

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. 89-027

WASTE DISCHARGE REQUIREMENTS
FOR
UNITED STATES DEPARTMENT OF ENERGY
GEOTHERMAL TEST FACILITY
EAST MESA KNOWN GEOTHERMAL RESOURCE AREA (KGRA)
Imperial County

The California Regional Water Quality Control Board, Colorado River Basin Region, finds that:

1. The United States Department of Energy, San Francisco Operations Office, 1333 Broadway, Oakland, CA 94612, submitted an Application for Waste Discharge, dated April 7, 1988 for the subject Geothermal Test Facility.
2. The discharger has previously drilled five (5) wells in accordance with requirements in Board Order No. 77-46 as adopted by the Regional Board on July 13, 1977. The wells are located as follows:

<u>Geothermal Wells</u>	<u>Location</u>
Mesa 6-1	SW $\frac{1}{4}$, NE $\frac{1}{4}$, SE $\frac{1}{4}$, Section 6, T16S, R17E, SBB&M
Mesa 6-2	SE $\frac{1}{4}$, NE $\frac{1}{4}$, SW $\frac{1}{4}$, Section 6, T16S, R17E, SBB&M
Mesa 5-1	NE $\frac{1}{4}$, NE $\frac{1}{4}$, NE $\frac{1}{4}$, Section 5, T16S, R17E, SBB&M
Mesa 8-1	Ctr of NW $\frac{1}{4}$, NW $\frac{1}{4}$, Section 8, T16S, R17E, SBB&M
Mesa 31-1	NW $\frac{1}{4}$, NW $\frac{1}{4}$, NW $\frac{1}{4}$, Section 31, T15S, R17E, SBB&M

3. A temporary containment basin lined with a 10-mil polyvinyl chloride liner covered with approximately six (6) inches of sand has been constructed in the W $\frac{1}{2}$ of the SE $\frac{1}{4}$ of Section 6, T16S, R17E, SBB&M. The basin measures approximately 500' x 590' x 6' deep with a 12.4 million gallon capacity.
4. The discharger reported discharging geothermal brines from three (3) of the five (5) wells into the basin. Mesa 5-1 has only been used for injection purposes, and Mesa 31-1 has never produced geothermal brines. The quantity of geothermal brine in the basin as of February 12, 1988 was approximately 7,000,000 gallons. The analysis of the brine in the basin was 35,000 mg/l Total Dissolved Solids (TDS) and 19,000 mg/l chloride. The sludge from the basin was analyzed as containing 1.9 mg/kg of chromium, 4.9 mg/kg of copper, 3.9 mg/kg of nickel, and 55 mg/kg of zinc. In February 1989, the quantity of water in the basin was approximately 1,000 gallons, due to evaporation loss.

*Cancelled
1/22/87*

5. The discharger reported for September 1986 that samples of brine from the geothermal wells had TDS concentrations as follows:

<u>Geothermal Well</u>	<u>Total Dissolved Solids (mg/l)</u>
Mesa 6-1	26,300
Mesa 6-2	5,000
Mesa 5-1	2,390
Mesa 8-1	1,600
Mesa 31-1	2,000

6. Brine from the wells and the basin are periodically injected subsurface through well Mesa 5-1.
7. The geothermal fluid injection system consists of injection pumps, distribution piping, injection well metering facilities, and other components necessary to dispose of the geothermal liquid from the test facility.
8. The discharger prepared two environmental statements prior to the development of the present facilities. The first was directed to the geothermal test well site, dated April 28, 1972, while the other was partly devoted to the injection well, dated July 10, 1972. Both of these statements indicated that said geothermal operations would not have any significant adverse impacts on the environment.
9. In accordance with Section 15301, Chapter 3, Title 14, of the California Code of Regulations, the issuance of these waste discharge requirements, which govern the operation of an existing facility involving negligible or no expansion of use beyond that previously existing, is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000, et seq.).
10. Geothermal fluids in this portion of the East Mesa KGRA are known to have Total Dissolved Solids concentrations of 1,600 mg/l to 27,000 mg/l. The fluids do not contain any constituents at levels, either in the fluid or in the concentrated salt cake, which are classified as hazardous by the Department of Health Services, Toxic Substances Control Division, in accordance with California Code of Regulations, Title 22, Chapter 30, Article 11, Section 66699.
11. There are no surface waters in the vicinity of the discharge. Shallow groundwaters are of marginal quality and presently are not beneficially used. Deep ground waters are being tested for geothermal potential.
12. The Water Quality Control Plan for the Colorado River Basin Region of California was adopted by the Board on November 14, 1984.

13. The discharge is located in the Imperial Hydrologic Unit. The beneficial uses of surface waters and ground waters of the Imperial Hydrologic Unit are:

- a. Municipal supply
- b. Industrial supply

14. The Board has notified the discharger and interested agencies and persons of its intent to update waste discharge requirements for the discharge.

