

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LOS ANGELES REGION  
MONITORING AND REPORTING PROGRAM NO. 5764  
FOR  
LONG BEACH GENERATION LLC  
(Long Beach Generating Station)  
(CA0001171)**

**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 under this program is due by August 1, 2001, covering the monitoring period of June 2001. The annual summary report, which contains a discussion of the previous year's effluent monitoring data, as well as graphical and tabular summaries of the data, shall be received by March 15 of each year. All monitoring reports shall be addressed to the Regional Board, Attention: Information Technology Unit.
- B. All samples shall be representative of the waste discharge under the conditions of peak load, whenever possible. 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 February and August. Annual effluent analyses shall be performed during the month of August. Results of quarterly, semiannual and annual analyses shall be reported in the appropriate monthly monitoring report. 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. All chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory approved by the Executive Officer or certified for such analyses by the State Department of Health Services Environmental Laboratory Accreditation Program (ELAP). A copy of the laboratory certification shall be submitted with the Annual Report.
- D. Analytical data shall be reported on Regional Board Laboratory Report Forms. These forms contain the requirements for analytical test results and Quality Assurance/Quality Control (QA/QC) reports for all water/wastewater samples analyzed for volatile organic compounds, petroleum hydrocarbons, and metals. Analytical results for major wastewater constituents and other toxic materials for which the Regional Board has not yet developed laboratory forms shall be reported separately but with similar information as in the Regional Board's laboratory forms.

The data shall be submitted to the Regional Board on hard copy and on 3 1/2" computer diskette. Submitted data must be IBM compatible, preferably using Microsoft Excel<sup>®</sup>, software.

## II. Effluent Monitoring Requirements

- A. Sampling stations shall be established at each point of discharge and shall be located where representative samples of the effluent (undiluted by receiving water) can be obtained. The Discharger shall notify this Regional Board in writing of the locations of the sampling stations once established.
- B. Pollutants shall be analyzed using the analytical 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, by methods approved by this Regional Board or the State Board. Laboratories analyzing effluent and receiving water samples shall be certified by the California Department of Health Services and must include QA/QC data in their reports

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 with 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 Matrix MDL but less than the ML; or,
- 3. "Not-Detected (ND)" for sample results less than the laboratory's Matrix MDL with the 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*.

- C. Where possible, the ML 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, the Discharger shall submit a list of the analytical methods employed for each test and associated laboratory QA/QC procedures.

The Regional Board, 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 the 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 those listed in Attachment T-1;
  4. When the 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.
- D. Water/wastewater samples must be analyzed within allowable holding time limits as specified in 40 CFR Part 136.3. All QA/QC items must be run on the same dates the samples were actually analyzed, and the results shall be reported in the Regional Board format when it becomes available, and submitted with the laboratory reports. Proper chain of custody procedures must be followed and a copy of the chain of custody shall be submitted with the report.
- E. For parameters where both monthly average and daily maximum limits are specified but where the monitoring frequency is less than four times a month, the following procedure shall apply: If an analytical result is greater than the monthly average limit, the sampling frequency shall be increased (within one week of receiving the laboratory results) to a minimum of once weekly at equal intervals until at least four consecutive weekly samples have been obtained and compliance with the monthly average limit has been demonstrated again, and the Discharger has set forth for the approval of the Executive Officer a program which ensures future compliance with the monthly average limit.
- F. 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.

### III. Effluent Monitoring Program

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

<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Minimum Frequency of Analysis</u>
Temperature <sup>[1]</sup>	°F	continuous	daily
Total waste flow <sup>[1]</sup>	gal/day	continuous	daily
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
Total oxidants <sup>[2]</sup>	mg/L	grab	daily
pH	pH units	grab	weekly <sup>[8]</sup>
Chronic toxicity <sup>[5,6,7]</sup>	TU <sub>c</sub>	grab	quarterly
Acute toxicity <sup>[10]</sup>	TU <sub>a</sub>	grab	annually
Radioactivity <sup>[4]</sup>	pCi/L	grab	annually
Ammonia nitrogen	µg/L	grab	annually
Nitrate nitrogen	mg/L	grab	annually
Priority pollutants	µg/L	grab	annually <sup>[9]</sup>

#### Footnotes:

- [1] 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 105°F, the reason(s), time of day, and duration of such events shall be reported.

