical Cleaning	001-A5	M-001-A	Flow is monitored in the wastewater treatment tank area (F-6 of 137292 S-451)
Catalytic Reduction Wash	001-A6	M-001-A	Flow is monitored in the wastewater treatment tank area (F-6 of 137292 S-451)
Seepage and Groundwater Pumping	001-B	M-001-B	Unit 4 flow is monitored in the basement of Unit 4 (K-14 of 137292 S-451); Unit 5 flow is monitored in the basement of Unit 5 (K-16 of 137292 S-451)
Boiler Blowdown	001-C	M-001-C	Units 1 through 5 flow values are estimated based on valve flow rates. These valves are located within each unit's boiler equipment (K-10, K-12, K-14, and K-16 of 137292 S-451, respectively)
Freshwater R.O. Brine	001-D	M-001-D	Flow is monitored at the Reverse Osmosis area (H-16 of 137292 S-451)
Seawater R.O. Brine	001-E	M-001-E	Not discharging this stream at this time as the exact location of the proposed system is yet to be determined. Prior to commencement of discharge, Discharger will notify the Regional Water Board of the exact location compliance will be determined.
Fuel Line/Tank Hydrotest	001-F	M-001-F	Flow is monitored in the wastewater treatment tank area (F-6 of 137292 S-451) or at the offshore marine terminal located at 33deg 07.8min N, 118deg 20.8min W
Pilot Desalination Plant	001-G	M-001-G	The combined pilot plant discharge shall be monitored from the discharge pipe just above the ramp to the discharge pond.
Low Volume Waste Treatment Facility	001-H	M-001-H	Flow is monitored in the wastewater treatment tank area (F-6 of 137292 S-451)
Stormwater	001-I	M-001-I	Flows are sampled and monitored in various locations as depicted in 137292 S-451, Stormwater Pollution Prevention Plan drawing.

III. Influent Monitoring Requirements

A. Cooling Water Intake

1. The Discharger shall annually measure bar rack approach velocity and sediment accumulation at the intake structure and shall submit to the Regional Water Board an annual summary describing any operational difficulties at the intake structure or the bar rack. The Discharger shall also discuss preventative maintenance and corrective measures take to assure intake water velocities are as close as practical to design levels.

2. The Discharger shall monitor the main condenser inflow of cooling water at Monitoring Location M-INT as specified in Table E-2.

Table E-2. Intake Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Reporting Frequency
Temperature	ºF	Measurement	Once every 2 hours	monthly
Total Suspended Solids	mg/L	grab	monthly	monthly
Turbidity	NTU	grab	monthly	monthly
pH	standard units	grab	monthly	monthly

IV. Effluent Monitoring Requirements

A. Combined Discharge (Discharge Point 001)

1. Samples of the combined discharge through Discharge Point 001 shall be collected at Monitoring Location M-001 and analyzed as specified in Table E-3.

Table E-3. Effluent Monitoring Requirements (Discharge Point 001)

Parameter	Units	Sample Type	Minimum Frequency of Analysis	Reporting Frequency
Flow	mgd	meter or estimate	continuous	monthly
Temperature (Avg. and Max. Daily)	ºF	measurement	once every 2 hours	monthly
pH	standard units	grab	monthly	monthly
Turbidity	NTU	grab	monthly	monthly
Total Chlorine Residual[1/]	µg/L	grab	weekly	monthly
Total Chlorine Residual[2/]	µg/L	grab	annually	annually
Chronic Toxicity (General)[3/]	TUc	composite	semiannually	semiannually

Parameter	Units	Sample Type	Minimum Frequency of Analysis	Reporting Frequency
Chronic Toxicity (Metal Cleaning)[4/]	TUc	composite	as needed	annually
Total Suspended Solids	mg/L	grab	monthly	monthly
Arsenic	µg/L	grab	semiannually	semiannually
Cadmium	µg/L	grab	semiannually	semiannually
Chromium (Hexavalent)	µg/L	grab	semiannually	semiannually
Copper	µg/L	grab	semiannually	semiannually
Lead	µg/L	grab	semiannually	semiannually
Mercury	µg/L	grab	semiannually	semiannually
Nickel	µg/L	grab	semiannually	semiannually
Selenium	µg/L	grab	semiannually	semiannually
Silver	µg/L	grab	semiannually	semiannually
Zinc	µg/L	grab	semiannually	semiannually
Cyanide	µg/L	grab	semiannually	semiannually
Ammonia	µg/L	grab	semiannually	semiannually
Non-Chlorinated Phenolic Compounds	µg/L	grab	semiannually	semiannually
Chlorinated Phenolic Compounds	µg/L	grab	semiannually	semiannually
Endosulfan	µg/L	grab	semiannually	semiannually
Endrin	µg/L	grab	semiannually	semiannually
HCH	µg/L	grab	semiannually	semiannually

B. Metal Cleaning Wastes (Discharge Point 001-A)

1. Chemical and non-chemical metal cleaning waste streams shall be sampled at Monitoring Locations M-001-A and analyzed as specified in Table E-4.

Table E-4. Effluent Monitoring Requirements (Discharge Point 001-A)

Parameter	Units	Sample Type	Minimum Frequency of Analysis	Reporting Frequency
Flow	mgd	meter or estimate	continuous	monthly
pH	standard units	grab	prior to discharge	monthly
Total Suspended Solids (TSS)	mg/L, lbs/day	grab	prior to discharge	monthly
Oil and Grease	mg/L, lbs/day	grab	prior to discharge	monthly
Total Copper	mg/L, lbs/day	grab	prior to discharge	monthly
Total Iron	mg/L, lbs/day	grab	prior to discharge	monthly

C. Combined Low Volume Wastewaters (Discharge Points 001-B through 001-H)

1. Low volume wastewaters (Discharge Points 001-B through 001-H) shall be sampled at Monitoring Locations M-001-B through M-001-H and analyzed as specified in Table E-5. Reported values shall result from individual grab samples of low volume waste streams that are collected and composited on a flow-weighted basis. Measurements or estimates of flows of individual low volume waste streams used as a basis for compositing shall include as many wastewaters as possible. The flow rate used to determine the proportion of each waste stream in the composited sample shall be the actual (preferred) or estimated flow rate for the day on which samples are collected.

Table E-5. Effluent Monitoring Requirements (Discharge Points 001-B through 001-H)

Parameter	Units	Minimum Frequency of Analysis	Reporting Frequency
Flow	mgd	monthly	monthly
pH	standard units	monthly	monthly
Total Suspended Solids (TSS)	mg/L	monthly	monthly
	lbs/day	monthly	monthly
Oil and Grease	mg/L	monthly	monthly
	lbs/day	monthly	monthly
Arsenic	lbs/day	semiannually	semiannually
Cadmium	lbs/day	semiannually	semiannually
Chromium (Hexavalent)	lbs/day	semiannually	semiannually
Copper	lbs/day	semiannually	semiannually
Lead	lbs/day	semiannually	semiannually
Mercury	lbs/day	semiannually	semiannually
Nickel	lbs/day	semiannually	semiannually
Selenium	lbs/day	semiannually	semiannually
Silver	lbs/day	semiannually	semiannually
Zinc	lbs/day	semiannually	semiannually
Cyanide	lbs/day	semiannually	semiannually
Ammonia	lbs/day	semiannually	semiannually
Non-Chlorinated Phenolic Compounds	lbs/day	One time during the permit period	As part of the renewal application in 2010
Chlorinated Phenolic Compounds	lbs/day	One time during the permit period	As part of the renewal application in 2010
Endosulfan	lbs/day	One time during the permit period	As part of the renewal application in 2010
Endrin	lbs/day	One time during the permit period	As part of the renewal application in 2010
HCH	lbs/day	One time during the permit period	As part of the renewal application in 2010
Acrolein	lbs/day	One time during the permit period	As part of the renewal application in 2010
Antimony	lbs/day	One time during the permit period	As part of the renewal application in 2010
Bis(2-chloroethoxyl) methane	lbs/day	One time during the permit period	As part of the renewal application in 2010
Bis(2-chloroisopropyl) ether	lbs/day	One time during the permit period	As part of the renewal application in 2010

Parameter	Units	Minimum Frequency of Analysis	Reporting Frequency
Chlorobenzene	lbs/day	One time during the permit period	As part of the renewal application in 2010
Chromium III	lbs/day	One time during the permit period	As part of the renewal application in 2010
Di-n-butly phthalate	lbs/day	One time during the permit period	As part of the renewal application in 2010
Dichlorobenzenes	lbs/day	One time during the permit period	As part of the renewal application in 2010
Diethyl phthalate	lbs/day	One time during the permit period	As part of the renewal application in 2010
Dimethyl phthalate	lbs/day	One time during the permit period	As part of the renewal application in 2010
4,6-dinitro-2-methylphenol	lbs/day	One time during the permit period	As part of the renewal application in 2010
2,4-dinitrophenol	lbs/day	One time during the permit period	As part of the renewal application in 2010
Ethylbenzene	lbs/day	One time during the permit period	As part of the renewal application in 2010
Fluoranthene	lbs/day	One time during the permit period	As part of the renewal application in 2010
Hexachlorocyclopentadine	lbs/day	One time during the permit period	As part of the renewal application in 2010
Nitrobenzene	lbs/day	One time during the permit period	As part of the renewal application in 2010
Thallium	lbs/day	One time during the permit period	As part of the renewal application in 2010
Toluene	lbs/day	One time during the permit period	As part of the renewal application in 2010
1,1,1-trichloroethane	lbs/day	One time during the permit period	As part of the renewal application in 2010
Tributyltin	lbs/day	One time during the permit period	As part of the renewal application in 2010
Acrylonitrile	lbs/day	One time during the permit period	As part of the renewal application in 2010
Aldrin	lbs/day	One time during the permit period	As part of the renewal application in 2010
Benzene	lbs/day	One time during the permit period	As part of the renewal application in 2010
Benzidine	lbs/day	One time during the permit period	As part of the renewal application in 2010
Beryllium	lbs/day	One time during the permit period	As part of the renewal application in 2010
Bis(2-chloroethyl) ether	lbs/day	One time during the permit period	As part of the renewal application in 2010
Bis(2-ethylhexyl) phthalate	lbs/day	One time during the permit period	As part of the renewal application in 2010
Carbon tetrachloride	lbs/day	One time during the permit period	As part of the renewal application in 2010
Chlordane	lbs/day	One time during the permit period	As part of the renewal application in 2010
Chlorodibromomethane	lbs/day	One time during the permit period	As part of the renewal application in 2010
Chloroform	lbs/day	One time during the permit period	As part of the renewal application in 2010
DDT	lbs/day	One time during the permit period	As part of the renewal application in 2010
1,4-dichlorobenzene	lbs/day	One time during the permit period	As part of the renewal application in 2010
3,3'-dichlorobenzidine	lbs/day	One time during the permit period	As part of the renewal application in 2010
1,2-dichloroethane	lbs/day	One time during the permit period	As part of the renewal application in 2010
1,1-dichloroethylene	lbs/day	One time during the permit period	As part of the renewal application in 2010

Parameter	Units	Minimum Frequency of Analysis	Reporting Frequency
Dichlorobromomethane	lbs/day	One time during the permit period	As part of the renewal application in 2010
Dichloromethane	lbs/day	One time during the permit period	As part of the renewal application in 2010
1,3-dichloropropene	lbs/day	One time during the permit period	As part of the renewal application in 2010
Dieldrin	lbs/day	One time during the permit period	As part of the renewal application in 2010
2,4-dinitrotoluene	lbs/day	One time during the permit period	As part of the renewal application in 2010
1,2-diphenylhydrazine	lbs/day	One time during the permit period	As part of the renewal application in 2010
Halomethanes	lbs/day	One time during the permit period	As part of the renewal application in 2010
Heptachlor	lbs/day	One time during the permit period	As part of the renewal application in 2010
Heptachlor epoxide	lbs/day	One time during the permit period	As part of the renewal application in 2010
Hexachlorobenzene	lbs/day	One time during the permit period	As part of the renewal application in 2010
Hexachlorobutadiene	lbs/day	One time during the permit period	As part of the renewal application in 2010
Hexachloroethane	lbs/day	One time during the permit period	As part of the renewal application in 2010
Isophorone	lbs/day	One time during the permit period	As part of the renewal application in 2010
N-nitrosodimethylamine	lbs/day	One time during the permit period	As part of the renewal application in 2010
N-nitrosodi-N-propylamine	lbs/day	One time during the permit period	As part of the renewal application in 2010
N-nitrosodiphenylamine	lbs/day	One time during the permit period	As part of the renewal application in 2010
PAHs	lbs/day	One time during the permit period	As part of the renewal application in 2010
PCBs	lbs/day	One time during the permit period	As part of the renewal application in 2010
TCDD Equiv.	lbs/day	One time during the permit period	As part of the renewal application in 2010
1,1,2,2-tetrachloroethane	lbs/day	One time during the permit period	As part of the renewal application in 2010
Tetrachloroethylene	lbs/day	One time during the permit period	As part of the renewal application in 2010
Toxaphene	lbs/day	One time during the permit period	As part of the renewal application in 2010
Trichloroethylene	lbs/day	One time during the permit period	As part of the renewal application in 2010
1,1,2-trichloroethane	lbs/day	One time during the permit period	As part of the renewal application in 2010
2,4,6-trichlorophenol	lbs/day	One time during the permit period	As part of the renewal application in 2010
Vinyl chloride	lbs/day	One time during the permit period	As part of the renewal application in 2010

V. Whole Effluent Toxicity Testing Requirements

A. Chronic Toxicity Monitoring

The Discharger shall conduct semiannual toxicity tests on 24-hour composite effluent samples. Testing shall be performed using methods outlined in "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" or SWRCB 1996. Procedures Manual for Conducting Toxicity Tests Developed by the Marine Bioassay Project. 96-1WQ."

