State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

320 West 4th Street, Suite 200, Los Angeles

FACT SHEET
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
FOR
RELIANT ENERGY INCORPORATED
(Mandalay Generating Station)

FILE NO.: 58-005
Public Notice No.: 01-010

FACILITY MAILING ADDRESS	FACILITY LOCATION
12301 Kurland Drive	393 N. Harbor Blvd
Huston, TX 77034	Oxnard, CA 93035
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Reliant Energy, Inc (hereinafter Reliant or Discharger) discharges waste from the Mandalay Generating Station (hereinafter Mandalay) under waste discharge requirements contained in Order No. 94-131 (NPDES No. CA0001180) adopted by this Regional Board on December 5, 1994.

Reliant Energy has filed a Report of Waste Discharge (ROWD) and has applied for renewal of its waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permit.

I. DESCRIPTION OF FACILITY

Mandalay is located on the California coast. The station is located at 393 North Harbor Boulevard, Oxnard. The facility consists of two steam-electric generating units, each rated at 215 megawatts (Mw), and one gas turbine unit rated at 147 Mw. Steam is supplied to the steam-electric units by two oil- or gas-fired boilers.

Cooling water is supplied to the facility at a rate of approximately 176,000 gallons per minute (gpm), which comes from the ocean via the Mandalay Intake Canal from Channel Islands Harbor. Water is drawn from the surface to a depth of 18 feet. The water enters the facility through a screening facility, which removes large marine organisms, trash, and other debris.

Heat treatment is performed to control marine fouling of the cooling water conduit (intake and water boxes). The water entering the facility is recirculated, thus increasing the temperature, and diverting the flow of the once-through cooling water through the circulation tunnel. Heat treatment is typically conducted every five weeks and lasts for about two hours per conduit.

The cooling water is pumped to the two steam condensers where its temperature is raised approximately 12.2°C when the units are operating at full load. The effluent is returned to the ocean across the beach via a rock-line canal. (Figure 1).

Approximately six percent (9,800 gpm) of the main cooling water is diverted before it reaches the steam condensers and is directed to an auxiliary heat exchanger which is used to cool distilled water used in auxiliary station equipment. The temperature of this water is increased about 5°C before it joins the main cooling water flow in the discharge conduit. Approximately 3,200 gpm (2%) of the intake water is diverted to an auxiliary cooling water heat exchanger for the gas turbine unit where its temperature is raised a maximum of 9°C.

Debris including trash and debris which accumulates at the intake structure is placed in collection bins and subsequently removed and disposed of by the City of Oxnard.

To control biological growth, the condenser tubes which are arranged in banks of two per generating unit are treated by intermittently injecting chlorine in the form of sodium hypochlorite. There are two chlorination cycles per day during November through February, and three chlorination cycles per day during March through October. Each cycle consists of 10 minutes per condenser half, plus 10 minutes for each of three bearing cooling water heat exchangers. Condenser halves and heat exchangers are chlorinated sequentially during each cycle. The maximum total daily chlorination time is 210 minutes or 3.5 hours per day. During November through February, the total daily chlorination time is 140 minutes/day. The process is referred to as defouling.

The Discharger sprays algicide near the Mandalay intake canal during the spring and summer months to control undesirable algal growth which clogs the intake screens and impedes the pumping of cooling water through the generating station. No adverse water quality impacts have been observed due to algicide applications.

Mandalay discharges up to 255.3 million gallons per day (mgd) of wastes consisting of once-through cooling water from two steam electric generating units (four condenser halves), metal cleaning wastes (wastewaters resulting from chemical cleaning of any metal process equipment including, but not limited to, boiler tube, boiler fireside, and air preheaters), and low volume wastes (softener regeneration wastes, fireside and air preheater washes, floor drains, boiler blowdown and evaporator blowdown wastes) into the Pacific Ocean at Mandalay Beach in the City of Oxnard, a water of the United States. The wastes are discharged through a concrete and rock-revetted structure (Discharge Serial No. 001) located at a point directly across the beach, west of the plant (Latitude: 34° 12' 23"; Longitude: 119° 15' 09").

Figure 1 is a diagram of the Reliant Energy Mandalay Generating Station cooling water system.

II. DESCRIPTION OF DISCHARGE

A. The operations contributing to flow at the Mandalay facility includes:

Operation	Flow (mgd)	Treatment Description

Once-through cooling water	255	Ocean Discharge
Boiler Blowdown	0.012	Ocean Discharge
Evaporator Blowdown	0.04	Ocean Discharge
South Yard Drains	Negligible	Retention & Ocean Discharge
North Yard Drains	Negligible	Retention & Ocean Discharge
Softener Regeneration	0.013	Retention & Ocean Discharge
Fireside and Air Preheater Wash	0.035	Retention & Ocean Discharge
Floor Drains	0.072	Oil Removal, Retention, & Ocean Discharge
Condensate Overboard	Negligible	Oil Removal, Retention, & Ocean Discharge
Chemical Metal Cleaning	0.08	Lime Precipitation, Retention, Sludge Disposal, & Ocean Discharge
West Yard Drains	Negligible	Retention & Ocean Discharger

Figure 2 shows the schematic diagram of the wastewater flow.

B. The effluent characteristics as reported in the permit application follows:

Constituent	Units	30-Day Average	Daily Maximum
Flow	mgd	----	255.3
Temperature			
Winter (Oct. - April)	^{o}F	102	123*
Summer (May - Sept.)	^{o}F	110	129*
pH	pH units	----	8.8
$BOD_5$20^{o}C	mg/L	----	1.0
COD	mg/L	----	34
Total suspended solids	mg/L	----	13.5
Bromide	mg/L	----	48
Total residual chlorine	mg/L	----	0.23
Fecal coliform	MPN/100ml	----	>23
Fluoride	mg/L	----	0.4
Nitrate-Nitrite (as Nitrogen)	mg/L	----	0.9
Nitrogen (Total organic)	mg/L	----	1.5
Oil and grease	mg/L	----	9.1
Phosphorous	mg/L	----	0.3

* During heat treatment.

Constituent	Units	30-Day Average	Daily Maximum
Aluminum	mg/L	----	1.43
Barium	mg/L	----	0.021

Boron	mg/L	----	3.34
Iron	mg/L	----	1.34
Magnesium	mg/L	----	826
Molybdenum	mg/L	----	0.008
Manganese	mg/L	----	0.071
Titanium	mg/L	----	0.069
Copper	mg/L	----	0.010
Sulfite (as SO_3)	mg/L	----	2.0
Sulfate (as SO_4)	mg/L	----	2150
Radium, Total	pCi/L	----	1.32
Beta, Total	pCi/L	----	156.4
Alpha, Total	pCi/L	----	3.39

All other targeted analytes were not detected.

C. Over the five-year period, between December 1994 and December 2000, the Discharger reported six exceedances of the 30-day average for copper. Exceedances were recorded in June and December of 1996, December of 1997, June and December of 1998 and December of 2000. There was also one exceedance of the 30-day average for lead reported in June 1998.