Flow: Total daily flow.

- [2] 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. If bromine is used by itself or in conjunction with chlorine, the report should be in total residual oxidants.
- [3] Multiple grab samples, with at least four equally-spaced samples during each hour of chlorine addition, the maximum and average concentrations for the duration of chlorine addition shall be reported. Alternatively, a single grab sample may be collected at the time of peak residual chlorine concentration.
- [4] 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 picocuries 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.

- [5] Initial screening shall be conducted using a minimum of three test species with approved test protocols listed in the California Ocean Plan (State Water Resources Control Board, 1997) to determine the most sensitive test organism for chronic toxicity testing (other test species may be added to the Ocean Plan list when approved by the State Board). If possible, the test species used during the screening process should include a fish, an invertebrate and an aquatic plant.

After the initial screening period, chronic toxicity testing may be limited to the most sensitive test species. However, the initial screening process shall be repeated annually, with a minimum of three test species with approved test protocols to ensure use of the most sensitive species for chronic toxicity testing.

Dilution and control waters should be obtained from an unaffected area of the receiving waters. Standard dilution water may be used if the above source exhibits toxicity greater than 1.0  $t_{uc}$ . The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each batch of bioassay tests and reported with the test results.

- [6] Chronic toxicity shall be expressed and reported as toxic units, where:

$$TU_c = 100/NOEC$$

The No Observable Effect Concentration (NOEC) is expressed as the maximum percent effluent that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed on Pages 24 of the Ocean Plan.

The effluent tests shall be conducted with concurrent reference toxicant tests. Both the reference toxicant and effluent test must meet all protocols. If the test acceptability criteria is not achieved, then the discharger must re-sample and re-test within 14 days. The discharger shall submit the data on hard copy and on electronic disk as specified in *Suggested Standard Reporting Requirements for Monitoring Chronic Toxicity (SWRCB, August 1993)*.

- [7] In the event of an exceedance of the chronic toxicity effluent limitation, the sampling frequency shall increase to monthly until compliance has been demonstrated for three consecutive months. If the discharge consistently exceeds the chronic toxicity effluent limitation, a toxicity identification evaluation (TIE) is required. The TIE shall include all reasonable steps to identify the source(s) of toxicity. Once the source of toxicity is identified, the discharger shall take all reasonable steps necessary to reduce toxicity to the required level.
- [8] If any of the In-Plant waste streams discharge directly into the receiving water due to inactive units, the frequency shall be increased to daily.
- [9] Sampling and analysis shall be completed annually. Analysis should include priority pollutants listed on page T-21 except metals listed in Part III.C.
- [10] The Discharger shall conduct acute toxicity tests on 100% effluent grab samples by methods specified in 40 CFR Part 136 which cites USEPA's *Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms*, August 1991, (EPA/600/4-90/027) or a more recent edition.

The topmelt, *Atherinops affinis*, shall be used as the test species for brackish discharges. The method for topmelt is found in USEPA's *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine to Freshwater Organisms*, First Edition, August 1995, (EPA/600/4-95/136).

B. Chronic Toxicity Effluent Requirements

1. The Discharger shall conduct critical life stage chronic toxicity tests on 24-hour composite 100 percent effluent samples or receiving water samples in accordance with EPA'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 EPA'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 and receiving water samples shall be collected in accordance with the conditions specified in Monitoring and Reporting Program No.5764. Receiving water samples shall be collected at mid-depth.
3. Test Species and Methods:
  - a. The Discharger shall conduct tests as follows: with a vertebrate, an invertebrate, and a plant 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 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. Quality Assurance
  - a. 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).

- b. 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.
- c. 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.

