

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

MONITORING AND REPORTING PROGRAM NO. R7-2006-0082

FOR

ORMAT NEVADA INC., OWNER/OPERATOR
NORTH BRAWLEY GEOTHERMAL EXPLORATION PROJECT
WELLFIELD MUD SUMPS
North Brawley Known Geothermal Resource Area (KGRA) - Imperial County

Location of Discharge: Well field associated with North Brawley KGRA

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 R7-2006-0082. 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, and
 - 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 United States Environmental Protection Agency approved procedures. 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 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 Regional 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 15
- b. 2nd Quarterly Report (April 1 through June 30) – report due by July 15
- c. 3rd Quarterly Report (July 1 through September 30) – report due by October 15
- d. 4th Quarterly Report (October 1 through December 31) – report due by January 15

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 (4) 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 essential points 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 spills/leaks 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 the estimated volume of liquid or solid that spilled outside containment, and a description of the management practices addressing each spill or leak occurring during the reporting period.

b. Monitoring of Mud Sumps

1. Estimate total volume of solids discharged during the quarterly reporting period in each mud sump.
2. Estimate total volume of solids contained in each mud sump during the quarterly reporting period.
3. Provide volume of mud sump waste shipped to a waste management facility. Provide name and location of waste management facility.
4. Drilling fluids (if present during reporting period), 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	units	Grab
Specific Conductance	μohms/cm	Grab
Oil and Grease	mg/L	Grab

5. If materials in mud sump(s) are dry at sample time, and solids were discharged during the reporting period, soil samples shall be collected from the mud sump(s) and analyzed for the following:

<u>Constituent</u>	<u>Unit</u>	<u>Sample Type</u>
Heavy Metals (Title 22)	mg/kg	Grab
Total petroleum hydrocarbons (TPH)	mg/kg	Grab

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

2. Annual Summary Report

The Discharger shall submit an annual report by March 15 of the following year to the Regional Board summarizing the previous monitoring year. The reporting period ends December 31st of each year. This report shall contain:

- a. All monitoring analytical data presented in tabular form obtained during the previous four (4) quarters of Reporting Periods;
- b. A comprehensive discussion of compliance, and the result of any corrective action taken or planned to bring the discharge into compliance with waste discharge requirements, and
- c. A written summary of liquid or solid waste analyses, indicating changes, if any, made since the previous annual report.

3. Contingency Reporting

- a. The Discharger shall report by telephone any spill of reportable quantity 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) calendar 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 constituent(s) or parameter(s) involved. The Discharger shall provide written notification within seven (7) calendar 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 (7) calendar days of completing the retest.
- c. If either the Discharger or the Regional Board determines 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 a release has been discovered:
1. If this conclusion is not based upon "direct monitoring" of the Constituents of Concern (CoCs), then the Discharger shall, within thirty (30) calendar days, sample for all CoCs at all Monitoring Points and submit them for laboratory analysis. Within seven (7) calendar 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 calendar days of discovering the release, submit a Revised Report of Waste Discharge proposing an Evaluation Monitoring Program.
 3. The Discharger shall, within 180 calendar days of discovering the release, submit a preliminary engineering feasibility study proposing remedial alternatives.
- e. Any time the Discharger concludes (or the Regional Board Executive Officer concludes) that a liquid/gaseous phase release has migrated beyond the facility boundary, the Discharger shall notify all affected persons who 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) calendar days of 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) calendar days of concluding there has been a 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. The identity of the sample, monitoring point, and individual who obtained the sample;
2. Date and time of sampling;
3. Date and time analyses were started and completed, and the identity of the individual performing each analysis;
4. Procedure used, including method of sample preservation, and the identity and volumes of reagent used;
5. Analytical results (including calculations), and the Method Detection Limit (MDL).

SUMMARY OF MONITORING AND REPORTING REQUIREMENTS

1. 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.
2. 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 that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations.”
3. 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 Executive Officer.

4. Quarterly Monitoring Reports

	<u>Unit</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
General Information (C.1.a)			
a. Letter of Transmittal	----	-----	Quarterly
b. Summary of spills	----	-----	Quarterly
Monitoring of Mud Sump (C.1.b)			
a. Estimate total volume of solids/drilling fluid (if any) in each mud sump	----	Monthly	Quarterly
b. Volume of solids removed and shipped to waste facility	tons	Monthly	Quarterly
Drilling fluids (if any) shall be analyzed for:			
a. Total Dissolved Solids (TDS)	mg/L	Quarterly	Quarterly
b. Total Petroleum Hydrocarbons (TPH)	mg/L	Quarterly	Quarterly
c. Heavy Metals (Title 22 metals)	mg/L	Quarterly	Quarterly
Solid samples (if any) shall be analyzed for:			
a. Heavy Metals (Title 22 metals)	mg/kg	Quarterly	Quarterly
b. Total Petroleum Hydrocarbons (TPH)	mg/kg	Quarterly	Quarterly

5. Annual Summary Reports (C.2) shall be submitted to the Regional Board by March 15th of the each year, and summarize the Reporting Period from January 1st through December 31st of the previous year.

6. Contingency Reports Notify immediately by telephone, and submit a written report pursuant to Part C.3.a of this Monitoring and Reporting Program.

7. 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

Ordered by: _____
 ROBERT PERDUE
 Executive Officer

Date: _____