

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

MONITORING AND REPORTING PROGRAM NO. CI-2093  
for  
RELIANT ENERGY INCORPORATED, INC.  
(CA0001180)

**I. REPORTING REQUIREMENTS**

- A. The Discharger shall implement this monitoring program on the effective date of this Order. Effluent monitoring reports shall be submitted monthly, by the first day of the second month following each monthly sampling period. The first monitoring report shall be received the Regional Board by July 1, 2001, covering May 2001.
- B. Quarterly effluent analyses shall be performed during the months of February, May, August and November. Semiannual effluent analyses shall be performed during the months of May and November. Annual effluent analyses shall be performed during the month of May. Results of quarterly, semiannual, and annual analyses shall be reported in the appropriate monthly monitoring report following the analyses. Should there be instances when monitoring could not be done during these specified months, the Discharger must notify the Regional Board, state the reason, and obtain approval for an alternate schedule.
- C. By March 1 of each year, the Discharger shall submit an annual summary report to the Regional Board. The report shall contain a discussion, tabular, and graphical summaries of the monitoring data obtained during the previous calendar year. In addition, the Discharger shall discuss the compliance record and the corrective actions taken or planned, which may be needed to bring the discharge into full compliance with the waste discharge requirements. The data shall be submitted to the Regional Board on hard copy and on 3 1/2" computer diskette. The submitted data must be IBM compatible, preferably using Microsoft Excel software.
- D. All monitoring and annual summary reports must be addressed to the Regional Board, Attention: Information Technology Unit. Reference the reports to Compliance File No. CI-2093 to facilitate routing to the appropriate staff and file.
- E. For every item where the requirements are not met, the Discharger shall submit a statement of the cause(s), and actions undertaken or proposed which will bring the discharge into full compliance with waste discharge requirements at the earliest possible time, including a timetable for implementation of these actions.
- F. Any mitigation/remedial activity including any pre-discharge treatment conducted at the site must be reported in the quarterly monitoring report.

- G. Database Management System – The Regional Board is developing a compliance monitoring database management system that may require the Discharger to submit the monitoring and annual reports electronically when it becomes fully operational.

## II. EFFLUENT MONITORING REQUIREMENTS

- A. Sampling station(s) shall be established for the point of discharge and shall be located where representative samples of that effluent can be obtained. Provisions shall be made to enable visual inspection before discharge. If oil sheen, debris, and/or other objectionable materials or odors are present, the discharge shall not be commenced until compliance with the requirements has been demonstrated. All visual observations shall be included in the monitoring report.
- B. This Regional Board shall be notified in writing of any change in the sampling stations once established, or in the methods for determining the quantities of pollutants in the individual waste streams.
- C. Pollutants shall be analyzed using the methods described in 40 CFR 136.3, 136.4, and 136.5 (revised May 14, 1999); or where no methods are specified for a given pollutant, methods approved by Regional Board or State Board. Laboratories analyzing monitoring samples shall be certified by the California Department of Health Services and must include quality assurance/quality control (QA/QC) data with their report.

The monitoring report shall specify the USEPA analytical method used, the Method Detection Limit (MDL) and the Minimum Level (ML) for each pollutant. For the purpose of reporting compliance with numerical limitations, performance goals, and receiving water limitations, analytical data shall be reported by one of the following methods, as appropriate:

1. An actual numerical value for sample results greater than, or equal to, the ML; or,
2. "Detected, but Not Quantified (DNQ)" if results are greater than or equal to the laboratory's MDL but less than the ML; or,
3. "Not-Detected (ND)" for sample results less than the laboratory's MDL with MDL indicated for the analytical method used.

Current MLs (Attachment T-1) are those published by the State Water Resources Control Board in the *Policy for the Implementation of Toxics*

*Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, March 2, 2000.

- D. Where possible, the MLs employed for effluent analyses shall be lower than the permit limits established for a given parameter. If the ML value is not below the effluent limitation, then the lowest ML value and its associated analytical method shall be selected for compliance purposes. At least once a year (in the annual report), the Discharger shall submit a list of the analytical methods employed for each test and associated laboratory quality assurance/quality control (QA/QC) procedures.