#### 5. Accelerated Monitoring

- a. If toxicity is detected as defined in this Order, 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 the close of the test and the additional tests shall begin within 3 business days of the receipt of the result. If any three out of the initial test and the six additional tests results exceed  $4.2 \text{ TU}_c$ , the Discharger shall immediately implement the Initial Investigation of the Toxicity Reduction Evaluation (TRE) Workplan.
- b. 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 Part III.A. of this Monitoring and Reporting Program.
- c. If toxicity is not detected in any of the six additional tests required above, then the Discharger may return to the normal sampling frequency required in Part III.A. of this Monitoring and Reporting Program.
- d. The Discharger shall obtain 6 consecutive chronic toxicity results less than or equal to  $4.2 \text{ TU}_c$  in order to return to the normal sampling frequency required in Part III.A of this permit.

#### 6. Steps in TRE and TIE

- a. 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 EPA manuals EPA/600/2-88/070 (industrial) or EPA/833B-99/002 (municipal) as guidance. The Discharger will expeditiously develop a more detailed TRE workplan for submittal to

the Executive Officer within 15 days of the trigger, which includes:

- i. Further actions to investigate and identify the cause of toxicity;
  - ii. Actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity;
  - iii. Standards the Discharger will apply to consider the TRE complete and for the return to normal sampling frequency; and,
  - iv. A schedule for these actions.
- b. The following is a stepwise approach in conducting the TRE:
- i. Step 1 includes basic data collection;
  - ii. Step 2 evaluates optimization of the treatment system operation, facility housekeeping, and the selection and use of in-plant process chemicals;
  - iii. If Steps 1 and 2 are unsuccessful, Step 3 implements a TIE and employment of all reasonable efforts using currently available TIE methodologies. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity;
  - iv. Assuming successful identification or characterization of the toxicant(s), Step 4 evaluates final effluent treatment option;
  - v. Step 5 evaluates within plant treatment options, and;
  - vi. 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 complying with those requirements may be sufficient to comply with TRE requirements. By requiring the first steps of a TRE to 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 consistent toxicity (or six consecutive chronic toxicity results less than or equal to 1 TU<sub>c</sub>).



- c. The Discharger may initiate a TIE as part of the TRE process to identify the cause(s) of toxicity. The Discharger shall use the EPA 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.
- d. If a TRE/TIE is initiated prior to completion of the accelerated testing schedule required by this permit, then the accelerated testing schedule may be terminated, or used as necessary in performing the TRE/TIE, as determined by the Executive Officer.
- e. Toxicity tests conducted as part of a TRE/TIE may also be used for compliance, if appropriate.
- f. 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.

## 7. Reporting

- a. The Discharger shall submit a full report of the toxicity test results, including any accelerated testing conducted during the month as required by this permit. Test results shall be reported in Toxicity Units (TU<sub>a</sub> 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, then those results also shall be submitted with the DMR for the period in which the investigation occurred.

- b. The full report shall be submitted by the end of the month in which the DMR is submitted.
- c. The full report shall consist of (1) the results; (2) the dates of sample collection and initiation of each toxicity test; (3) the acute toxicity average limit or chronic toxicity limit or trigger.
- d. Test results for toxicity tests also shall 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:

- i. sample date(s);
  - ii. test initiation date;
  - iii. test species;
  - iv. end point values for each dilution (e.g., number of young, growth rate, percent survival);
  - v. NOEC value(s) in percent effluent;
  - vi. IC<sub>15</sub>, IC<sub>25</sub>, IC<sub>40</sub> and IC<sub>50</sub> values in percent effluent;
  - vii. TU<sub>c</sub> values  $\left( TU_c = \frac{100}{NOEC} \right)$  ;
  - viii. Mean percent mortality ( $\pm$ standard deviation) after 96 hours in 100% effluent (if applicable);
  - ix. NOEC and LOEC values for reference toxicant test(s);
  - x. C<sub>25</sub> value for reference toxicant test(s);
  - xi. Any applicable charts;
  - xii. Available water quality measurements for each test (e.g., pH, D.O., temperature, conductivity, hardness, salinity, ammonia).
- e. The Discharger shall provide a compliance summary which includes a summary table of toxicity data from at least eleven of the most recent samples.
- f. The Discharger shall notify this Regional Board immediately of any toxicity exceedance and in writing 14 days after the receipt of the results of a monitoring limit or trigger. The notification will 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>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Minimum Frequency of Analysis</u>
Antimony	µg/L	grab	semi-annually
Arsenic	µg/L	grab	semi-annually
Beryllium	µg/L	grab	semi-annually
Cadmium	µg/L	grab	semi-annually
Chromium (III)	µg/L	grab	semi-annually
Chromium (VI)	µg/L	grab	semi-annually
Copper	µg/L	grab	semi-annually
Lead	µg/L	grab	semi-annually
Mercury	µg/L	grab	semi-annually
Nickel	µg/L	grab	semi-annually
Selenium	µg/L	grab	semi-annually
Silver	µg/L	grab	semi-annually
Thallium	µg/L	grab	semi-annually
Zinc	µg/L	grab	semi-annually

