Muni

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. 80-33

WASTE DISCHARGE REQUIREMENTS
FOR
EL CENTRO GEOTHERMAL WELLS NO. 1 AND NO. 2
El Centro - Imperial County

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

1. City of El Centro (hereinafter also referred to as the discharger), 1275 Main Street, El Centro, California 92243, submitted a Report of Waste Discharge, dated January 29, 1980.

2. The discharger proposes to drill a production and an injection well in El Centro within the SW¼ of the SE¼ of Section 32, T15S, R14E, SBB&M.

3. The discharger proposes to utilize the geothermal production fluid to heat a closed hot water loop to provide heat for space heating, cooling and domestic hot water at the El Centro Community Center. A cooling tower would be used from April to October to cool water from the heat exchangers. The blowdown wastewater produced, about 350 gallons per day, would be discharged into an on-site evaporation basin, which is to be 3 feet deep, 25 feet wide and 40 feet long with a capacity of 22,400 gallons.

4. The discharger proposes to construct at the production well site a mud sump, 100 feet by 50 feet by 10 feet deep with an approximate capacity of 374,000 gallons. The site would utilize about 3.7 acres of surface area.

5. The discharger proposes to discharge into the sump and steel tanks a maximun of 346,000 gallons of drilling mud. Following some evaporation, the residual mud would be discharged at a solid waste disposal site approved by the Regional Board to receive this waste.

Rescinded 11/14/84

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

Bentonite	Bicarbonate of soda	Sodium poly-acrylate
Lignite	Sepiolite	Drilling detergent
Caustic soda	Soda phosphate	Sealing materials (cottonseed hulls, fibers, mica flakes)
Barium sulfate	Soda ash	Drilling cuttings
Cement	Oil	

7. The discharger proposes to discharge into the sump and into steel tanks a maximum of 374,000 gallons of cleanout and flow test fluid. After some evaporation, the residual fluid would be discharged at a Class I or Class II-I solid waste disposal site approved by the Regional Board to receive this waste.

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 wastes.

9. Flow from production testing of geothermal wells would be injected back into the subsurface geothermal reservoir.

10. 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 Unit.

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.

        2. Deep groundwaters are saline and are being investigated for geothermal development.

    b. New and Alamo Rivers and Imperial Valley Irrigation Drains

        1. Transport of dissolved solids to Salton Sea for agricultural soil salinity control.

        2. Freshwater replenishment for Salton Sea.

        3. Freshwater habitat for fish and wildlife.

        4. Recreation - nonwater contact.

12. The City of El Centro adopted on February 19, 1980 an Environmental Impact Report for these wells. This report indicates that this project would not have any significant adverse effects on water quality.

13. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the proposed discharge.

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

IT IS HEREBY ORDERED, City of El Centro, shall comply with the following:

A. Discharge Specifications for Geothermal Wells

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 rivers, canals, drainage channels, or drains (including subsurface drainage systems) which could provide flow or seepage to Salton Sea.

3. Permanent disposal of drilling mud or any wastes is prohibited at the well site.

4. Adequate protective works and maintenance shall be provided to assure that the sump 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.

5. A minimum freeboard of at least two feet shall be maintained in the sump.

6. Temporary discharge and/or storage of drilling mud, and cleanout and flow test fluids other than in containers that have a lining coefficient of permeability of 1×10^{-6} cm/sec, or less, is prohibited, and the fluids contained within shall not penetrate through the lining during the containment period.

7. Long term storage and/or flow of geothermal wastes for longer than one (1) year, other than in containers having a lining coefficient of permeability of 1×10^{-8} cm/sec, or less, is prohibited, and the fluids contained therein shall not penetrate through the lining during the containment period.

8. 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 total dissolved solids of the injection water is less than or equal to that of the receiving water.

9. Drilling muds, with extractable water containing a total dissolved solids concentration which is less than 6,000 mg/l, and brine and salt wastes, shall be discharged at a Class I or Class II-1 disposal site approved by the Regional Board to receive said waste.

10. 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 of at a Class II-2 disposal site approved by the Regional Board to receive said wastes.