Non-compliance issues have been referred to the Enforcement Unit.

III. BASIS FOR THE PROPOSED WASTE DISCHARGE REQUIREMENTS

A. BENEFICIAL USES

1. On June 13, 1994, the Regional Board adopted a revised *Water Quality Control Plan* (Basin Plan) *for the Coastal Watersheds of Los Angeles and Ventura Counties*. The Basin Plan contains water quality objectives for, and lists the following beneficial uses for each of the receiving waters. The Basin Plan contains water quality objectives and beneficial uses for the Pacific Ocean.

   Nearshore Zone (Bounded by the shoreline and a line 1,000 feet from the shoreline or the 30-foot depth contour, whichever is farther from shore):

   Existing: industrial service supply, navigation, water contact and non-water contact recreation, commercial and sport fishing, support of marine habitat, support of wildlife habitat, preservation of biological habitats, support of rare, threatened, or endangered species, migration of aquatic organisms, support of habitats suitable for spawning, reproduction, and/or early development, and support of habitats suitable for shellfish harvesting.

   Offshore Zone:

   Existing: navigation, contact and non-contact recreation, commercial and sport fishing, support of marine habitat, support of wildlife habitat, support of rare, threatened, or endangered species, migration of

aquatic organisms, support of habitats suitable for spawning, and support of habitats suitable for shellfish harvesting.

2. Mandalay Beach is classified as impaired in the 1998 California 303(d) list. The pollutant stressor listed is beach closures and the source of the stressor is listed as nonpoint source.

B. STATUES, RULES, AND REGULATIONS APPLICABLE TO THE DISCHARGE

1. **Executive Order D-22-01.** On February 8, 2001, the State and Regional Boards received the Governor's Executive Order D-22-01 concerning the California electricity supply shortage that requires that all existing power plants increase their generation output. The Governor's Executive Order provides, in part, that "power plants in the State of California are not precluded from operating as a result of thermal limits in waste discharge requirements."

   This permit is consistent with the Governor's Executive Order D-22-01 to responsibly address the energy emergency and is consistent with the objectives of environmental protection.

2. In accordance with Federal and State guidelines for Section 316(b) of the Clean Water Act, the Discharger conducted a study to determine whether the cooling water intake structures are in compliance. The study adequately addressed the important ecological and engineering factors specified in the guidelines, demonstrated that ecological impacts of the intake system are environmentally acceptable, and determined that no modification to the intake structure is required. The design, construction, and operation of the intake structure represent Best Available Technology as is required by Section 316(b) of the Clean Water Act.

   Section 316 (b) of the Federal Clean Water Act (Clean Water Act) requires that the location, design, construction, and capacity of cooling water intake structures reflect the best available technology for minimizing adverse environmental impacts.

3. On November 19, 1982, the USEPA promulgated *Effluent Guidelines and Standards for the Steam Electric Power Generating Point Source Category* (40 CFR Part 423). This regulation prescribes effluent limitations for once-through cooling water and various inplant waste streams.

   40 CFR 423.12(a) includes provisions to adjust the limitations in 40 CFR Part 423 for inplant waste streams for certain plants where the factors used in developing the limitations are significantly different from those associated with the equipment or facilities involved.

4. On July 23, 1997, the State Water Resource Control Board (State Board) adopted a revised *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan). The Ocean Plan contains water quality objectives for coastal waters of California. This Order includes effluent and receiving water

limitations, prohibitions, and provisions that implement the objectives of the Ocean Plan.

5. On September 18, 1975, the State Board adopted a revised version of *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California* (Thermal Plan). The Thermal Plan contains temperature objectives for the Pacific Ocean.

   In compliance with the Thermal Plan and in accordance with Regional Board specification, the Discharger conducted a thermal effects study. The study demonstrated that waste discharges from the power plant are in compliance with the Thermal Plan and beneficial uses of the receiving waters are protected, as required by Section 316 (a) of the Clean Water Act.

6. On June 13, 1994, the Regional Board adopted a revised *Water Quality Control Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) as amended on January 27, 1997 by Regional Board Resolution No. 97-02. The Basin Plan (i) designates beneficial uses for surface and groundwaters, (ii) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state antidegradation policy (*Statement of Policy with Respect to Maintaining High Quality Waters in California*, State Water Resources Control Board (State Board) Resolution No. 68-16, October 28, 1968), and (iii) describes implementation programs to protect all waters in the Region. In addition, the Basin Plan incorporates (by reference) all applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. The 1994 update of the Basin Plan has been prepared to be consistent with all State and Regional Board plans and policies adopted to date. This Order implements the plans, policies and provisions of the Regional Board's Basin Plan.

7. Watershed Approach. The Regional Board has implemented a Watershed Management Approach, in accordance with *Watershed Protection: A Project Focus* (EPA841-R-95-003, August 1995), to address water quality protection in the Los Angeles Region. Programs covered under the Watershed Management Initiative include regulatory (e.g., NPDES), monitoring and assessment, basin planning and water quality standards, watershed management, wetlands, total maximum daily loads (TMDLs), 401 certifications, groundwater (as appropriate), and nonpoint source management activities. The Watershed Management Approach integrates

   the Regional Board's many diverse programs, particularly, permitting, planning, and other surface-water oriented programs. It emphasizes cooperative relationships between regulatory agencies, the regulated community, environmental groups, and other stakeholders in the watershed to achieve the greatest environmental improvements with the resources available. This approach facilitates a more accurate assessment of cumulative impacts of pollutants from both point and nonpoint sources.

   The Los Angeles Region encompasses ten Watershed Management Areas (WMA) which are the geographically defined watershed areas where the

Regional Board implements the watershed approach. The Board has enumerated significant issues in each of the WMAs. Significant watershed issues in the Ventura Coastal Watershed Management Area for the wetlands and coast are:

- Historic pesticide contamination;
- Loss of quality habitat;
- Impacts from oil spills and agriculture;
- Use by endangered species;
- Impairments: from coliform and from historic pesticides.

Pursuant to this Regional Board's Watershed Initiative Chapter January 2000, the Ventura River Watershed and Ventura Coastal area are targeted for the 2001-2002 fiscal year.

C. Applicable Water Quality Objectives

1. 40 CFR Part 122.44(d)vi(A) requires the establishment of numeric effluent limitations to attain and maintain applicable narrative water quality criteria to protect the designated beneficial uses.

   Where numeric water quality objectives have not been established in the Basin Plan, 40 CFR Part 122.44(d) specifies that water quality based effluent limits may be set based on USEPA criteria and supplemented, where necessary, by other relevant information attain and maintain narrative water quality criteria to fully protect designated beneficial uses.

2. Effluent limitations established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality-Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 304 (Information and Guidelines), and 402 (NPDES) of the Federal Clean Water Act and amendments thereto, are applicable to the discharges herein.

