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

## ORDER NO. 80-6

# WASTE DISCHARGE REQUIREMENTS FOR CHEVRON U.S.A. INC. Heber Geothermal Project - Power Plant No. 1 Production and Injection Wells South of Heber - Imperial County

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

- Chevron U.S.A. Inc. (hereinafter also referred to as the discharger), c/o Chevron Resources Co. P.O. Box 3722, San Francisco, CA 94119, submitted a Report of Waste Discharge dated November 1, 1979.
- 2. The discharger proposes to drill production and injection geothermal wells and construct and operate geothermal fluid transportation and treatment facilities, which would provide heat for a 45 MW electric power generating plant operated by Southern California Edison Company.
- 3. The discharger proposes to drill and operate from 9 to 15 production wells which would all be drilled on about 5 acres of land (production island) located in the SW 1/4, Section 34, T16S, R14E, SBB&M.
- 4. The discharger proposes to drill and operate from 6 to 9 injection wells which would be drilled on about 3.5 acres of land (injection island) located in the NE 1/4, Section 34, T16S, R14E, SBB&M.
- 5. The following wastes would be produced during construction and operation of the production and injection wells.
  - a. Approximately 13,000 gallons of waste drilling mud and cuttings from each production well and 21,000 gallons of waste drilling mud and cuttings from each injection well, would be discharged to mud sumps.
  - b. Well cleanout fluid, in the amount of approximately 500 barrels per well, would be flowed to portable metal tanks and either injected back into the reservoir or transported to an approved solid waste disposal site.

-1-

Juperceoled 9/17/86

- c. Production fluids, during normal operations, would be transported directly to the power plant and then transported to the injection island for return to the reservoir.
- d. During well start-up operations and during periods of testing, the production wells would be flowed to a start-up facility consisting of a separator stack, 2000-barrel tank and 1500-barrel concrete lined sand pit. The fluid accumulated during these operations would then be pumped to the injection pipeline. Any fluid or sand remaining in the tank would be periodically dumped to the sand pit. Accumulations of sand and unreclaimable fluid in the sandpit, would be periodically removed and discharged at a solid waste disposal site approved to receive these wastes.
- e. Wastes produced during reworking of wells would be discharged to either the start-up facility or portable tanks, with final disposal by injection and/or to a solid waste disposal site approved to receive these wastes.
- f. A 7000-barrel tank and sand pit would be constructed at the injection island to receive geothermal fluid during maintenance of the injection pumps, and, also, to receive about 60,000 to 120,000 gallons of fluid and scale per year resulting from interior pipeline cleaning. Final disposal of these wastes would be by injection and/or to a solid waste disposal site approved to receive these wastes.
- g. Approximately 90,000 gallons of sand-fluid mixture would be removed from the geothermal fluid each year and discharged to a sand pit, located at the production island, with final disposal by injection and/or to a solid waste disposal site approved to receive these wastes.
- 6. The drilling mud components which may be used are:

Bentonite clay Sepiolite	Bicarbonate of soda Drilling detergent (diethenol-
Lignite	amide)
Caustic (Sodium Hydroxide)	Soda ash
Cypan (sodium polyacrylate)	Cotton seed hulls
•	Wood fiber

7. 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.

-2-

- 8. The Water Quality Control Plan for the West Colorado River Basin Region was adopted on April 10, 1975. The Basin Plan contains water quality objectives for Imperial Hydrologic Subunit.
- 9. Beneficial uses to be protected by this Order are as follows:
  - a. Groundwater
    - 1. Shallow groundwaters in two known wells located in the Heber area at a depth of 145 to 150 feet, have a total dissolved solids content of 9410 mg/l and 5,410 mg/l, and are not beneficially used.
    - 2. Agricultural subsurface drainage water which enters tile drains and open drains in the Heber area, has a total dissolved solids content of from 2400 mg/l to 12,200 mg/l, and eventually serves as a source of replenishment for Salton Sea.
    - 3. Deep groundwaters have a total dissolved solids content of 12,000 to 20,000 mg/1 and are being investigated for geothermal development.
- 10. Imperial County Planning Department adopted on <u>December 12</u>, 1979, Environmental Impact Report No. 213-79 for this project. This report indicates that this project would not have a significant effect on water quality.
- 11. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the proposed discharge.
- 12. The Board in a public meeting heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, Chevron U.S.A., Inc., shall comply with the following:

- A. Discharge Specifications
  - 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.

-3-

- 2. Geothermal fluids and other wastes shall not enter any canals, drainage channels, or drains (including subsurface drainage systems) which could provide flow to Salton Sea.
- 3. Temporary discharge and/or temporary storage of drilling mud, drill cuttings, and cleanout and flow test fluid, other than in mud sumps or other containers having a coefficient of permeability of lining in excess of 1 x 10<sup>-6</sup> cm/sec, is prohibited, and the fluids contained therein shall not penetrate through the lining during the containment period.
- 4. Long term storage and/or flow of geothermal materials for longer than one (1) year, other than in containers having a coefficient of permeability of lining in excess of 1 x 10<sup>-8</sup> cm/sec, is prohibited, and the fluids contained therein shall not penetrate through the lining during the containment period.
- 5. Materials discharged to and/or stored in containers shall not overflow said containers.
- 6. Adequate protective works and maintenance shall be provided to assure that each container of drilling mud and/or geothermal materials shall not become eroded or otherwise damaged by floods occurring during the project life of said container.
- 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 also, 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 mud 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 waste.
- 10. Final disposal of residual wastes in accordance with Specifications No. 7, 8 and 9, above, 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.