11. Final disposal of residual wastes in accordance with Specification Nos. 8, 9 and 10 (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. Discharge Specifications for Cooling Tower Blowdown Wastewater

1. The basin containing cooling tower blowdown wastewater shall have a lining coefficient of permeability of 1×10^{-6} cm/sec, or less.

2. A minimum freeboard of at least two feet shall be maintained in the basin.

3. Adequate measures shall be taken to assure that flood or surface drainage waters do not erode or otherwise render portions of the containment facilities inoperable.

4. Residue shall be periodically removed from the basin and discharged only at a Class I or Class II-1 disposal site approved by the Board to receive this waste.

5. There shall be no discharge of the wastewater contained in the basin to any drainage channel including subsurface agricultural tile drains.

*See Attachment A

C. Provisions

1. The discharger shall comply with "Monitoring and Reporting Program No. 80-33 and General Provisions for Monitoring and Reporting", and future revisions thereto, as specified by the Executive Officer.

2. At least 5 days prior to the discharge of any materials into the mud sump and/or evaporation basin, the discharger shall submit to the Regional Board a technical report showing the construction of the sump and basin, and a certificate signed by a California Registered Civil Engineer stating that the sump, 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 March 26, 1980.

Arthur Swajian
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ATTACHMENT A

Threshold Limit Concentrations for Persistent and Bioaccumulative Toxic Substances

Drilling mud, cuttings, and other geothermal wastes containing the following substances having concentrations equal to or greater than those listed below are designated as hazardous by the State of California Department of Health Services.

		Soluble Threshold Limit mg/kg	Total Threshold Limit net weight mg/kg
1.	Arsenic and compounds	5	50
2.	Barium (excluding barite) and compounds	100	1,000
3.	Lead compounds, inorganic	5	50
4.	Lead compounds, organic	---	13
5.	Manganese compounds	100	1,000
6.	Zinc compounds	17	170

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 80-33
FOR
EL CENTRO GEOTHERMAL WELLS NO. 1 AND NO. 2
El Centro - Imperial County

Location: Section 32, T15S, R14E, SBB&M

GEOTHERMAL MONITORING

City of El Centro shall report monitoring data to the Regional Board in accordance with the following schedule:

	Constituents	Units	Reporting Frequency
1.	Volume of geothermal wastes contained in the sump.	Gallons	Monthly
2.	Volume of saline drilling muds and salt and brine waste hauled to a Class I or Class II-1 solid waste disposal site, and name of site.	Gallons	Monthly
3.	Volume and total dissolved solids concentration of non-saline drilling muds hauled to a Class II-2 solid waste disposal site, and name of site.	Gallons and mg/l	Monthly
4.	Total dissolved solids concentration of waste fluid injected into the injection well.	mg/l	Monthly
5.	Total dissolved solids concentration of groundwater contained in strata receiving waste fluid injection.	mg/l	At least 10 days prior to commencement of injection.

Constituents	Units	Reporting Frequency
6. Representative samples of drilling mud, cuttings and geothermal fluid to be discharged at Class II-2 solid waste disposal sites shall be analyzed for the following constituents and the results reported to the Regional Board.		5 days prior to discharge
a. Arsenic and compounds	mg/kg	
b. Barium (excluding barite) and compounds	mg/kg	
c. Lead compounds, inorganic	mg/kg	
d. Lead compounds, organic	mg/kg	
e. Manganese compounds	mg/kg	
f. Zinc compounds	mg/kg	

7. At least 5 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. 80-33.

8. At least 10 days before the initial discharge of any geothermal fluids from each 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. Report of completion of removal of all geothermal wastes from the sump - reported within one week following completion of work.

11. At least 10 days prior to destruction of the sump, the discharger shall request a Regional Board staff inspection and approval of the cleanup procedure.