3. Total residual chlorine (TRC) levels in the once-though cooling water have exceeded effluent limitations based on 40 CFR Part 423 guideline (0.20 mg/L) and the 1983 Ocean Plan objectives for Discharge Serial No. 001. The current Ocean Plan objectives for TRC are more stringent. However, chlorination bioassay studies performed by the Discharger showed no significant adverse impact on the receiving waters as a result of the chlorine levels in the discharge.

   In September 1984, the Discharger submitted a request for variance from the effluent residual chlorine limitation based on Ocean Plan objectives. The Regional Board and the State Board approved the variance request (Resolution 88-80) and forwarded it to the USEPA in August 1988 for concurrence, pursuant to Section 301(g) of the Clean Water Act.

   In 1987, the Discharger and the City of Los Angeles Department of Water and Power conducted a chlorine toxicity screening study at three power plants which were determined to be representative of discharge conditions. The study was completed in response to State Board's concerns prior to the

issuance of State Board's Resolution 88-80. It showed that chlorine was not detected outside the zone of initial dilution during a chlorination event.

4. On May 23, 1996, USEPA approved Mandalay's request for a variance from BAT (best available technology economically achievable) for TRC pursuant to Section 301(g) of the CWA with the following conditions:

   a. The effluent from Outfall 001 must meet a limitation of 0.365 mg/L total residual chlorine (instantaneous maximum) based on daily sampling at Outfall 001 during periods of chlorination.

   b. The effluent from Outfall 001 must meet a chronic toxicity limit of 3.6 TU_c (daily maximum). The chronic toxicity tests must be representative of actual discharge conditions (at a minimum) or of the PMEL (Proposed Modified Effluent Limitation) conditions. This means that, at a minimum, the effluent samples must be chlorinated in the laboratory to levels consistent with the maximum TRC effluent concentration measured during periods of chlorination during the previous 3 months. Alternatively, the sample may be chlorinated to the PMEL concentration (unless the maximum TRC concentration from the previous 3 months exceeds the PMEL concentration). All other procedures shall be consistent with monitoring requirements in the Ocean Plan and NPDES permit. This requirement to chlorinate in the laboratory applies only if the recorded TRC concentrations exceed the BAT limit of 0.2 mg/L during the previous 3 months.

   c. In the event the effluent chronic toxicity limitation is exceeded, the Discharger shall increase the monitoring frequency to monthly in accordance with the NPDES permit. If the limit is exceeded again during the accelerated monitoring period, the Discharger shall conduct a Toxicity Reduction Evaluation (TRE) to determine the cause of toxicity. The TRE shall be conducted in accordance with EPA's most recent TRE/toxicity identification evaluation (TIE) manuals.

   d. The Discharger shall conduct a residual chlorine receiving water study, as set forth in the NPDES permit, in order to assess the impact of chlorine and chlorine by-products within the receiving waters during period of maximum chlorination.

   e. This 301(g) approval can be reviewed and revised by EPA at any time if subsequent information indicates that the PMEL will not result in compliance with all 301(g) criteria. This includes subsequent chronic toxicity results, TRE findings that indicate that the discharge of TRC at concentrations greater than the BAT limit results in toxicity, and receiving water data.

5. Per the December 5, 1994, NPDES permit (Footnote No. 3, Item II.A.1., Monitoring and Reporting Program CI-2093), the Discharger conducted a "Chlorine Sampling Optimization Study" for Mandalay. The study determined the time during the chlorination cycle of peak residual chlorine concentration in the ocean discharge of the generating station. The purpose of this

determination was to ensure that compliance monitoring samples for TRC were collected at the time of highest chlorine level in the stations' combined effluent.

Chlorination at Mandalay depends on the time of year. Between March and October, each condenser half is chlorinated for ten minutes each time and three times per day. The halves are chlorinated one at a time, and an interval of several minutes occurs between the end of chlorine injection to one half and the start to the next half. Once the condensers have been chlorinated, Units 1, 2, and 3 bearing cooling water heat exchangers are chlorinated for ten minutes each. Between November and February, the condenser halves and bearing cooling water heat exchangers are chlorinated for ten minutes twice a day.

The test was performed on February 17, 1995. The results showed four distinct peaks that corresponded to the chlorination of each condenser half. The highest chlorine level was noted at forty-four (44) minutes after the start of the chlorination cycle. The Discharger used the result of this study to modify their sampling procedures to ensure that the samples are collected at or near the time of peak chlorine levels in the effluent.

6. Prior to exercising the 301(g) variance the Discharger conducted a *Special Chlorine Study for 301(g) Variances*. The study was completed instead of a study required in Monitoring and Reporting Program No. 2093 Section III. F., which required that the Discharger conduct a study to demonstrate that there is no significant impact on the receiving water as a result of the discharge of higher levels of chlorine granted by the variance.

   In a letter dated October 10, 1997, to the Regional Board, the Discharger discussed the results of a chronic toxicity test. Effluent samples were spiked with the BAT level (0.2 mg/L) and the maximum chlorine levels allowed by the 301(g) variance (0.365 mg/L) in the laboratory. The results indicated that discharge of chlorine at the maximum allowed 301(g) variance level would not cause chronic toxicity of the effluent to exceed permitted effluent limits. The Discharger indicated that the results of this investigation suggested that an additional receiving water study on the effects of chlorine discharges at the variance level was not necessary.

   Between October 1996 and September 1997, the Discharger exercised the approved variance on only 2 days. It was not possible to complete a receiving water chlorine study at the variance levels since the chlorine level only exceeded the BAT level infrequently. The chlorine studies completed by Southern California Edison were reviewed and verbally accepted by Regional Board staff.

7. The Discharger also completed a study of the concentrations of chlorine measured in the receiving waters during chlorination. The investigation was completed for Southern California Edison Company and Los Angeles Department of Water and Power. Nine generating stations were grouped according to discharge characteristics and one candidate from each group was chosen for the study. Scattergood Generating Station was chosen as the station representative of the open coastal discharge. Hence, the results from

the study at Scattergood were used as a model to characterize chlorine concentrations in the receiving waters at Mandalay; also considered an open coastal discharge.

Total chlorine, when detected, was always within the zone of initial dilution during a chlorination event.

8. Effluent limitations based on Ocean Plan objectives were calculated using a minimum dilution ration (I.e., parts sea water to one part effluent) of 2.6 to 1 for Discharge Serial No. 001. This ratio is based on calculations made by the State Water Resources Control Board using standard dilution models. This dilution rate was approved for this facility and transmitted to the Regional Board in the State Board memorandum dated February 4, 1985.

9. For toxic constituents regulated in the Ocean Plan (Table B) that the Discharger does not add into or produce in the treatment process and/or waste streams, no numerical limits are prescribed. Also, no numerical limits are prescribed for toxic constituents which are added but usage has been determined that there is very low probability of causing or contributing to excursion in the water quality standards. However, a narrative limit to comply with all Ocean Plan objectives is provided. The Discharger is also required to monitor for all priority pollutants once during the term of the permit.