The Regional Board, in consultation with the State Board Quality Assurance Program, shall establish an ML that is not contained in Attachment T-1 to be included in the Discharger's permit in any of the following situations:

1. When the pollutant under consideration is not included in Attachment T-1;
  2. When the Discharger and Regional Board agree to include in the permit a test method that is more sensitive than those specified in 40 CFR 136 (revised May 14, 1999);
  3. When the Discharger agrees to use an ML that is lower than that listed in Attachment T-1;
  4. When a Discharger demonstrates that the calibration standard matrix is sufficiently different from that used to establish the ML in Attachment T-1 and proposes an appropriate ML for their matrix; or,
  5. When the Discharger uses a method whose quantification practices are not consistent with the definition of an ML. Examples of such methods are the USEPA-approved Method 1613 for dioxins and furans, Method 1624 for volatile organic substances, and Method 1625 for semi-volatile organic substances. In such cases, the Discharger, the Regional Board, and the State Board shall agree on a lowest quantifiable limit, and that limit will substitute for the ML for reporting and compliance determination purposes.
- H. Laboratory analyses – all chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory certified for such analyses by the California Department of Health Services Environmental Laboratory Accreditation Program (ELAP). A copy of the laboratory certification shall be submitted with the Annual Report.
- E. Water/wastewater samples must be analyzed within allowable holding time limits as specified in 40 CFR Part 136.3. All QA/QC samples must be run on the same

dates the samples were actually analyzed, and the results must be reported in the Regional Board format if available, and submitted with the laboratory reports.

- F. All analyses shall be accompanied by the chain of custody, including but not limited to data and time of sampling, sample identification, and name of person who performed sampling, date of analysis, name of person who performed analysis, QA/QC data, method detection limits, analytical methods, copy of laboratory certification, and a perjury statement executed by the person responsible for the laboratory.
- G. Each monitoring report must affirm in writing that: "All analyses were conducted at a laboratory certified for such analyses by the California Department of Health Services, and in accordance with current USEPA guideline procedures or as specified in this Monitoring Program."
- H. Each report shall contain the following completed declaration:

"I declare under penalty of law that I have personally examined, and am familiar with, the information submitted in this document and all attachments, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. [CWC Sections 13263, 13267, and 13268]"

Executed on the \_\_\_\_\_ day of \_\_\_\_\_ at \_\_\_\_\_.

\_\_\_\_\_  
\_\_\_\_\_  
(Signature)  
(Title)

### III. EFFLUENT MONITORING PROGRAM

- A. The following shall constitute the effluent monitoring program for the final effluent at Discharge No. 001:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Minimum Frequency of Analysis</u>
Total waste flow <sup>1</sup>	gal/day	----	daily
Temperature <sup>1</sup>	°F	continuous	----
pH	pH units	grab	weekly
Total residual chlorine <sup>2</sup>	mg/L	grab <sup>3</sup>	daily
Free available chlorine <sup>2</sup>	mg/L	grab <sup>3</sup>	daily
Chronic toxicity	TU <sub>c</sub>	grab	quarterly
Fecal coliform	MPN/100ml	grab	quarterly
Total coliform	MPN/100ml	grab	quarterly
Enterococci	MPN/100ml	grab	quarterly
Ammonia nitrogen	µg/L	grab	annually
Nitrate nitrogen	mg/L	grab	annually
Radioactivity <sup>4</sup>	pCi/ml	grab	annually
Acute toxicity	TU <sub>a</sub>	grab	annually
Priority Pollutants	µg/L	grab	annually <sup>5</sup>

<sup>1</sup> 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.

<sup>2</sup> 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

<sup>3</sup> 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.

<sup>4</sup> 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.

<sup>5</sup> Sampling and analysis shall be completed annually. Analysis should include priority pollutants listed on page T-23 except metals listed in Section III.C.

