CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. 92-029

WASTE DISCHARGE REQUIREMENTS
FOR
HEBER FIELD COMPANY
PRODUCTION AND INJECTION WELLS
HEBER KNOWN GEOTHERMAL RESOURCE AREA (KGRA)
Imperial County

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

1. Heber Field Company (hereinafter referred to as the discharger), 343 Second Street, Los Altos, CA 94022, assumed operation of the Heber Geothermal Unit on December 26, 1991 from Chevron Geothermal Company of California. Chevron submitted an updated Report of Waste Discharge dated September 29, 1986. There have been no substantive changes to this discharge since 1986.

2. The discharge proposes to drill and operate up to 15 geothermal production wells on a 5-acre production island located in the SW¼, Section 34, T16S, R14E, SBB&M. The address is 895 Pitzer Road, Heber, CA 92249.

3. The discharger proposes to drill and operate up to a total of 12 geothermal injection wells from a 3.5-acre injection island located in the NE¼, Section 34, T16S, R14E, SBB&M and a 1.0-acre injection island located in the NW¼, SE¼, Section 27, T16S, R14E, SBB&M. The address is 301 Fawcett Road, Heber, CA 92249.

4. The following wastes would be produced during construction and operation of the production and injection wells:

   a) All existing wells were drilled using a self-contained mud system. This system recirculates drilling mud and retains cuttings produced during drilling operations so that no on-site sump is required or necessary for mud and/or cutting disposal.

   b) Well cleanout fluid, in the amount of approximately 500 barrels per well, would flow to portable metal tanks and either injected back into the KGRA or transported to a waste management facility.

   c) During well start-up operations and during periods of testing, the production wells would flow to a well start-up and testing facility which includes a separator stack and a 1500-barrel cement-lined sand pit. The fluid accumulated during these operations would then be pumped to the injection pipeline. Accumulations of sand and unreclaimable fluid in the sand pit would be periodically removed and discharged at a waste management facility, with approval of the Regional Board's Executive Officer.

d) Production fluids, during normal operations, would flow directly to the power plant and then flow to the injection island for return to the KGRA.

e) Any sand-fluid mixture would be removed from the geothermal fluid and discharged to the production island sandpit, with final disposal by injection and/or to a waste management facility, approved by the Regional Board to receive such waste.

f) Waste produced during reworking of wells would be discharged to either the start-up and testing facility or portable tanks, with final disposal by injection and/or to a waste management facility.

g) The 3.5-acre injection island has a well backflow facility which includes a series of metal tanks with a combined capacity of 2,000 barrels and a separator stack. These will be used to receive geothermal fluid during maintenance of the injection pumps. A proposed sand pit, designed by a California professional engineer, could be constructed in the future to receive from 60,000 to 120,000 gallons of fluid and scale per year resulting from interior pipeline cleaning. The operation presently does not warrant the construction of the proposed sand pit. Final disposal of wastes would be by injection and/or to a waste management facility, with approval by the Regional Board's Executive Officer.

The northerly 1.0-acre injection island will not have a backflow facility installed. However, if a backflow system becomes necessary, a temporary facility similar to the one described above would be constructed.

5. The facility has been subject to waste discharge requirements adopted in Board Order No. 86-083.

6. The Water Quality Control Plan for the Colorado River Basin Region of California was adopted May 15, 1991 and designates the beneficial uses of ground and surface waters in this Region.

7. The beneficial uses of the groundwater of the Imperial Hydrologic Subunit, as in the above Plan, include municipal and industrial uses. Shallow groundwater in two wells in the Heber area at a depth of 145 to 150 feet, have a total dissolved solids concentration of 9,410 mg/1 and 5,410 mg/1, and are not beneficially used.

8. The designated beneficial uses of ground waters in the Imperial Hydrologic Unit are:

a. Municipal supply (MUN)
b. Industrial supply (IND)

9. Within the Imperial Valley area of the Imperial Hydrologic Unit, much of the ground water is too saline for municipal use. The existing municipal use in this area is practically inconsequential.

10. The Imperial County Planning Department adopted on December 12, 1979, Master Environmental Impact Report No. 213-79 for a 500-megawatt geothermal development at Heber. This report indicates that this project would not have a significant effect on water quality.

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

12. Prior to discharge, a bond acceptable to the Regional Board's Executive Officer will be posted by the discharger to cover expected cleanup costs for the protection of the waters of the State.

13. Drilling, operation, maintenance and abandonment of geothermal production and injection wells is regulated by the California Division of Oil and Gas (DOG), and regulation of underground injection is the responsibility of the division, per a Memorandum of Understanding signed May 19, 1988, by State Water Resources Control Board and DOG.

