

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. 79-49

WASTE DISCHARGE REQUIREMENTS
FOR
REPUBLIC GEOTHERMAL, INC.
EXPLORATORY DEEP-TEST WELL
East Mesa Area - Imperial County

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

1. Republic Geothermal, Inc. (hereinafter also referred to as the discharger), 11823 East Slauson Avenue, Suite 1, Santa Fe Springs, California 90670, submitted a Report of Waste Discharge dated March 15, 1979.
2. The discharger proposes to drill one exploratory well in the East Mesa area. This proposed well site is designated Mesa Well No. 87-6, and is located in the SE $\frac{1}{4}$, SE $\frac{1}{4}$ of Section 6, T16S, R17E, SBB&M.
3. A mud sump and a containment basin with a total capacity of approximately 18,000 barrels (750,000 gallons), will be constructed at the well site. The basin would be lined and the sump unlined. The size of the basin is to be approximately 125' long x 100' wide x 7' deep, and the sump is to be 75' long x 100' wide x 7' deep. Additional temporary holding capacity, if needed, will be provided by portable steel tanks. The site will utilize 4.7 acres of surface area.
4. The discharger proposes to discharge into the mud sump a volume of drilling mud and initial well cleanout fluid that would not exceed a total of 5,000 barrels (or about 210,000 gallons). Following some evaporation, the residual mud would be removed from the sump and discharged at a solid waste disposal site approved by the Regional Board to receive this waste.

*Rescinded
11/14/84 -*

5. The drilling mud components which may be used are:

Sepiolite clay	Thread dope
Bentonite, or colloidal clay	Pipelax
Mica	Diesel oil
Lignite or Leonardite brown coal	Detergent
Tannic acid	Sodium Bicarbonate
Caustic soda	Sodium Tetrphosphate
Cane fiber	Sodium Carbonate
Ground nutshells	Sodium Chloride
Lime	Potassium Chloride
Barium sulphate	Blown asphalt
Cypan	
Bit lube	

6. The discharger proposes to discharge a maximum of 130,000 barrels (or about 5.5 million gallons) of additional cleanout fluid containing sands and/or shales and filtrate, and a maximum of 50,000 barrels (or about 2.1 million gallons) of filter backwash fluid into steel tanks and/or into the containment basin. Final disposal would be by subsurface reinjection, or after some evaporation, the residual mud would be discharged at a solid waste disposal site approved by the Regional Board to receive this waste.
7. The discharger proposes to discharge a maximum of seven million barrels (or about 300 million gallons) of production (flow) testing fluid into steel tanks and/or into the containment basin, and then be transported via pipeline to the Department of Energy Geothermal Component Test Facility's existing brine holding basin where it is to be stored prior to injection in Well No. 5-1. Requirements for these facilities are contained in Board Order No. 77-46.
8. The discharger is hereby informed that there are no solid waste disposal sites in the Colorado River Basin Region at this time that have been approved by the Regional Board to receive geothermal salt and brine wastes.
9. The Water Quality Control Plan for the West Colorado River Basin Region was adopted on April 10, 1975. This Order implements the objectives stated in said Plan.

10. Beneficial uses to be protected by this Order are as follows:
 - a. Groundwater
 1. Shallow groundwater at the discharge location is saline and is not beneficially used.
 2. Deep groundwater is saline and is being investigated for geothermal development.
11. The Regional Board prepared and processed an Initial Study and a Negative Declaration with assistance from information received from the United States Geological Survey for this geothermal deep-test well. The Regional Board has determined that this project would not have any significant adverse effects on the environment.
12. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the proposed discharge.
13. The Board in a public meeting heard and considered all comments pertaining to the proposed discharge.

IT IS HEREBY ORDERED, Republic Geothermal, Inc., shall comply with the following:

A. Discharge Specifications

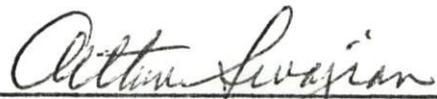
1. Neither the treatment nor the discharge of wastes shall create a pollution or a nuisance as defined in Division 7 of the California Water Code.
2. Geothermal fluids and other wastes shall not enter any canals or drainage channels which could provide flow to Salton Sea.
3. Temporary discharge and/or storage of cleanout and flow test water, other than into the containment basin or steel tanks from which there is no seepage or overflow, is prohibited.
4. The containment basin shall be constructed so that the fluids contained within shall not penetrate through the lining during the containment period.

