

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. 84-109

WASTE DISCHARGE REQUIREMENTS
FOR
IMPERIAL MAGMA
DEL RANCH UNIT DEVELOPMENT - INJECTION WELLS
North of Westmorland - Imperial County

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

1. Imperial Magma (hereinafter also referred to as the discharger), P. O. Box 17760, Los Angeles, California, 90017, submitted a Report of Waste Discharge, dated August 18, 1984.
2. The discharger proposes to drill six (6) injection wells in the Salton Sea KGRA. These wells are to be located as follows:

IW-1 NE $\frac{1}{4}$, SE $\frac{1}{4}$, NW $\frac{1}{4}$ of Section 34, T11S, R13E, SBB&M
IW-2 SE $\frac{1}{4}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$ of Section 34, T11S, R13E, SBB&M
IW-3 SE $\frac{1}{4}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$ of Section 34, T11S, R13E, SBB&M
IW-4 NW $\frac{1}{4}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$ of Section 34, T11S, R13E, SBB&M
IW-6 NW $\frac{1}{4}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$ of Section 34, T11S, R13E, SBB&M
IW-7 NE $\frac{1}{4}$, NW $\frac{1}{4}$, NW $\frac{1}{4}$ of Section 34, T11S, R13E, SBB&M

3. The discharger proposes to discharge from three wells into an impermeable mud sump at each of two sites. Each mud sump is to be 80 feet by 200 feet by 5 feet deep with an approximate capacity of 600,000 gallons. Each site would utilize about one acre of surface area.
4. The discharger proposes to discharge into each mud sump a maximum of 450,000 gallons of drilling fluid. 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.
5. The drilling mud components which may be used are:

Bentonite	Bicarbonate of Soda
Lignite	Soda Ash
Caustic Soda	Salt

*Superseded
by
80-84
11/19/86*

Bentonite, Lignite and Salt are the principal components; the other substances are additives and may or may not be used depending on the particular drilling conditions.

6. The discharger proposes to discharge from each well approximately 21,000 gallons of cleanout fluid into steel holding tanks. After some evaporation, the residual fluid would be discharged at a Class I or Class II-1 solid waste disposal site approved by the Regional Board to receive this waste.
7. Geothermal brines in portions of Imperial County are known to contain certain constituents which are classified as hazardous by the Department of Health Services, Toxic Substances Control Division, in accordance with California Administrative Code, Title 22, Chapter 30, Article 9, Section 66680.
8. The Water Quality Control Plan for the Colorado River Basin Region of California was adopted by the Regional Board on May 16, 1984. The Basin Plan contains water quality objectives for the Imperial Hydrologic Unit.
9. Beneficial uses to be protected by this Order are as follows:
 - A. Ground Water
 1. Shallow ground waters at the discharge location are saline and are not beneficially used.
 2. Deep ground waters 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 - non-water contact.
10. Imperial County Planning Department adopted in November 1980 Environmental Impact Report SCH#79072515 for a proposed power plant and for these wells. The report indicates that this project would not have any significant adverse affects 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, Imperial Magma 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 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 sites.
4. Temporary discharge and/or storage of drilling mud and cleanout 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.
5. Permanent disposal of any waste at this site is prohibited; and interim storage of geothermal wastes for longer than one 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 within shall not penetrate through the lining during the containment period.
6. Adequate protective works and maintenance shall be provided to assure that the sumps will not become eroded or otherwise damaged during the project period, and/or until all well drilling and well cleanout materials are removed.
7. A minimum freeboard depth of at least two (2) feet shall be maintained in the sumps and other containers.
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 concentration of the injection water is less than or equal to that of the receiving water.
9. Saline 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-1 disposal site approved by the Regional Board to receive said wastes.
10. Non-saline 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.

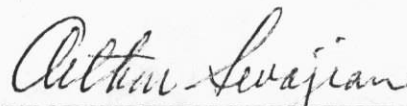
* See Attachment A

11. Final disposal of residual wastes in accordance with Specifications No. 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. Provisions

1. The discharger shall comply with "Monitoring and Reporting Program No. 84-109", and future revisions thereto, as specified by the Executive Officer.
2. At least 5 days prior to the discharge of any materials into a mud sump, the discharger shall submit to the Regional Board a technical report showing the construction of each sump, and a certificate signed by a California Registered Civil Engineer stating that the sump and attendant facilities are constructed to meet the requirements of this Order.
3. The discharger shall submit to the Regional 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 a manner that will not adversely effect water quality.
4. The discharger shall report to the Regional Board any drilling mud additives other than those set forth in Finding No. 5.