COOLING TOWER BLOWDOWN MONITORING

The discharger shall report to the Regional Board concerning the following:

1. Flow to basin - reported monthly in gallons

REPORTING

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

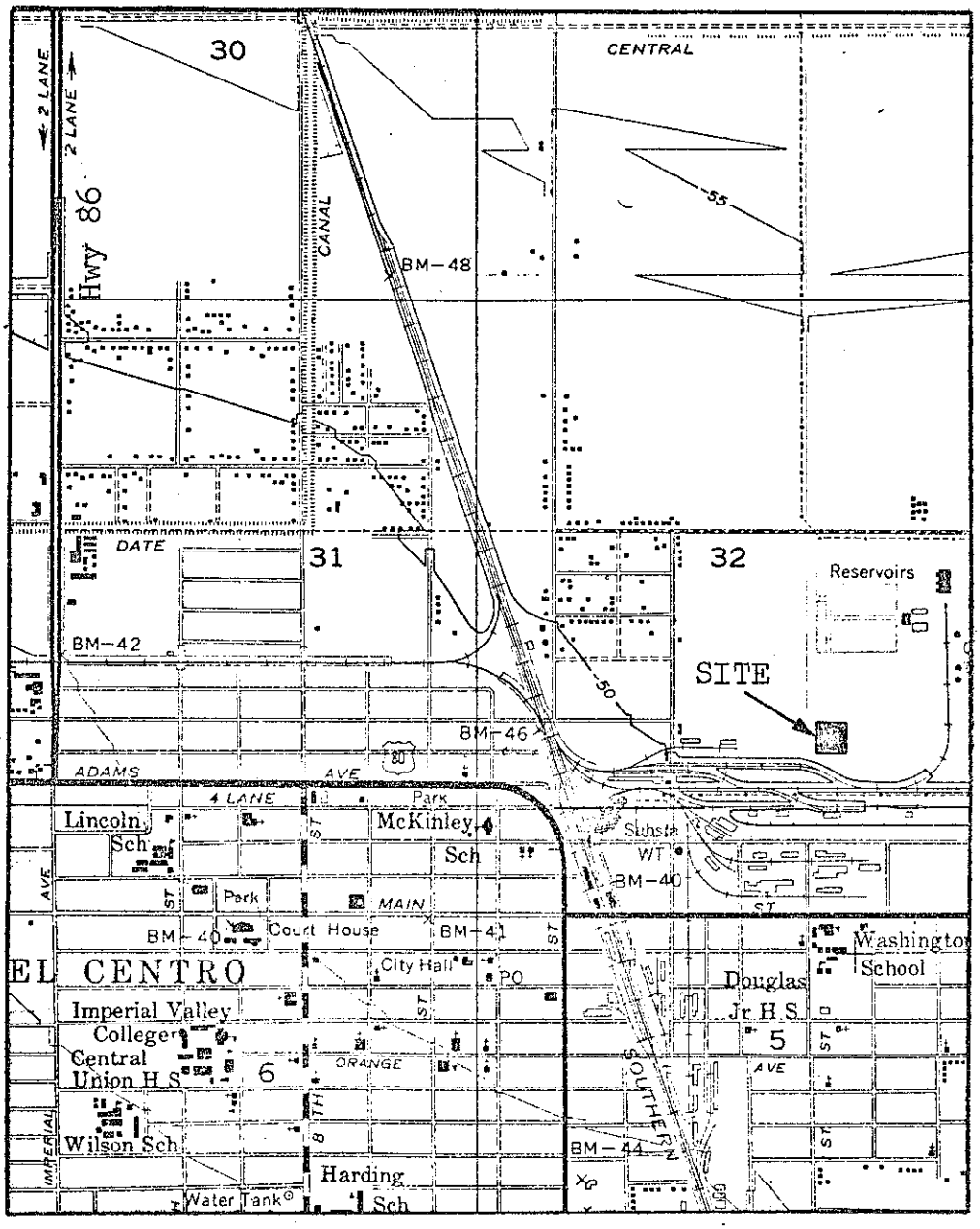
Monthly reports shall be submitted to the Regional Board by the 15th day of the following month. Reports for Item 9 (above) shall be forwarded immediately, and if at all possible, shall be preceded by phone communication to the Regional Board's office (714) 346-7491. Copies of the reports submitted to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

March 26, 1980
Date



N.

Scale:

1" = 2,000'

SITE MAP
EL CENTRO GEOTHERMAL WELLS NO. 1 AND NO. 2
El Centro - Imperial County
Portion of SW¼, SE¼ of Section 32, T15S, R14E, SBB&M
USGS El Centro 7.5 min. Topographic Map

Order No. 80-33

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.