10. Acute toxicity monitoring conducted from February 1990 to November 1994 demonstrated consistent compliance with the Ocean Plan objectives. Hence, no numerical limits are prescribed for acute toxicity; the constituent is covered with a narrative limit to comply with all Ocean Plan objectives provided.

VI. SPECIFIC RATIONALES FOR EACH OF THE NUMERICAL EFFLUENT LIMITATIONS

On the basis of the preliminary staff review and application of lawful standards and regulations, the Board proposes to renew the permit.

For toxic constituents regulated in the Ocean Plan (Table B) which the Discharger does not add into or produce in the treatment process and/or waste streams, no numerical limits are prescribed. No numerical limits are prescribed for toxic constituents which are added but usage has been determined that there is very low probability of causing or contributing to excursions in the water quality standards. A narrative limit to comply with all Ocean Plan objectives is included.

The following table presents the effluent limitations and the specific rationales for pollutants that are expected to be present in the discharge:

A. Waste discharged from Discharge Serial No. 001:

	Discharge limitations[1]	
	Monthly	Daily

Constituents	Units	Average	Maximum	Rationale
pH	pH Units	----	6-9	Ocean Plan
Temperature	°F	----	135	Order No.84-113[3]
Arsenic[2]	µg/L	----	107	Ocean Plan
Cadmium[2]	µg/L	----	14.4	Ocean Plan
Chromium, hexavalent[2]	µg/L	----	28.8	Ocean Plan
Copper[2]	µg/L	5.6	38	Ocean Plan
Lead[2]	µg/L	7.2	28.8	Ocean Plan
Mercury[2]	µg/L	0.143	0.575	Ocean Plan
Nickel[2]	µg/L	18	72	Ocean Plan
Selenium[2]	µg/L	54	216	Ocean Plan
Silver[2]	µg/L	2.1	9.66	Ocean Plan
Zinc[2]	µg/L	51.2	267	Ocean Plan
Chronic Toxicity	TU_c	----	3.6	USEPA[4]
Radioactivity	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30260, California Code of Regulations.			
Total Residual Chlorine	mg/L	----	0.365	USEPA[4]
Free available chlorine	mg/L	0.2	0.5	40 CFR Part 423[5]

[1] The concentration limits in Table A.4. of the Order are based on Ocean Plan objectives using a ratio of 2.6 parts of seawater to 1 part effluent. The dilution was based on calculations made by the Discharger, approved by the SWRCB (memo the Los Angeles Regional Water Quality Control Board dated February 4, 1985) and subsequently approved and transmitted in the USEPA, *FINAL DECISION, REGIONAL ADMINISTRATOR, REGION 9, PURSUANT TO SECTION 301(g) OF THE CLEAN WATER ACT,* Mandalay Generating Station, Oxnard, CA., dated May 26, 1996.

[2] The formula used to calculate the effluent limits from (Table B, Ocean Plan, 1997) except radioactivity and chronic toxicity follows:

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

Where:

Ce = the effluent concentration limit

Co = the concentration to be met at the completion of initial dilution

Dm = the minimum probable initial dilution expressed as part wastewater (2.6)

Cs = background seawater concentration (see below)

BACKGROUND SEAWATER CONCENTRATIONS (Cs)

Waste Constituent	Cs (mg/L)
Arsenic	3
Copper	2
Mercury	0.005
Silver	0.16
Zinc	8

For all other Table B parameters (Ocean Plan, 1997) Cs = 0.

[3] Based on Thermal Plan Exception contained in Board Order No. 84-113 adopted on November 19, 1984.

In compliance with the Thermal Plan and in accordance with Regional Board specifications, the Discharger conducted a thermal effects study. The study demonstrated that wastes discharges from the power plant were in compliance with the Thermal Plan and beneficial uses of the receiving waters are protected, as required by Section 316(a) of the Clean Water Act.

[4] On September 1984, the Discharger submitted a request for variance. The variance included considerations for the effluent residual chlorine limitation (i.e., from 0.084 to 0.365 mg/l) and the chronic toxicity limitation (1.0 TU_c to 3.6 TU_c) based on the Ocean Plan. The Regional Board and the State Board approved the variance request and forwarded it to the USEPA in August 1988 for concurrence pursuant to Section 301(g) of the Clean Water Act. The USEPA approved the variance via USEPA, *FINAL DECISION, REGIONAL ADMINISTRATOR, REGION 9, PURSUANT TO SECTION 301(g) OF THE CLEAN WATER ACT,* Mandalay Generating Station, Oxnard, CA., dated May 26, 1996.

[5] *Effluent Limitation Guidelines for Steam Electric Power Generating Point Source Category*, July 1, 2000, Edition.

B. Metal cleaning wastes:

		Discharge limitations		
Constituents	Units	Monthly Average	Daily Maximum	Rationale[6]
Suspended solids	mg/L	30	100	40 CFR Part 432
Oil and grease	mg/L	15	20	40 CFR Part 432
Copper, total	mg/L	1.0	1.0	40 CFR Part 432
Iron, total	mg/L	1.0	1.0	40 CFR Part 432

[6] *Effluent Limitation Guidelines for Steam Electric Power Generating Point Source Category*, July 1, 2000, Edition.

C. Low volume wastes:

		Discharge limitations		
Constituents	Units	Monthly Average	Daily Maximum	Rationale[7]
Suspended solids	mg/L	30	100	40 CFR Part 432
Oil and grease	mg/L	15	20	40 CFR Part 432

[7] *Effluent Limitation Guidelines for Steam Electric Power Generating Point Source Category*, July 1, 2000, Edition.

D. In the event the waste stream from various sources (VI.B. and VI.C.) are combined for treatment or discharge, the quantity of each pollutant property attributable to each controlled waste source shall not exceed the specified limitation for that waste source.

Rationale: 40 CFR Part 432, *Effluent Limitation Guidelines for Steam Electric Power Generating Point Source Category*, July 1, 2000, Edition.

VII. RECEIVING WATER LIMITATIONS

The Ocean Plan sets forth narrative physical characteristics and chemical characteristics for ocean waters. Each of those narrative limitations which follows have been included in this Order.

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 Board, but including all kelp beds, the following bacterial objectives throughout the water column shall be maintained:

1. 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).

2. 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.

B. At all areas where shellfish may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives throughout the water column shall not be exceeded:

The median total coliform density shall not exceed 70 per 100 ml, and not more than 10 percent of the samples shall exceed 230 per 100 ml.

C. If a receiving water monitoring location consistently exceeds a coliform objective or exceeds a geometric mean enterococcus density of 24 organisms per 100 ml for a 30-day period or 12 organisms per 100 ml for a six-month period, the Discharger shall conduct a sanitary survey to determine if the discharge is the source of the contamination.

D. Floating particulates and grease and oil shall not be visible as a result of wastes discharged.

E. Wastes discharged shall not cause aesthetically undesirable discoloration of the ocean surface (receiving waters).

F. Wastes discharged shall not cause the transmittance of natural light to be significantly reduced at any point outside the initial dilution zone.

