

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. 76-52

WASTE DISCHARGE REQUIREMENTS
FOR
REPUBLIC GEOTHERMAL, INC.
Northwest of Westmorland - 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), 2544 Cleveland Avenue, Suite 5, Santa Rosa, California 95401, submitted a Report of Waste Discharge dated July 29, 1976, with subsequent revisions.
2. The discharger proposes to drill five deep-test geothermal wells in the Westmorland area of Imperial County. The wells will be located as follows:

<u>Well</u>	<u>Location</u>
Landers #3	2490'S, 160'E from NW corner Sec. 20, T12S, R13E, SBB&M
Landers #4	2475'S, 2800'E from NW corner Sec. 20, T12S, R13E, SBB&M
Kellogg #2	3760'N, 2465'E from SW corner Sec. 36, T12S, R12E, SBB&M
Kalin Farms #2	1470'S, 2115'E from NW corner Sec. 32, T12S, R13E, SBB&M
Dearborn Farms #1	2765'S, 2450'E from NW corner Sec. 30, T12S, R13E, SBB&M

3. The discharger has been subject to waste discharge requirements, adopted in Order No. 75-61, for five geothermal wells in the Westmorland area. Of these, only Landers No. 2 (located adjacent to the proposed Landers No. 3) has been drilled. Each of the five proposed wells will be situated approximately 50 feet from each of the five previously permitted locations.

*Superseded
by 81-78
& 81-79*

4. The proposed new wells will use the same geothermal fluid storage basins and attendant facilities at each site as were approved by Order No. 75-61. Each new well will disturb less than 0.36 acres of additional surface.
5. The discharger proposes that geothermal fluid from well cleanout and a brief testing period will be stored in steel tanks and a leak-proof storage basin, and later reinjected or discharged to an approved disposal site. Subsequent discharge of fluids will be reinjected directly into the subsurface.
6. The discharger proposes that reinjection occur at a depth from approximately 2500 feet to 4500 feet. The discharger reports that the salinity in this depth increment varies from 15,000 to 23,000 mg/l total dissolved solids. The discharger further reports that the average TDS of Dearborn Farms No. 1 well is 16,650 mg/l and the average TDS of Landers No. 2 well is 51,700 mg/l.
7. The discharger estimates that approximately 35,000 barrels of well cleanout water with salt concentration of 15,000 - 60,000 ppm will be discharged at each well. The maximum theoretical quantity of salts which would be removed from storage basins during clean-up operations would be seven cubic yards.
8. The discharger has stated that a maximum of approximately 12 - 15 persons will be working at the well sites at any one time. Portable sanitary facilities will be provided at the sites.
9. The discharger proposes that drilling muds will be stored in a leak-proof storage basin and later either neutralized and made arable, or trucked and discharged at a disposal site approved by the Executive Officer to receive these wastes. The possible drilling fluid components which may be used are:
 - Bentonite, or colloidal clay
 - Wyoming Bentonite plus .1% acrylic acid
 - Mica
 - Lignite, or leonardite brown coal
 - Tannic acid
 - Caustic soda
 - Cane fiber
 - Ground nut shells
10. The Water Quality Control Plan for the West Colorado River Basin was adopted on April 10, 1975. This Order implements the objectives stated in said Plan.

11. Beneficial uses to be protected by this Order are as follows:
 - a. Groundwater
 1. Shallow groundwaters at the discharge location are saline and are not beneficially used.
 - b. New River and Imperial Valley drains
 1. Limited public fishing activity.
 2. Transport of dissolved solids to the Salton Sea for agricultural soil salinity control.
 3. Freshwater habitat for fish and wildlife.
 4. Freshwater replenishment for the Salton Sea.
 - c. Salton Sea
 1. Water contact and non-contact recreation.
 2. Sport fishing activities.
 3. Water and vegetative habitat for the maintenance of wildlife.
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 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 cause a pollution or a nuisance.
2. Geothermal fluids and other wastes shall not enter the Salton Sea or any canals, drainage channels, or drains (including subsurface drainage systems or aquifers) which could provide flow or seepage to the Salton Sea.
3. Temporary discharge and/or storage of geothermal materials other than in water-tight basins is prohibited.
4. There shall be no seepage or overflow from temporary storage basins.