Combined discharge samples shall be taken during a period when low volume wastes are being discharged. Samples shall be taken at the NPDES sampling location of the combined discharge identified in Section II of this MRP. At the time of the first toxicity test immediately following adoption of this Order, the Discharger shall conduct toxicity tests with an invertebrate, *Haliotis rufescens*, a plant, *Macrocystis pyrifera*, and a vertebrate, *Atherinops Affins.* After this screening period, monitoring will be conducted on the most sensitive species. Every two years the Discharger shall re-screen to determine the most sensitive species. This screening shall be performed during a different month that the previous species screenings. The most sensitive species shall then be used for continued monitoring.

At least five concentrations of effluent (one concentration must bracket the initial dilution on 10% effluent) plus one control shall be tested. A minimum of four replicates is required per concentration. The effluent tests must be conducted with concurrent reference toxicant tests. Both the reference toxicant and effluent tests must meet all test acceptability criteria as specified in the chronic toxicity manuals. If the test acceptability criteria are is not achieved, the Discharger must re-sample and re-test within 14 days.

The summary report submitted to the Regional Water Board must follow the guidelines specified in Chapter 10 of Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms. Sections 10.2 and 10.3.2 of that chapter are not required.

Compliance shall be determined from TUc, which equals 100/NOEC. NOEC (No Observed Effect Concentration) is the highest concentration of toxicant, in terms of percent effluent, to which the test organisms are exposed that causes no observable adverse effect. The chronic toxicity limitation is: 1) a monthly median expressed as 10 TUc or 2) any one test that demonstrates a 50% toxic effect.

B. Implementation of Chronic Toxicity Limitations

If the results of a chronic toxicity test exceed the limitations specified in 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 violated the effluent limitation to least two times per month until the results of at least three consecutive toxicity tests meet the required standard. Re-sampling should occur under conditions that mimic the conditions of the initial non-compliant toxicity test.

If the Regional Water Board determines that toxicity testing shows a consistent violation of the limitations specified in this Order, the Discharger shall conduct a Toxicity Reduction Evaluation (TRE), which includes all reasonable steps to identify the source of the toxicity. Once the source of the toxicity is identified, upon Regional Water Board request, the Discharger shall take all reasonable steps to reduce the toxicity to meet the toxicity limitations contained in this Order. The TRE shall be conducted based on the procedures established by the U.S. EPA in guidance manuals EPA/600/6-91/005F (Phase I), EPA/600/R-92/080 (Phase II), and EPA/600/R-92/081 Phase III, and EPA/600/2-88/070 (TRE protocols for industrial discharges).

Within 14 days of the TRE, the Discharger shall submit the results of the TRE, including a summary of the findings, data generated, a list of corrective actions necessary to achieve consistent compliance with this Order and prevent all future violations, and a time schedule for implementation of such corrective actions. The corrective actions and time schedule shall be modified at the discretion of the Regional Water Board.

VI. Receiving Water Monitoring Requirements

Receiving water and kelp monitoring shall be conducted as specified below. Sampling, sampling preservation, and analysis, when not specified, shall be by methods approved by the Regional Water Board.

Dispersion Area Stations: There are 10 stations located on three transects in the dispersion area. The transects shall be established normal to the shore. Transects and stations shall be located and numbered as specified in Table E-6.

Table E-6. Dispersion Area Stations

Transect (Description)	Station	Description
C (1000 feet upcoast (northerly) of the discharge channel)	C-10	521 feet offshore
	C-20	956 feet offshore
	C-30	2000 feet offshore
D (Discharge channel)	D-10	565 feet offshore
	D-20	1129 feet offshore
	D-30	1600 feet offshore
	D-50	2800 feet offshore
E (1000 feet downcoast (southerly) of the discharge channel)	E-10	652 feet offshore
	E-20	1086 feet offshore
	E-30	2000 feet offshore

Reference Area Stations: There are four stations located on a transect in the reference area. The transect shall be established normal to the shore. The transect and stations shall be located and numbered as specified in Table E-7.

Table E-7. Reference Area Stations

Transect (Description)	Station	Description
A (7000 feet upcoast (northerly) of the discharge channel)	A-10	At 10 foot depth (-10 ft MLLW)
	A-20	At 20 foot depth (-20 ft MLLW)
	A-30	At 30 foot depth (-30 ft MLLW
	A-50	3400 feet offshore

A. Dispersion and Reference Area Stations

1. The Discharger shall monitor the Pacific Ocean at stations 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 as specified in Table E-8.

Table E-8. Dispersion and Reference Area Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Reporting Frequency
Light Transmittance (Secchi disk)	feet	--	semiannually	semiannually
Dissolved oxygen	mg/L	grab	semiannually	semiannually
pH	standard units	grab	semiannually	semiannually

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

The report for items monitored at receiving water monitoring stations and thermal plume characterization shall include an in-depth discussion of the results of the surveys. The discussion shall compare data from the reference station(s) with data from the stations located in the area of the discharge and shall note compliance with objectives found in this order and the Ocean Plan. The report shall include a description of the methods and equipment used to obtain the data.

B. Kelp Bed Monitoring

Kelp bed monitoring is conducted to assess the extent to which the discharge of wastes may affect the areal extent and the health of the coastal kelp beds.

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 areal 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, which ordinarily occurs in August or September in the San Diego Region. The entire San Diego Region, from the International Boundary to the San Diego/Santa Ana Regional boundary shall be photographed on the same day. The date of each annual survey shall be approved by the Regional Water Board. (Verbal approval will be sufficient, so that the survey will not be delayed, while written approval is prepared and distributed.)

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 one year shall be investigated by divers to determine the probable reason for the loss.

VII. Other Monitoring Requirements

A. In addition to the Core (Intake, Effluent, and Receiving Water Monitoring) requirements, the Discharger shall comply with the following monitoring requirements:

1. 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.

2. Special Studies

   Special studies are intended to be short-term and designed to address specific research or management issues that are not addressed be the routine core monitoring program. The Discharger shall implement special studies as directed by this Regional Water Board. This includes conducting and implementing a *Comprehensive Demonstration Study* as required by the CWA Section 316(b) Phase II Rule (40 CFR 125.91). The Study is due no later than January 9, 2008.

VIII. Reporting Requirements

A. General Monitoring and Reporting Requirements

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

B. Self Monitoring Reports (SMRs)

1. 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 self-monitoring reports in accordance with the requirements described below.

2. The Discharger shall submit monthly, semiannual, and annual Self Monitoring Reports 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 February 1 following each semi-annual period; Annual reports shall be due on February 1 following each calendar year.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the schedule specified in Table E-9.

Table E-9. Monitoring and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	October 1, 2006	All	First day of second calendar month following month of sampling
Monthly	October 1, 2006	1st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
Quarterly	October 1, 2006	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	May 1 August 1 November 1 February 1
Semiannually	October 1, 2006	January 1 through June 30 July 1 through December 31	August 1 February 1
Annually	October 1, 2006	January 1 through December 31	February 1

4. The Discharger shall report with each sample result the applicable Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

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

6. 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.

7. Other reports, as required by this Order, shall be submitted to the Regional Water Board according to the following schedule:

   a. *Proposal for Information Collection* regarding Clean Water Act Section 316(b) *Comprehensive Demonstration Study* will be due no later than 180 days after the effective date of this Order.

   b. Clean Water Act 316(b) *Comprehensive Demonstration Study* will be due no later than January 9, 2008.

c. The Receiving Water Monitoring Report is due by August 1 of each year flowing the previous calendar year's receiving water monitoring activity.

8. Self Monitoring Reports, signed and certified as required by Attachment D of this Order, must be must be reported on forms approved by the Regional Water Board and submitted to the following address:

   Industrial Compliance Unit
   California Regional Water Quality Control Board
   San Diego Region
   9174 Sky Park Court, Suite 100
   San Diego, CA 92123-4340

C. Discharge Monitoring Reports (DMRs)

1. As described in Section X.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.

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LIST OF TABLES

LIST OF EXAMPLES

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

Table F-1 summarizes administrative information related to the facility.

Table F-1. Permit Information

WDID	9 000000092
Discharger	Cabrillo Power I LLC
Name of Facility	Encina Power Station
Facility Address	4600 Carlsbad Boulevard
	Carlsbad, CA 92008
	San Diego County
Facility Contact, Title and Phone	Sheila Henika , P.E., Environmental Engineer, (760) 268-4018
Authorized Person to Sign and Submit Reports	Jerry L. Carter, Plant Manager, (760) 268-4000
Mailing Address	SAME
Billing Address	SAME
Type of Facility	Industrial, SIC #4911
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	N
Reclamation Requirements	N/A
Facility Permitted Flow	863.5 mgd
Facility Design Flow	863.5 mgd
Watershed	
Receiving Water	Pacific Ocean
Receiving Water Type	Marine

A. Cabrillo Power I LLC (hereinafter Discharger) is the owner of Encina Power Station (hereinafter Facility) a steam electric generating facility, located in the City of Carlsbad, California, adjacent to the Agua Hedionda Lagoon on the Pacific Ocean. The Encina Power Station is located in Section 18, T12S, R4W, SBBM.

B. The Facility discharges wastewater to the Pacific Ocean, a water of the United States and is currently regulated by Order No. 2000-03 which was adopted on February 9, 2000 and expired on February 8, 2005. The terms of the existing Order automatically continued in effect after the permit expiration date.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on June 23, 2004. The Discharger submitted supplemental information regarding an impingement mortality and entrainment study on September 9, 2004.

II. Facility Description

A. Description of Wastewater Sources, Treatment and Controls

The Encina Power Station is a fossil-fueled steam electric power generating station comprised of five steam turbine generators and one gas turbine generator for a total maximum generating capacity of 939 megawatts. Table F-2 lists the generating capacity for each unit and the date the unit began operating. Natural gas is the primary fuel with fuel oil used for power generation during peak capacity or emergency periods. Once-through cooling water is withdrawn from the Pacific Ocean via the Agua Hedionda Lagoon at a maximum rate of 857.3 million gallons per day (mgd). A single cooling water system serves the five steam generating units; the gas turbine is air-cooled.

Table F-2. Generating Capacity

Generating Unit	In-service Year	Net Generating Capacity (MWe)
Unit 1	1954	107
Unit 2	1956	104
Unit 3	1958	110
Unit 4	1973	287
Unit 5	1978	315
Gas Turbine	1968	16

The Discharger's Report of Waste Discharge indicates that a maximum of approximately 863 mgd of wastewater is discharged through Discharge Point 001. Internal discharge point designations (001-A through 001-H) are based on the discrete location at which the in-plant waste stream discharges to the main waste stream. The discharges from Encina Power Station are made up of the cooling and in-plant waste streams specified in Table F-3.

Table F-3. Discharge Points and In-plant Waste Streams

Discharge Point	Wastewater Discharge*	Maximum Flow (mgd)
001	**Once-through (non-contact) cooling water**	**857.3**
001	(a) Condenser cooling	--
001	(b) Cooling water pump lubrication and seal water	--
001	(c) Cooling water pump lubrication and seal water pretreatment backwash	--
001	(d) Salt water heat exchanger	--
001	(e)Traveling screen backwash water	--
001	(f) Tunnel and forebay cleaning	--
001	(g) Hypochlorinator bearing cooling water	--
001-A	**Metal cleaning wastes**	**0.7971**
001-A	(a) Boiler chemical cleaning	--
001-A	(b) Hypochlorinator chemical cleaning	--
001-A	(c) Evaporator chemical cleaning	--
001-A	(d) Air heater wash	--
001-A	(e) Boiler fireside wash	--
001-A	(f) Selective catalytic reduction wash	--
001-B	**Seepage and groundwater pumping**	**1.368**
001-C	**Boiler blowdown**	**0.372**
001-D	**Freshwater reverse osmosis brine**	**0.087**
001-E	**Seawater reverse osmosis brine**	**0.864**
001-F	**Fuel Line/Tank hydrotests**	**0.900**
001-G	**Poseidon pilot desalinization plant**	**0.288**

Discharge Point	Wastewater Discharge*	Maximum Flow (mgd)
001-H	**Low volume waste treatment facility (LVWTF)**	**0.2115**
001-H	(a) Evaporator blowdown	--
001-H	(b) Sample drains	--
001-H	(c) Floor drains	--
001-H	(d) Demineralizer regenerants	--
001-H	(e) Softeners	--
001-H	(f) Condenser cleaning	--
001-H	(g) Sand filter backwash	--
001-H	(h) Portable demineralizer rinse flush	--
001-H	(i) R.O. Membrane cleaning	--
001-H	(j) Salt water heat exchanger drains	--
001-I	**Stormwater**	**1.280**

*Bold entries indicate discrete discharge points and may represent an aggregate of the contributing waste streams listed below.

Over the previous four years, the Encina Power Station has reported combined discharge flows ranging from 99.8 mgd to 794.9 mgd with a daily average of 600.4 mgd. Most of the combined discharge consists of once-through cooling water, with low volume wastes contributing an average of only 0.121 mgd and with no metal cleaning waste having been discharged in the last four years. Domestic wastewater is discharged to the municipal sewer system for treatment and disposal. Attachment C contains a water balance diagram containing the configuration and maximum flow rates for each waste stream.

1. **Cooling Water System and Associated Wastes (Discharge Point 001)**

   Cooling water is withdrawn from the pacific Ocean via the Agua Hedionda Lagoon. The cooling water intake structure complex is located approximately 2,200 feet from the ocean inlet to the lagoon. Variations in the water surface level due to tide are from a low of -5.07 feet to a high of +4.83 feet (elevation 0 = mean sea level, or msl). The intake structure is located in the lagoon approximately 525 feet in front of the generating units.