G. The rate of deposition and the characteristics of inert solids in ocean sediments shall not be altered such that benthic communities are degraded as a result of wastes discharged.

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

I. The pH of the receiving water shall not be changed at any time more than 0.2 units from that which occurs naturally.

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

K. The wastes discharged shall not increase the concentration in marine sediments of toxic substances listed in Chapter IV, Table B of the Ocean Plan, to levels that would degrade indigenous biota.

L. The concentration of organic materials in marine sediments shall not be increased to levels that would degrade marine life as a result of waste discharged.

M. Nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota as a result of waste discharged.

N. Waste discharged shall not degrade marine communities, including vertebrate, invertebrate, and plant species.

O. Waste discharged shall not alter the natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption.

P. The concentration of organic material in fish, shellfish or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health as a result of waste discharged.

Q. The wastes discharged shall not cause receiving waters to contain any substance in concentrations toxic to human, animal, plant, or fish life.

R. No physical evidence of wastes discharged shall be visible at any time in the water on the shores, rocks or structures.

S. The salinity of the receiving waters shall not be changed by the wastes discharged to an extent such as to be harmful to marine biota.

T. The wastes discharged shall not contain individual pesticides or a combination of pesticides in concentrations that adversely affect beneficial uses.

VIII. EFFLUENT MONITORING

There is no change in the frequency of effluent monitoring. However, this order does require the monitoring of the intake cooling water for metals semiannually for a minimum of two years after adoption of this Order.

A. The following table establishes the Effluent Monitoring Program at Discharge No. 001:

Constituent	Units	Type of Sample	Minimum Frequency of Analysis
Total waste flow[8]	gal/day	----	daily
Temperature[8]	^{o}F	continuous	----

pH	pH units	grab	weekly
Total residual chlorine[9]	mg/L	grab[10]	daily
Free available chlorine[9]	mg/L	grab[10]	daily
Chronic toxicity	TU_c	grab	quarterly
Ammonia nitrogen	µg/L	grab	annually
Nitrate nitrogen	mg/L	grab	annually
Radioactivity[11]	pCi/ml	grab	annually
Acute toxicity	TU_a	grab	annually
Priority Pollutants	µg/L	grab	annually[12]

[8] Where continuous monitoring of temperature, and flow is required, the following shall be included in the report:

Temperature: Only the maximum temperature for each calendar day shall be reported, except when temperatures exceed 106°F, in which case the reason(s), time of day, and duration of such events shall also be reported.

Flow: Total daily flow.

[9] Monitoring is only applicable during periods of chlorine addition. A statement certifying that chlorination did not occur during the day may be submitted in lieu of an analysis

[10] Multiple grab samples, with at least four equally spaced samples during each hour of chlorine addition, the maximum and average concentrations on the duration of chlorine addition shall be reported. Alternatively, a single grab sample may be collected at the time of peak residual chlorine concentration.

[11] Radioactivity determinations of gross and net beta activity, in picocuries per liter, shall be made within 48 hours following preparation of samples. The overall efficiency of the counting system, size of sample, and counting time shall be such that radioactivity can be determined to a sensitivity of ten picocurie per liter with a 95% confidence limit not to exceed 50 percent.

A statement certifying that radioactive pollutants were not added to the discharge may be submitted in lieu of monitoring.

[12] Sampling and analysis shall be completed annually. Analysis should include priority pollutants listed on page 31 except metals listed in Section III.C.

B. The chronic toxicity of the effluent shall be expressed and reported in toxic units, where:

$$TU_c = 100/NOEC$$

The No Observable Effect Concentration (NOEC) is expressed as the maximum percent effluent concentration that causes no observable effect on a test organisms, as determined by the results of a critical life stage toxicity test.

Chronic toxicity of 100% effluent shall not exceed a daily maximum of 3.6 TU_c in a critical life stage test.

If the chronic toxicity of the effluent exceeds the daily maximum of 3.6 TU_c, the Discharger shall immediately implement accelerated chronic toxicity testing according to MRP No. 2093, Section III.B.4.b. If any three out of the initial test and the six accelerated tests results exceed 3.6 TU_c, the Discharger shall initiate a

Toxicity Identification Evaluation (TIE) and implement the Initial Investigation Toxicity Reduction Evaluation (TRE) Workplan, as specified in the following section of this Order (Section I.A.5).

The Discharger shall conduct chronic toxicity monitoring as specified in MRP No. 2093.

1. Preparation of an Initial Investigation TRE Workplan

   The Discharger shall prepare and submit a copy of the Discharger's initial investigation TRE workplan to the Executive Officer of the Regional Board for approval within 90 days of the effective date of this permit. If the Regional Board Executive Officer does not disapprove the workplan within 60 days, the workplan shall become effective. The Discharger shall use USEPA manuals EPA/600/2-88/070 (industrial) or EPA/833B-99/002 (municipal) as guidance. This workplan shall describe the steps the Discharger intends to follow if toxicity is detected, and should include, at a minimum:

   a. A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency;

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

   c. If a TIE is necessary, an indication of the person who would conduct the TIE (i.e., an in-house expert or an outside contractor). See MRP No. 2093, Section III.B.4.a.ii. for the guidance manuals.

2. Chronic Toxicity Effluent Monitoring Requirements

   a. The Discharger shall conduct critical life stage chronic toxicity tests on 24-hour composite 100% effluent samples or receiving water samples in accordance with USEPA's *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Third Edition, July 1994, (EPA/600/4-91/002) or USEPA's *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*, August 1995, (EPA/600/R-95/136).

   b. Effluent samples shall be collected after all treatment processes and before discharge to the receiving water. Receiving water samples shall be collected in accordance with the conditions specified in this MRP. Receiving water samples shall be collected at mid-depth.

3. Marine and Estuarine:

   a. The Discharger shall conduct tests as follows: with a vertebrate, an invertebrate, and an alga for the first three suites of tests. After the

screening period, monitoring shall be conducted using the most sensitive species.

b. Re-screening is required every 15 months. The Discharger shall re-screen with the three species listed above and continue to monitor with the most sensitive species. If the first suite of re-screening tests demonstrate that the same species is the most sensitive than the re-screening does not need to include more that one suite of tests. If a different species is the most sensitive or if there is ambiguity then the discharger shall proceed with suites of screening tests for a minimum of three, but not to exceed five suites.

c. The presence of chronic toxicity shall be estimated as specified using West Coast marine organisms according to EPA' s Short-Term Methods for Estimating Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms, August, 1995 (EPA/600/R-95/136)The Discharger shall conduct short-term tests with the cladoceran, water flea (*Ceriodaphnia dubia* - survival and reproduction test), the fathead minnow (*Pimephales promelas* - larval survival and growth test), and the green alga (*Selenastrum capricornutum* - growth test) as an initial screening process for a minimum of three, but not to exceed five, suites of tests to account for potential variability of the effluent/receiving water. After this screening period, monitoring shall be conducted using the most sensitive species.