14. The Board in a public meeting heard and considered all comments pertaining to this discharge.

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

A. Discharge Specifications

1. The treatment or disposal of wastes at this facility shall not cause pollution or nuisance as defined in Sections 13050(1) and 13050(m) of Division 7 of the California Water Code.

2. Geothermal cleanout fluid, test and production fluid shall be discharged for temporary storage into either:

   a) The well start-up and testing facility as described in Finding No. 2c; or

   b) Portable metal or other above ground containers as approved by the Executive Officer.

   The well start-up and testing facility and metal containers shall be protected and maintained to ensure their effectiveness.

3. Final disposal of reclaimed fluid shall be in accordance with DOG requirements, i.e. by subsurface injection via the injection well island and/or to a waste management facility approved by the Regional Board to receive such waste.

4. Accumulations of sand and unreclaimable fluid shall be periodically removed and discharged at a waste management facility approved by the Regional Board to receive such waste.

5. Fluids discharged by subsurface injection shall not be injected into any subsurface aquifer which has a TDS concentration of less than 10,000 mg/l, unless the TDS of the injection water is less than or equal to that of the receiving water, or the discharger can demonstrate to the satisfaction of

the Regional Board's Executive Officer that injection into said zone will not pose a threat to water quality.

6. Geothermal waste with extractable water containing a TDS concentration exceeding 6,000 mg/l shall be discharged at a Class I or Class II waste management facility approved by the Regional Board to receive such waste.

7. Geothermal waste with extractable water containing a TDS concentration less than 6,000 mg/l, and not containing hazardous constituents as defined in Article 11, Title 22 of the California Code of Regulations, and future editions, shall be discharged at a waste management facility approved by the Regional Board to receive such waste.

8. Final disposal of residual wastes, as listed in Specification A.2 above, and cleanup of containment facilities shall be accomplished upon treatment or closure of operations to the satisfaction of the Executive Officer. Lack of construction or operational activity on-site for a period of one year shall constitute abandonment for the purposes of this Order.

9. All fluids discharged by subsurface injection shall not be injected into any subsurface aquifer without the approval of the California Division of Oil and Gas.

10. The waste disposal facility shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods having a predicted frequency of once in 100 years.

B. Provisions

1. The discharger shall comply with "Monitoring and Reporting Program No. 92-029", and future revisions thereto, as specified by the Regional Board's Executive Officer.

2. Permanent (longer than one (1) year) on-site storage of geothermal fluid, cleanout fluid, and sand-fluid mixtures is prohibited.

3. Two feet of freeboard shall be maintained in the sand pit at all times.

4. The discharger shall submit to the Board, at least 30 days prior to commencement of operation at each well, a written report on the proposed method and estimated costs of cleanup and closure of each well site in accordance with the requirements of this Order.

5. Prior to any change in ownership or management of this operation, the discharger shall transmit a copy of this Board Order to the succeeding owner/operator, and forward a copy of the transmittal letter to the Regional Board.

6. This Board Order does not authorize violation of any federal, state, or local laws or regulations.

IT IS FURTHER ORDERED that Board Order No. 86-083 be superseded by this Board Order.

I, Philip A. 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 13, 1992.

Philip A Gruenberg
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 92-029
FOR
HEBER FIELD COMPANY
PRODUCTION AND INJECTION WELLS
HEBER KNOWN GEOTHERMAL RESOURCE AREA (KGRA)
Imperial County

Location of Discharge: SW¼, Section 34, T16S, R14E, SBB&M
NE¼, Section 34, T16S, R14E, SBB&M
NW¼, SE¼, Section 27, T16S, R14E, SBB&M

MONITORING

Heber Field Company shall report monitoring data to the Regional Board in accordance with the following schedule:

1. The discharger shall submit to the Board, at least 30 days prior to the commencement of operation at each well, a written report on the proposed method and estimated costs of cleanup and closure of each well site in accordance with requirements of Order No. 92-029.

2. The discharger shall submit a monthly report containing the following information:

Parameter	Unit	Reporting Frequency
a. Volume and type of geothermal waste contained in each container	Gallons	Quarterly
b. Volume of drilling muds containing greater than 6,000 mg/l TDS concentration discharged at a Class I or Class II waste management facility, and name of facility	Gallons	Quarterly

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

REPORTING

Except for Item 1, the above monitoring program shall be implemented immediately upon commencement of discharge at each site.