   The mouth of the intake structure is 49 feet wide. Booms are situated in the lagoon across the front of the intake structure to screen floating debris. Water passes through metal trash racks (vertical bars spaced 3-1/2 inches apart) to screen large debris. The intake forebay tapers into two 12-foot wide intake tunnels. From these tunnels, water enters one of four 6-foot wide conveyance tunnels. Cooling water for conveyance tunnels 1 and 2 passes through two vertical traveling screens to prevent fish, grass, kelp, and debris from entering intakes 1, 2, and 3. Conveyance tunnels 3 and 4 carry cooling water to intake 4 and 5, respectively. Vertical traveling screens are located at the intakes of pump 4 and pump 5.

   Each pump intake consists of two circulating water pump cells and one or two service pump cells. During normal operation, one circulating water pump serves each half of the condenser, i.e. when a unit is on line, both pumps are in operation.

   Seven vertical traveling screens remove any fish or debris that has passed through the trash racks. The screens are conventional through-flow, vertically rotating, single entry-single exit, band-type screens and are mounted in the screen wells of the intake channel. Each screen consists of a series of baskets or screen panels attached to a chain drive. The screening surface is made of 3/8-inch stainless steel mesh panels, with the exception

of the Unit 5 screens, which have 5/8-inch square openings. The screens rotate automatically when the buildup of debris on the screen face causes the water level behind the screen to drop below that of the water in front of the screen and a predetermined pressure differential is reached. The screens rotate at a speed of 3 feet per minute, making one complete revolution in approximately 20 minutes. A screen wash system, using sea water from the intake tunnel, washes the debris from the traveling screen into a debris trough. Accumulated organic debris is discharge to Discharge Point 001.

The condensers are a shell-and-tube arrangement in which heat is transferred from the turbine exhaust steam to the circulating (cooling) water. Units 1, 2, and 3 have two-pass condensers (water enters the bottom, passes through the condenser twice, and exits the top). The tubing, made of No. 18 BWG aluminum-brass, has a 30-foot length and a 1-inch outside diameter. The condensers for Units 4 and 5 are a single-pass design. The tubing is No. 20 BWG copper-nickel with a 36-foot length and 1 and 1/8-inch outside diameter.

Wastewater discharges associated with the operation of the cooling water system discharge directly to Discharge Point 001 without additional treatment.

a. Cooling Water Pump Lubrication and Seal Water Pretreatment Backwash

The circulating water pumps have bronze bearings that are sealed and lubricated with either seawater or fresh water. Where seawater is used, it must first be filtered to prevent solids from reaching and damaging the bearings. Filtration of the seawater is accomplished using small microfiltration units. These units are designed to automatically backwash every hour to remove the accumulated solids from the filtering media. The backwash water is routed to the once-through cooling water system.

b. Salt Water Heat Exchanger Cooling Water.

Once-through cooling water is used to cool facility equipment in addition to condensing steam. Cooling of facility equipment is accomplished through the use of auxiliary heat exchanger systems that use salt water to cool a closed-loop "service water" system that is piped throughout the facility to cool equipment. There are four heat exchange systems with each system comprised of two individual heat exchangers. Normally, only one heat exchanger is used at a time. Under certain operating conditions, however, both heat exchangers in a system may operate at the same time. The once-through cooling water used in the heat exchangers is discharged to the main once-through cooling water discharge tunnel.

The salt water condenser leaks intermittently and infrequently. When leaks do occur, however, they can cause significant operational problems and increase the frequency of boiler chemical cleanings. The Discharger uses alfalfa (or other acceptable materials approved by the Executive Officer) to temporarily plug leaks to allow the unit to function until such time as the system can be removed from service for repair.

c. Traveling Screen Backwash Water

Traveling screens are used to remove small debris from the cooling water stream that could otherwise interfere with the heat exchange process in the condenser tubing. As each screen is rotated, a high-pressure spray washes any accumulated debris off the screen face into debris baskets. Water for the high-pressure spray is pumped from the once-through cooling water flow to the spray heads. The water that removes the

debris drains through the baskets and screen panels and re-enters the once-through cooling water flow. Organic debris removed from the screens is discharged to the discharge channel.

d. Tunnel and Forebay Cleaning

Over time, sediment from the Agua Hedionda Lagoon and shells from encrusting organisms that grow on the tunnel walls can accumulate in the facility's cooling water intake tunnels and forebays to an extent that it threatens to restrict the flow of cooling water to the units during low tide conditions. Cleaning of the cooling water tunnels and pump forebays is conducted periodically to remove the accumulated debris. Because tunnel/forebay cleaning is normally conducted during a unit overhaul, only the tunnel or forebay for the unit removed from service is cleaned at a given time. Tunnel/forebay cleaning for an individual unit is conducted approximately once every one to three years. Water from the tunnel/forebay being cleaned is pumped to the cooling water discharge tunnel. Resulting materials from the cleaning process are discharged to either the cooling water discharge tunnel of to the cooling water discharge pond.

e. Hypochlorinator DC Rectifier Cooling Water

The Discharger produces its own sodium hypochlorite for use in chlorinating the cooling water system. Make-up water is drawn from the once-through cooling water stream and passed through the DC rectifier. A small volume of once-through non-contact cooling water is used to cool the DC rectifier and is discharged to the cooling water system. This cooling water stream runs continuously only when the rectifier is in operation. When all cooling pumps are in operation, the hypochlorinator generator runs approximately 85-100% of the time.

2. **Metal Cleaning Wastes (Discharge Point 001-A)**

All wastewaters from metal cleanings and washings are collected in one or both of the wastewater receiving tanks that comprise the Metal Cleaning Treatment Facility (MCTF). They are then neutralized, flocculated, chemically precipitated and filtered to remove metals and solids and routed to wastewater tanks, where they are held for testing prior to discharge. When the MCTF effluent is deemed compliant with all applicable effluent limitations, the treated wastewater is discharge to the once-through cooling system. Discharges normally occur daily during the processing of wastewater from metal cleanings and washes. The sludge generated by the treatment process is dewatered using a filter press and disposed of in a landfill permitted to receive such wastes. Metal cleaning wastes are generated from the following processes:

a. Chemical Cleaning

Boiler tube waterside cleanings are performed using either a dilute acid solution or an organic chelant-based cleaning solution. The boiler to be cleaned is drained of the water it contains and filled with fresh water, then fired to heat the water and metal up to treatment temperature. When the required temperature is attained, a "fast drain" is performed. The warm water is pumped back into the boiler with the chemicals mixed into the water during pumping. At this point, the boiler is allowed to sit for six hours with the cleaning solution inside. The temperature is monitored so that if the system cools too quickly it can be drained sooner. After the treatment process, another "fast drain" is performed, followed by several rinse cycles. The third rinse typically contains

citric acid, while the final volume of water contains phosphate and sodium hydroxide as neutralizing agents. Chemical cleaning discharges to the MCTF normally occur daily during the cleaning process, with the treated wastes discharged to the once-through cooling system over the course of two to four weeks. An individual unit's boiler is typically cleaned once every six to seven years. Conditions may occur, however, that require more frequent cleaning.

b. Air Heater Wash

Air heater and air pre-heater fireside washes are performed to remove soot and accumulated combustion by-products from metal surfaces in order to maintain efficient heat transfer. These washes are accomplished by spraying high-pressure municipal water against the surfaces to be cleaned. The resulting wastewater contains an assortment of dissolved and suspended solids with loadings and constituents that are dependent on the nature and quality of the fuel and metals from corrosion of the heater. Air heater wash discharges to the MCTF normally occur daily during the cleaning process, with the treated wastes discharged to the once-through cooling system over the course of two to four weeks.

c. Boiler Wash

Boiler tube fireside washes are performed to remove soot and accumulated combustion by-products from metal surfaces in order to maintain efficient heat transfer. These washes are accomplished by spraying high-pressure municipal water against the surface to be cleaned. The resulting wastewater contains an assortment of dissolved and suspended solids with loadings and constituents that are dependent on the nature and quality of the fuel and metals from corrosion of the boiler. Boiler wash discharges to the MCTF normally occur daily during the cleaning process, with the treated wastes discharged to the once-through cooling system over the course of two to four weeks.

d. Hypochlorinator Chemical Cleaning

Cleaning of the hypochlorinator electrolytic cells is conducted approximately once every six weeks to remove mineral scale. Wastewaters from the cleaning are routed to the MCTF for treatment and subsequent discharge to the once-through cooling system.

3. **Low Volume Wastes (Discharge Points 001-B through 001-H)**

a. Seepage and Groundwater Pumping (Discharge Point 001-B)

The basements of Units 4 and 5 are over sixteen feet below sea level. Hence, they receive a large amount of seepage from groundwater. In order to prevent flooding of these basements, sumps were installed to collect the seepage water. Pumps automatically discharge the sump contents directly to the once-through-cooling system.

b. Boiler Blowdown (Discharge Point 001-C)

The boilers at the facility require high quality water to operate at optimal conditions. The high quality water is prepared for use in the boilers from municipal water through one of several pretreatment systems (reverse osmosis/demineralization or water

softening/evaporation). Despite the pretreatment systems employed, the dissolved solids concentration of boiler water increases over time. To reduce the dissolved solids content, the boiler is "blown down", i.e. a valve is opened on the steam discharge line to release boiler water with elevated concentrations of dissolved solids. At the same time, make-up water treated through the pretreatment system is added to the boiler. Blowdown discharges are intermittent and infrequent under normal unit operating conditions, and are determined largely by boiler water chemistry. Blowdown also occurs during unit start-up and in the event of condenser leaks. In order to meet NPDES monitoring requirements, boilers in operation are blown down monthly to collect appropriate samples. The blow down line for each unit is routed directly to the cooling water intake tunnel on the cooling water deck.

c. Freshwater Reverse Osmosis Brine (Discharge Point 001-D)

Municipal water used in the boilers to generate steam must first be pretreated to produce demineralized water. As a first step in the reverse osmosis/demineralization water purification process, municipal water is passed through sand filters to remove suspended solids. The reverse osmosis membrane removes dissolved solids and discharges the resulting "brine" (composed of approximately 25% of the incoming water and the rejected solids) directly to the once-through cooling water system. Brine discharges normally occur intermittently throughout each day.

d. Seawater Reverse Osmosis Brine and Backwash (Discharge Point 001-E)

It is anticipated that, in the event of a fresh water shortage, a reverse osmosis unit may be used to produce water for plant operations from seawater. Depending on the suspended solids loadings of the source water, it may need to be pretreated to remove the solids prior to treatment in the reverse osmosis unit. This system has not yet been installed. It is anticipated, however, that when it is operational the pretreatment discharges would occur intermittently throughout the day and be combined with the brine prior to discharge to the once-through cooling system.

It is anticipated that the proposed seawater reverse osmosis unit would produce a "brine" composed of approximately 60% of the incoming water and the rejected solids. This brine would be discharged through a line that is routed directly to the once-through cooling system. Discharge of the brine would occur intermittently throughout the day.

e. Fuel Line/Tank Hydrotests (Discharge Point 001-F)

EPS has the capability of using Residual Fuel Oil for boiler fuel. This fuel is stored in large floating roof tanks onsite. To repair a fuel tank or fuel line it is drained and cleaned. After a fuel tank or fuel line repair, a hydrotest is performed to verify system integrity. The water used for this hydrotest is then discharged to a stormwater drain.

f. Pilot Desalinization Plant (Discharge Point 001-G)

In September, 2002 the Regional Water Board approved the installation and operation of the seawater desalinization plant as proposed by Poseidon Resources. In January 2003, Poseidon initiated seawater desalinization operations and testing in accordance with the conditions set forth by the Regional Water Board in a letter dated September 24, 2004.

The Regional Water Board approved the diversion of up to 104 gallons per minute (gpm) (0.015 mgd) of water from the cooling water discharge pond to a pretreatment system (sand filtration or microfiltration) for removal of suspended solids. On June 11, 2004 the Discharger submitted a request to increase the diversion rate to 200 gpm (0.288 mgd).

A portion of the pretreated water is conveyed to an reverse osmosis system for membrane filtration treatment and production of desalinated water.