5. Adequate protective works and maintenance shall be provided to assure that storage basins will not become eroded or otherwise damaged.
6. A minimum freeboard of at least two (2) feet shall be maintained in all storage basins.
7. Storage basins shall not be located within 50 linear feet of any irrigation drainage ditch.
8. All geothermal wastes shall be removed from the storage basins and reinjected or discharged to a disposal site approved by the Executive Officer for such wastes. Cleanup of all contents shall be accomplished upon abandonment of the basins. Lack of activity on the site for a period of six (6) months shall constitute abandonment for the purposes of this Order.
9. Fluids discharged by subsurface injection at this location shall be discharged below a depth of 2500 feet, and shall not be discharged into any subsurface zone which has a total dissolved solids content of less than 10,000 mg/l, unless the quality of the injection water is comparable to that of the receiving water.
10. Drilling muds shall be discharged only at a disposal site approved by the Executive Officer.

B. Provisions

1. The discharger shall comply with the "Monitoring and Reporting Program 76-52", and future revisions thereto, as specified by the Executive Officer.
2. Prior to the discharge of any geothermal materials into storage basins, the discharger shall submit to the Regional Board 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.
3. Within 60 days after the completion of the reinjection program, or by November 1, 1979, at the latest, the discharger shall submit to the Regional Board a technical report on the injection program describing quality changes, temperature changes, and pressure changes in the injected zones.
4. Prior to destruction of any storage basin, the discharger shall inform the Regional Board of the discharger's intent and request a Regional Board staff inspection and approval of the cleanup procedure.

I, Arthur Swajian, 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 September 30, 1976.

Arthur Swajian

Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 76-52
FOR
REPUBLIC GEOTHERMAL, INC.
Northwest of Westmorland - Imperial County

Location: Section 36, T12S, R12E, SBB&M
Sections 20, 30, and 32, T12S, R13E, 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 fluid discharge to each storage basin	Gallons	Monthly
2. Volume contained in each storage basin	Gallons	Monthly
3. Electrical Conductivity or chemical analysis of waste fluid contained in each storage basin	micro-mhos/cm or mg/l	Monthly
4. Volume injected to subsurface strata from each storage basin	Gallons	Monthly
5. Volume directly reinjected to subsurface strata from each geothermal well	Gallons	Monthly
6. Electrical Conductivity or chemical analysis of waste fluid injected into each injection well	micro-mhos/cm or mg/l	Monthly
7. Electrical Conductivity or chemical analysis of ground-water contained in strata receiving waste fluid injection	micro-mhos/cm or mg/l	At least 10 days prior to commencement of injection

<u>Constituents</u>	<u>Units</u>	<u>Reporting Frequency</u>
8. Location and depth of injection well		At least 10 days prior to commencement of injection
9. Electrical Conductivity of flow from tile drain system underlying the area of each well and holding basin	micro-mhos/cm	Daily*, Monday through Friday
10. Within 10 days after the initial discharge of geothermal fluids from a well, the discharger shall report said initial discharge to the Board.		
11. Immediate reporting of any accidental spillage or release of waste material, and also, plan for immediate measures being taken to correct same and to limit detrimental effects.		
12. At least 10 days prior to destruction of any storage basin, the discharger shall request a Regional Board staff inspection and approval of the cleanup procedure.		
13. Report of completion of removal of all geothermal wastes from storage basins and cleanup of premises - reported within one week following completion of work.		

REPORTING

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

Monthly reports shall be submitted to the Regional Board by the 15th day of the following month. Reports for Item 11 (above) shall be forwarded immediately, and if at all possible shall be preceded by phone communication to the Regional Board's office. Phone No. (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.

*Tile drain monitoring shall commence one (1) week prior to the initial discharge of geothermal fluids into the holding basin, and shall continue until wastes are removed from the basin.

