

**ATTACHEMNT T**

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LOS ANGELES REGION**

**MONITORING AND REPORTING PROGRAM NO. CI- 0536  
FOR  
AES REDONDO BEACH, LLC  
Redondo Generating Station  
(CA0001201)**

**I. MONITORING AND REPORTING PROGRAM**

- 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 shall be received by the Regional Board by September 1, 2000, covering the monitoring period of July 2000.
- 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 analyses. Should there be instances when monitoring could not be done during these specified months, the Discharger must notify the Regional Board stating the reason why and obtain approval for an alternate schedule.
- C. 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) or approved by the Executive Officer. A copy of the laboratory certification shall be submitted with the annual summary report.
- 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 when samples were actually analyzed, and the results shall be reported in the Regional Board format and submitted with the laboratory reports. The Discharger shall make available for inspection and/or submit the QA/QC documentation upon request by Regional Board staff. Proper chain of custody procedures must be followed and a copy of that documentation shall be submitted with the report.
- E. The report of analyses shall specify the U. S. Environmental Protection Agency (USEPA) analytical method used and its Method Detection Limit (MDL). For the purpose of reporting compliance with effluent limitations, and receiving water limitations, analytical of that documentation data shall be reported with an actual numerical value or "non-detected (ND)" with the MDL indicated for the analytical method used.

- F. The MDLs must be lower than the permit limits established for a given parameter, unless the Discharger can demonstrate that a particular detection limit is not attainable and obtains approval for a higher detection limit from the Executive Officer. At least once a year, the Discharger shall submit a list of the analytical methods employed for each test and the associated laboratory quality assurance/quality control procedures.
- G. The Discharger shall inform the Regional Board well in advance of any construction activity proposed that could potentially affect compliance with applicable requirements.

II. SUBMITTAL OF MONITORING AND ANNUAL REPORTS

- A. 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-0536 to facilitate routing to the appropriate staff and file.
- B. The Discharger shall submit an annual summary report containing a discussion of the previous year's effluent analytical results, as well as graphical and tabular summaries of the data. 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.

In the annual summary report, the Discharger shall discuss the compliance record and the corrective actions taken or planned that may be needed to bring the discharge into full compliance with waste discharge requirements. The annual summary report must be received at the Regional Board on or before March 1 of each year following the calendar year of data collection.

- C. Database Management System: The Regional Board has developed a compliance monitoring database management system that may require the Discharger to submit the monitoring and annual summary reports electronically when it becomes fully operational.

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III. EFFLUENT AND INTAKE COOLING WATER MONITORING

A. Sampling stations shall be established at each point of discharge and shall be located where representative samples of the effluent can be obtained. The following shall constitute the effluent monitoring program for Discharge Serial Nos. 001 and 002:

1. Wastewater Constituents/Parameters

<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
Toxicity, chronic <sup>[5,6,7]</sup>	TUc	grab	quarterly
Ammonia nitrogen	µg/L	grab	annually
Nitrate nitrogen	mg/L	grab	annually
Radioactivity <sup>[4]</sup>	pCi/ml	grab	annually
Priority pollutants (See page T-15)	µg/L	grab	<sup>[8]</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 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 (i.e., 19 minutes and 30 minutes after start of the chlorination cycle for maximum chlorine level at Discharge Serial No. 001 and 002, respectively).

- [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 TUc. 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:

$$\text{TUc} = 100/\text{NOEC}$$

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 described on Pages 23-24 of the 1997 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 are not achieved, then the Discharger must re-sample and re-test within 14 days. The Discharger shall submit the data on a hard copy and on an electronic disk as specified in Suggested Standard Reporting Requirements for Monitoring Chronic Toxicity (State Water Resources Control Board, August 1993).

- [7] In the event of an exceedance of the chronic toxicity effluent limitation, the sampling frequency shall be increased to monthly until compliance has been demonstrated for three consecutive months. If the discharge exceeds the chronic toxicity effluent limitation during the accelerated monitoring, a toxicity identification evaluation (TIE) shall be conducted. 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] Once every five years beginning in 2002.

2. Metals

<u>Constituent</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
Chromium (III)	µg/L	grab	semi-annually
Hexavalent chromium	µg/L	grab	semi-annually
Cadmium	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

B. The effluent monitoring program for Inplant Waste Streams is as follows:

1. Treated Chemical Metal Cleaning Wastes:

<u>Constituent</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
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

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

2. Non-Chemical Metal Cleaning Wastes:

<u>Constituent</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
Suspended solids	mg/L	grab	monthly
Oil and grease	mg/L	grab	monthly
Copper, total <sup>[2]</sup>	mg/L	grab	monthly
Iron, total <sup>[2]</sup>	mg/L	grab	monthly

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

<sup>[2]</sup> Dissolved metal fraction only.