IV. **Effluent Monitoring Program for In-Plant Waste Streams**

A. Low Volume Wastes<sup>1</sup>:

<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Minimum Frequency of Analysis</u>
Flow <sup>[1]</sup>	mgd	-----	monthly
pH	pH unit	grab	monthly
Suspended solids	mg/L	grab	monthly
Oil and grease	mg/L	grab	monthly
Priority pollutants	µg/L	grab	annually <sup>[2]</sup>

<sup>[1]</sup> If no flow occurred during the month, the report shall so state.

<sup>[2]</sup> Sampling and analyses 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 T-21 for constituent list.

<sup>1</sup> consisting of boiler and evaporator blowdown, water softener regeneration wastes, groundwater well point system, yard drains, tank farm drains, plant drains, laboratory drains and oil recovery system wastes.

B. Oil Recovery System:

<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Minimum Frequency of Analysis</u>
Flow <sup>[1]</sup>	mgd	----	monthly
pH	pH units	grab	monthly
Settleable Solids	ml/L	grab	monthly
Suspended solids	mg/L	grab	monthly
Oil and grease	mg/L	grab	monthly
BOD <sub>5</sub> 20°C	mg/L	grab	monthly
Surfactants(as MBAS)	mg/L	grab	monthly
Phenols	mg/L	grab	monthly
Arsenic	µg/L	grab	monthly
Cadmium	µg/L	grab	monthly
Chromium (VI)	µg/L	grab	monthly
<u>Lead</u>	<u>µg/L</u>	<u>grab</u>	<u>monthly</u>

<sup>[1]</sup> If no flow occurred during the month, the report shall so state.

C. In the determination of compliance with the monthly average limitations, the following provisions shall apply to all constituents:

1. If the analytical result of a single sample, monitored monthly or at a lesser frequency, does not exceed the monthly average limit for that constituent, the Discharger will have demonstrated compliance with the monthly average limit for that month.
2. If the analytical result of a single sample, monitored monthly or at a lesser frequency, exceeds the monthly average limit for any constituent, the Discharger shall collect at least three additional samples at approximately equal intervals during the month. All four analytical results shall be reported in the monitoring report for that month, or 45 days after the sample was obtained, whichever is later.

If the numerical average of the analytical results of these four samples does not exceed the monthly average limit for that constituent, compliance with the monthly average limit has been demonstrated for that month. Otherwise, the monthly average limit has been violated.

3. If item C.2 has not been implemented, and the result of one sample (Item C.1) exceeds the monthly average, then the Discharger is in violation of the monthly average limit.
4. In the event of non-compliance with a monthly average effluent limitation, the

sampling frequency for that constituent shall be increased weekly and shall continue at this level until compliance with the monthly average effluent limitation has been demonstrated.

## **V. Intake Monitoring Program**

### **A. Intake cooling water monitoring**

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 effluent and intake cooling water shall be performed at the same time. The Executive Officer shall be empowered to require a continuation of such monitoring at his reasonable discretion.

### **B. Fish impingement Sampling**

Impingement sampling for fish and commercially important macroinvertebrates shall be conducted semi-annually at Intake. Impingement sampling shall coincide with heat treatments.

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 are 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 aliquot samples. Total fish impinged per heat treatment or sampling event shall be reported and data shall be expressed per unit volume water entrained.

## **VI. Receiving Water Monitoring Program**

### **A. Regional Monitoring Program**

1. Pursuant to the Code of Federal Regulation [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 terms and conditions, and demonstrate that State water quality standards are met.