4. Additional Requirements for Chronic Toxicity Monitoring Programs

a. Quality Assurance

i. Concurrent testing with a reference toxicant shall be conducted. Reference toxicant tests shall be conducted using the same test conditions as the effluent toxicity tests (e.g., same test duration, etc).

ii. If either the reference toxicant test or effluent test does not meet all test acceptability criteria (TAC) as specified in the test methods manuals (EPA/600/4-91/002 and EPA/600/R-95/136), then the Discharger must re-sample and re-test within 14 days.

iii. Control and dilution water should be receiving water or laboratory water, as appropriate, as described in the manual. If the dilution water used is different from the culture water, a second control using culture water shall be used.

b. Accelerated Monitoring

i. If toxicity is detected as defined in Order No. 01-XXX, Section I.A.4. then the Discharger shall conduct six additional tests, approximately every 7 days, over a six-week period. The samples shall be collected and the tests initiated no less than 7

days apart. The Discharger shall ensure that they receive results of a failing acute toxicity test within 24 hours of completion of the test and the additional tests shall begin within 3 business days of receipt of the result.

ii. If any three out of the initial test and the six additional test results exceed 3.6 $TU_{c,}$ the Discharger shall immediately implement the Initial Investigation TRE Workplan.

iii. If implementation of the Initial Investigation TRE Workplan indicates the source of toxicity (e.g., a temporary plant upset, etc.), then the Discharger shall return to the normal sampling frequency required in Section III.A. of this MRP.

iv. If toxicity is not detected in any of the six additional tests required above, then the Discharger shall return to the normal sampling frequency required in Section III.A of this MRP.

v. If a TRE/TIE is initiated prior to completion of the accelerated testing schedule required by Section III.B.4.b. of this MRP, then the accelerated testing schedule may be terminated, or used as necessary in performing the TRE/TIE, as determined by the Executive Officer.

vi. The Discharger shall obtain six (6) consecutive chronic toxicity results less than or equal to 3.6 TU_c in order to return to the normal sampling frequency required in Section III.A. of this MRP.

c. Steps in TRE and TIE

i. Following a TRE trigger, the Discharger shall initiate a TRE in accordance with the facility's initial investigation TRE workplan. At a minimum, the Discharger shall use USEPA manuals EPA/600/2-88/070 (industrial) or EPA/833B-99/002 (municipal) as guidance. The Discharger shall expeditiously develop a more detailed TRE workplan for submittal to the Executive Officer within 15 days of the trigger that will include, but not be limited to:

1. Further actions to investigate and identify the cause of toxicity;

2. Actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity;

3. Standards the Discharger will apply to consider the TRE complete and to return to normal sampling frequency; and,

4. A schedule for these actions.

ii. The following is a stepwise approach in conducting the TRE:

1. Step 1 includes basic data collection. Data collected as part of the accelerated monitoring requirement may be used to conduct the TRE;

2. Step 2 evaluates the optimization of the treatment system operation, facility housekeeping, and the selection and use of in-plant process chemicals;

3. If Steps 1 and 2 are unsuccessful, Step 3 implements the TIE employing all reasonable efforts and using currently available TIE methodologies. The objective of the TIE is to identify the substance or combination of substances causing the observed toxicity;

4. Assuming successful identification or characterization of the toxicant(s), Step 4 evaluates final effluent treatment options;

5. Step 5 evaluates in-plant treatment options; and

6. Step 6 consists of confirmation once a toxicity control method has been implemented.

Many recommended TRE elements parallel source control, pollution prevention, and storm water control program best management practices (BMPs). To prevent duplication of efforts, evidence of implementation of these control measures may be sufficient to comply with the TRE requirements. By requiring that the first steps of a TRE be accelerated testing and review of the facility's TRE workplan, a TRE may be ended in its early stages. All reasonable steps shall be taken to reduce toxicity to the required level. The TRE may be ended at any stage if monitoring finds there is no longer toxicity (or six consecutive chronic toxicity results are less than or equal to 3.6 TU_c).

d. The Discharger may initiate a TIE as part of the TRE process to identify the cause(s) of toxicity. The Discharger shall use the USEPA acute and chronic manuals, EPA/600/6-91/005F (Phase I), EPA/600/R-96-054 (for marine), EPA/600/R-92/080 (Phase II), and EPA-600/R-92/081 (Phase III) as guidance.

e. If a TRE/TIE is initiated prior to completion of the accelerated testing schedule required by Section III.B.4.b. of this MRP, then the accelerated testing schedule may be terminated, or used as necessary in performing the TRE/TIE, as determined by the Executive Officer.

f. Toxicity tests conducted as part of a TRE/TIE may also be used for compliance, if appropriate.

g. The Board recognizes that toxicity may be episodic and identification of causes of and reduction of sources of toxicity may not be successful in all cases. Consideration of enforcement action by the Board will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

h. Reporting

1. The Discharger shall submit a full report of the toxicity test results, including any accelerated testing conducted during the month as required by Section III.B.4.b of this MRP. Test results shall be reported in Toxicity Units (percent survival or TU_c) with the discharge monitoring reports (DMR) for the month in which the test is conducted.

   If an initial investigation indicates the source of toxicity and accelerated testing is unnecessary, pursuant to Section III.B.4.b, then those results shall also be submitted with the DMR for the period in which the Investigation occurred.

2. The full report shall be submitted on or before the end of the month the DMR is submitted.

3. The full report shall consist of (1) the results; (2) the dates of sample collection, initiation, and completion of each toxicity test; and (3) the acute toxicity average limit or chronic toxicity limit or trigger as described in Sections I.A.4 of Order No. 01-XXX.

4. Test results for toxicity tests shall also be reported according to the appropriate manual chapter on Report Preparation and shall be attached to the DMR. Routine reporting shall include, at a minimum, as applicable, for each test:

   a. sample date(s);
   b. test initiation date;
   c. test species;
   d. end point values for each dilution (e.g., number of young, growth rate, percent survival);
   e. NOEC value(s) in percent effluent;
   f. IC_{15}, IC_{25}, IC_{40} and IC_{50} values in percent effluent;
   g. TU_c values $\left(TU_c = \frac{100}{NOEC} \right)$
   h. Mean percent mortality ($\pm$standard deviation) after 96 hours in 100% effluent (if applicable);
   i. NOEC and LOEC values for reference toxicant test(s);
   j. IC_{25} value for reference toxicant test(s);

k. Any applicable control charts; and,
l. Available water quality measurements for each test (e.g., pH, D.O., temperature, conductivity, hardness, salinity, and ammonia).

5. The Discharger shall provide a compliance summary, which includes a summary table of toxicity data from at least eleven of the most recent samples.

6. The Discharger shall notify, by telephone or electronically, this Regional Board of any toxicity exceedance of the limit or trigger within 24 hours of receipt of the results followed by a written report within 14 calendar days of receipt of the results. The verbal or electronic notification shall include the exceedance and the plan the Discharger will pursue. The written report shall describe actions the Discharger has taken or will take to investigate and correct the cause(s) of toxicity. It may also include a status report on any actions required by the permit, with a schedule for actions not yet completed. If no actions have been taken, the reasons shall be given.