15. The Board in a public meeting heard and considered all comments pertaining to the existing discharge.

IT IS HEREBY ORDERED, the discharger shall comply with the following:

A. Discharge Specifications

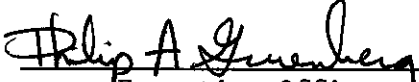
1. The temporary containment basin described in Finding No. 3, above, shall be properly cleaned up and closed to the satisfaction of the Regional Board's Executive Officer; and all wastes, including contaminated soil and the liner, will be removed prior to abandonment.
2. Fluids discharged by subsurface injection at this location shall not be discharged into any subsurface zone (aquifer) unless the TDS concentration of the injection water is less than that of the receiving water, or unless the discharger demonstrates to the satisfaction of the Executive Officer that said injection will not degrade the water quality in the receiving aquifer.
3. Final disposal of residual wastes shall be accomplished to the satisfaction of the Executive Officer upon abandonment or closure of operations. Lack of construction or operational activity on the site for a period of one year shall constitute abandonment for the purposes of this Order.
4. Any geothermal waste that is not injected shall be disposed of at a disposal site approved by the Regional Board to receive said waste.
5. A minimum freeboard of two (2) feet shall be maintained in containment basins at all times. All such basins shall be protected and maintained to ensure their effectiveness.
6. All containment basins shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return period.

B. Provisions

1. The discharger shall submit to the Regional Board a detailed written report on the proposed method and estimated costs of cleanup and closure in accordance with the requirements of this Order. This report shall be submitted to the Regional Board within thirty (30) days after adoption of this Order. The report shall be prepared by a California Registered Civil Engineer or Certified Engineering Geologist.
2. The discharger shall submit to the Regional Board within thirty (30) days after adoption of this Order written adequate assurance that money is committed in the amount of \$50,000.00 to insure that facilities are cleaned up and closed in accordance with the specifications and provisions of this Board Order No. 89-027.
3. The funds described in Provision No. 2, above, may be returned to the originator of these funds contingent upon any new owner or owners submitting similar written adequate assurances that money is committed in the amount of \$50,000.00 to insure that the facilities are cleaned up and closed in accordance with the specifications and provisions of this Board Order No. 89-027.
4. Only fluids from these wells or the containment basin (described in Finding No. 3, above) shall be injected into these wells, and then only pursuant to Specification No. 2, above.
5. New wells may not be drilled for any purpose without prior Regional Board approval.
6. The discharger shall comply with "Monitoring and Reporting Program No. 89-027", and future revisions thereto, as specified by the Executive Officer.
7. The treatment or disposal of wastes shall not cause pollution or nuisance as defined in Division 7 of the California Water Code.
8. This Board Order does not authorize violation of any federal, state, or local laws or regulations.
9. Prior to any change of ownership of these operations, the discharger shall transmit a copy of this Order to the succeeding owner/operator, and forward a copy of the transmittal letter to this Board.

IT IS FURTHER ORDERED that Board Order No. 77-46 be superseded by this Order.

I, Phil Gruenberg, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region, on May 17, 1989.



Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 89-027
FOR

UNITED STATES DEPARTMENT OF ENERGY
GEOTHERMAL TEST FACILITY
EAST MESA KNOWN GEOTHERMAL RESOURCE AREA (KGRA)
Imperial County

Location of Discharge: Sections 5, 6 and 8, T16S, R17E, SBB&M
Section 31, T15S, R17E, SBB&M

MONITORING

The United States Department of Energy (discharger) shall report monitoring data to the Regional Board in accordance with the following schedule:

1. At least ten (10) days prior to the discharge of any new material into the containment basin, the discharger shall submit to the Regional Board a report signed by a California Registered Civil Engineer or a Certified Engineering Geologist, advising the Executive Officer that the temporary containment basin and attendant facilities are constructed to meet the requirements of this Order.
2. The discharger shall submit the following information:

<u>Constituent</u>	<u>Unit</u>	<u>Reporting Frequency</u>
a. Volume of discharge contained in each basin	Gallons	Monthly
b. Volume of geothermal waste discharged at a waste management facility, and name of facility	Gallons	Monthly
c. Total Dissolved Solids concentration and volume of fluid injected into each injection well	mg/l Gallons	Monthly

3. Immediate reporting of any accidental spillage or release of waste material, and immediate measures being taken to correct same, and to limit detrimental effects.

REPORTING

Except for Item No. 1, above, the monitoring program shall be implemented immediately upon adoption of this Order.

Monthly reports shall be submitted to the Regional Board by the 15th day of the following month. Reports of Item No. 3, above, shall be forwarded immediately and shall be preceded by telephone communication to the Regional Board's office, telephone (619) 346-7491. Copies of the reports submitted to the Board pursuant to this Monitoring and Reporting Program shall be maintained at the operations site, and shall also be made available to staff of the Regional Board upon request.