However, since compliance monitoring focuses on the effects of the point source discharge, this type of program is not designed to assess impacts from

other sources of pollution (e.g., non-point source run-off, aerial fallout) nor to evaluate the current status of important ecological resources on a regional basis.

2. The USEPA and the Regional Board are attempting to redesign discharger monitoring programs to combine the need for compliance monitoring with the benefits of a regional program to address public health concerns, monitor trends in natural resources, and near-shore habitats, and assess regional impacts from all contaminant sources.

A pilot regional monitoring program was conducted throughout the Southern California Bight during the summer of 1994 to test an alternative sampling design that combined elements of compliance monitoring with a broader regional assessment approach. This pilot program included participation by the four largest wastewater treatment agencies involved in ocean monitoring in Southern California.

A second regional monitoring program was conducted in the Southern California Bight during the summer of 1998. This second regional monitoring effort built upon the successes and experience gained during the first pilot program. As a result, the 1998 regional sampling was much broader in scope and involved a much larger number of participants, including the agencies responsible for operating power generating stations (Edison and Los Angeles Department of Water and Power).

3. 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 Southern California Bight at periodic intervals (perhaps every four to five years). At the present time, it appears likely that the next regional monitoring program will be attempted during the summer of 2003.

The first two regional monitoring programs were funded in large part by negotiating resource exchanges with the participating discharger agencies. During the year when regional monitoring was scheduled, USEPA and the Los Angeles Regional Board agreed to eliminate portions of the routine compliance monitoring programs for that one year, while retaining certain critical compliance monitoring elements, and allowed these exchanged resources to be redirected to complete sampling within the regional monitoring program design. During other years, the discharger conducted the usual routine compliance monitoring program.

4. 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 the 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.

**B. 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 physico-chemical characteristics of the receiving waters which may be impacted by the discharge.

Location of Sampling Stations (see attached figure 3) :

1. Receiving water monitoring stations shall be established as follows :
  - a. Station RW1 – 100 feet west of southern end of Berth 202.
  - b. Station RW3 - 26 feet off the north end of Berth 34 in Back Channel.
  - c. Station RW4 - 26 feet off the pier between Berths 68 and 69 in Channel Two.
  - d. Station RW5 - Center of Cerritos Channel below power lines.
  - e. Station RW6 - Center of Long Beach East Basin.
  - f. Station RW7 - 50 feet from outfall in the thermal plume.
  - g. Station RW12 - Center of Cerritos Channel east of Henry Ford Bridge.
  - h. Station RW11H - Center of Back Channel directly opposite the southwest end of pier D.
2. Six benthic sampling stations shall be established as follows :
  - a. Station B3 - In the center of the Long Beach Turning Basin directly opposite the entrance to Channel Two.
  - b. Station B6 - Near the center of the Long Beach Turning Basin directly opposite the entrance to Channel Three.
  - c. Station B8 - In the center of Long Beach Back Channel directly opposite the Long Beach Generating Station and directly beneath RW7.

- d. Station B9 - In the center of the Long Beach Back Channel just south of the Gerald Desmond Bridge.
  - e. Station B10 – In the center of the Long Beach Back Channel, halfway between B9 and B11.
  - f. Station B11 - In the center of Long Beach Back Channel opposite Pier D.
3. Three intertidal/subtidal monitoring stations shall be established during low tide at the following stations:
- a. Station I/S4: 164 feet NNW on the NNW side of the discharge well on the west side of Back Channel.
  - b. Station I/S6: 16 feet NNW of the SSE boundary of the Long Beach Oil Development pump field on the south side of Gerald Desmond Bridge along the west side of Back Channel.
  - c. Station I/S8: Below the Long Beach Pilot Station at the border of the middle and outer Long Beach Harbors.
4. Three trawling stations shall be established as follows :
- a. Station T3: Beginning at the north end of Long Beach Turning Basin and extending toward the mouth of Inner Harbor.
  - b. Station T9: Beginning at Station RW7 and extending toward Station RW3.
  - c. Station T10: Beginning at Station RW3 and extending toward mouth of Back Channel.

