

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION**

MONITORING AND REPORTING PROGRAM NO. 00-051
FOR

ORMESA GEOTHERMAL, FACILITY OWNER
U.S. DEPARTMENT OF INTERIOR, BUREAU OF LAND MANAGEMENT, LAND OWNER
FPL ENERGY, AGENT FOR FACILITY OWNER
FPL ENERGY OPERATING SERVICES, INC., OPERATOR
EAST MESA GEOTHERMAL PROJECTS
PLANT EAST MESA (PEM) UNITS 1 - 30 MW (GROSS) GEOTHERMAL POWER PLANT
PLANT EAST MESA (PEM) UNITS 2 - 10 MW (GROSS) GEOTHERMAL POWER PLANT
COOLING TOWER BLOWDOWN
South of Holtville - Imperial County

Location of Discharge: Holtville Main Drain in the SE ¼ of Section 25, T15S, R16E, SBB&M

MONITORING

1. The collection, preservation and holding times of all samples shall be in accordance with U. S. Environmental Protection Agency approved procedures. All analyses, except Total Residual Chlorine, Temperature, Dissolved Oxygen, Hydrogen Ion (pH), and Settleable Matter shall be conducted by a laboratory certified by the State Department of Health Services to perform the required analyses.
2. Compliance with the discharge limitations shall be determined at the designated sampling point located upstream from the end of the discharge pipe.
3. If the facility is not in operation, or there is no discharge during a required reporting period, the discharger shall forward a letter to the Regional Board indicating that there has been no activity during the required reporting period.
4. Trained site-operators shall perform Dissolved Oxygen, Settleable Matter, Temperature, and Total Residual Chlorine tests. A monthly grab sample will be sent to a State Certified Laboratory for the monthly Hardness (CaCO₃) analysis.

EFFLUENT MONITORING

A sampling station shall be established at a point upstream of the confluence of the discharge lines and shall be located where representative samples of effluent can be obtained. Wastewater discharged into Holtville Main Drain shall be monitored for the following constituents:

<u>Constituent</u>	<u>Unit</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Volume of Discharge	MGD ¹	Average Daily ²	Daily
Total Dissolved Solids (TDS)	mg/L ³	24-Hr. Composite	Weekly
Total Suspended Solids (TSS)	mg/L	24-Hr. Composite	Weekly
Settleable Matter	ml/L ⁴	Grab at Peak Flow	Weekly
Total Residual Chlorine ⁵	mg/L	Grab	Daily
Hydrogen Ion (pH)	-----	Grab	Daily
Chromium	Φg/L ⁶	Grab	Monthly
Zinc	Φg/L	Grab	Monthly
Nitrates as Nitrogen (N)	mg/L	24-Hr. Composite	Monthly
Oil & Grease	mg/L	Grab	Monthly
Bioassay	tu _c ⁷	24-Hr. Composite	(See section on Effluent Toxicity Testing)

RECEIVING WATER MONTIORING

All receiving water samples shall be grab samples. Sampling stations shall be as follows:

<u>Station</u>	<u>Description</u>
R-1	Not to exceed 100 feet upstream from the point of discharge. A greater distance may be acceptable provided the discharger submits proper justification that a station at the prescribed distance is inaccessible.
R-2	Not to exceed 200 feet downstream of the discharge pipe outlet.

¹ MGD - Million Gallons-per-Day

² Reported monthly with monthly average daily flow calculated.

³ mg/L - milligrams-per-Liter

⁴ ml/L – milliliters per Liter

⁵ The discharger may monitor the dechlorinating agent residual and report residual chlorine, as non-detectable if the dechlorinating agent is present.

⁶ Φg/L – micrograms per Liter

⁷ tu_c – 100/NOEC

Representative samples upstream and downstream from the point of discharge shall be collected and analyzed in accordance with the following:

<u>Constituent</u>	<u>Unit</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Dissolved Oxygen	mg/L	Grab	Weekly
Hydrogen Ion (pH)	pH Units	Grab	Weekly
Temperature	°C	Measurement	Weekly
Hardness (CaCO ₃)	mg/L	Grab	Monthly

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions at Stations R-1 and R-2. Attention shall be given to the presence or absence of:

- a. Floating or suspended matter
- b. Discoloration
- c. Aquatic life
- d. Visible film, sheen or coating
- e. Fungi, slime, or objectionable growths
- f. Potential nuisance conditions

2,3,7,8- TETRACHLORODIBENZO-P-DIOXIN (TCDD)
EQUIVALENT MONITORING

By May 18, 2001, the discharger shall begin monitoring its effluent for the presence of 17 (Toxic equivalency factors for 2,3,7,8-tetrachlorodibenzo-p-dioxin equivalents) congeners once during the dry weather and once during the wet weather each year for a period of three consecutive years. The congeners and Toxic Equivalent Factors can be found in Table 4 of the *"Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California."* A copy of Table No. 4 is shown below:

