

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

MONITORING AND REPORTING PROGRAM NO. R7-2003-0078
FOR
MAGMA POWER COMPANY, LANDOWNER
CALENERGY OPERATING CORPORATION, OPERATOR
FOR DEL RANCH (HOCH) POWER PLANT HOLDING POND AND WELLFIELD BASINS (MUD
SUMPS)
Salton Sea Known Geothermal Resource Area – Imperial County

Location of Discharge: Holding Pond and Mud Sumps associated with Del Ranch (Hoch) Power Plant

A. MONITORING GENERAL

1. The reporting responsibilities of the discharger are specified in the California Water Code. This self-monitoring program is issued in accordance with Provision No. 1 of Regional Board Order No. R7-2003-0078. The principal purpose of this Monitoring Program is:
 - a. To document compliance with the Waste Discharge Requirements adopted by the California Regional Water Quality Control Board.
 - b. To facilitate self-policing by the discharger in the prevention and abatement of pollution arising from the discharge.
 - c. To conduct water quality analysis.
2. All sampling methods not specified below or in the Monitoring and Reporting Program shall be conducted in accordance with U.S. Environmental Protection Agency approved procedures. Unless otherwise approved by the Regional Board's Executive Officer, analyses shall be conducted by a laboratory certified by the California Department of Health Services to perform the required analyses, unless a field analysis is specified.
3. The Regional Board's Executive Officer may alter the monitoring parameters and/or the monitoring frequency during the course of this monitoring program.

B. MONITORING REPORTS AND OBSERVATION SCHEDULE

"Reporting Period" means the duration separating the submittal of a given type of monitoring report from the time the next iteration of that report is scheduled for submittal. An annual report, which is a summary of all the monitoring during the previous year, shall also be submitted to the Region Board. The submittal dates for each reporting period shall be as follows:

1. Quarterly Monitoring Reports
 - a. 1st Quarterly Report (January 1 through March 31) – report due by April 30
 - b. 2nd Quarterly Report (April 1 through June 30) – report due by July 30
 - c. 3rd Quarterly Report (July 1 through September 30) – report due by October 30
 - d. 4th Quarterly Report (October 1 through December 31) – report due by January 30
2. Annual Summary Report

January 1 through December 31 – report due March 15 of the following year.

C. REPORTS TO BE FILED WITH THE BOARD

Written Quarterly Reports shall be submitted four times per year, in addition to an Annual Summary Report. The reports shall be submitted by the above-specified dates. The following information/data shall be included in each report:

1. Quarterly Report Requirements

a. General Information

1. Letter of Transmittal – A letter transmitting the report shall accompany each report. Such a letter shall include a discussion of any requirement violations found since the last such report was submitted, and shall describe actions taken or planned for correcting those violations. If the discharger has previously submitted a detailed time schedule for correcting the violations, a reference to the correspondence transmitting the schedule will be satisfactory. If no violations have occurred since the last submittal, this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting the monitoring reports shall be signed by a principal executive officer, at the level of vice-president or above, or by his/her duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.
2. For all occurrences of reportable spills/leaks under Section 3 herein during the reporting period, a summary of each incident detailing the essential points of the cause of the spill/leak shall be transmitted in the quarterly report. The summary shall include estimated volumes of liquid or solids that have spilled outside containment, and a description of the management practices addressing each spill or leak occurring during the reporting period.

b. Monitoring of Holding Pond

1. Record monthly the total volume of solids removed from the holding pond and transported to a waste management facility for disposal. Provide name and location of waste management facility.
2. Record monthly inspections of the Leakage Detection System (LDS) of the holding pond and quarterly sample any liquid samples retrieved from the TW-1 through TW-5 which will be analyzed for the following constituents:

<u>Constituents</u>	<u>Unit</u>	<u>Sample Type</u>
Total Dissolved Solids (TDS)	mg/L	Grab
pH	#	Grab
Specific Conductance	μohms/cm	Grab
Total Petroleum Hydrocarbon (TPH)	mg/L	Grab
Heavy Metals (As, Ba, Ca, Pb, Zn)	mg/L	Grab

c. Monitoring of Mud Sumps

1. Estimate total volume of solids and/or fluids contained in each mud sump during the quarterly reporting period.
2. Provide volume of waste from mud sumps shipped to a waste management facility. Provide name and location of waste management facility.