The waste streams generated by operation of the pilot plant are routed directly back to the cooling water discharge pond on a continuous basis while operating. Based on the 200 gpm diversion rate, the effluent components include:

i. Backwash water from pretreatment system (20 gpm)
ii. Wasted pretreated seawater (130 gpm)
iii. Backwash water from the R.O. system (waste brine) (25 gpm)
iv. Product (desalinated) water (25 gpm)

In addition to the above waste and product streams, the pilot plant also produces intermittent discharges of waste from the reverse osmosis filtration membrane cleaning. This is necessary for the removal of mineral deposits, which may interfere with the optimal operation of the membrane. The intermittent process generates a small stream of wastewater that can either be routed to the facility's cooling water discharge pond or may be discharged to the sewer system.

g. Low Volume Waste Treatment Facility (LVWTF) (Discharge Point 001-H)

The LVWTF treats all of the facility's low volume wastewaters, except for reverse osmosis brine, boiler blowdown, seawater reverse osmosis pretreatment backwash, fuel line/tank hydrotest and groundwater dewatering from the Units 4 and 5 basement subdrain systems. The LVWTF is comprised of two 100% capacity wastewater treatment trains. Each train is composed of a Surge & Equalization Tank (to accommodate the various intermittent wastewater flows and flow rates from the facility) and an Oil/Solids Coalescer and Separator Unit. Effluent from the LVWTF is discharged to the facility's once-through cooling water system. Discharges occur intermittently throughout the day based on the wastewater flow rate from the facility. Filtration of the low volume wastewater in the metal cleaning waste treatment facility's multimedia filter may be performed as an alternative treatment or as a back-up treatment in the event the oil/solids separator becomes inoperable. The contributing waste streams to the LVWTF are described below:

i. Evaporator Blowdown. Evaporators are an integral component of an alternate boiler make-up water pretreatment system (i.e. water softening/evaporation). When the total dissolved solids in the evaporator increase to preset levels, a portion of the evaporator water is discharged to the LVWTF to flush out high mineral-content water. When in use, blowdown discharges occur intermittently throughout the day. Evaporators are not routinely used, but remain available as part of the facility's alternative water make-up system.

ii. Sample Drains. The facility must maintain the quality of water used in different systems (e.g. boiler water) within certain operational parameters. This is

accomplished by the use of online automatic samplers/analyzers and discrete samples to evaluate water quality. Many of these sample streams run continuously. Some of the sample water is recovered for reuse in the facility, while the rest is discharged to the LVWTF.

iii. Floor Drains. Floor drains are located throughout the facility and, in addition to being used for routing low volume waste streams to the LVWTF, are used to collect miscellaneous wastewaters from the facility's operating equipment. Wastewater that enters a floor drain is collected in sumps. Once a sump reaches a preset level, the water is pumped to the LVWTF.

iv. Demineralizers. Demineralizers are used as the second and final step in the plant's primary make-up water treatment process (i.e. reverse osmosis, demineralization). The demineralizers further polish boiler water first treated in the freshwater reverse osmosis system. Over time, demineralizer resins become exhausted and need to be regenerated using an acid/caustic process. Regenerants flushed from system are routed to the LVWTF. Demineralizer resin regeneration occurs on a periodic basis (approximately once every three weeks) based on facility operations and the demand for make-up water.

v. Softeners. Water softening is part of the alternate make-up water pretreatment system (i.e. water softening/evaporation). Municipal water is pretreated through a softener prior to being routed to the evaporator. Periodically, the softener requires regeneration using a brine solution made from salt. Regenerations wastes are routed to the LVWTF. Water softening is not routinely used, but remains available for use in the alternate make-up water system. When in use, the softener requires regeneration approximately once per day based on facility operations and the demand for make-up water.

vi. Condenser Cleaning. Periodic manual cleaning of the condenser tubes is conducted to maintain optimal heat transfer of the cooling system and prevent localized pitting of the tube material. Manual cleaning is conducted using a high-pressure air/water stream forced through the tubes and/or metal or plastic scrapers pushed through the tubes using water pressure. Cleanings are periodic (approximately once every 2 to 12 weeks) and occur more frequently during the summer months when water temperatures are higher and the growth of fouling organisms is more pronounced. Cleaning wastes are discharged to the LVWTF.

vii. Sand Filter Backwash. Water passed through the freshwater reverse osmosis. membranes is pretreated through sand filters to remove suspended solids and debris to prevent premature fouling of the membranes. The sand filters require periodic backwashing to maintain their effectiveness. The frequency of backwashes is dependent on the load of suspended solids present in the municipal water and can occur on a daily basis. Wastewaters generated by the backwash process are routed through a self-neutralization tank prior to discharge to the LVWTF.

viii. Portable Demineralizer Rinse Flush. Under certain circumstances (e.g. main demineralizer is out of service, unit service after overhaul) a portable demineralizer(s) is brought on-site to provide demineralized water to the facility. Prior to using the water produced by the portable system, the system is run until the water produced is of the quality required by the facility's systems. This "rinse flush"

water is discharged to the LVTWF. Use of portable demineralizer units is infrequent. The "rinse flush" may last approximately one to two hours at the beginning of each use of the unit.

ix. Reverse Osmosis Membrane Cleaning. The membranes in the reverse osmosis unit require occasional cleaning to remove mineral deposits from the membrane surface. Membrane cleaning occurs approximately once every six months, but the actual frequency depends on the fouling rate of the membranes. Wastewaters generated by the cleaning process are routed to a self-neutralization tank and then to the LVWTF.

x. Salt Water Heat Exchanger Drains. Once-through cooling water is used to remove waste heat from facility machinery in addition to condensing steam. Leaks that occur from the heat exchangers are drained to the LVWTF.

4. Storm Water (Discharge Point 001-I)

Storm water collected in Basins D and E is discharged under this Order. Basins D and E drain areas containing the following: Power Station, gas turbine, main transformers, paint booth, and sodium hypochlorite tanks, sulfuric acid and sodium hydroxide tanks, employee parking area, administrative buildings and maintenance building. All other storm water (Basins A, B, C, F) discharge under authority of the General Permit for Industrial Storm Water Discharges (CAS000001).

B. Chlorination

Intermittent chlorine treatment is used to minimize the formation of slime, which accumulates in the condenser tubes if control measures are not employed. Sodium hypochlorite is generated on-site, as needed, through electrolytic conversion of sodium chloride naturally present in seawater. Seawater from the intake is pumped through each of the two hypochlorinators, which are comprised of electrolytic cell modules arranged in series. The sodium hypochlorite produced is fed into a holding tank where it is diluted with intake water. Hypochlorination is conducted for approximately five minutes per hour per unit on a timed cycle by injecting the diluted sodium hypochlorite into the intake channel immediately upstream of the circulating and salt water pumps for each unit. This method results in a minimal chlorine residual in the cooling water discharged to the Pacific Ocean. Periodic cleanings using nitric and hydrochloric acid are required to remove accumulated mineral scale from the hypochlorinators. Wastes from these cleanings are routed to the LVWTF.

A bromide additive (sodium bromide), which reacts with chlorine to form hypobromous acid, and a biodispersant (Nalco Sure Cool 1367) were tested between 1989 and 1991 at the SDG&E (now Duke Energy) South Bay Power Plant for their ability to control biofouling on the cooling water side of the condensers. Based on this testing, the Discharger may use sodium bromide and the biodispersant (or equivalent) at the Encina Power Station. Test methods for total residual chlorine (TRC) measure total residual oxidants, which include hypobromous acid. Consequently, the TRC effluent limitation in this Order regulates the discharge of bromide.

C. Heat Treatment

Encrusting organisms in the early stages of development are small enough to pass through the traveling screens and enter the intake tunnels and condenser tubing. These organisms can attach themselves to the tunnel walls, traveling screens, and other parts of the cooling

water system. If not removed, the encrusting organisms grow and accumulate at a rate of approximately 1000 cubic yards over a 6-month period. These accumulations restrict the flow of cooling water to and through the condensers, causing a rise in the condenser operating temperature and the once-through cooling water discharge temperature. Although intermittent chlorination is practiced at the facility, only the condensers and salt water heat exchangers are chlorinated. Due to the ability of encrusting organisms to withstand intermittent exposure to chlorine, effective control of biofouling would require continuous chlorination of the entire intake system. This is not viable due to the large volume of chlorine or bromide required. Consequently, thermal tunnel recirculation treatment procedures, or heat treatments are conducted periodically at five to eight week intervals, or as determined by the Heat Treatment Decision Diagram in Attachment G. In addition to preventing the disruption of cooling water flows, heat treatment helps maintain a lower temperature rise across the condenser, thereby improving plant efficiency and reducing normal plant cooling water discharge temperatures.

Heat treatment is performed by restricting the flow of cooling water from the Agua Hedionda Lagoon and recirculating the condenser discharge water through the conveyance tunnels and condensers until the inlet temperature is increased to the effective treatment temperature. Recirculation of the cooling water is accomplished through a cross-over tunnel located approximately 120 feet from the discharge, adjacent to the intake tunnel. The temperature is raised to 105°F and maintained (heat soak) for approximately two hours. This temperature and duration have proven effective at killing and removing encrusting organisms.

Each time the cooling water passes through the condensers, it picks up additional heat rejected from the steam cycle—as much as 15°F per pass. Because the cooling water continues to circulate and the generating units continue to operate, the post-condenser temperature in the discharge channel can reach 120°F. To maintain the optimal treatment temperature of 105°F during the heat soak phase, additional lagoon water is blended into the cooling water system and a corresponding volume of water is discharged to the Pacific Ocean.

The heat treatment duration of two hours represents the total duration of the process once the cooling water has reached the optimal treatment temperature of 105°F; this does not include the time required to reach the target temperature or return to normal operations. The total time for heat treatment, including temperature buildup and cool-down is approximately seven to nine hours. Because the cooling water discharge is restricted during the heat treatment in order to recirculate the heated effluent, the plant's discharge flow rate is reduced to approximately 7 to 45 percent of its full flow rate during normal operations.

III. Discharge Points and Receiving Waters

Cooling water from the condensers from all five steam generating units, as well as all in-plant waste streams (metal cleaning, low volume wastes, storm water), flows into a common discharge tunnel. The concrete discharge tunnel (15 feet wide) runs along the east side of the inlet conveyance tunnels, past the traveling screen structures, then crosses under the inlet tunnels and runs parallel to the west side of the conveyance tunnels. The cooling water flows into a discharge pond before discharging into a riprap-lined channel, a surface jet discharge, and then into the Pacific Ocean (Discharge Point 001). The coordinates for Discharge Point 001 are 32°-57'-45" N, 117°-16'-05" W.

The waters and beaches along the area of coast surrounding the Encina Power Station provide excellent opportunities for water-related recreational activities, which include sightseeing, sunbathing, swimming, surfing, diving, fishing, camping, picnicking, bird watching and boating.

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

Discharge Monitoring Reports submitted to the Regional Water Board indicate that the Discharger consistently fulfills the monitoring requirements of Order No. 2000-03 and consistently meets the discharge limitations and conditions imposed by that Order. Monthly Discharge Monitoring Reports from February 2001 through December 2004 were examined to compile the following characterization of discharges from the Encina Power Station through Discharge Point 001:

A. Flow

The combined discharge through Discharge Point 001 did not exceed 795.1 mgd, with an average monthly discharge of 599 mgd, during this 47-month period. Main condenser cooling water flow consistently accounts for greater than 99.7 percent of the combined discharge through Discharge Point 001. Order No. 200-03 included a maximum flow limitation for discharges through Discharge Point 001 of 863.142 mgd.

The average monthly flow of low volume wastewaters was 0.192 mgd, with a daily maximum flow of 1.074 mgd during this period. Metal cleaning wastes were not discharged during this period.

B. Temperature

The daily average temperature differential (ΔT) in cooling water through the main condenser was 12º F, and the maximum observed daily ΔT was 23.6º F during this period. Order No. 2000-03 included a daily average ΔT of 20º F, with a maximum permissible ΔT of 25º F.

Heat treatments are conducted periodically to control Bay Mussel growth within the condenser and cooling water lines. Order 2000-03 prohibits the temperature of the combined discharge to exceed 120º F for a maximum of two hours during heat treatments. Typical heat treatments at the Encina Power Station result in target temperature of approximately 103º F that is maintained for two hours. The maximum ΔT reported during heat treatments during the period was 46.9º F. The frequency of heat treatments is determined, in part, by a growth model for the Bay Mussel. The average number of heat treatments conducted per year is six.

C. Combined Discharge

1. Between January 2001 and November 2003 the Discharger has analyzed the combined discharge from Discharge Point 001 six times for the parameters listed in Table F-4. The analytical results for all parameters were below the applicable effluent limitations derived from water quality criteria of the Ocean Plan when taking into consideration a minimum probable initial dilution of 15.5 to 1. Summary data are presented in Table F-4. (Note: Figures that appear in **bold** in Table F-4 are measured concentrations. Other figures are the analytical method detection limits reported by the lab; i.e. the lab result was reported as ND (not detected)).

Table F-4. Combined Discharge Effluent Monitoring Data for Toxic Parameters

Parameter	Previous Limitation (Order 2000-03)	Units	Sample Date					
			1/29/2001	7/26/2001	2/25/2002	8/27/2002	5/21/2003	11/10/2003
Arsenic	1,300	µg/L	0.5	0.5	0.56	0.56	**1.7**	0.5
Cadmium	170	µg/L	0.5	0.5	0.56	0.56	0.5	0.5
Chromium (Hexavalent)*	330	µg/L	0.5	**0.51**	0.56	0.56	**0.85**	0.5
Copper	460	µg/L	**13**	2.5	2.8	2.8	2.8	2.5
Lead	330	µg/L	2.5	2.5	2.8	2.8	2.8	2.5
Mercury	6.6	µg/L	0.1	0.1	0.1	0.1	0.1	0.1
Nickel	830	µg/L	**9.5**	2.5	2.8	2.8	2.8	2.5
Zinc	3,200	µg/L	**10**	10	10	12	11	10
Acute Toxicity Daily Maximum	2.0	TU_a	0.59	0.51	0.73	0.59	0.41	0.65
Acute 6-month Median	1.5	TU_a	0.5	0.26	0.37	0.3	0.21	0.44
Chronic Toxicity (Germination)	16.5	TU_c	4	4	4.17	1	1	1
Chronic Toxicity (Growth)	16.5	TU_c	8	4	8.33	1	2	1

*Chromium reported as total chromium

2. Average monthly total chlorine residuals and pH were consistently measured to be less than the effluent limitations established by Order 2000-03. The majority of chlorine residual samples taken from February 2001 through May 2004 were not detected. Average pH values were consistently within the range of 6.0 to 9.0. Summary data are presented in Table F-5.