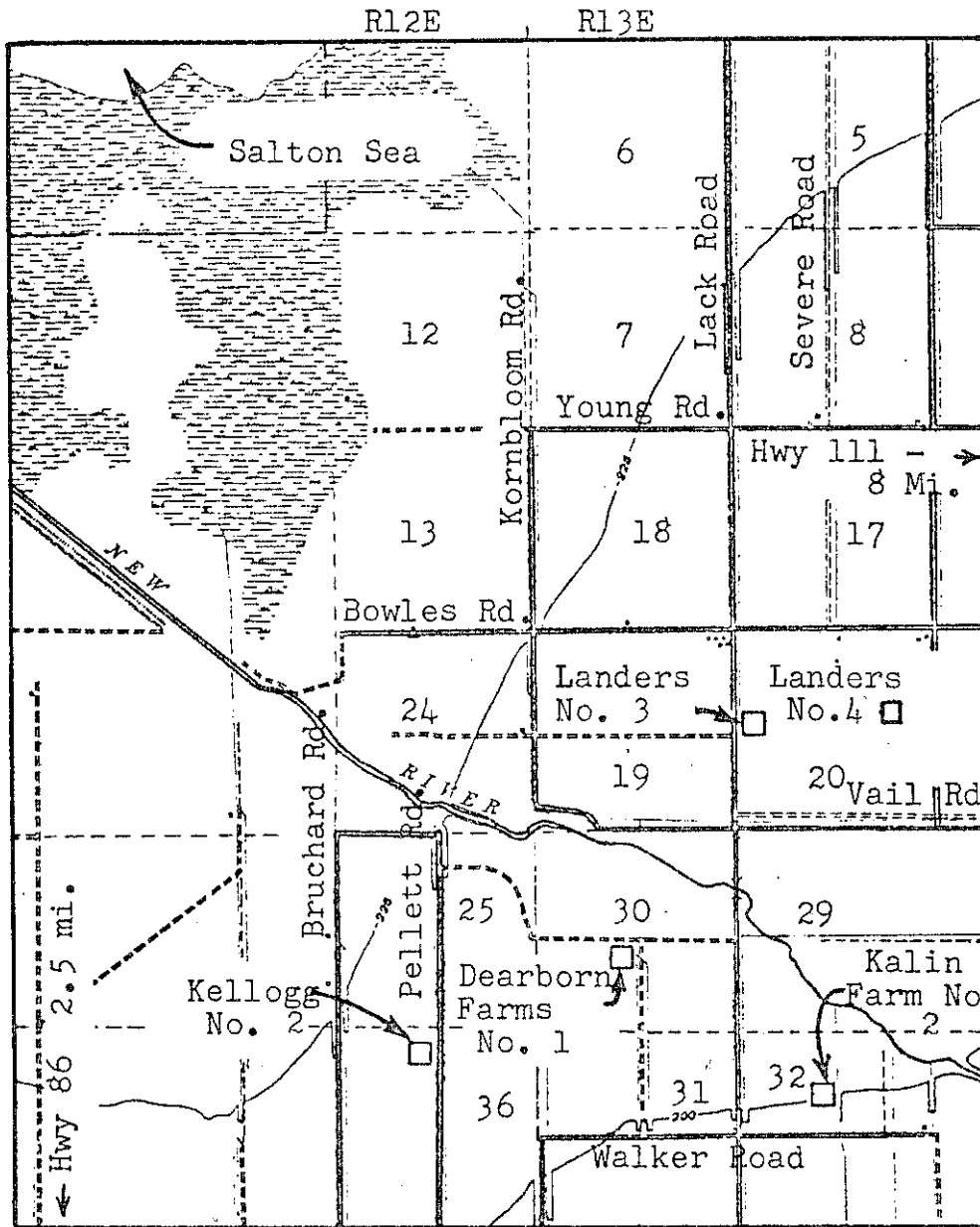
Mail reports to:

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

ORDERED BY

Arthur Sevajiam
Executive Officer

September 30, 1976
Date



SITE MAP

REPUBLIC GEOTHERMAL, INC.
 Location of Proposed Geothermal Wells
 Northwest of Westmorland - Imperial County

Section 36, T12S, R12E, SBB&M
 Sections 20, 30, and 32, T12S, R13E, SBB&M

Calipatria 15' Topographic Map

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