3. If any liquid is present in the mud sumps and if liquid or solids have been discharged during reporting period, liquid samples shall be collected once per quarter from each mud sump and analyzed for the following constituents:

<u>Constituents</u>	<u>Unit</u>	<u>Sample Type</u>
Suspended Solids (TSS)	mg/L	Grab
Total Dissolved (TDS)	mg/L	Grab
PH	#	Grab
Specific Conductance	μohms/cm	Grab
Heavy Metals (As, Ba, Ca, Pb, Zn)	mg/L	Grab
Oil and Grease	mg/L	Grab

4. If the materials in the mud sumps are dry at sample time, and if liquid or solids have been discharged during the reporting period, soil samples shall be collected from the mud sumps once per quarter and analyzed for the following constituents:

<u>Constituents</u>	<u>Unit</u>	<u>Sample Type</u>
Heavy Metals (As, Ba, Ca, Pb, Zn)	mg/kg	Grab
Total petroleum hydrocarbons (TPH)	mg/kg	Grab

5. Describe general conditions of the mud sumps including any observation of erosion or plant growth.
6. Description of any maintenance done to the mud sumps.
7. At least 10 days prior to the destruction of each mud sump, the discharger shall request a Regional Board staff inspection and approval of the cleanup procedures.

d. Monitoring of Injection Wells

1. For the injection wells associated with this facility, provide the following quarterly:
 - A. Volume of fluid injected into each injection well per month.
 - B. Collect one grab sample per quarter from the main injection header leaving the facility and analyze for the following:

<u>Constituents</u>	<u>Unit</u>	<u>Sample Type</u>
Total Dissolved Solids (TDS)	mg/L	Grab
pH	#	Grab

- C. A summary of any integrity test results conducted to comply with the requirements of the State of California Department of Conservation, Division of Oil, Gas, and Geothermal Resources.
- D. Provide a summary of major repairs if any.

e. Monitoring of Background Well

1. As found in Specification #2 of Board Order No. R7-2003-0078, the Discharger will install a background groundwater monitor well. The well will be upgradient of the holding pond in a location approved by the Regional Board's Executive Officer.

2. Sampling and analysis of the background groundwater will occur and be reported quarterly. Background groundwater will be analyzed for the following:

<u>Constituents</u>	<u>Unit</u>	<u>Sample Type</u>
Total Dissolved Solids (TDS)	mg/L	Grab
pH	#	Grab
Specific Conductance	μohms/cm	Grab
Total Petroleum Hydrocarbon (TPH)	mg/L	Grab
Heavy Metals (As, Ba, Ca, Pb, Zn)	mg/L	Grab

2. Annual Summary Report

The discharger shall submit an annual report by March 15th of the following year to the Regional Board covering the previous monitoring year. The reporting period is January 1st through December 31st of each year. This report shall contain:

- a. All monitoring analytical data obtained during the previous four quarters Reporting Periods presented in tabular form.
- b. All monitoring data from the previous four quarters presented graphically.
- c. A comprehensive discussion of compliance, and the result of any corrective actions taken or planned which may be needed to bring the discharge into full compliance with the waste discharge requirements.

3. Contingency Reporting

- a. The discharger shall report by telephone any spill within 48 hours after it is discovered. The reportable quantity for geothermal brine and cooling tower condensate at this facility is 50 gallons. Any other type of spill, regardless of type or size, is to be reported within 48 hours.

After reporting a spill, a written report shall be filed with the Regional Board within seven (7) days containing at least the following information:

1. A map showing the location (s) of the discharge;
 2. A description of the nature of the discharge (all pertinent observations and analyses including quantity, duration, etc.); and
 3. Corrective measures underway or proposed.
- b. Should a subsurface release be tentatively identified, the discharger shall verbally notify the Regional Board within 48 hours as to the monitoring point(s) and constituents or parameter(s) involved. The discharger shall provide written notification within seven (7) days of such determination and shall carry out a retest. If the retest confirms the existence of a release, the discharger shall carry out the requirements of 3.d. below. In any case, the discharger shall inform the Regional Board of the outcome of the retest as soon as the results are available,

following up with written results submitted by certified mail within seven days of completing the retest.