Table F-5. Combined Discharge Effluent Monitoring Data for Chlorine and pH

Parameter	Previous Limitation (Order 2000-03)	Units	Minimum	Maximum
Chlorine residual (Instantaneous Maximum)	200	µg/L	ND	60
pH	6.0 – 9.0	standard units	7.88	8.19

3. Average monthly turbidity levels were consistently measured to be less than the effluent limitations established by Order 2000-03. Summary data for the period of February 2001 through May 2004 are presented in Table F-6.

Table F-6. Combined Discharge Effluent Monitoring Data for Turbidity

Parameter	Previous Limitation (Order 2000-03)	Units	Minimum	Maximum
Turbidity (Daily Maximum)	100	NTU	ND	4.5
Turbidity (Instantaneous Maximum)	225	NTU	ND	4.5

D. Low Volume Wastes

1. The Discharger reported low volume waste flows from the following sources during the period of February 2001 through May 2004: boiler and evaporator blowdown, sample and floor drains, water purification systems (demineralization and reverse osmosis), and seepage and groundwater. Low volume waste flow volumes typically represent a small percentage of the overall volume of water discharged through Discharge Point 001. During the review period, the Discharger reported a maximum low volume waste flow of 1.074 mgd, or approximately 0.14% of the total facility discharge. Low volume waste flows average 0.192 mgd.

2. Results for combined low volume waste monitoring for total suspended solids (TSS) and oil and grease (O&G) during the review period are in summarized in Table F-7. Sample results were consistently less than the effluent limitations established by Order 2000-03. (Note: Figures that appear in **bold** in Table F-7, are measured concentrations. Other figures are the analytical method detection limits reported by the lab; i.e. the lab result was reported as ND (not detected). Order 2000-03 required the Discharger to monitor TSS and O&G once per month. The single sample is subject to all applicable effluent limitations (monthly average, daily maximum, instantaneous maximum). The most stringent limitation (monthly average) is presented.)

Table F-7. Low Volume Waste Effluent Monitoring Data for TSS and Oil and Grease

Parameter	Previous Limitation (Order 2000-03)	Units	Minimum	Maximum
TSS	30	mg/L	**0.02**	**4.2**
O&G	15	NTU	0.4	**4.5**

3. Between January 2001 and February 2004, the Discharger sampled and analyzed the combined low volume waste discharger six times for the toxic pollutants listed in Table F-8. Sample results were consistently less than the effluent limitations established by Order 2000-03 when taking into consideration a minimum initial probable dilution of 15.5 to 1. Except as noted, effluent limitations are for a 30-day average. (Note: Figures that appear in **bold** in the Table F-8 are measured concentrations. Other figures are the analytical method detection limits reported by the lab; i.e. the lab result was reported as ND (not detected). Order 2000-03 required the Discharger to monitor the parameters listed above once every six months. The single sample is subject to all applicable effluent limitations (6-month median, daily maximum). The most stringent limitation (6-month median) is presented.)

Table F-8. Low Volume Waste Effluent Monitoring Data for Toxic Parameters

Parameter	[illegible]	Units	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Arsenic[1]	620	lbs/day	0.001	0.004	0.001	0.001	**0.002**	0.000
Cadmium[1]	120	lbs/day	0.001	0.004	0.001	0.001	0.001	0.000
Chlorinated Phenolic Compounds[1]	120	lbs/day	0.012	0.010	0.163	0.011	0.015	0.010
Chromium (Hexavalent)[1]	240	lbs/day	0.001	**0.001**	0.002	**0.001**	**0.002**	**0.001**
Copper[1]	130	lbs/day	**0.015**	**0.011**	0.039	**0.026**	**0.024**	**0.017**
Cyanide[1]	120	lbs/day	0.006	0.004	**0.011**	0.006	0.018	0.012
Lead[1]	240	lbs/day	0.003	0.002	**0.008**	0.003	0.004	0.002
Mercury[1]	5	lbs/day	0.000	0.000	0.000	0.000	0.000	0.000
Nickel[1]	590	lbs/day	**0.011**	**0.004**	**0.029**	**0.006**	**0.014**	**0.004**
Ammonia[1]	55,000	lbs/day	**0.195**	**0.114**	**0.081**	0.057	0.076	0.049
Non-chlorinated Phenolic Compounds[1]	3,100	lbs/day	0.012	0.010	0.016	0.011	0.015	0.010
Selenium[1]	1,800	lbs/day	0.057	0.044	0.187	0.064	0.091	0.049
Silver[1]	70	lbs/day	0.001	0.000	0.001	0.001	0.001	0.000
Zinc[1]	1,500	lbs/day	**0.012**	**0.009**	**0.016**	0.014	0.017	0.013
Chlorobenzene	68,000	lbs/day	0.006	0.004	0.008	0.003	0.008	0.005
Chromium (III)	23,000,000	lbs/day	0.001	**0.001**	**0.002**	0.001	**0.002**	**0.001**
Dichlorobenzenes	610,000	lbs/day	0.006	0.004	0.008	0.003	0.008	0.005
1,1 Dichloroethylene	840,000	lbs/day	0.006	0.004	0.008	0.003	0.008	0.005
Ethylbenzene	490,000	lbs/day	0.006	0.004	0.008	0.003	0.008	0.005
Nitrobenzene	580	lbs/day	0.012	0.010	0.016	0.011	0.015	0.010
Toluene	10,000,000	lbs/day	0.006	0.004	0.008	0.003	0.008	0.005
1,1,1 Trichloroethane	64,000,000	lbs/day	0.006	0.004	0.008	0.003	0.008	0.005
1,1,2 Trichloroethane	5,100,000	lbs/day	0.006	0.004	0.008	0.003	0.008	0.005
Benzene	700	lbs/day	0.006	0.004	0.008	0.003	0.008	0.005
Chloroform	15,000	lbs/day	**0.007**	0.010	0.008	0.003	0.008	**0.006**
1,4 Dichlorobenzene	2,100	lbs/day	0.001	0.004	0.016	0.011	0.015	0.010
1,2 Dichloroethane	15,000	lbs/day	0.006	0.004	0.008	0.003	0.008	0.005
Dichloromethane	53,000	lbs/day	0.006	0.004	0.008	0.006	0.015	0.010

Parameter	Previous Limitation (Order 2000-03)	Units	Sample Date					
			1/29/2001	7/25/2001	2/25/2002	8/27/2002	5/21/2003	11/19/2003
1,2 Diphelyhydrazine	19	lbs/day	0.012	0.010	0.016	0.011	0.015	0.010
Tetrachloroethane	12,000	lbs/day	0.006	0.004	0.008	0.003	0.008	0.005
Trichloroethane	3,200	lbs/day	0.006	0.004	0.008	0.003	0.008	0.005

V. Planned Changes

The Regional Water Board received an application for NPDES requirements from Poseidon Resources Corporation on October 7, 2005 proposing 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 has entered into a renewable 60-year lease with Cabrillo Power I LLC for the desalination project site. The CDP would use 100 mgd of cooling water from the Encina Power Station as source water. NPDES requirements issued to Poseidon for the CDP discharge is an independent regulatory action from Order No. R9-2006-0043.

VI. 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 this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4 of the CWC for discharges that are not subject to regulation under CWA section 402.

B. 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.

C. State and Federal Regulations, Policies, and Plans

1. Water Quality Control Plans. The Water Quality Control Plan for the San Diego Basin (9), the Basin Plan, was adopted by the Regional Water Board on September 8, 1994 and approved by the State Board on December 13, 1994. 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. For the protection and enhancement of ocean water quality, the Basin Plan incorporates by reference the provisions of the State Board's Water Quality Control Plan for Ocean Waters of California (Ocean Plan) and the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (the Thermal Plan).

   Although the Ocean Plan establishes most water quality objectives and procedures for implementing those objectives for ocean discharges, the Basin Plan identifies beneficial uses of the coastal waters of the Pacific Ocean as specified in Table F-9. Basin Plan Beneficial Uses for the Pacific Ocean.

Table F-9. Basin Plan Beneficial Uses for the Pacific Ocean

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Pacific Ocean	a. Industrial service supply b. Navigation c. Contact and non-contact water recreation d. Commercial and sport fishing e. Preservation of Areas of Special Biological Significance (ASBS) f. Preservation of rare, threatened and endangered species g. Marine habitat h. Migration of aquatic organisms i. Shellfish harvesting j. Wildlife habitat k. Spawning, reproduction, and/or early development l. Aquaculture

In addition to incorporating by reference the Ocean Plan and the Thermal Plan, the Basin Plan establishes specific water quality objectives for pH and dissolved oxygen that are applicable to the Encina Power Station.

2. **Thermal Plan and CWA Section 316 (a).** On May 18, 1972 the State Board adopted the Thermal Plan, which includes narrative and numeric water quality objectives for discharges of elevated temperature wastes for existing discharges (those discharges at least under construction prior to the adoption of the Plan) and for new discharges. A revised Thermal Plan was adopted by the State Board on September 18, 1975.

   Under the terms and conditions of the Thermal Plan, elevated temperature wastes from Units 1-4 are classified as existing discharges. The waste from Unit 5, which was constructed after May 18, 1972, 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, 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 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 Unit 4 would not cause significant changes in the existing conditions or beneficial uses.

   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, specifically:

   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) that there shall be no discharge of heat from the main condensers except:

i. 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.

ii. 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. U.S. EPA 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 Unit 5 to be made in the same "across the beach" channel used for the thermal discharges from 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 Unit 5, when added to the discharges from 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 Order 94-59, and based upon a review of the findings of the 316 (a) demonstration studies, the Regional Water Board and U.S. EPA concluded that additional information was needed to determine if the thermal discharge from Encina 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.

In July 2005, Tetra Tech Inc., under contract to US EPA and on behalf of the Regional Water Board reviewed the supplemental study and concluded that the report did not provide the information necessary to determine if the thermal discharge from Encina Power Plant would allow for the propagation of a balanced, indigenous population and will ensure the protection of beneficial uses of water. A copy of the Tetra Tech comments has been provided to the Discharger and is available for review by contacting the Regional Board office (see Fact Sheet section XI.G below).

3. **CWA Section 316 (b).** 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 Encina Power Station is classified as a Phase II existing facility.

   Section 316 (b) of the Clean Water Act provides that any standard established pursuant to Section 301 or 306 of the Act and applicable to a point source must require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental effects. By letter dated October 30, 1977 the Regional Water Board requested SDG&E to initiate studies to demonstrate conformance with the requirements of Section 316 (b).

   In December 1980 the SDG&E submitted a final report that concluded "the low and insignificant level of impact demonstrates that the existing Encina Power Plant intake system represents the best technology available for this specific site to minimize adverse environmental impacts" (SDG&E, 1980. Summary, pp. 4-26).

   Prior to the adoption of Order 94-59 and based upon a review of the findings of the 316(b) demonstration studies, the Regional Water Board and U.S. EPA concluded that additional information was needed to determine the location, design, construction and capacity of the cooling water intake structures at the facility reflect the best technology available (BTA) for minimizing adverse environmental impacts and protecting 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 (b) requirements. SDG&E submitted the study to the Regional Water Board on August 6, 1997. The study concluded that the cooling water intake structure is not having an adverse environmental impact as defined under Section 316 (b) and, therefore, the existing intake structure constitutes BTA.

   The Regional Water Board has opted to forgo a formal determination of BTA based on the 1997 study submitted by the Discharger in light of the new CWA Section 316(b) regulations for existing facilities adopted by U.S. EPA. As part of the

compliance requirements for the new regulations, the Discharger submitted an Entrainment and Impingement Sampling Plan for review by the Regional Water Board on September 2, 2004. The plan will enable the Discharger to characterize the nature of impingement and entrainment rates resulting from the operation of the intake structure and serve as a basis for compliance with the new regulations. Comments on the Plan were provided by the Regional Water Board, which were addressed by the discharger in a letter dated January 10, 2005.

U.S. EPA finalized regulations regarding cooling water intake structures for existing facilities, which are applicable to the Encina Power Station, on February 16, 2004. The regulations, commonly referred to as "316 (b) Phase II", were published in the Federal Register on July 9, 2004, and became effective on September 7, 2004. Facilities that meet the definition of a Phase II facility must comply, or demonstrate a compliance strategy, when they become subject to a reissued NPDES permit adopted on or after the effective date of the regulations.

Ultimately, dischargers must demonstrate compliance with 316 (b) Phase II regulations by choosing one of five alternatives. These alternatives are generally summarized as: (1) demonstrate that the facility has reduced cooling water intake velocity to 0.5 feet per second or less; (2) demonstrate that the existing design and construction technologies, operational measures, and/or restoration measures meet the performance standards established by the regulations; (3) demonstrate that the facility has selected design and construction technologies, operational measures, and/or restoration measures that will, in combination with any existing design and construction technologies, operational measures, and/or restoration measures, meet the performance standards; (4) demonstrate that the facility has installed and properly operates and maintains an approved technology; or (5) demonstrate that a site-specific determination of best technology available is appropriate.

Most facilities, including Encina Power Station, will be required to prepare a Comprehensive Demonstration Study to include the following components, if applicable.

a. *Source Waterbody Flow Information*, as described at 40 CFR 125.95 (b) (2);

b. *Impingement Mortality and/or Entrainment Characterization Study*, as described at 40 CFR 125.95 (b) (3), to support development of a calculation baseline for evaluating impingement mortality and entrainment and to characterize current impingement mortality and entrainment;

c. Design and Construction Technology Plan and a Technology Installation and Operation Plan, as described at 40 CFR 125.95 (b) (4);

d. *Restoration Plan*, as described at 40 CFR 125.95 (b) (5);

e. Information to Support Site-Specific Determination of BAT, as described at 40 CFR 125.95 (b) (6);

f. *Verification Monitoring Plan*, as described at 40 CFR 125.95 (b) (6).