3. Low Volume Wastes<sup>[1]</sup>:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Minimum Frequency of Analysis<sup>[1]</sup></u>
Flow <sup>[2]</sup>	mgd	---	monthly
pH	pH units	grab	monthly
Suspended solids	mg/L	grab	monthly
Oil and grease	mg/L	grab	monthly
Priority pollutants (See page T-15)	µg/L	grab	annually <sup>[3]</sup>

<sup>[1]</sup> Consist of wastes stored in the retention basin containing wastes from the treated chemical metal cleaning, non-chemical metal cleaning, groundwater seepage, yard drains, boiler blowdown, fuel pipeline hydrostatic testing, condensate demineralizers regeneration, and condensate overboard.

<sup>[2]</sup> If no discharge occurred during the month, the report shall so state.

<sup>[3]</sup> Sampling and analyses shall be on a quarterly basis during the first two years after the adoption of this Order, and annually thereafter.

C. Intake cooling water monitoring program

The intake cooling water shall be analyzed for metals as listed in III.A.2. semi-annually 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 is empowered to require continuation of such monitoring at his reasonable discretion.

#### IV. RECEIVING WATER MONITORING

##### 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 National Pollutant Elimination System (NPDES) permit must determine compliance with NPDES permit terms and conditions, and demonstrate that State water quality standards are met.
2. Since compliance monitoring focuses on the effects of a 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.
3. Several efforts are underway to develop and implement a comprehensive regional monitoring program for the Southern California Bight, in particular the Santa Monica Bay. 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. In general, the goal is a more efficient monitoring program that can be used for both compliance and regional bight-wide assessments.
4. The compliance monitoring programs for the AES Redondo Beach, L.L.C., and other major ocean dischargers will serve as the framework for the regional monitoring program. However, substantial changes to these programs will be required to fulfill the goals of regional monitoring, while retaining the compliance monitoring component required to evaluate the potential impacts from NPDES discharges.
5. Two pilot regional monitoring programs for the Southern California Bight were conducted in 1994, and again in 1998. The pilot monitoring allowed the USEPA and the Regional Board to test an alternative sampling design that incorporates aspects of regional monitoring into current compliance programs. These pilot programs were designed by USEPA, the State Water Resources Control Board, and three Regional Water Quality Control 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.

6. The two pilot regional monitoring programs were funded, in large part, 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 dischargers' overall level of effort for 1994 and 1998 pilot programs remained approximately the same as the compliance monitoring programs.

Future regional monitoring programs may be funded in a similar manner. Thus, revisions to the routine compliance monitoring program will be made under the discretion of the USEPA and this Regional Board as necessary to accomplish the goal; and may include resource exchanges.

7. The results of the pilot programs are being evaluated and will be used to redesign the future pilot monitoring program and to develop a comprehensive regional monitoring program for the Southern California Bight. At the same time, the monitoring programs conducted by other dischargers and agencies will be integrated into this regional program. If predictable relationships among the biological, water quality, and effluent monitoring variables can be demonstrated, it may be appropriate to decrease the sampling effort. Conversely, the monitoring program may be intensified if it appears that the objectives cannot be achieved through the existing compliance monitoring program.
8. The Receiving Water Monitoring Program in this Order is similar to that in the 1994 NPDES permit. Until such time when a regional monitoring program is developed (projected for 2002), and with the exception of future pilot regional monitoring program sampling periods, the Discharger shall perform the analyses described in the following monitoring program.

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## 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 physical-chemical characteristics of the receiving waters which may be impacted by the discharge.

Location of Sampling Stations (see Attached Figures 1 and 2):