B. Chronic Toxicity Effluent Monitoring Requirements

1. 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).
2. 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 than one suite of tests. If a different species is the most sensitive or if there is ambiguity then the discharger shall proceed with suites of screening tests for a minimum of three, but not to exceed five suites.
  - 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)
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. 01-057, Sections 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 tests results exceed  $3.6 TU_c$ , the Discharger shall immediately implement the Initial Investigation Toxicity Reduction Evaluation (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/Toxicity Identification Evaluation (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<sub>c</sub> 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:
  - (a) Further actions to investigate and identify the cause of toxicity;
  - (b) Actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity;
  - (c) Standards the Discharger will apply to consider the TRE complete and to return to normal sampling frequency; and,
  - (d) A schedule for these actions.
- ii. The following is a stepwise approach in conducting the TRE:
  - (a) Step 1 includes basic data collection. Data collected as part of the accelerated monitoring requirement may be used to conduct the TRE;
  - (b) Step 2 evaluates the optimization of the treatment system operation, facility housekeeping, and the selection and use of in-plant process chemicals;



- (c) 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;
- (d) Assuming successful identification or characterization of the toxicant(s), Step 4 evaluates final effluent treatment options;
- (e) Step 5 evaluates in-plant treatment options; and
- (f) 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<sub>c</sub>).

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

- vi. 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.

d. Reporting

- i. 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<sub>c</sub>) 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.

- ii. The full report shall be submitted on or before the end of the month the DMR is submitted.
- iii. 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 Section I.A.4 of Order No. 01-057.
- iv. 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<sub>15</sub>, IC<sub>25</sub>, IC<sub>40</sub> and IC<sub>50</sub> 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).
- v. The Discharger shall provide a compliance summary, which includes a summary table of toxicity data from at least eleven of the most recent samples.
- vi. 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

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Minimum Frequency of Analysis</u>
Antimony	$\mu\text{g/L}$	grab	semiannually
Arsenic	$\mu\text{g/L}$	grab	semiannually
Beryllium	$\mu\text{g/L}$	grab	semiannually
Cadmium	$\mu\text{g/L}$	grab	semiannually
Chromium	$\mu\text{g/L}$	grab	semiannually
Hexavalent chromium	$\mu\text{g/L}$	grab	semiannually
Copper	$\mu\text{g/L}$	grab	semiannually
Lead	$\mu\text{g/L}$	grab	semiannually
Mercury	$\mu\text{g/L}$	grab	semiannually

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Minimum Frequency of Analysis</u>
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

**IV. EFFLUENT MONITORING PROGRAM FOR IN-PLANT WASTE STREAMS**

**A. Metal Cleaning Wastes:**

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Minimum Frequency of Analysis</u>
Flow <sup>5</sup>	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

<sup>5</sup> If no discharge occurred during the month, the report shall so state.

**B. Non-Chemical Metal Cleaning Wastes:**

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Minimum Frequency of Analysis</u>
Flow <sup>6</sup>	mgd	---	monthly
pH	pH units	grab	monthly
Suspended solids	mg/L	grab	monthly
Oil and grease	mg/L	grab	monthly
Copper <sup>7</sup>	mg/L	grab	monthly
Iron <sup>7</sup>	mg/L	grab	monthly

<sup>6</sup> If no discharge occurred during the month, the report shall so state.

<sup>7</sup> Dissolved metal fraction only.

C. Low Volume Wastes:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Minimum Frequency of Analysis</u>
Flow <sup>8</sup>	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 <sup>9</sup>

<sup>8</sup> If no discharge occurred during the month, the report shall so state.

<sup>9</sup> Sampling and analyses shall be on a quarterly basis during the first two years after adoption of this Order, and annually thereafter. Analysis for priority pollutants in low volume waste should include metals. See page T-23 for constituent list.

D. Intake Cooling Water Monitoring Program:

The intake cooling water shall be analyzed for metals semi-annually as listed in III.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.

**V. RECEIVING WATER MONITORING**

A. Receiving Water

1. Pursuant to the Code of Federal Regulations [40 CFR § 122.41(j) and §122.48(b)], the monitoring program for a discharger receiving a NPDES permit must determine compliance with NPDES permit conditions, and demonstrate that State water quality standards are met.
2. Since compliance monitoring focuses on the effects of point source discharge, it is not designed to assess impacts from other sources of pollution (e.g., nonpoint source runoff, aerial fallout) nor to evaluate the current status of important ecological resources on a regional basis.