On April 3, 2006, the Regional Water Board received from the discharger a *Proposal for Information Collection* (PIC) as required by Section 125.95(b)(1) of the Phase II rule. The *Proposal for Information Collection* included the following information:

1. A description of the proposed and/or implemented technologies, operational measures, and/or restoration measures to help develop a compliance strategy to meet the performance standards;

2. A list and description of any historical studies characterizing impingement mortality and entrainment and/or the physical and biological conditions in the vicinity of the cooling water intake structure and their relevance to this proposed Study;

3. A summary of any past or ongoing consultations with appropriate fish and wildlife agencies and stakeholders that are relevant to this Study; and

4. A sampling plan for any new field studies the Discharger proposes to conduct in order to ensure that there is sufficient data to develop a scientifically valid estimate of impingement mortality and entrainment at the site.

The provisions, compliance requirements, and compliance schedules for the 316(b) Phase II rule have been incorporated into Order R9-2006-0043.

4. **Storm Water.** In Water Quality Order No. 97-03-DWQ, the State Board adopted Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activity, Excluding Construction Activity. On March 15, 1999, the Discharger submitted a Notice of Intent to obtain coverage, effective May 22, 1999, for the Encina Power Station under the General Industrial Storm Water Permit Order 97-03-DWQ. The Best Management Practices (BMPs) contained in the Discharger's Storm Water Pollution Prevention Plan to represent the BMPs required pursuant to Provision 3 of Order 97-03-DWQ. As discussed in Section II.A.4 of this fact sheet, storm water originating in Basins D and E is subject to the wastewater discharge requirements contained in Order R9-2006-0043. Storm water originating in Basins A, B, C or F is covered under the General Permit.

5. **Effluent Limitations Guidelines.** At 40 CFR 125, U.S. EPA has established criteria and standards for the NPDES permitting process, including Criteria and Standards for Imposing Technology-Based Treatment Requirements Under Sections 301 (b) and 402 of the Clean Water Act (Subpart A) and Ocean Discharge Criteria (Subpart M). On November 19, 1982, at 40 CFR 423, U.S. EPA established technology-based effluent limitations guidelines for the steam electric power point source category, which are applicable to the Encina Power Station.

6. **Antidegradation Policy.** Section 131.12 of 40 CFR requires that State water quality standards include an antidegradation policy consistent with the federal policy. The State Board established California's antidegradation policy in State Board Resolution 68-16, which incorporates the requirements of the federal antidegradation policy. Resolution 68-16 requires that existing water quality is maintained unless degradation is justified based on specific findings. As discussed in detail in this Fact Sheet, the permitted discharge is consistent with the antidegradation provision of 40 CFR §131.12 and State Board Resolution 68-16.

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

8. **Monitoring and Reporting Requirements.** Section 122.48 of 40 CFR 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 (MRP) establishes monitoring and reporting requirements to implement federal and State requirements. This MRP is provided in Attachment E.

9. **Impaired Water Bodies on CWA 303(d) List.** On June 5 and July 25, 2003 the U.S. EPA approved major portions of the list of impaired water bodies, prepared by the State 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. This 303 (d) list does not include the Pacific Ocean shoreline in the vicinity of the facility discharge point.

VII. 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 criteria 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: 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 criteria supplemented with other relevant information may be used; or 3) an indicator parameter may be established. Dischargers are required to comply with the effluent limitations that are the most stringent.

A. Discharge Prohibitions

1. Discharge of wastes in a manner or to a location not specifically described or regulated by this Order is prohibited. This prohibition is retained from Order 2000-03.

2. Discharge of oil or other residuary petroleum products, except as authorized by effluent limitations contained in this Order or by provision of Division 7 of the CWC is prohibited. This prohibition is retained from Order 2000-03.

3. Discharge of polychlorinated biphenyl compounds is prohibited. This prohibition is a restatement of the applicable effluent limitations guidelines for steam electric power plants at 40 CFR 423.13 (a).

4. Discharge to Areas of Special Biological Significance is prohibited. This prohibition is a restatement of an applicable discharge prohibition from Section III. H of the Ocean Plan.

5. Bypass of untreated waste containing concentrations of pollutants in excess of those in Tables A and B of the Ocean Plan, except under upset conditions, is prohibited. This prohibition is a restatement of an applicable discharge prohibition from Section III. H of the Ocean Plan.

6. A total discharge volume in excess of 863.5 mgd is prohibited. This prohibition reflects the maximum possible discharge from the Encina Power Station as described by the Discharger in its application materials for renewal of its Waste Discharge Requirements. This provision is retained from Order 2000-03 with a modification reflecting the increased maximum flow resulting from inclusion of the Pilot Desalinization Plant.

7. Discharge of chlorine from any single generating unit for more than two hours per day is prohibited. This prohibition is a restatement of the applicable effluent limitations guidelines for steam electric power plants at 40 CFR 423.13 (b) (2).

8. Discharge of warfare agents or high-level radioactive waste is prohibited. This prohibition is a restatement of an applicable discharge prohibition from Section III. H of the Ocean Plan.

9. Discharge of sludge to the ocean is prohibited. This prohibition is a restatement of an applicable discharge prohibition from Section III. H of the Ocean Plan.

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), which is based on the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

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

c. Best conventional pollutant control technology (BCT), which is a standard for 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 discharger and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

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

The CWA requires EPA to develop effluent limitations, guidelines, and standards (ELGs) representing application of BPT, BCT, BAT, 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.

2. Applicable Technology-Based Effluent Limitations

Pursuant to Section 306 (b) (1) of the CWA, U.S. EPA has established standards of performance for the steam electric power point source category, for existing and new sources, at 40 CFR Part 423. These regulations apply to the Encina Power Station as "an establishment primarily engaged in the generation of electricity for distribution and sale which results primarily from a process utilizing fossil-type fuel...in conjunction with a thermal cycle employing the steam water system as the thermodynamic medium." (40 CFR 423.10) Standards of performance for existing facilities (instead of new source performance standards) are applicable to all units of the Encina Power Station because their construction was completed or commenced prior to publication of regulations on November 19, 1982, which proposed standards of performance for the industry. The following are applicable technology based-standards of performance (BPT and BAT) applicable to the Encina Power Station from the effluent limitations guidelines for existing sources at 40 CFR 423. The guidelines do not include standards of performance based on BCT.

a. Standards of Performance Based on BPT

i. The pH of all discharges, except once-through cooling water, shall be within the range of 6.0 – 9.0 [40 CFR 423.12 (b) (1)].

ii. Low volume wastes are defined as those wastewater sources for which specific limitations are not established by the effluent limitations guidelines at 40 CFR 423. The quantity of pollutants discharged from low volume waste sources shall not exceed the quantity determined by multiplying the flow of the low volume waste sources times the concentration as specified in Table F-10 [40 CFR 423.12 (b) (3)].

Table F-10. Effluent Limitation Guidelines for Low Volume Waste

Pollutant	Daily Max (mg/L)	30 Day Avg (mg/L)
Total Suspended Solids	100	30
Oil and Grease	20	15

iii. The quantity of pollutants discharged in metal cleaning wastes shall not exceed the quantity determined by multiplying the flow of metal cleaning wastes times the concentration as specified in Table F-11 [40 CFR 423.12 (b) (5)]:

Table F-11. Effluent Limitation Guidelines for Metal Cleaning Waste

Pollutant	Daily Max (mg/L)	30 Day Avg (mg/L)
Total Suspended Solids	100	30
Oil and Grease	20	15
Total Iron	1.0	1.0
Total Copper	1.0	1.0

iv. At the permitting authority's discretion, the quantity of pollutant allowed to be discharged may be expressed as concentration-based limitations instead of the mass-based limitations required by (ii.) and (iii.) above [40 CFR 423.12 (b) (11)].

b. Standards of Performance Based on BAT

i. There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid [40 CFR 423.13 (a)].

ii. The quantity of pollutants discharged in once-through cooling water from each discharge point shall not exceed the quantity determined by multiplying the flow of once-through cooling water from each discharge point times the concentration as specified in Table F-12 [40 CFR 423.13 (b) (1)]:

Table F-12. Effluent Limitation Guidelines for Total Residual Chlorine

Pollutant	Max Concentration (mg/L)
Total Residual Chlorine	0.2

iii. Total residual chlorine may not be discharged from any single generating unit for more than two hours per day unless the Discharger demonstrates to the permitting authority that discharge for more than two hours per day is required for macroinvertebrate control [40 CFR 423.13 (b) (2)]. The duration of each chlorination cycle shall not exceed 25 minutes.

iv. At the permitting authority's discretion, the quantity of pollutants allowed to be discharged may be expressed as concentration-based limitations instead of mass-based limitations required by (ii.) above [40 CFR 423.13 (g)].

c. Differences Between Order and ELGs and/or Order 2000-03

i. Pursuant to 40 CFR 423.13 (b)(12), effluent limitations for the individual waste streams that contribute to the metal cleaning waste treatment facility shall be applied to each waste stream. Order No. 2000-03 omitted this provision. Order R9-2006-0043 applies the appropriate effluent limitations to the four metal cleaning waste streams that contribute to the metal cleaning

waste treatment facility (chemical cleaning, air heater wash, boiler wash, hypochlorinator wash).

C. Water Quality Based Effluent Limitations (WQBELs)

1. **Scope and Authority**

U.S. EPA 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. For discharges to the Pacific Ocean, the Ocean Plan allows the Regional Water Board little discretion in the application of WQBELs. The Ocean Plan requires the establishment of WQBELs in discharger permits for all Table B toxic pollutants in the Ocean Plan.

2. **Applicable Beneficial Uses and Water Quality Criteria and Objectives**

a. Basin Plan

The Water Quality Control Plan, San Diego Basin (9) (the Basin Plan) was adopted by the Regional Water Board on September 8, 1994 and approved by the State Water Resources Control Board on December 13, 1994. The Basin Plan identifies the following beneficial uses of the coastal waters of the Pacific Ocean:

i. Industrial service supply;
ii. Navigation;
iii. Contact water recreation;
iv. Non-contact water recreation;
v. Commercial sport fishing;
vi. Preservation of biological habitats of special significance;
vii. Wildlife habitat;
viii. Rare, threatened, or endangered species;
ix. Marine habitat;
x. Aquaculture;
xi. Migration of aquatic organisms;
xii. Spawning, reproduction, and/or early development; and
xiii. Shellfish harvesting.

By reference, the Basin Plan adopts the *Water Quality Control Plan for Ocean Waters of California* (the Ocean Plan) and the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California* (the Thermal Plan). Although these two plans include most water quality objectives and implementing procedures that are applicable to discharges to the Pacific Ocean, the Basin Plan includes the following water quality objectives for dissolved oxygen and pH in ocean waters, which have been incorporated into Order No. R9-2006-0043.

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

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

The Basin Plan for the San Diego Basin adopts by reference the Ocean Plan (2005), which establishes beneficial uses for and water quality objectives and procedures for their implementation to protect the quality of the State's ocean waters. Order No. 2000-03 was written using the guidance of the 1997 Ocean Plan, while Order No. R9-2006-0043 has been written using the guidance of the 2005 Ocean Plan.

For all ocean waters of the State, the Ocean Plan establishes the beneficial uses described previously in this Fact Sheet. The Ocean Plan includes general provisions and water quality objectives for bacterial characteristics, physical characteristics, chemical characteristics, biological characteristics, and radioactivity. The water quality objectives from the Ocean Plan have been incorporated verbatim as receiving water limitations into Order No. R9-2006-0043.

Table B of the Ocean Plan includes the following water quality objectives for chemicals and chemical characteristics, and requires that effluent limitations be established in NPDES permits for each chemical or chemical characteristic:

(1) 6-month median, instantaneous maximum, and/or daily maximum objectives for 21 chemicals and chemical characteristics, including total residual chlorine and acute 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.

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. R9-2006-0043 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.

Effluent monitoring data from the facility 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 effluent for which water quality objectives exist in Table B of the Ocean Plan. Results of the RPA indicate that constituents in effluent limits must be established for hexavalent chromium, copper, mercury, and nickel from the Low Volume Discharges.

Discharges for Table 7 do not have the reasonable potential to exceed Ocean Plan objectives (i.e., Endpoint 2), and therefore do not require effluent limitations. Instead, a narrative limit statement to comply with all Ocean Plan objective requirements is provided. This Order includes desirable maximum effluent concentrations for constituents that do have the reasonable potential which were derived using the effluent limitation determination procedure described above and are referred to in this Order as "performance goals". The Discharger is required to monitor for these constituents as stated in the Monitoring and Reporting Program to gather data for use in RPAs for future permit renewals and/or updates.

WQBELs and Performance Goal Calculations

From the Table B water quality objectives, effluent limitations and performance goals for the combined discharge from the Encina Power Station are calculated according to the following equation for chemical characteristics, except for chlorine, acute toxicity, and radioactivity:

$$Ce = Co + Dm (Co - Cs)$$

Where:

Ce = the effluent limitation/performance goal (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

For the Encina Power Station Dm equals 15.5, based on observed waste flow characteristics, receiving water density structure, and the assumption that that no currents of sufficient strength to influence the initial dilution process flow across the discharger structure. Initial dilution is the process that results in the rapid and irreversible turbulent mixing of the wastewater with the ocean water around the point of discharge. In accordance with Table B implementing procedures, Cs equals zero for all chemicals and chemical characteristics, except as specified in Table F-13.