Table 4

Congener	Toxic Equivalent Factors (TEF)
2,3,7,8- Tetra-Chlorinated dibenzodioxins (CDD)	1
1,2,3,7,8- Penta-CDD	1.0
1,2,3,4,7,8- Hexa-CDD	0.1
1,2,3,6,7,8- Hexa-CDD	0.1
1,2,3,7,8,9- Hexa-CDD	0.1
1,2,3,4,6,7,8- Hepta-CDD	0.01
OctaCDD	0.0001
2,3,7,8- Tetra- Chlorinated dibenzofurans (CDF)	0.1
1,2,3,7,8- Penta-CDF	0.05
2,3,4,7,8- Penta-CDF	0.5
1,2,3,4,7,8- Hexa-CDF	0.1
1,2,3,6,7,8- Hexa-CDF	0.1
1,2,3,7,8,9- Hexa-CDF	0.1
2,3,4,6,7,8- Hexa-CDF	0.1
1,2,3,4,6,7,8- Hepta-CDF	0.01
1,2,3,4,7,8,9- Hepta-CDF	0.01
Octa-CDF	0.0001

The discharger shall report for each congener the analytical results of the effluent monitoring, including the quantifiable limit and the Method Detection Limit⁸, and the measured or estimated concentration. In addition, the discharger shall multiply each measured or estimated congener concentration by its respective Toxic Equivalent Factors⁹ value and report the sum of these values. This information shall be submitted as part of the discharger's monitoring reports.

⁸ As determined by the procedure found in 40 CFR 136 (revised as of May 14, 1999)

⁹ Table 4 Toxic Equivalency Factors (TEFs) for 2, 3, 7, 8- TCDD Equivalents, pg. 27, Policy for Implementation of Toxics, Standard for Inland Surface Waters, Enclosed Bays and Estuaries of California, Adopted March 2, 2000

SUPPLY WATER MONITORING

The discharger shall monitor the supply water for the following constituents:

<u>Constituent</u>	<u>Unit</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Total Dissolved Solids (TDS)	mg/L	24-Hr. Composite	Weekly

EFFLUENT CHRONIC TOXICITY TESTING

The discharger shall conduct chronic toxicity testing on the effluent as follow:

<u>Constituent</u>	<u>Unit</u>	<u>Type of Sample</u>	<u>Minimum Frequency of Test</u>
Chronic Toxicity	tu _c	24-Hr. Composite	Monthly
Acute Toxicity	% Survival	24-Hr. Composite	Monthly

Both test species given below shall be used to measure chronic toxicity:

<u>Species</u>	<u>Effect (days)</u>	<u>Test Duration Reference</u>	
Fathead Minnow (Pimephales Promelas)	Larval Survival	7	EPA/600/4-91/002 (Chronic) EPA/600/4-90/027F (Acute)
Water Flea (Ceriodaphnia dubia)	Survival; Number of Young	7	EPA/600/4-91/002 (Chronic) EPA/600/4-90/027F (Acute)

Toxicity Test Reference: Methods for measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fourth Edition, EPA/600/4-90/027F, August 1993. Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water for Freshwater Organisms, EPA/600/4-91/002, July 1994.

Dilution and control waters should be obtained from an unaffected area of the receiving waters. Standard dilution water should be used if the above source exhibit toxicity greater than 1.0 tu_c. The sensitivity of the test organism to a reference toxicant shall be determined concurrently with each bioassay and reported with the test results.

Chronic toxicity may be expressed and reported as toxic units (tu_c) where:

$$tu_c = 100/NOEC$$

and the No Observed Effect Concentration (NOEC) is expressed as the maximum percent effluent of test water that causes no observed effect on a test organism, as determined in a critical life stage toxicity test (indicated above).

Acute toxicity may be calculated from the results of the chronic toxicity test described above and shall be reported along with the results of each chronic test. Acute toxicity shall be expressed as percent survival of test organisms over a ninety-six hour period using 100% effluent.

REPORTING

1. The discharger shall report with each sample result the applicable Minimum Level (as described in the California Toxics Policy) and the laboratory current Method Detection Limit, as determined by the procedure in 40 CFR 136 (revised as of May 14, 1999).
2. The discharger shall arrange the data in tabular form so that the specified information is readily discernible. The data shall be summarized in such a manner as to clearly illustrate whether the facility is operating in compliance with waste discharge requirements.
3. Records of monitoring information shall include:
 - a. The date, exact place, and time of sampling or measurements.
 - b. The individual(s) who performed the sampling or measurements.
 - c. The date(s) analyses were performed.
 - d. The individual(s) who performed the analyses.
 - e. The analytical techniques or method used; and
 - f. The results of such analyses.
4. Monitoring reports shall be certified under penalty of perjury to be true and correct, and shall contain the required information at the frequency designated in this monitoring report.
5. Each report shall contain the following statement:

"I declare under the penalty of law that I have personally examined and am familiar with the information submitted in this document and 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 a fine and imprisonment for knowing violations."
6. A duly authorized representative of the discharger may sign the documents if:
 - a. The authorization is made in writing by the person described above;
 - b. The authorization specified an individual or person having responsibility for the overall operation of the regulated disposal system; and
 - c. The written authorization is submitted to the Regional Board's Executive Officer.
7. Daily, weekly, semi-weekly, and monthly monitoring reports shall be submitted by the 15th day of the following month. Quarterly monitoring reports shall be submitted by January 15, April 15, July 15, and October 15 of each year. Annual monitoring reports shall be submitted to the Regional Board by January 15 of each year.
8. Reports shall be submitted to:

California Regional Water Quality Control Board
 Colorado River Basin Region
 73-720 Fred Waring Drive, Suite 100
 Palm Desert, CA 92260

Ordered By: _____
 Executive Officer

 June 28, 2000
 Date