B. Regional Database

1. Several efforts are underway to develop and implement a comprehensive regional monitoring program for the Southern California Bight. These efforts

have the support and participation from regulatory agencies, dischargers, and environmental groups. The goal is to establish a regional program to address public health concerns, monitor trends in natural resources and nearshore habitats, and assess regional impacts from all contaminant sources.

2. Two pilot regional monitoring programs were conducted; one during the summer of 1994 and another in 1998. The purpose of the pilot programs were to test an alternative sampling design that combines elements of compliance monitoring with a broader regional assessment approach. The pilot program was designed by USEPA, the State Board, and three Boards (Los Angeles, Santa Ana, and San Diego) in conjunction with the Southern California Coastal Water Research Project and participating discharger agencies.

The pilot regional monitoring programs included the following components: microbiology; water quality; sediment chemistry; sediment toxicity testing; benthic infauna; demersal fish; and bioaccumulation.

3. The two pilot regional monitoring programs were funded primarily, by resource exchanges with the participating discharger agencies. During the year when pilot regional monitoring was scheduled, USEPA and this Regional Board eliminated portions of the routine compliance monitoring programs for that year, while retaining certain critical compliance monitoring elements. A certain percentage of the traditional sampling sites were also retained to maintain continuity of the historical record and to allow comparison of different sampling designs. The exchanged resources were redirected to complete sampling within the regional monitoring program design. Thus, the Discharger's overall level of effort for the 1994 and 1998 pilot programs remained approximately the same as the compliance monitoring programs.
4. Given the apparent benefits realized by the first two regional monitoring programs, it is probable that similar comprehensive sampling efforts will be repeated for the California Bight at periodic intervals (perhaps every four or five years). At the present time, it appears likely that the next regional monitoring program will be attempted during the summer of 2002 - 2003.
5. We anticipate that future regional monitoring programs will be funded in a similar manner. Revisions to the routine compliance monitoring program will be made under the discretion of the USEPA and this Regional Board as necessary to accomplish this goal; and may include resource exchanges in the number of parameters to be monitored, the frequency of monitoring, or the number, type, and location of samples collected.
6. The compliance monitoring programs for the Mandalay Generating Station, and other major ocean dischargers will serve as the framework for the regional

monitoring program. However, substantial changes to these programs may be required to fulfill the goals of regional monitoring, while retaining the compliance monitoring component required to evaluate the potential impacts from NPDES discharges. Revisions to the existing program will be made under the discretion of the USEPA and this Regional Board as necessary to accomplish this goal; and may include a reduction or increase in the number of parameters to be monitored, the frequency of monitoring, or the number, type, and location of samples collected.

C. 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 at a minimum of three locations (Wooley Road, 5<sup>th</sup> 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.

D. Receiving Water Monitoring

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 1):

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 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.

E. 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.
6. 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 and 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.
7. 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.
8. During the discharge of calcareous material (excluding heat treatment discharge) to the receiving waters, the following observations or measurements shall be recorded and reported in the next monitoring report:
- a. Date and times of discharge(s).
  - b. Estimate of volume and weight of discharge(s).
  - c. Composition of discharge(s).
  - d. General water conditions and weather conditions.
  - e. Appearance and extent of any oil films or grease, floatable material or odors.
  - f. Appearance and extent of visible turbidity or color patches.
  - g. Presence of marine life.
  - h. Presence and activity of the California least tern and the California brown pelican.

SUMMARY OF RECEIVING WATER MONITORING PROGRAM

<u>Constituent</u>	<u>Units</u>	<u>Stations</u>	<u>Type of Sample</u>	<u>Minimum Frequency of Analysis</u>
Temperature	°C	RW1-RW5	surface	semiannually (flood, ebb)
Temperature semiannually	°C	RW6-RW17	vertical profile	(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
Fish and macro Invertebrates	----	Intake Serial No. 002	impinge- ment	bimonthly
Benthic Infauna	----	B1-B5	grab	annually
Sediments	----	B1-B5	grab	annually
Mussels	----	Discharge Serial No. 001	tissue	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.

**VI. 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. Indicate in the report the Compliance File CI-2093.

Ordered by: \_\_\_\_\_  
Dennis A. Dickinson  
Executive Officer

Date: April 26, 2001

/COD