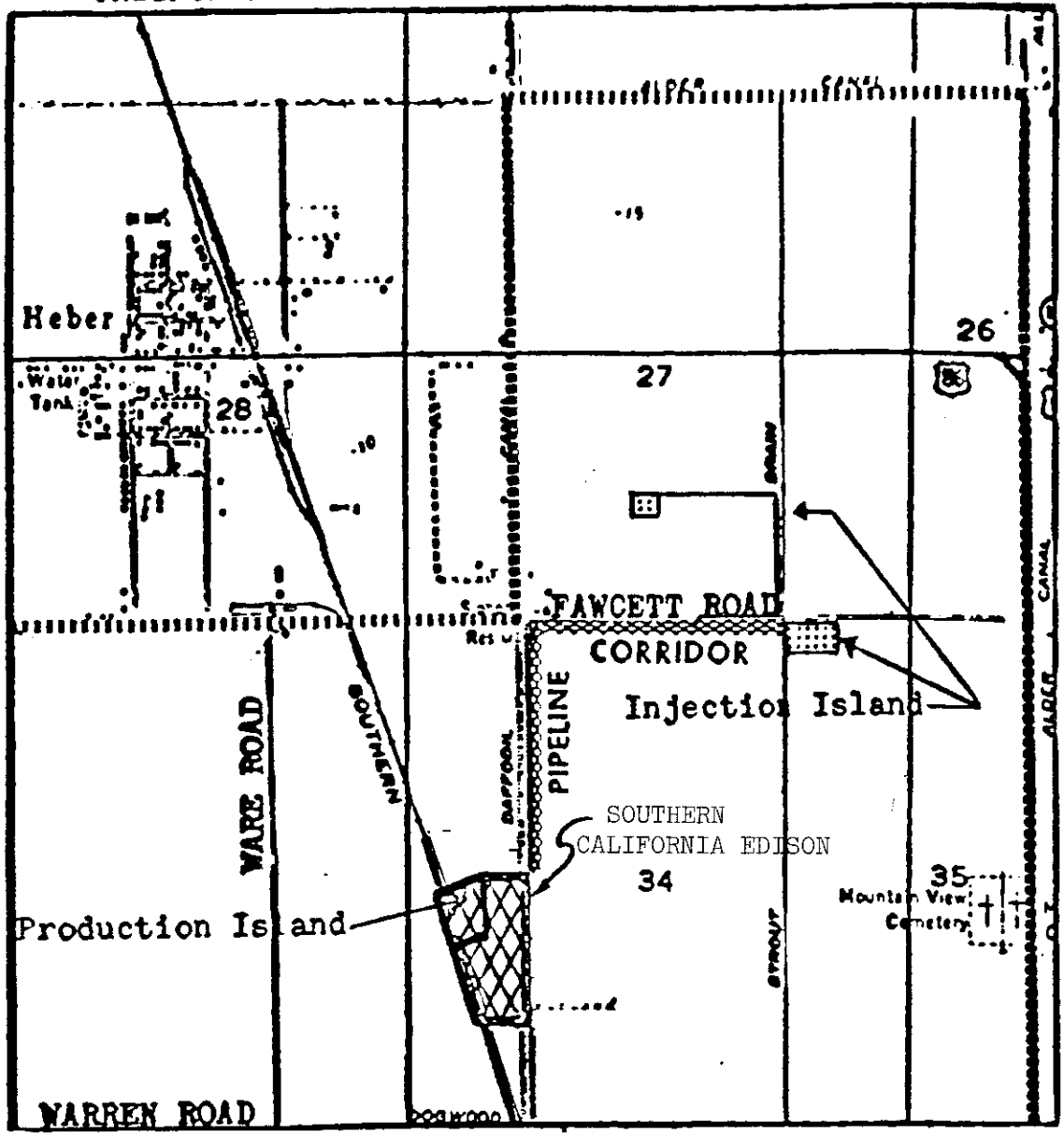
Quarterly monitoring reports shall be submitted to the Regional Board by January 15, April 15, July 15, and October 15 of each year.

Submit monitoring reports to:

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

ORDERED BY: Philip A Gruenberg
Executive Officer

May 13, 1992
Date



SITE MAP
HEBER FIELD COMPANY
PRODUCTION AND INJECTION WELLS
Heber KGRA - Imperial County

Production Wells: SW¼, Section 34, T16S, R14E, SBB&M
Injection Wells: NE¼, Section 34, T16S, R14E, SBB&M
NW¼, SE¼ Section 27, T16S, R14, SBB&M

Board Order No. 92-029