Mail reports to:

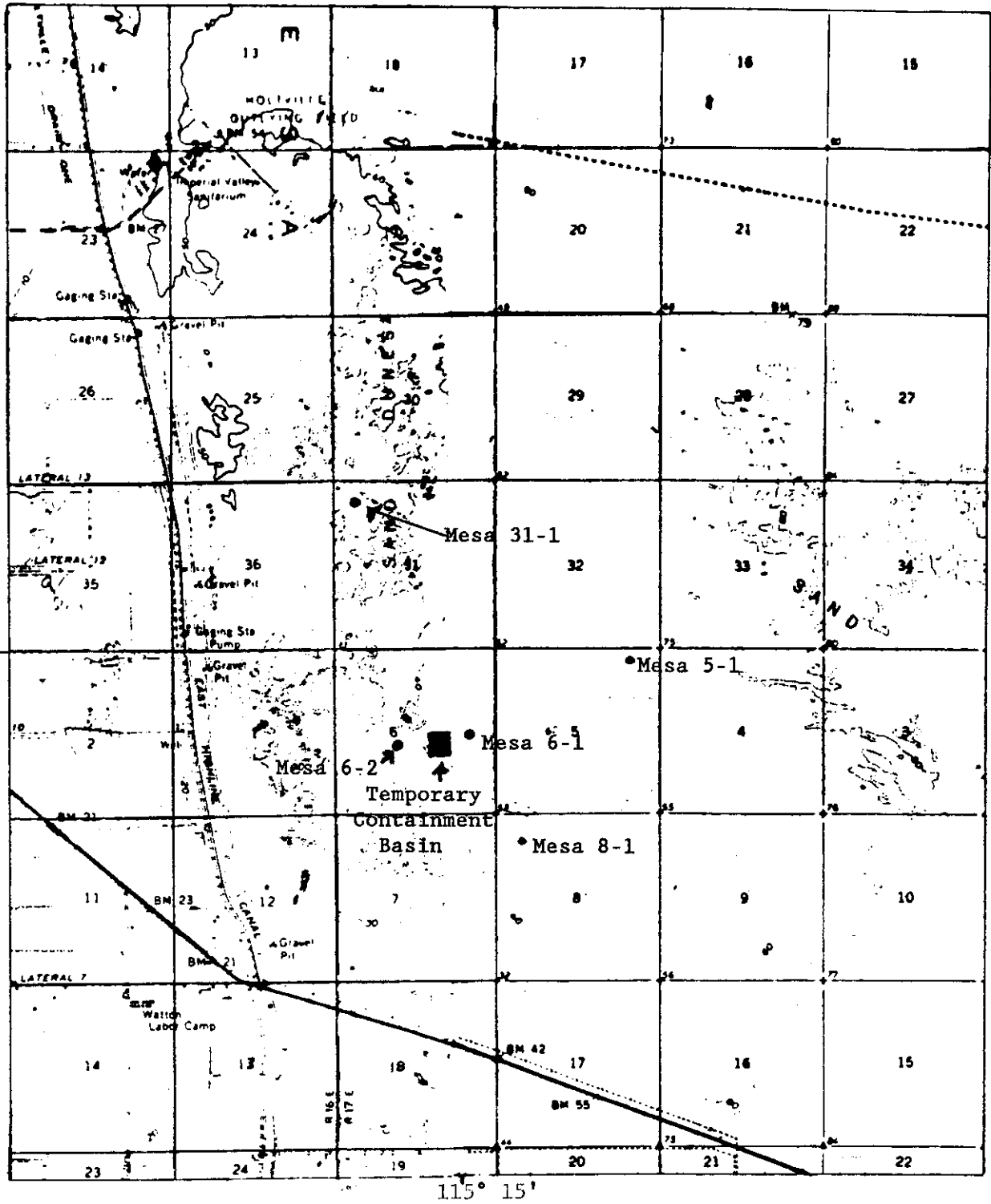
California Regional Water Quality Control Board
Colorado River Basin Region
73-241 Highway 111, Suite 21
Palm Desert, CA 92260

ORDERED BY:

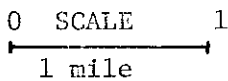
Philip A. Greenberg
Executive Officer

May 17, 1989

Date



T15S
T16S



SITE MAP
 UNITED STATES DEPARTMENT OF ENERGY
 GEOTHERMAL TEST FACILITY
 EAST MESA KNOWN GEOTHERMAL RESOURCE AREA (KGRA)
 Imperial County
 Sections 5, 6, and 8, T16S, R17E, SBB&M
 Section 31, T15S, R17E, SBB&M
 USGS Glamis NW 15 minute Topographic Map
 USGS Holtville NE 15 minute Topographic Map

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