-4-

# B. Provisions

1. The discharger shall comply with "Monitoring and Reporting Program No. 80-6 and "General Provisions for Monitoring and Reporting," and future revisions thereto, as specified by the Executive Officer.

2. Prior to the discharge of any drilling mud or geothermal materials into a mud sump or other container, the discharger shall submit to the Regional Board a technical report on the construction of said container, and a certificate signed by a California Registered Civil Engineer stating that the container and attendant facilities are constructed to meet the requirements of this Order.

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 January 23, 1980.

letten Swapian

Executive Officer

# CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 80-6 FOR Chevron U.S.A. Inc. Heber Geothermal Project-Power Plant No. 1 Production and Injection Wells

South of Heber - Imperial County

# MONITORING

Chevron U.S.A. Inc. shall report monitoring data to the Regional Board in accordance with the following schedule:

### Regular Reporting Items

-1-

# Reporting Item

- 1. Volume and type of geothermal waste contained in each container.
- 2. Volume of saline drilling mud and salt and brine waste hauled to a Class I or Class II-l solid waste disposal site, and name of site.
- 3. Volume and Total Dissolved Solids concentration of non-saline drilling mud hauled to a Class II-2 solid waste disposal site, and name of site.
- 4. A grab sample of the water contained in Strout Drain shall be obtained at the Highway 86 crossing and analyzed for the following constituents and the results reported to the Regional Board.

Units	Reporting Frequency
Gallons	Monthly
Gallons	Monthly

Gallons and mg/l

Monthly

Semiannually Jan and July of each year

١.

Constituent Cations Ur		Units
(1)	Calcium (Ca)	mg/l
(2)	Magnesium (Mg)	mg/1
(3)	Sodium (Na)	mg/1
(4)	Potassium (K)	mg/l
(5)	Iron (Fe)	mg/l
(6)	Manganese (Mn)	mg/l
(7)	Zinc (Zn)	mg/l
(8)	Lead (Pb)	mg/l
(9)	Ammonia (NH <sub>3</sub> -N)	mg/l
<b>(</b> 10)	Lithium (Li)	mg/l
(11)	Strontium (Sr)	mg/l

# Anions

(12)	Carbonate (CO <sub>3</sub> )	mg/l
<b>(</b> 13)	Bicarbonate (HCO3)	mg/l
(14)	Sulfate (SO <sub>4</sub> )	mg/l
(15)	Chloride (Cl)	mg/l
(16)	Boron (B)	mg/l

-2-

# **Others**

(17)	Silica (SiO <sub>2</sub> )
(18)	Total Dissolved Solids
(19)	EC x $10^6$ at 25° C
(20)	рH
(21)	Temperature (at site)

mg/l
mg/l
Micromhos/cm
PH units
o <sub>F</sub>

#### OTHER REPORTING ITEMS

- 5. At least 20 days prior to the discharge of any drilling mud or geothermal materials into a mud sump or other container, the discharger shall submit to the Regional Board a technical report on the construction of said container, and a certificate signed by a California Registered Civil Engineer stating that the container and attendant facilities are constructed to meet the requirements contained in Board Order No. 80-6.
- 6. At least 10 days prior to initial discharge of any geothermal fluids from a well, the discharger shall report said initial discharge to the Board.
- 7. Chevron U.S.A. Inc. shall immediately report any accidental spillage or release of waste material, and also, the immediate measures being taking to correct same and to limit detrimental effects.
- 8. Report of completion of removal of all geothermal wastes from mud sumps reported within one week follow-ing completion of work.
- 9. At least 10 days prior to destruction of any mud sump, 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 each site.

Monthly reports shall be submitted to the Regional Board by the 15th day of the following month. Reports for Item 7 (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.

-3-

# Mail reports to:

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

thin Si anan

Executive Officer

January 23, 1980

Date



CHEVRON U.S.A. INC. Heber Geothermal Project - Power Plant No. 1 Production and Injection Wells South of Heber - Imperial County Production Wells: SW 1/4, Section 34, T16S, R14E, SBB&M Injection Wells: NE 1/4, Section 34, T16S, R14E, SBB&M

Order No. 80-6

Left and

# CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD COLORADO RIVER BASIN REGION

GENERAL MONITORING AND REPORTING PROVISIONS FOR LAND DISPOSAL OF WASTES

# GENERAL PROVISIONS FOR SAMPLING AND ANALYSIS

Unless otherwise noted, all sampling, sample preservation, and analyses shall be conducted in accordance with the current edition of "Standard Methods for the Examination of Water and Waste Water" or approved by the Executive Officer.

All analyses shall be performed in a laboratory certified to perform such analyses by the California State Department of Public Health or a laboratory approved by the Executive Officer.

All samples shall be representative of the waste discharge under the conditions of peak load.

### GENERAL PROVISIONS FOR REPORTING

For every item where the requirements are not met, the discharger shall submit a statement of the actions undertaken or proposed which will bring the discharge into full compliance with requirements at the earliest time and submit a timetable for correction.

By January 30 of each year, the discharger shall submit an annual report to the regional board. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the discharger shall discuss the compliance record and the corrective actions taken or planned which may be needed to bring the discharge into full compliance with the waste discharge requirements.

The discharger shall file a written report within 90 days after the average dry-weather flow for any month that equals or exceeds 75% of the design capacity of the waste treatment or disposal facilities. The report shall contain a schedule for studies, design, and other steps needed to provide additional capacity or limit the flow below the design capacity prior to the time when the waste flow rate equals the capacity of the present units.