Table F-13. Background Seawater Concentrations

Pollutant	Cs (µg/L)
Arsenic	3
Copper	2
Mercury	0.0005
Silver	0.16
Zinc	8

Table F-14. Water Quality Objectives for Copper, Chloroform, and Chlorine

Pollutant	6-month Median	Daily Maximum	Instantaneous Maximum	30-Day Average
Copper (µg/L)	3	12	30	-
Total Chlorine Residual (µg/L)	2	8	60	-

Example 1. Performance Goal Calculation for Copper

Using the background concentration from Table F-13 and water quality objectives from Table F-14, the performance goal for copper is calculated:

Ce = 3 + 15.5 (3 – 2) = 19 µg/L (6-month Median)
Ce = 12 + 15.5 (12 – 2) = 170 µg/L (Daily Maximum)
Ce = 30 + 15.5 (30 – 2) = 460 µg/L (Instantaneous Maximum)

Example 2. Effluent Limitation Calculation for Chlorine (Continuous Discharger)

Using the background concentration from Table F-13 and water quality objectives from Table F-14, the final effluent limitation for chlorine is calculated:

Ce = 2 + 15.5 (2 – 0) = 33 µg/L (6-month Median)
Ce = 8 + 15.5 (8 – 0) = 132 µg/L (Daily Maximum)
Ce = 60 + 15.5 (60 – 0) = 990 µg/L (Instantaneous Maximum)

Example 3. Effluent Limitation Calculation for Chlorine (Intermittent Discharger)

For intermittent chlorine dischargers (such as Encina Power Station, which chlorinates 24 times per day in 5-minute cycles, water quality objectives for total chlorine residual are determined in accordance with the following equation from footnote (c) of Table B:

$$\log y = - 0.43 (\log x) + 1.8$$

where:

y = the water quality objective to apply when chlorine is being discharged (µg/L)
x = the duration of uninterrupted chlorine discharges in minutes

For Encina Power Station, which discharges chlorine for 5-minute uninterrupted intervals, the applicable water quality objective for intermittent discharges of total chlorine residual is calculated as follows:

$$\log y = - 0.43 (\log 5) + 1.8$$

$$y = 31.6$$

Based on a water quality objective for chlorine of 31.6 µg/L for intermittent chlorine applications, using the equation, Ce = Co + Dm (Co – Cs), an effluent limitation is calculated:

$$Ce = 31.6 + 15.5 (31.6-0) = 521 \text{ µg/L}$$

The effluent limitation guidelines at 40 CFR 423.13 (b) (1) state that, for any power plant with a generating capacity of greater than 25 MWe, the discharge of total chlorine residual may not exceed a maximum value of 0.20 mg/L (200 µg/L). Because the more stringent limitation of the Ocean Plan and BAT effluent limitation guidelines are always applied, the instantaneous maximum limitation for total chlorine residual is 200 µg/L.

Acute and Chronic Toxicity

Section III.C of the Ocean Plan (2005) requires only chronic, not acute, toxicity monitoring when the minimum initial dilution is below 100 to 1. The Ocean Plan provides an equation for determining acute toxicity limitations, which allows for a mixing zone for the acute toxicity objective that is 10 percent of the distance from the edge of the outfall structure to the edge of the chronic mixing zone. The Ocean Plan states that this equation applies only when the minimum probable initial dilution is greater than 24 to 1. The Regional Water Board, in consultation with State Board staff, has concluded that an acute toxicity limitation is not required for the discharges from Encina Power Station through Discharge Point 001, which receives a minimum probable initial dilution of 15.5 to 1. Because new information (the revised Ocean Plan) is available since adoption of Order No. 2000-03, the elimination of acute toxicity limitations from the current Order does not violate anti-

backsliding prohibitions of the Clean Water Act. The chronic toxicity limitation is retained from Order No. 2000-03.

Effluent Limitations for Power Plants and Heat Exchange Dischargers

Based on the implementing procedures described above, effluent limitations have been calculated for all Table B pollutants from the Ocean Plan and incorporated into the Order. Section III.C.7.d of the Ocean Plan describes compliance determination for Table B pollutants for dischargers that use a large volume of ocean water for once-through cooling and states:

> *Effluent concentration values (Ce) shall be determined through the use of equation 1 considering the minimum probable initial dilution of the combined effluent (in-plant waste streams plus cooling water flow). These concentration values shall then be converted to mass emission limitations as indicated in equation 3. The mass emission limits will then serve as requirements applied to all in-plant waste streams taken together which discharge into the cooling water flow, except for total chlorine residual, acute [if applicable per Section 3 (c)] and chronic toxicity, and instantaneous maximum concentrations in Table B shall apply to, and be measured in, the combined final effluent, as adjusted for dilution with ocean water.*

In accordance with guidance of the Ocean Plan for dischargers that use a large volume of ocean water for once-through cooling, Order No. R9-2006-0043 establishes water quality-based effluent **concentration limitations**, applicable to the **combined discharge** through Discharge Point 001, for total chlorine residual, chronic toxicity, and for all toxic chemicals requiring instantaneous maximum limitations for protection of marine aquatic life. In addition, **mass emission limitations**, applicable to the **combined flow of low volume, in-plant wastes**, are established for pollutants requiring 6-month median and daily maximum limitations for protection of marine aquatic life and for pollutants requiring 30-day average effluent limitations for protection of human health.

c. Revisions of Effluent Limitations from Order No. 2000-03

Most of the water quality-based effluent limitations established by Order No. 2000-03 are retained in Order No. R9-2006-0043. Differences between the water quality-based effluent limitations in the order and Order No. 2000-03 are described below:

i. Mass emission limitations for toxics in the **combined low volume, in-plant discharges**, for the Encina Power Station were based on the combined discharge flow of 863.19 mgd (i.e. total volume of cooling water and other flows being discharged from Discharge Point 001) in Order No. 2000-03. In the Order, the mass emission limitation calculations are based exclusively on the total maximum low volume in-plant wastestream flows (cooling water flows are not factored into

the calculations). The mass emission limitations calculations for individual toxics in the Order used a combined low volume flow of 4.09 mgd in conjunction with a Dm value of 15.5 and the water quality objectives listed in Table B of the Ocean Plan.

The maximum combined low volume discharges from the Encina Power Station are 4.09 mgd in volume and include the following waste streams (pursuant to 40 CFR 423, *Effluent Limitations Guidelines for the Steam Electric Power Generating Point Source Category*, metal cleaning wastes are not categorized as low volume waste waters):

- Seepage and Groundwater
- Boiler Blowdown
- Freshwater R.O. Brine
- Seawater R.O. Brine
- Fuel Line/Tank Hydrotest
- Pilot Desalinization Plant
- Low Volume Waste Treatment Facility

The Low Volume Waste Treatment Facility (LVWTF) receives wastewater from several sources and provides treatment prior to discharge to the once-through cooling system (i.e. oil separation, sedimentation). Because the contributing waste streams are combined and treated prior to discharge to the once-through cooling water, the LVWTF is considered a single low volume waste stream with mass-based effluent limitations applied at its discharge point to the once-through cooling water flow. The maximum discharge flow from the LVWTF is 0.2115 mgd and is composed of the following:

- Portable Demineralizer Rinse Flush
- Evaporator Blowdown
- Condenser Cleaning
- Sample Drains
- Floor Drains
- Demineralizer
- Softeners
- R.O. Membrane Cleaning
- Freshwater R.O. Sand Filter Backwash
- Dealkalizer

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. R9-2006-0043. These constituents shall be monitored at M-001, but the results will be used for informational purposes only, not compliance determination.

Performance Goals based on the California Ocean Plan

Constituent	Units	Performance Goals					
		Max Daily	Average Monthly	Average Weekly	Instantaneous Min	Instantaneous Max	6 Month Median
Arsenic	µg/L	480				1300	86
Cadmium	µg/L	66				170	17
Chromium VI	µg/L	130				330	33
Copper	µg/L	170				460	19
Lead	µg/L	130				330	33
Mercury	µg/L	2.6				6.6	0.65
Nickel	µg/L	330				830	83
Selenium	µg/L	990				2500	250
Silver	µg/L	44				110	9.1
Zinc	µg/L	1200				3200	210
Cyanide	µg/L	66				170	17
Ammonia (expressed as nitrogen)	µg/L	40000				99000	9900
Phenolic Compounds (non-chlorinated)	µg/L	2000				5000	500
Phenolic Compounds (chlorinated)	µg/L	66				170	17
Endosulfan	µg/L	0.3				0.45	0.15
Endrin	µg/L	0.066				0.099	0.033
HCH	µg/L	0.13				0.20	0.066

VIII. Rationale for Receiving Water Limitations

A. Elevated temperature wastes shall comply with limitations necessary to assure protection of the beneficial uses and areas of special biological significance. This limitation is a restatement of water quality objectives for existing dischargers described at Objective 3.A. (1) of the Thermal Plan.

B. Discharges from the Encina Power Station shall not cause violation of water quality objectives as described in the Ocean Plan. Objectives for Bacterial, Physical, Chemical, and Biological Characteristics are restatements of criteria outlined in Sections II.B through II.E of the Ocean Plan.

IX. Rationale for Monitoring and Reporting Requirements

Pursuant to Section 122.48 of 40 CFR, all NPDES permits specify recording and reporting of monitoring results. Sections 13267 and 13383 of the California Water Code authorize the Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program, Attachment E of this Order, 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 Monitoring and Reporting Program for this facility.

In an effort to standardize monitoring and reporting requirements and in order to support electronic data submittal of discharger self-monitoring reports, reporting units, definitions, and deadlines specified in the Orders have been written consistent with the State Water Resource Control Board's *Water Quality Permit Standards Team Final Report.*

A. Cooling Water Intake Structure Monitoring

Order No. 2000-03 requires the Discharger to annually measure the bar rack approach velocity and the depth of sediment accumulation in the intake channel to demonstrate the optimal operation of the cooling water intake structure. Such monitoring is in support of CWA Section 316(b) requirements that the location, design and capacity of cooling water intake structures reflect the best technology available. The Order retains the requirements of Order No. 2000-03 for velocity and sediment monitoring at the intake structure.

Order No. 2000-03 requires the Discharger to periodically monitor temperature, total suspended solids, turbidity, and pH at the intake structure. Such monitoring is required to determine compliance with certain effluent limitations based on the difference (delta) between influent and effluent values for a particular parameter. The Order retains the requirements of Order 2000-03 for influent monitoring at the intake structure.

B. Effluent Monitoring

In an effort to standardize monitoring and reporting requirements and in order to support electronic data submittal of discharger self-monitoring reports, reporting units, definitions, and deadlines specified in the MRPs for Order No. R9-2006-0043 have been written consistent with the State Water Resource Control Board's *Water Quality Permit Standards Team Final Report.* Monitoring requirements in the MRP are summarized in Table F-15. The MRP contains specific monitoring requirements.

Table F-15. Summary of Effluent Monitoring Frequency

System	Monitoring Frequency
Main Condenser Cooling Water Inflow	
Flow, Temperature	continuous
pH, Turbidity	monthly
Combined Discharge (Discharge Point 001)	
Flow, Temperature	continuous
pH, Turbidity	monthly
Chlorine	weekly
Chronic Toxicity	semiannually
Table B Pollutants (Aquatic Life)	semiannually
Combined Low Volume Wastewaters	
Table B Pollutants	semiannually

System	Monitoring Frequency
Individual Low Volume Wastewaters	
Metal Cleaning Wastewaters (Discharge Point 001-A)	
TSS, O&G	prior to discharge
Iron, Copper	prior to discharge
Other Low Volume Wastewaters (Discharge Points 001-B through 001-H)	
Flow	continuous
pH, TSS, O&G	monthly

Discussion of monitoring requirements in MRP No. 2000-03 and those in the MRP, highlighting differences between the orders, follows.

1. Due to reformatting, many provisions of MRP No. 2000-03 appear in endnotes or in attachments to MRP No. R9-2006-0043.

2. Order No. 2000-03 requires both acute and chronic toxicity monitoring. As discussed previously in the Fact Sheet, only a chronic toxicity limitation is established by Order No. R9-2006-0043, and therefore, only chronic toxicity monitoring is required by the MRP. A chronic toxicity limitation (and quarterly monitoring requirement) will provide more meaningful information regarding the nature of the discharge than an acute toxicity limitation and monitoring requirement in the high volume, dilute flows typical of Discharge Point 001. Chronic toxicity monitoring procedures are changed to conform to the requirements of the 2001 Ocean Plan.

3. Order No. 2000-03 requires semiannual monitoring for 10 metals that have water quality criteria listed in the Ocean Plan for protection of aquatic life. As discussed previously, Order No. 2000-03 did not include combined discharge limitations for organics and non-metals which have aquatic life protection criteria. These additional seven pollutants (i.e. cyanide, ammonia, non-chlorinated phenolic compounds, chlorinated phenolics, endosulfan, endrin, and HCH) were only addressed in the in-plant, low volume monitoring program. In accordance with Section III.C.7.d of the Ocean Plan, Order No. R9-2006-0043 has established concentration-based effluent limitations and semiannual monitoring for these seven additional pollutants for the combined discharge.

4. Order No. 2000-03 requires total residual chlorine in the combined discharge to be monitored on a monthly basis. Although monitoring data for the last four years have not indicated any violations in the total chlorine residual discharge limitation, this monitoring regimen may be insufficient due to the intermittent nature of chlorination cycles (i.e. 4 cycles per day, 25 minutes per Unit per cycle). The monitoring frequency for total residual chlorine in the MRP has been increased from monthly to weekly.

5. Order No. 2000-03 established monitoring requirements for "in-plant waste streams." The discharger was required to composite a flow proportionate sample from specifically identified wastewater streams, which generally included all wastewaters originating from the Encina Power Station, except discharges of once through cooling water and storm water. In-plant waste streams described in Order No. 2000-03 included Seawater R.O. pretreatment, Saltwater R.O. Brine, Low Volume Waste Treatment Facility, Metal Cleaning Treatment Facility, Boiler Blowdown, Basement

Sumps, Fuel Line Hydrotest, and Freshwater R.O. Brine. Analysis of pH, total suspended solids, and a subset of Table B pollutants was required on a semiannual basis.

