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California Regional Water Quality Control Board

San Diego Region

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Arnold Schwarzenegger  
Governor

TENTATIVE 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	<b>Cabrillo Power I LLC</b>
Name of Facility	<b>Encina Power Station</b>
Facility Address	<b>4600 Carlsbad Boulevard</b>
	<b>Carlsbad, CA 92008-4301</b>
	<b>San Diego County</b>

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 ° 8' 17" N	117 ° 20' 22" W	Pacific Ocean

Table 3. Order Information

This Order was adopted by the Regional Water Board on:	<b>August 16, 2006</b>
This Order shall become effective on:	<b>October 1, 2006</b>
This Order shall expire on:	<b>October 1, 2011</b>
The U.S. Environmental Protection Agency (U.S. EPA) and the Regional Water Board have classified this discharge as a <b>major</b> discharge.	
The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, <b>not later than 180 days in advance of the Order expiration date</b> 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IT IS HEREBY ORDERED, that Order No. 2000-03 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the CWC and regulations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**.

TENTATIVE

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John Robertus, Executive Officer

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

TENTATIVE 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	Gregory J. Hughes, Regional Plant Manager, (760) 268-4011
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, 2005
- 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, Chapter 3, 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 CWA 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 §§122.41 and 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<sup>1/</sup>, 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)<sup>2/</sup> 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<sup>1/</sup>.
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<sup>4/, 5/</sup> 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 <sup>6/</sup>	Effluent Limitations				
		Daily Max	Monthly Average	Weekly Average	Instantaneous Maximum <sup>8/</sup>	6 Month Median <sup>9/</sup>
pH	Standard units	Within the limits of 6.0 to 9.0 at all times				
Turbidity <sup>10/</sup>	NTU		75	100	225	
Total Chlorine Residual <sup>11/</sup>	µg/L	132			200	33
Chronic Toxicity	TUc <sup>12/</sup>	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 <sup>6/</sup>	Performance Goals		
		Daily	Instantaneous Maximum <sup>8/</sup>	Six-Month Median <sup>9/</sup>
Arsenic	µg/L	480	1300	86
Cadmium	µg/L	66	170	17
Chromium (Hexavalent) <sup>13/</sup>	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 <sup>14/</sup>	µg/L	66	170	17
Ammonia	µg/L	40000	99000	9900
Non-Chlorinated Phenolic Compounds	µg/L	2000	5000	500

Parameter	Units <sup>6/</sup>	Performance Goals		
		Daily	Instantaneous Maximum <sup>8/</sup>	Six-Month Median <sup>9/</sup>
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<sup>15/</sup> (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:

$$L_f = (Q_a / Q_m) L_t ; \text{ where}$$

- $L_f$  = 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
- $L_t$  = 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. <sup>8/</sup>	Daily Max <sup>7/</sup>	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 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:

$$L_f = (Q_a / Q_m) L_t ; \text{ where}$$

- $L_f$  = 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 <sup>17/</sup>		
		Daily Maximum <sup>7/</sup>	30-Day Average <sup>8/</sup>	Six-Month Median <sup>9/</sup>
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) <sup>13/</sup>	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
Silver	lbs/day	1.5		0.31

## 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 at 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 2001 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 the Long Beach 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.

**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.

$$C_e = C_o + D_m (C_o - C_s)$$

Where:

$C_e$  = the effluent concentration limit,  $\mu\text{g/L}$

$C_o$  = the concentration (water quality objective) to be met at the completion of initial dilution,  $\mu\text{g/L}$

$C_s$  = background seawater concentration,  $\mu\text{g/L}$

$D_m$  = minimum probable initial dilution expressed as parts seawater per part wastewater

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

Constituent	Background Concentration ( $\mu\text{g/L}$ )
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 ( $D_m = 15.5$ ).

6. Units are defined as follows:
  - a.  $\text{mg/L}$  = milligrams per liter
  - b.  $\mu\text{g/L}$  = micrograms per liter
  - c. NTU = Nephelometric Turbidity Units
  - d.  $\text{lbs/day}$  = 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:

<b>Total Chlorine – Water Quality Objectives (µg/L)</b>	
<b>6-Month Median</b>	<b>Daily Maximum</b>
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 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.

$$L_f = (Q_a / Q_m) L_t \text{ where}$$

$L_f$  = 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.A.3 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.

CABRILLO POWER I LLC  
ENCINA POWER STATION  
TENTATIVE ORDER NO. R9-2006-0043  
NPDES NO. CA0001350