5. Adequate protective works and maintenance shall be provided to assure that the mud sump and containment basin will not become eroded or otherwise damaged during the project period, and/or until all well drilling, well cleanout, and flow test materials are removed.
6. A minimum freeboard of at least two (2) feet shall be maintained in the mud sump, containment basin and steel tanks.
7. Fluids discharged by subsurface injection shall not be discharged into any subsurface zone which has a total dissolved solids concentration of less than 10,000 mg/l, unless the quality of the injection water is comparable to that of the receiving water.
8. Drilling muds, with extractable water containing a total dissolved solids concentration exceeding 6,000 mg/l, and brine and salt wastes, shall be discharged at a Class I or Class II-I disposal site approved by the Regional Board to receive said waste.
9. Drilling muds, with extractable water containing a total dissolved solids concentration which is less than 6,000 mg/l, and not containing hazardous wastes may be disposed at a Class II-2 disposal site approved by the Regional Board to receive said wastes.
10. Final disposal of residual wastes in accordance with Specifications No.7, 8 and 9 above, and cleanup of all contents, shall be accomplished upon abandonment 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.

B. Provisions

1. The discharger shall comply with "Monitoring and Reporting Program No. 79-49" and "General Provisions for Monitoring and Reporting", and future revisions thereto, as specified by the Executive Officer.
2. Prior to the discharge of any materials into the containment basin, the discharger shall submit to the Regional Board a technical report showing the construction of the basin, and a certificate signed by a California Registered Civil Engineer stating that the basin and attendant facilities are constructed to meet the requirements of this Order.

I, Arthur Swajian, Executive Officer, do hereby certify that 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 9, 1979.


Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 79-49
FOR

REPUBLIC GEOTHERMAL, INC.
EXPLORATORY DEEP-TEST WELL
East Mesa Area - Imperial County

Location: SE $\frac{1}{4}$, SE $\frac{1}{4}$, Section 6, T16S, R17E, SBB&M

MONITORING

Republic Geothermal, Inc. shall report monitoring data to the Regional Board in accordance with the following schedule:

<u>Constituents</u>	<u>Units</u>	<u>Reporting Frequency</u>
1. Volume of geothermal wastes discharged to the mud sump and containment basin	Gallons	Monthly
2. Volume contained in the mud sump and containment basin	Gallons	Monthly
3. Total dissolved solids content of waste fluid contained in the mud sump and containment basin	mg/l	Monthly
4. *Volume directly reinjected to subsurface strata from the geothermal well	Gallons	Monthly
5. *Total dissolved solids concentration of waste fluid injected into the injection well	mg/l	Monthly
6. *Total dissolved solids concentration of ground-water contained in strata receiving waste fluid injection	mg/l	At least 10 days prior to commencement of injection
7. *Location and depth of injection well		At least 10 days prior to commencement of injection

*These items may be reported by the Department of Energy under Order No. 77-46.

8. Within 10 days after the initial discharge of any geothermal fluids from the well, the discharger shall report said initial discharge to the Board.
9. Immediate reporting of any accidental spillage or release of waste material, and plan for immediate measures being taken to correct same and to limit detrimental effects.
10. Estimate of total amount (tons) of saline drilling muds and salt and brine waste transported to a Class I and/or Class II-1 disposal site, including identification of the sites - immediately upon completion of the transport.
11. Estimate of total amount (tons) of non-saline drilling muds transported to a Class II-2 solid waste disposal site - upon completion of operations - reported in final monitoring report.
12. Report of completion of removal of all geothermal wastes from the mud sump and containment basin - reported within one week following completion of work.
13. At least 10 days prior to destruction of either the mud sump, or the containment basin, the discharger shall request a Regional Board staff inspection and approval of the cleanup procedure.

REPORTING

The above monitoring program shall be implemented immediately upon commencement of discharge at the site.

Monthly reports shall be submitted to the Regional Board by the 15th day of the following month. Reports for Item 9 (above) shall be forwarded immediately, and if at all possible, shall be preceded by phone communication to the Regional Board's office (714-346-7491). 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.