Proposed Order No. R9-2006-0043 includes monitoring requirements for "combined low volume wastewaters," which are the equivalent of "in-plant waste streams" from Order No. 99-48. In general these wastewaters include all wastewaters originating from the Encina Power Station, except discharges of once through cooling water and storm water. To remain consistent with the definition of low volume wastes from the Effluent Limitations Guidelines for the Steam Electric Power Generating Point Source Category (40 CFR 423), Order No. R9-2006-0043 does not include metal cleaning wastes as a low volume wastewater. The individual, low volume wastewaters recognized by this Order are:

a. Seepage and Groundwater
b. Boiler Blowdown
c. Freshwater R.O. Brine
d. Seawater R.O. Brine
e. Fuel Line/Tank Hydrotest
f. Pilot Desalination Plant
g. Low Volume Waste Treatment Facility

Order No. R9-2006-0043 requires semiannual collection of a flow-weighted composite sample of low volume wastewaters and monitoring for the full schedule of Table B pollutants at least once during the permit period. The Regional Water Board acknowledges that, at the time of sample collection, it may not be possible to collect a sample aliquot from each low volume wastewater, and therefore certain wastewaters are identified as being of higher priority. The proportion of each waste stream to be added to the composite sample must be based on the actual (preferred) or estimated flow rates for the day on which samples are collected. The following example describes how a flow-weighted composite sample should be collected.

Example 2. Calculation of a Flow-weighted Composite Sample

Say that the following individual low volume wastewaters are sampled. The flow rate for each individual wastewater is determined for that day, and the relative amount/volume, in percent, of each individual waste stream is determined. Using the percentages of each individual waste stream in the total, the amount of each individual waste stream to be composited in a five gallon (18,927 mLs) sample is calculated. In the example, below, on the day of sample collection, seepage and groundwater flow accounts for 33 percent of the total flow of the low volume wastewaters that are sampled. 33 percent of five gallons equals 0.33 x 18,927 milliliters, which equals 6,330 milliliters. (There are 3,785 mLs per gallon and 18,927 mLs per five gallons.)

Table F-16. Example of Flow-weighted Composite Sample

Low Volume Wastewater	Flow (mgd)	Percent of Total Flow	mLs to be Composited in a 5 Gal Sample
Seepage and Groundwater	1.368	33	6,330
Boiler Blowdown	0.372	9	1,721
Freshwater R.O. Brine	0.087	2	403
Seawater R.O. Brine	0.864	21	3,998
Fuel Line/Tank Hydrotest	0.900	22	4,164
Pilot Desalination Plant	0.288	7	1,333
Low Volume Waste Treatment Facility	0.2115	5	979
Total	4.091	100%	18,927

6. Order No. 2000-03 established concentration-based monitoring requirements for discharges from the metal cleaning waste treatment facility (Discharge Point 001-A). The Order retains those monitoring requirements and incorporates mass-based monitoring for total suspended solids, oil and grease, copper and iron as required by 40 CFR 423.13 (b)(5).

7. Order No. 2000-03 established concentration-based monitoring requirements for discharges from low volume waste streams (Discharge Points 001-B through 001-H). The Order retains those monitoring requirements and incorporates mass-based monitoring for total suspended solids and oil and grease as required by 40 CFR 423.12 (b)(3).

8. Proposed Order No. R9-2006-0043 reduces the frequency of monitoring for those constituents that neither an effluent limit is required nor the Reasonable Potential Analysis Procedure is inconclusive.

C. Receiving Water Monitoring

Receiving Water is being monitored semiannually at ten dispersion area stations and four reference area stations for light transmittance, dissolved oxygen and pH at the surface. Temperature is measured at the surface and at depth at twenty-eight stations to characterize the thermal plume. Cabrillo Power I LLC participates with other ocean dischargers in the San Diego Region in an annual regional kelp bed photographic survey.

1. Light Transmittance

The Permit specifies that "Natural light shall not be significantly reduced at any point outside the initial dilution zone as the result of the discharge." Significant difference is defined as a statistically significant difference in the means of two distributions of sampling results at the 95% confidence level. No significant differences were found between the mean of the reference stations and the mean of each discharge station (e.g., C-10 to C-30) for light transmittance in 9 of 10 monitoring periods between Spring 2001 and Fall 2005. The receiving water report for the Fall 2004 found a significant difference between the reference stations and the mean of the discharge

stations along Transect D, due to the relatively low transmittance at nearshore station D-10, which was attributed to wave activity causing sediment re-suspension.

2. Dissolved Oxygen and pH

The Permit specifies that "The dissolve oxygen concentration shall not at any time be depressed more than 10% from that which occurs, naturally, as the result of the discharge of oxygen demanding waste materials." The dissolved oxygen concentrations at the individual discharge stations were not depressed by more than 10% from the corresponding (similar depth) reference stations in the receiving water for 9 of the 10 monitoring periods between Spring 2001 and Fall 2005. In the Fall 2004 report, the dissolved oxygen was depressed more than 10% at discharge stations C-20, E-10, and E-20.

The Permit specifies that "The pH shall not be changed at any time more than 0.2 units from that which occurs naturally." The pH values were consistent with the Permit requirement for 8 of the 10 monitoring periods. In the Spring 2003 report, values for pH at individual discharge stations did not change more than 0.2 units from corresponding reference stations unless compared to reference stations A-30 and A-50. The pH measured 7.5 and 7.6 at these two reference stations, were lower than all other stations measured that period. In the Fall 2004 report, the pH values at Stations C-50, D-20, and D-30 were more than 0.2 units compared to the referenced stations.

3. Thermal Plume

As an example of the data submittal for temperature, Table F-17 presents the temperature (°F) and depth measurements, offshore Encina Power Plant for Spring 2005.

**Table F-17 Temperature (°F) and depth measurements, offshore Encina Power Plant,
Spring 2005**

Depth	A				B				C			
(ft)	10	20	30	40	10	20	30	40	10	20	30	40
1	63.6	63.8	63.7	63.8	64.3	64.4	64.9	64.0	64.3	64.7	64.1	63.4
5	63.5	63.6	63.6	63.7	63.7	63.6	64.5	62.7	64.2	64.6	63.1	63.4
10	63.5	63.5	63.5	63.1	62.7	62.3	63.9	62.5	63.8	62.0	62.8	63.2
15		63.3	63.2	62.6		59.5	62.9	61.9		61.6	61.1	62.3
20		63.2	63.0	62.1		57.9	60.9	60.4		61.3	61.0	61.1
25			62.8	60.2			57.7	57.6			58.9	58.6
30			62.4	58.5				56.7			57.2	57.3
35				57.1				55.4				55.6
40				56.8				54.9				55.4
45				56.1				54.6				55.0
50				55.4				54.3				54.2

Table F-17 (continued) Temperature (°F) and depth measurements, offshore Encina Power Plant, Spring 2005

Depth	D				E				F			
(ft)	10	20	30	50	10	20	30	50	10	20	30	50
1	62.8	68.8	64.7	63.5	64.6	65.5	65.5	64.1	63.6	63.4	63.4	63.6
5	62.6	65.5	63.8	63.5	64.4	65.3	64.8	64.0	63.5	63.3	63.3	63.4
10	62.5	62.2	62.7	63.3	64.4	63.7	63.9	63.8	63.0	63.1	62.7	63.0
15		62.0	61.2	63.0		63.0	63.5	63.6		61.9	61.7	62.6
20		61.5	61.1	61.7		62.9	63.1	63.5		61.7	60.0	62.2
25			60.7	60.1			59.2	58.3			58.9	58.6
30			57.0	58.9			57.0	56.9			58.3	57.7
35				56.5				55.6				55.5
40				55.5				55.3				55.1
45				54.7				54.8				54.6
50												54.6

Depth	G			
(ft)	10	20	30	50
1	63.8	62.7	62.4	62.9
5	63.7	62.5	62.3	62.8
10	63.6	62.4	62.3	62.4
15		61.8	61.9	60.5
20		61.3	61.7	59.7
25			61.1	57.4
30			57.8	56.5
35				56.1
40				56.0
45				55.6
50				55.2

Kelp Bed Monitoring

The annual regional kelp bed monitoring In addition to participating in the annual regional kelp bed monitoring survey, Cabrillo Power I LLC assesses, pursuant to California Coastal Commission Permit No. A-78-75, four kelp stand study stations. In Spring 2005, mean densities of adult *Macrocystis pyrifera* ranged from 0.01 at Station NKS-1 to 0.18 plans per m^2 at Station CKS-2. The presence of adult plants had increased in recent years (2000-2004) when adults were absent or scare along all four transects. In Spring 2005, however, densities of adult plants decreased at all stations with the exception of the control site, CKS-2. A slight decrease in adult *Macrocystis pyrifera* was also observed in Spring 2004 as compared to Fall 2003.

In the Spring 2005 survey, mean densities of juvenile plants ranged from 0 at Station NKS-1 and SKS-3 to 0.05 per m^2 at Station CKS-2. From 2000 to 2003, the meanjunenile plant densities of all stations remained relatively constant during the spring survey, fluctuating between 0.02 and 0.03 plants per m^2. In 2004 the average density of juvenile plants across all stations fell to 0.003 plants per per m^2. In recent years, mean juvenile Fall plant densities surveyed had fallen from a high of 0.07 plants per m^2 in Fall 2000 to 0.01 plants per m^2 in Fall 2003. In fall 2004, however, overall mean juvenile plant densities increased to 0.045 plants per m^2, while in the Spring 2005 survey, 0.015 plants per m^2 were observed across all stations.

X. Rationale for Provisions

A. Standard 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 to the Order.

B. Special Provisions

1. Reopener Provisions

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

2. Special Studies and Additional Monitoring Requirements

On June 9, 2004, U.S. EPA promulgated new requirements to minimize adverse environmental impacts associated with existing cooling water intake structures under Section 316(b) of the Clean Water Act. This regulation, commonly referred to as "316(b) Phase II", will require existing dischargers of a certain size to adopt new technologies to reduce impingement mortality and entrainment to within a targeted range, or demonstrate a reasonable alternative for compliance. The facility will be required to update existing 316(b) demonstration studies and to provide a basis for selecting a compliance strategy as BTA.

3. Best Management Practices and Pollution Prevention

Section 402 of the Clean Water Act and U.S. EPA regulations 40 CFR 122.44 (k) authorize the requirement of best management practices, or BMPs, in NPDES permits. BMPs are measures for controlling the generation of pollutants and their release to waterways. These measures are important tools for waste minimization and pollution prevention.

The Orders require the Discharger to maintain a BMP Plan that incorporates practices to achieve the objectives and specific requirements in the permit. The BMP Plan must be revised as new practices are developed for the facility.

The BMP Plan must be designed to prevent, or minimize the potential for, the release of toxic or hazardous pollutants, including any such pollutants from ancillary activities to waters of the United States. The BMP Plan shall be consistent with the general guidance contained in the U.S. EPA *Guidance Manual for Developing Best Management Practices (BMPs)* (EPA 833-B-93-004). The Discharger shall maintain the BMP Plan in an up-to-date condition and shall amend the BMP Plan in accordance with 40 CFR 125.100 - 125.104 whenever there is a change in facility design, construction, operation, or maintenance, which materially affects the

potential for discharge from the Encina Power Station facilities of significant amounts of hazardous or toxic pollutants into waters of the United States.

XI. Public Participation

The California Regional Water Quality Control Board, San Diego Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the Encina Power Station. As a step in the WDR adoption process, the Regional Water Board staff has developed WDRs. 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 was provided through the posting of the item on the Regional Board web page and publication in the San Diego Union-Tribune.

B. Written Comments

The staff determinations are . Interested persons are invited to submit written comments concerning these WDRs. 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 2, 2006.**

C. Public Hearing

The Regional Water Board will hold a public hearing on the WDRs during its regular Board meeting on the following date and time and at the following location:

Date:	**August 16, 2006**
Time:	**9:00 A.M.**
Location:	**Water Quality Control Board** **9174 Sky park Court** **San Diego, California 92123-4340**

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, 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 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 WDRs. 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

Order No. R9-2006-0043, the Report of Waste Discharge (RWD), related documents, comments received, and other information are on file and may be inspected at the Regional Board office located at 9174 Sky Park Court, San Diego 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 Bob Morris at (858) 467-2962 or Eric Becker at (858) 492-1785..

XII. Endnotes

1. Samples shall be collected and analyzed for total chlorine residual at times when the concentrations of total chlorine residual in the combined discharge are greatest. On the day the samples are collected, the duration of chlorination and the time of sample collection shall be reported. The instantaneous chlorine residual limitation for intermittent discharges shall apply to this sample.

2. This sample should be taken when there is no chlorine residual resulting from chlorination of the main condensers. The 6-month and daily maximum limits for continuous chlorine discharges shall apply.

3. Sampling for general toxicity tests should be performed on days where expected inputs from in-plant waste streams are maximized or immediately subsequent to changes in the character of the discharge.

4. During chemical metal cleaning processes, toxicity testing shall be performed. Sampling shall occur at such time as to maximize the input from metal cleaning wastes. The sample shall consist of aliquots taken at least every hour that discharge of such waste occurs for a maximum of 24 hours. It is not necessary to perform toxicity testing during the discharge of Air Heater wash or Hypochlorinator wash waters.

ATTACHMENT G – HEAT TREATMENT DIAGRAM