### 1. Receiving water stations shall be located as follows:

- a. Station RW1 - at the outfall terminus for Units 7 and 8 (within King Harbor).
- b. Station RW2 - located on an arc 500 feet from the point of discharge for Units 7 and 8, in a direction of 292 degree T.
- c. Station RW3 - on an arc 500 feet from the point of discharge for Units 7 and 8, half the distance between RW2 and RW4.
- d. Station RW4 - 500 feet from station RW1, on the intake conduit centerline.
- e. Station RW5 - on an arc 500 feet from the point of discharge for Units 7 and 8, half the distance between RW4 and RW6.
- f. Station RW6 - on an arc 500 feet from the point of discharge for Units 7 and 8, in a direction of 150 degree T.
- g. Station RW7 - on an arc 1,325 feet from the point of discharge for Units 7 and 8, in a direction of 292 degree T.
- h. Station RW8 - on an arc 725 feet from the point of discharge for Units 7 and 8, in a direction of 292 degree T.
- i. Station RW9 - at the navigation bell buoy outside of King Harbor.
- j. Station RW10 - directly between the discharge points for Units 5 and 6 (offshore of Redondo Beach).
- k. Station RW11 - 1,000 feet downcoast of station RW10, at the same depth as RW10.
- l. Station RW12 - directly offshore of Station RW11, at a depth of 40 feet.
- m. Station RW13 - directly offshore of station RW14, at a depth of 40 feet.

- n. Station RW14 - 1,000 feet upcoast of station RW10, at the same depth as RW10.
  - o. Station RW15 - 1,000 feet inshore of station RW10, along the centerline of the discharge conduits.
  - p. Station RW16 - 4,400 feet upcoast of station RW10, at the same depth as RW10.
2. Benthic stations shall be located as follows:
- a. Station B1 - directly beneath Station RW1.
  - b. Station B2 - directly beneath Station RW8.
  - c. Station B3 - directly beneath Station RW4.
  - d. Station B4 - directly beneath Station RW10.
  - e. Station B5 - directly beneath Station RW11.
  - f. Station B6 - directly beneath Station RW14.
  - g. Station B7 - directly beneath Station RW16.
3. Video or cine transects shall be established as follows:
- a. Station C1 - parallel to and 100 feet east of the discharge conduit for Units 7 and 8, initiated at the water edge.
  - b. Station C2 - perpendicular to C1 and extending 100 feet on either side of the discharge structure.
  - c. Station C3 - parallel to the breakwater adjacent to the intakes for Units 5 and 6.

C. Type and Frequency of Sampling:

- 1. Temperature profiles shall be measured semi-annually (summer and winter) each year at Stations RW1 through RW16 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, at a minimum. All stations shall be sampled on both a flooding tide and an ebbing tide during each semi-annual survey.

2. Impingement sampling for fish and commercially important macroinvertebrates shall be conducted at least once every two months at Intake Nos. 001 and 002. 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 aliquots samples. Total fish impinged per heat treatment or sampling event shall be reported and data shall be expressed per unit volume water entrained.

3. Native California mussels (Mytilus Californianus) shall be collected during the summer from the discharge conduit Nos. 001 and 002, as close to the point of discharge as possible, and from Manhattan Beach Pier, 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.
4. Benthic sampling shall be conducted annually during the summer at Stations B1 through B7.
  - 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). Sub samples (upper two centimeters) shall be taken from each sediment sample and

analyzed for copper, chromium, nickel and zinc. Sediment contaminant data will also be reported normalized against sediment fine grains.

5. Video or cine transect stations shall be occupied and sampled semi-annually during the summer and winter as follows:
  - a. Cine transects shall be filmed (or video taped) by diver operated camera during a swim along the bottom following a 50 meter transect line marked at 1-meter intervals.
  - b. Fishes and macroinvertebrates shall be reported as counts per transect, by species. This number shall be standardized by dividing it by underwater visibility in meters.
  - c. Cine transects shall be conducted only when underwater visibility exceeds 3 meters.
6. The following general observations or measurements at the 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.
7. 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

<u>Constituent</u>	<u>Units</u>	<u>Station No.</u>	<u>Type of Sample</u>	<u>Minimum Frequency of Analysis</u>
Temperature	°C	RW1-RW16	vertical profile	semi-annually (flood, ebb)
Dissolved oxygen	mg/L	RW1-RW16	vertical profile	semi-annually (flood, ebb)
pH	pH units	RW1-RW16	vertical profile	semi-annually (flood, ebb)
Fish and macro invertebrates	---	Intake Nos. 001 and 002	impingement	bimonthly
Fish and macro invertebrates	---	C1 – C3	cine/video	semi-annually
Mussels	---	Discharge Nos. 001, 002 & Manhattan Beach Pier	tissue	annually
Benthic infauna	---	B1-B7	grab	annually
Sediments	---	B1-B7	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.

AES Redondo Beach, LLC  
Redondo Generating Station  
Monitoring and Reporting Program No. CI- 0536

Order No. 00-085  
CA0001201

V. STORMWATER MONITORING PROGRAM

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, section B of Attachment 1). The monitoring reports shall be received at the Regional Board on or before July 1 of each year.

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

Date: June 29, 2000

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AES Redondo Beach, LLC  
Redondo Generating Station  
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