

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. 89-074

WASTE DISCHARGE REQUIREMENTS
FOR
FREEPORT-MCMORAN RESOURCE PARTNERS, LIMITED PARTNERSHIP
GEYSERS GEOTHERMAL COMPANY DIVISION
EXPLORATORY GEOTHERMAL WELLS
West of Niland - Imperial County

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

1. Freeport-McMoran Resource Partners, Limited Partnership, Geysers Geothermal Company Division (hereinafter also referred to as the discharger), P.O. Box 11279, Santa Rosa, California 95406-1279, submitted an updated report of waste discharge, dated May 25, 1989 which was deemed complete on July 20, 1989 by the Regional Board staff.
2. The discharger proposes to complete the exploratory program commenced by the previous discharger including 6 exploratory wells in the Niland area at 6 of the following 7 sites:

<u>Well</u>	<u>Location</u>
IID 1-14	NE $\frac{1}{4}$, NW $\frac{1}{4}$, SE $\frac{1}{4}$, of Sec. 14, T11S, R13E, SBB&M
State 2-14	SE $\frac{1}{4}$, NE $\frac{1}{4}$, SE $\frac{1}{4}$, of Sec. 14, T11S, R13E, SBB&M
Imperial 1-13	SW $\frac{1}{4}$, SW $\frac{1}{4}$, NW $\frac{1}{4}$, of Sec. 13, T11S, R13E, SBB&M
Imperial 2-13	SE $\frac{1}{4}$, SE $\frac{1}{4}$, NW $\frac{1}{4}$, of Sec. 13, T11S, R13E, SBB&M
Wilson 1-12	NW $\frac{1}{4}$, NW $\frac{1}{4}$, SW $\frac{1}{4}$, of Sec. 12, T11S, R13E, SBB&M
C. Belle 1-2	SE $\frac{1}{4}$, SE $\frac{1}{4}$, SE $\frac{1}{4}$, of Sec. 2, T11S, R13E, SBB&M
Parmenter 2-12	NE $\frac{1}{4}$, NE $\frac{1}{4}$, NE $\frac{1}{4}$, of Sec. 2, T11S, R13E, SBB&M

3. An impermeable mud sump, 100 feet by 50 feet by 5 feet deep with an approximate capacity of 200,000 gallons, and/or a series of steel tanks would be installed at each well site. Each site would utilize about 2.0 acres of surface area.
4. The discharger proposes to discharge into each mud sump and/or steel tank approximately 200,000 gallons of drilling mud, drilling cuttings, and cleanout fluid. Following some evaporation, the residual mud would be removed from the sumps and/or tanks and discharged at a waste management unit approved by the Regional Board to receive this waste. A two-foot freeboard will be maintained in each mud sump.
5. The drilling mud components which may be used are:

Bentonite	Lime
Lignite	Barite
Caustic Soda	Sepiolite

*3/29/95
Rescinded by
95-036*

6. Production flow testing fluids would be reinjected into injection wells.
7. Brine sludge from flashdown vessels and from gravity filter backwash would be discharged to a 150 ft. x 10 ft. holding basin with an approximate effective volume of 1.1 million gallons. After evaporation has reduced the sludge volume, the sludge will be removed and discharged at a Board approved waste management facility. The sludge holding basin would be located in the W $\frac{1}{2}$, SW $\frac{1}{4}$, Section 13, T11S, R13E, SBB&M.
8. Geothermal brines in portions of Imperial County are known to contain certain constituents which are classified as hazardous by the Department of Health Services (DHS), Toxic Substances Control Division, in accordance with Section 66680, Article 9, Chapter 30, Title 22 of the California Code of Regulations; however, DHS, by letter dated January 14, 1985, to the Regional Board, informs that wastes described in this Order are exempt from the requirements of the State's Hazardous Waste Laws, as set forth in Section 25143 of Division 20 of the Health and Safety Code.
9. The Water Quality Control Plan (Basin Plan) for the Colorado River Basin Region of California was adopted by the Regional Board on November 14, 1984. The Basin Plan contains water quality objectives for the Imperial Hydrologic Unit.
10. Beneficial uses to be protected by this Order are as follows:
 - a. Ground Water
 1. Shallow ground waters at the discharge location are highly saline and are not beneficially used.
 2. Deep ground waters are highly saline with a total dissolved solids content in excess of 250,000 mg/l, and are being investigated for geothermal development.
 - b. New and Alamo Rivers and Imperial Valley Drains
 1. Freshwater replenishment for Salton Sea.
 2. Warmwater habitat for fish and wildlife.
 3. Recreation - Non-water contact.
11. This discharge has been subject to waste discharge requirements contained in Order No. 85-036 for "Kennecott, Exploratory Geothermal Wells". The updated report of waste discharge requests a name change to "Freeport-McMoran Resource Partners, Limited Partnership, Geysers Geothermal Company Division", and additional changes in proposed facilities as set forth in this Order.
12. Imperial County Planning Department certified on January 26, 1983 Mitigated Negative Declaration SCH #3010250 for these wells. The Regional Board has reviewed this Negative Declaration. The below

waste discharge requirements are designed to assure against any significant adverse effects on water quality.