- c. If either the discharger or the Regional Board determines that there is significant physical evidence of a release, the discharger shall immediately notify the Regional Board of this fact (or acknowledge the Regional Board's determination and shall carry out the requirements of 3.d. below.
- d. If the discharger concludes that a release has been discovered:
 1. If this conclusion is not based upon "direct monitoring" of the Constituents of Concern, then the discharger shall, within thirty (30) days, sample for all CoCs at all Monitoring Points and submit them for laboratory analysis. Within seven (7) days of receiving the laboratory analytical results, the discharger shall notify the Regional Board of the concentration of all CoCs at each Monitoring Point.
 2. The discharger shall, within 90 days of discovering the release, submit a Revised Report of Waste Discharge proposing an Evaluation Monitoring Program.
 3. The discharger shall, within 180 days of discovering the release, submit a preliminary engineering feasibility study of remediation.
- e. Any time the discharger concludes (or the Regional Board's Executive Officer concludes) that a liquid/gaseous/phase release has proceeded beyond the facility boundary, the discharger shall so notify all affected persons who either own or reside upon the land that directly overlies any part of the plume.
 1. Initial notification to affected persons shall be accomplished within seven (7) days of making this conclusion and shall include a description of the discharger's current knowledge of the lateral and vertical extent of the release; and
 2. Subsequent to initial notification, the discharger shall provide updates to all affected persons within seven (7) days of concluding there has been any material change in the lateral or vertical extent of the release.

D. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the discharger or laboratory, and shall be retained for a minimum of five (5) years. The period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board. Such records shall show the following for each sample:

1. Identity of sample and of the monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
2. Date and time of sampling;
3. Date and time that analyses were started and completed, and the name of the personnel performing each analysis;
4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagent used;
5. Calculation of the results; and

6. Result of analysis, and the Maximum Detection Limit (MDL) for each analysis.

SUMMARY OF MONITORING AND REPORTING REQUIREMENTS

	<u>Unit</u>	<u>Observation or Sampling Frequency</u>	<u>Reporting Frequency</u>
C.1.a General Information			
1. Letter of Transmittal	----	----- Quarterly	
2. Summary of spills	----	----- Quarterly	
C.1.b. Monitoring of Holding Pond			
1. Estimate of total volume of solid/liquid in holding pond	ft ³	Monthly	Quarterly
2. Measurement of freeboard	ft	Monthly	Quarterly
3. Volume of solids removed and shipped to waste facility	tons	Monthly	Quarterly
4. Sampling of any liquid found within the Leak Detection System			
5. TW-1 through TW-5 analyzed for the following:			
a. Total Dissolved Solids (TDS)	mg/L	Quarterly	Quarterly
b. pH	#	Quarterly	Quarterly
c. Specific Conductance	μohms/cm	Quarterly	Quarterly
d. Total Petroleum Hydrocarbons (TPH)	mg/L	Quarterly	Quarterly
e. Heavy Metals (As, Ba, Ca, Pb, Zn)	mg/L	Quarterly	Quarterly
C.1.c. Monitoring of Mud sumps			
1. Estimate total volume of solids/liquids in each mud sump	ft ³	Monthly	Quarterly
2. Volume of material removed and shipped to waste facility	tons per month	Monthly	Quarterly
3. Liquid samples (if any) analyzed for the following:			
a. Total Dissolved (TDS)	mg/L	Quarterly	Quarterly
b. pH	#	Quarterly	Quarterly
c. Specific Conductance	μohms/cm	Quarterly	Quarterly
d. Heavy Metals (As, Ba, Ca, Pb, Zn)	mg/L	Quarterly	Quarterly
e. Total Petroleum Hydrocarbons (TPH)	mg/L	Quarterly	Quarterly
4. Solid samples from mud sumps analyzed for the following:			
a. Heavy Metals (As, Ba, Ca, Pb, Zn)	mg/kg	Quarterly	Quarterly
b. Total Petroleum Hydrocarbons (TPH)	mg/kg	Quarterly	Quarterly
C.1.d. Monitoring of Injection Wells			
1. Volume of fluid injected into each well		Monthly	Quarterly
2. Grab sample from main injection header analyzed for the following:			
a. Total Dissolved Solids (TDS)	mg/L	Quarterly	Quarterly
b. pH	#	Quarterly	Quarterly
C.1.e. Monitoring of Background Groundwater Well			
1. Sample background well and analyze for the following:			

a. Total Dissolved Solids (TDS)	mg/L	Quarterly	Quarterly
b. pH	#	Quarterly	Quarterly
c. Specific Conductance	μohms/cm	Quarterly	Quarterly
b. Total Petroleum Hydrocarbons (TPH)	mg/L	Quarterly	Quarterly
c. Heavy Metals (As, Ba, Ca, Pb, Zn)	mg/L	Quarterly	Quarterly

Submit Monitoring Reports to:

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

Ordred by: _____
Executive Officer

Date