C. Metals at Discharger Serial 001.

Constituent	Units	Type of Sample	Minimum Frequency of Analysis
Antimony	µg/L	grab	semiannually
Arsenic	µg/L	grab	semiannually
Beryllium	µg/L	grab	semiannually
Cadmium	µg/L	grab	semiannually
Chromium	µg/L	grab	semiannually
Hexavalent chromium	µg/L	grab	semiannually
Copper	µg/L	grab	semiannually
Lead	µg/L	grab	semiannually
Mercury	µg/L	grab	semiannually
Nickel	µg/L	grab	semiannually
Selenium	µg/L	grab	semiannually
Silver	µg/L	grab	semiannually
Thallium	µg/L	grab	semiannually
Zinc	µg/L	grab	semiannually

IX. EFFLUENT MONITORING PROGRAM FOR INPLANT WASTE STREAMS

A. Metal Cleaning Wastes:

Constituent	Units	Type of Sample	Minimum Frequency of Analysis
Flow[13]	mgd	----	monthly
pH	pH units	grab	monthly

Suspended solids	mg/L	grab	monthly
Oil and grease	mg/L	grab	monthly
Copper, total	mg/L	grab	monthly
Iron, total	mg/L	grab	monthly

[13] If no discharge occurred during the month, the report shall so state.

B. Non-Chemical Metal Cleaning Wastes:

Constituent	Units	Type of Sample	Minimum Frequency of Analysis
Flow[14]	mgd	----	monthly
pH	pH units	grab	monthly
Suspended solids	mg/L	grab	monthly
Oil and grease	mg/L	grab	monthly
Copper[15]	mg/L	grab	monthly
Iron[15]	mg/L	grab	monthly

[14] If no discharge occurred during the month, the report shall so state.

[15] Dissolved metal fraction only.

C. Low Volume Wastes:

Constituent	Units	Type of Sample	Minimum Frequency of Analysis
Flow[16]	mgd	----	monthly
pH	pH units	grab	monthly
Suspended solids	mg/L	grab	monthly
Oil and grease	mg/L	grab	monthly
Priority Pollutants	µg/L	grab	annually[17]

[16] If no discharge occurred during the month, the report shall so state.

[17] Sampling and analysis shall be on a quarterly basis during the first two years after the adoption of this Order, and annually thereafter. Analysis for priority pollutants in low volume waste should include metals. See page 31 for the list of priority pollutants.

D. Intake Cooling Water Monitoring Program:

The intake cooling water shall be analyzed for metals semi-annually as listed in VIII.C. for a period of two years following the date of this permit. The sampling and analyses for both effluents and intake cooling water shall be performed at the same time. The Executive Officer has the authority to require continuation of such monitoring at his discretion.

X. RECEIVING WATER MONITORING

The receiving water monitoring program has been revised to include impingement sampling at the intake structure. The locations of the stations for benthic monitoring have also been changed to target potential benthic changes at the discharge location.

A. Monitoring for Algicide Spraying

The Discharger periodically sprays the banks of the Mandalay Intake Canal with an algicide to control algal growth in the intake canal. The Discharger shall notify the Regional Board at least two weeks prior to each application of algicide. Water samples shall be collected a minimum of three locations (Wooley Road, 5th Street and Unocal Bridge, or other locations subject to approval by the Executive Officer) and analyzed for total residual oxidant concentrations. The Discharger also shall conduct visual observations of the canal following algicide applications to assess the effectiveness of the spraying program in controlling algal growth and to observe any unusual mortality of fish or invertebrates. The Discharger shall report the results of sample analysis and visual observations, as well as a description of the amounts and locations of all algicide applications, in the appropriate monthly monitoring report to the Regional Board.

B. Receiving Water

The receiving water monitoring program shall consist of periodic biological surveys of the area surrounding the discharge, and shall include studies of those physical-chemical characteristics of the receiving water which may be impacted by the discharge.

Location of Sampling Stations (see Attached Figure 3):

1. Receiving water stations in the surf zone shall be located as follows:

   a. Station RW1 - 1180 feet upcoast of the discharge channel.

   b. Station RW2 - 1180 feet downcoast of the discharge channel.

   c. Station RW3 - 2360 feet upcoast of the discharge channel.

   d. Station RW4 - 2360 feet downcoast of the discharge channel.

   e. Station RW5 - At the discharge channel.

2. Receiving water stations offshore of the discharge area shall be located as follows:

   a. Station RW6 - directly offshore of station RW13 at a depth of 30 feet.

   b. Station RW7 - directly offshore of station RW16 at a depth of 30 feet.

   c. Station RW8 – directly offshore of station RW11 at a depth of 30 feet.

   d. Station RW9 – directly offshore of station RW17 at a depth of 30 feet.

   e. Station RW10 – directly offshore of station RW12 at a depth of 30 feet.

f. Station RW11 – directly offshore of station RW5 at a depth of 20 feet.

g. Station RW12 – directly offshore of station RW4 at a depth of 20 feet.

h. Station RW13 – directly offshore of station RW3 at a depth of 20 feet.

i. Station RW14 – 5,910 feet downcoast of the discharge channel at a depth of 20 feet.

j. Station RW15 – 5,910 feet upcoast of the discharge channel at a depth of of 20 feet.

k. Station RW16 – directly offshore of station RW1 at a depth of 20 feet.

l. Station RW17 – directly offshore of station RW2 at a depth of 20 feet.

3. Benthic stations shall be located as follows:

a. Station B1 shall be located directly beneath Station RW11.

b. Station B2 shall be located directly beneath Station RW12.

c. Station B3 shall be located directly beneath Station RW13.

d. Station B4 shall be located directly beneath Station RW14.

e. Station B5 shall be located directly beneath Station RW15.

4. Trawling stations shall be located as follows:

a. Station T1 – Parallel to the shore at a depth of 20 feet, extending equidistant to either side of Station RW15.

b. Station T2 – Parallel to the shore at a depth of 20 feet, extending equidistant to either side of Station RW16.

c. Station T3 – Parallel to the shore at a depth of 20 feet, extending equidistant to either side of Station RW17.

d. Station T4 – Parallel to the shore at a depth of 20 feet, extending equidistant to either side of Station RW14.

C. Type and Frequency of Sampling:

1. Surface temperatures, dissolved oxygen levels and pH shall be measured semiannually (summer and winter) each year at Stations RW1 through RW5. All stations shall be sampled on both a flooding tide and an ebbing tide during each semiannual survey.

2. Temperature profiles shall be measured semiannually (summer and winter) each year at Stations RW6 through RW17 from surface to bottom at a minimum of one-meter intervals. Dissolved oxygen levels and pH shall be measured semiannually at least at the surface, mid-depth and bottom at each station. All stations shall be sampled on both a flooding tide and an ebbing tide during each semiannual survey.