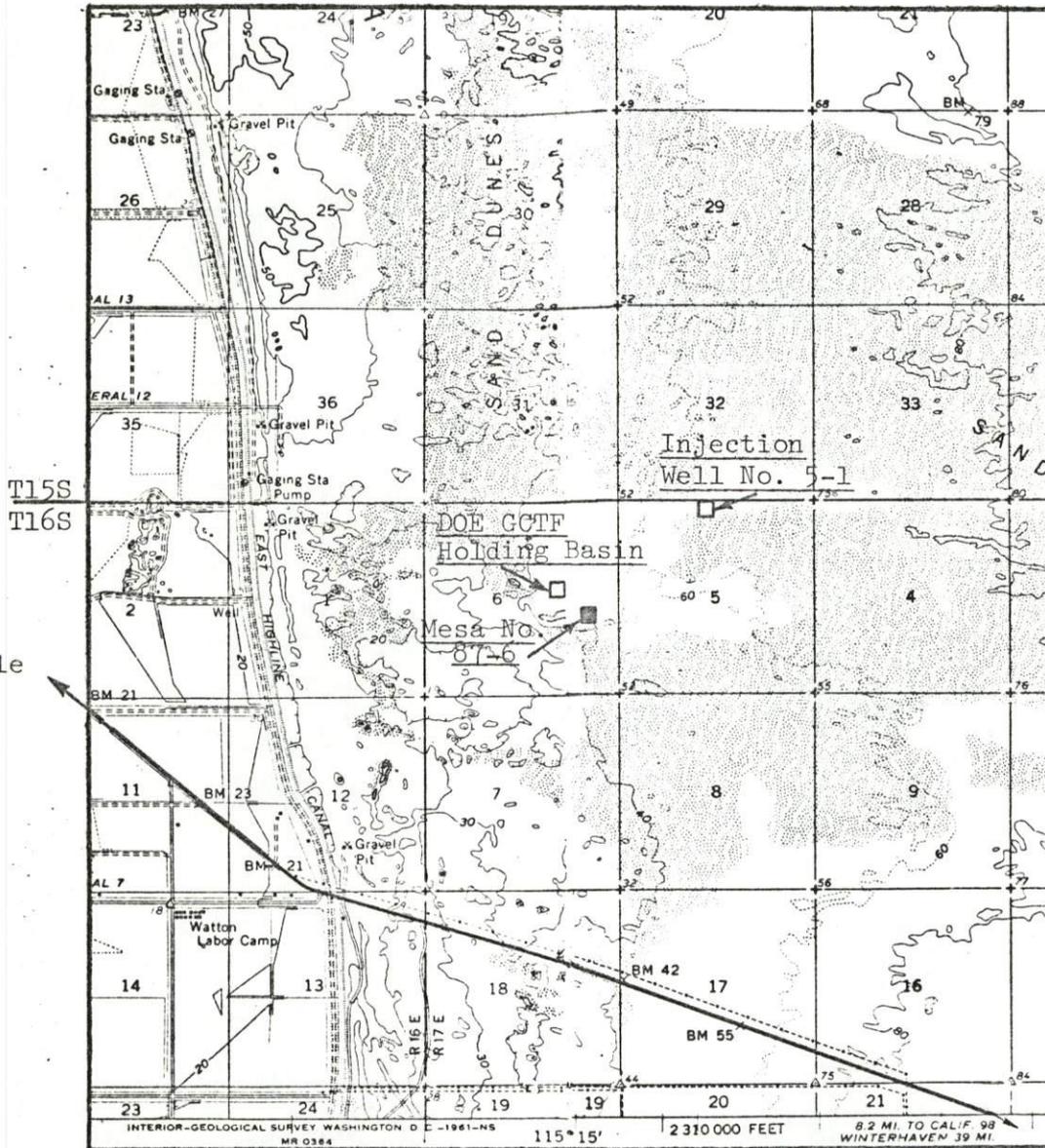
Mail Reports to:

California Regional Water Quality Control Board
Colorado River Basin Region
73-271 Highway 111, Suite 21
Palm Desert, CA 92260

Ordered by Artem Sevajian
Executive Officer

May 9, 1979
Date

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - 7



SITE MAP
 REPUBLIC GEOTHERMAL, INC.
 EXPLORATORY DEEP-TEST WELL
 East Mesa Area - Imperial County
 SE 1/4, SE 1/4, Section 6, T16S, R17E, SBB&M
 Glamis & Holtville 15 min. Topographic Maps

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