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 November 14, 1984.



Executive Officer

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

**ATTACHMENT A
to Board Order No. 84-109**

**Threshold Limit Concentrations
for
Bioaccumulative Toxic Substances**

A. Limitations

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.

	<u>Soluble Threshold Limit wet weight mg/kg</u>	<u>Total Threshold Limit wet weight mg/kg</u>
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. Zinc compounds	20	200

B. Definitions of Limitations

1. The waste is designated hazardous if the wet weight analysis of any of the above constituents exceed the Total Threshold Limits as listed above. The waste would therefore not be acceptable for disposal in a Class II-2 waste disposal site. No further analyses are necessary.
2. The waste is considered to contain non-hazardous levels of the above substances if all of the weight analyses of the above constituents do not exceed the Soluble Threshold Limits as listed above. The waste would therefore be acceptable for disposal in a Class II-2 waste disposal site provided the waste also complies with the other Discharge Specifications and Provisions in this Order. No further analyses of the metal constituents are necessary.

3. If the analyses of the waste do not conform to the conditions described under Section A or B, above, extractions of the soluble waste constituents must be made in accordance with a procedure approved by the Executive Officer and analyzed for those constituents in which the wet weight concentrations exceeded the Soluble Threshold Limits as listed above.

(a) If the wet weight analysis of any of the soluble constituents exceeds the Soluble Threshold Limits listed above, the waste is designated hazardous and is not acceptable for disposal in a Class II-2 waste disposal site.

(b) If the wet weight analyses of all of the soluble constituents do not exceed the Soluble Threshold Limits as listed above, the waste is considered to contain non-hazardous concentrations of these constituents. The waste would therefore be acceptable for disposal in a Class-II waste disposal site provided the waste also complies with the other Discharge Specifications and Provisions in this Order.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 84-109
FOR
IMPERIAL MAGMA
DEL RANCH UNIT DEVELOPMENT - INJECTION WELLS
North of Westmorland - Imperial County

Location of Discharge: NW $\frac{1}{4}$ of Section 34, T11S, R13E, SBB&M

MONITORING

Imperial Magma 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 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 a manner which would not adversely effect water quality.
2. 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. 84-109.
3. At least 10 days before the initial discharge of any geothermal fluids from each well, the discharger shall report said plan to discharge to the Board.

<u>Constituents</u>	<u>Units</u>	<u>Reporting Frequency</u>
4. Volume of geothermal wastes contained in each sump.	Gallons	Monthly
5. Volume of saline drilling mud and salt and brine waste hauled to a Class I or Class II-1 waste disposal site, and name of site.	Gallons	Monthly

<u>Constituents</u>	<u>Units</u>	<u>Reporting Frequency</u>
6. Volume and total dissolved solids concentration of non-saline drilling mud hauled to a Class II-2 waste disposal site, and name of site.	Gallons and mg/l	Monthly
7. Total dissolved solids concentration of waste fluid injected into each injection well.	mg/l	Monthly
8. 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

9. Representative samples of drilling mud, cuttings, and geothermal fluid to be discharged at a Class II-2 waste disposal site shall be analyzed for the following constituents (in accordance with Attachment A of Order No. 84-109), which shall be reported to the Regional Board five days prior to discharge:

<u>Constituents</u>	<u>Unit</u>
Arsenic and compounds	mg As/kg wet sample weight
Barium (excluding barite) and compounds	mg Ba/kg wet sample weight
Lead compounds, inorganic	mg Pb/kg wet sample weight
Lead compounds, organic	mg Pb/kg wet sample weight
Zinc compounds	mg Zn/kg wet sample weight

10. Immediate reporting of any drilling mud additives other than those set forth in Finding No. 5 of Order No. 84-109.
11. 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.
12. Report of completion of removal of all geothermal waste from mud sumps - reported within one week following completion of work.
13. At least 10 days prior to destruction of each 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 Nos. 10 and 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. (619) 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