**C. Type and Frequency of Sampling:**

- 1. Temperature-depth profiles shall be measured semi-annually (summer and winter) each year at all receiving water monitoring stations from surface to bottom at a minimum of one-meter intervals. Dissolved oxygen levels and pH shall be measured semi-annually at the surface, mid-depth and bottom at each station each time a temperature profile is taken. All stations shall be sampled on both a flooding tide and an ebbing tide during each semi-annual survey.
- 2. Sampling by otter trawl shall be conducted semi-annually (summer and winter) each year along transects at Stations T3, T9, and T10.
  - a. Trawl net dimensions shall be as follows:



- i. At least a 25 foot throat width.
    - ii. 1.5 in mesh-size (body).
    - iii. 0.5 in mesh-size (liner in the cod end)
  - b. Two replicate trawls shall be conducted at each station for a duration of 5 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.
3. Benthic sampling shall be conducted annually during the summer at Stations B3, B6, B8, B9, B10 and B11.
  - 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 phi size). During the first year of the permit, sub-samples (upper two centimeters)

shall be taken from each sediment sample and analyzed for copper, chromium, nickel and zinc.

4. Intertidal/subtidal sampling shall be conducted annually during the summer at Stations I/S4, I/S6, I/S8 as follows:
  - a. Each intertidal station shall consist of samples taken at the +1 feet and +3 feet tide levels. At each tidal level, eight  $1/8 \text{ m}^2$  quadrats shall be examined for all forms of macroscopic flora and fauna using a point contact method with 40 random points.
  - b. Species diversity (Shannon-Wiener), estimated relative abundance, and percent frequency of occurrence shall be reported for each intertidal station. The stations shall be contrasted with one another on the basis of these characteristics.
  - c. Each subtidal station shall consist of samples taken along a transect starting at mean lower low water (MLLW) and extending to the rock/sand subsurface. Two  $1/8 \text{ m}^2$  quadrats shall be sampled at 3 feet depth increments starting at -3 feet. Abundance of solitary organisms and percent cover of colonial organisms shall be recorded.
  - d. Water temperature along each transect shall be reported.
5. The following general observations or measurements at receiving water and benthic stations shall be reported.
  - a. Tidal stage and time of monitoring.
  - b. General water conditions.
  - c. Extent of visible turbidity or color patches.
  - d. Appearance of oil films or grease, or floatable material.
  - e. Depth at each station for each sampling period.
  - f. Presence or absence of red tide.
  - g. Presence of marine life.
  - h. Presence and activity of the California least tern and the California brown pelican.

6. 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.

**SUMMARY OF RECEIVING WATER MONITORING**

<u>Parameter</u>	<u>Units</u>	<u>Stations</u>	<u>Type of Sample</u>	<u>Minimum Frequency</u>
Temperature	°C	RW1, RW3-RW7, RW12, RW11H	vertical profile	semi-annually (flood, ebb)
Dissolved oxygen	mg/L	RW1, RW3-RW7, RW12, RW11H	vertical profile	semi-annually (flood, ebb)
pH	pH units	RW1, RW3-RW7, RW12, RW11H	vertical profile	semi-annually (flood, ebb)
Fish and macro Invertebrates	number, species, size, wet weight, abnormalities	T3 ,T9, and T10	trawl	semi-annually
Benthic Infauna	species, number/l, diversity	B3,B6,B8,B9, B10,B11	grab	annually
Sediments	-----	B3,B6,B8,B9, B10,B11	grab	annually

<u>Parameter</u>	<u>Units</u>	<u>Stations</u>	<u>Type of Sample</u>	<u>Minimum Frequency</u>
Benthos and algae	species number/m <sup>2</sup> diversity	I/S4, I/S6, I/S8	grab	annually
Mussels	---	Discharge Point	tissue	annually

The receiving water monitoring report containing the results of semiannual and annual monitoring shall be received at the Regional Board on March 15 of each year following the calendar year of data collection.

#### **VII. Storm Water Monitoring and Reporting**

The Discharer 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, which shall indicate the Compliance File No. CI 5764.

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

Date: May 24, 2001