3. Impingement sampling for fish and commercially important macroinvertebrates shall be conducted at least once every two months at intake Serial No. 002. Impingement sampling shall coincide with heat treatments for at least three of the six sampling events during the year.

   Fish and macroinvertebrates shall be identified to the lowest possible taxon. For each intake point, data reported shall include numerical abundance of each fish and macroinvertebrate species, wet weight of each species (when combined weight of individuals in each species exceeds 0.2 kg), number of individuals in each 1-centimeter size class (based on standard length) for each species and total number of species collected. When large numbers of given species are collected, length/weight data need only be recorded for 50 individuals and total number and total weight may be estimated based on aliquots samples. Total fish impinged per heat treatment or sampling event shall be reported and data shall be expressed per unit volume water entrained.

4. Native California mussels (Mytilus Californianus) shall be collected during the summer from the discharge conduit, as close to the point of discharge as possible, for bioaccumulation monitoring. The mussels shall be collected and analyzed as described in Appendix A of the *California State Mussel Watch Marine Water Quality Monitoring program 1985-86* (Water Quality Monitoring Report No. 87-2WQ). Mussel tissue shall be analyzed for copper, chromium, nickel, and zinc at a minimum.

5. Sampling by otter trawl shall be conducted semiannually (summer and winter) each year along transects at Stations T1 through T4. Trawls are specialized gear used in large open water areas of reservoirs, lakes, large rivers, estuaries, and offshore marine areas. They are used to gain information on a particular species of fish rather than on overall fish populations. The otter trawl is used to capture near-bottom and bottom fishes.

   a. Trawl net dimensions shall be as follows:

      1. At least a 25 ft throat width.

      2. 1.5 in mesh-size (body).

      3. 0.5 in mesh-size (linear in the cod end).

   b. Two replicate trawls shall be conducted at each station for a duration of 10 minutes each at a uniform speed between 2.0 and 2.5 knots.

   c. The identity, size (standard length), wet weight, and number of fish in each trawl shall be reported. The number of fish affected by abnormal

growth or disease, such as fin erosion, lesions, and papillomas, shall be reported. Fish species shall be reported in rank order of abundance and frequency of occurrence for each trawl. The Shannon-Wiener diversity index shall also be computed for each trawl.

d. All commercially important macroinvertebrates shall be identified, enumerated, and reported in the same manner as fish species.

4. Benthic sampling shall be conducted annually during the summer at Stations B1 through B5.

a. One liter sediment core samples shall be collected by divers at each of the benthic stations for biological examination and determination of biomass and diversity, and for sediment analyses. Four replicates shall be obtained at each station for benthic analyses, and each shall be analyzed separately. A fifth sample shall be taken at each station for sediment analyses and general description.

b. Each benthic replicate sample shall be sieved through a 0.5 mm standard mesh screen. All organisms recovered shall be enumerated an identified to the lowest taxon possible. Infaunal organisms shall be reported as concentrations per liter for each replicate and each station. Total abundance, number of species and Shannon-Weiner diversity indices shall be calculated (using natural logs) for each replicate and each station.

Biomass shall be determined as the wet weight in grams or milligrams retained on a 0.5 millimeter screen per unit volume (e.g., 1 liter) of sediment. Biomass shall be reported for each major taxonomic group (e.g., polychaetes, crustaceans, mollusks) for each replicate and each station.

c. Sediment grain size analyses shall be performed on each sediment sample (sufficiently detailed to calculate percent weight in relation to the size). Sub-samples (upper tow centimeters) shall be taken from each sediment sample and analyzed for copper, chromium, nickel and zinc.

6. The following general observations or measurement at receiving water, benthic and trawl stations shall be reported:

a. Tidal stage, time, and date of monitoring.

b. General water conditions.

c. Color of the water.

d. Appearance of oil films or greases, or floatable materials.

e. Extent of visible turbidity or color patches.

f. Direction of tidal flow.

g. Description of odor, if any, of the receiving water.

h. Depth at each station for each sampling period.

i. Presence or absence of red tide.

j. Presence and activity of marine life.

k. Presence of the California Least Tern and California Brown Pelican.

SUMMARY OF RECEIVING WATER MONITORING PROGRAM

Constituent	Units	Stations	Type of Sample	Minimum Frequency of Analysis
Temperature	°C	RW1-RW5	surface	semiannually (flood, ebb)
Temperature	°C	RW6-RW17	vertical profile	semiannually (flood, ebb)
Dissolved oxygen	mg/L	RW1-RW5	surface	semiannually (flood, ebb)
Dissolved oxygen	mg/L	RW6-RW17	vertical profile	semiannually (flood, ebb)
pH	pH Units	RW1-RW5	surface	semiannually (flood, ebb)
pH	pH Units	RW6-RW17	vertical profile	semiannually (flood, ebb)
Fish and macro Invertebrates	----	T1-T4	trawl	semiannually
Benthic Infauna	----	B1-B5	grab	annually
Sediments	----	B1-B5	grab	annually

The receiving water monitoring report containing the results of semiannual and annual monitoring shall be received at the Regional Board on March 1 of each year following the calendar year of data collection.

XI. STORM WATER MONITORING AND REPORTING

The Discharger shall implement the Monitoring and Reporting Requirements for individual dischargers contained in the general permit for *Dischargers of Storm Water Associated with Industrial Activities* (State Board Order No. 97-030-DWQ) adopted on April 17, 1997. The monitoring reports shall be received at the Regional Board by July 1 of each year. Reference Compliance File CI-2093 in the report.

VII. WRITTEN COMMENTS

Interested persons are invited to submit written comments on the tentative Waste Discharge Requirements. Comments should be submitted either in person, or by mail to:

California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Written comments regarding the tentative Order must be received at the Regional Board office by the close of business on April 16, 2001, in order to be evaluated by staff and included in the Board's agenda folder. Comments received after that date will be provided, ex agenda, to the Board for consideration, but may result in delay of the tentative Order.

VIII. PUBLIC HEARING

The proposed Waste Discharge Requirements will be considered by the Regional Board at a public hearing to be held on April 26, 2001, at the Richard M. Chambers U.S. Court of Appeals Building (Courtroom 3), 125 South Grand Avenue, Pasadena, California.

IX. WASTE DISCHARGE REQUIREMENTS APPEALS

Any person may petition State Water Resources Control Board to review the decision of the Regional Board regarding the final Waste Discharge Requirements. A petition must be made within 30 days of the Regional Board public hearing.

X. ADDITIONAL INFORMATION

The application, related documents, tentative effluent limitations and special conditions, comments received, and other information are on file and may be inspected at
320 West 4th Street, Suite 200, Los Angeles, CA 90013, at any time between 8:30 AM and 4:45 PM, Monday through Friday by calling (213) 576-6600.

XI. REGISTER OF INTERESTED PERSONS

Any person interested in this particular application or NPDES permit may leave their name, address, and phone number with the Board as a part of the Board's file.