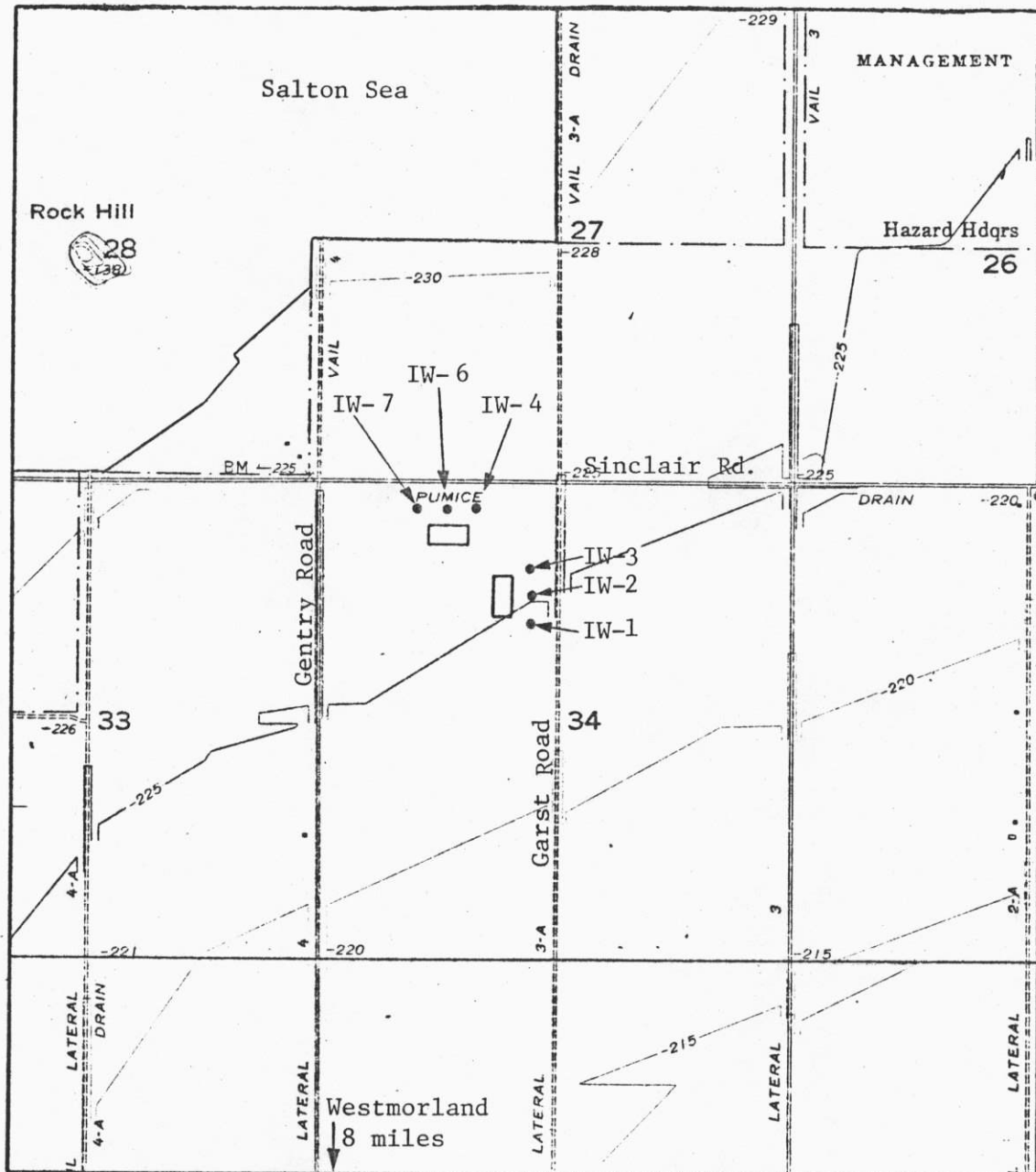
ORDERED BY:

Arthur Sogojian
Executive Officer

November 14, 1984

Date

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - 7



SITE MAP

IMPERIAL MAGMA
 DEL RANCH UNIT DEVELOPMENT - INJECTION WELLS
 North of Westmorland - Imperial County
 NW $\frac{1}{4}$ of Section 34, T11S, R13E, SBB&M
 USGS Niland 7.5 min. Topographic Map

Order No. 84-109