13. Geothermal projects are also regulated by the California Division of Oil and Gas. The Regional Board and the local District of the Division of Oil and Gas (located in El Centro) have worked together to review this project in accordance with the Memorandum of Agreement between the State Water Resources Control Board and the Division of Oil and Gas as originally approved in August 1982, with subsequent amendments approved on May 19, 1988.
14. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the proposed discharge.
15. The Board in a public meeting heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that Freeport-McMoran Resource Partners, Limited Partnership, Geysers Geothermal Company Division, shall comply with the following:

A. Discharge Specifications and Prohibitions

1. Neither the treatment nor the discharge of wastes shall create pollution or 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 the Salton Sea.
3. Permanent retention of drilling mud or any other wastes is prohibited at the well sites.
4. Geothermal drilling mud, drill cuttings, and cleanout fluid shall be discharged for temporary storage into either:
 - a. Earthen basins with a minimum 6-inch compacted clay lining having a liner permeability not to exceed 1×10^{-7} cm/sec. A clay lining shall be defined as at least 40 percent of the material, by weight, passing a No. 200 U.S. Standard Sieve.
 - b. Earthen basins lined with a synthetic liner of not less than 40 mil thickness, approved by the Executive Officer; or
 - c. Metal or other type containers approved for use by the Executive Officer.
5. Permanent (longer than 1 year) disposal or storage of geothermal wastes in on-site temporary containment basins constructed pursuant to Specification No. 4, above, is prohibited.
6. All such basins or containers shall be protected and maintained to ensure their effectiveness.

7. A minimum freeboard of at least 2 feet shall be maintained in the sumps, basins, and other containers.
8. Fluids discharged by subsurface injection shall not be discharged into any subsurface zone with 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 waste management facility approved by the Regional Board to receive said wastes.
10. Final discharge of residual wastes in accordance with Specifications 8 and 9, 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.
11. The discharger shall submit to the Board within 30 days of adoption of this Board Order, written adequate assurance that financial responsibility for cleanup of the facilities is feasible. This shall be in the form of the latest annual report for the discharger, as well as a Securities and Exchange Commission Form 10-K. Should the Regional Board Executive Officer determine that the Annual Report and Form 10-K are not adequate to prove financial assurance, then a closure bond of \$100,000 shall be submitted to the Regional Board office within 60 days from the date of said determination.

B. Provisions


1. The discharger shall comply with "Monitoring and Reporting Program No. 89-074" and future revisions thereto, as specified by the Executive Officer.
2. The discharger shall submit to the Regional Board, at least 10 days prior to the discharge of any material into a new basin as defined in Specification No. 4, above, a report prepared by a California Registered Civil Engineer or Certified Engineering Geologist certifying that the basin is constructed to meet the requirements of this Order.
3. 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 that will not adversely affect water quality.
4. Fluids discharged by subsurface injection shall be injected below the fracture pressure of the receiving aquifer and of the confining layer immediately above the receiving aquifer.
5. Fluids discharged by subsurface injection shall not be injected into any subsurface aquifer which has a Total Dissolved Solids (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 Executive Officer that injection into said zone will not pose a threat to water quality.

6. Prior to the disposal of any materials removed from the temporary storage basins, well pads, or other developed locations, other than by subsurface injection, the discharger shall inform the Regional Board Executive Officer concerning the nature and volume of the materials and the proposed location of disposal.

IT IS FURTHER ORDERED that Board Order No. 85-036 be superseded by this Order.

I, Phil 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 September 20, 1989.


Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 89-074
FOR
FREEPORT-MCMORAN RESOURCE PARTNERS, LIMITED PARTNERSHIP
GEYSERS GEOTHERMAL COMPANY DIVISION
EXPLORATORY GEOTHERMAL WELLS
West of Niland - Imperial County

Location of Discharge: Portions of Sections 2, 12, 13, and 14, T11S, R13E, SBB&M

MONITORING

Freeport-McMoran Resource Partners, Limited Partnership, Geysers Geothermal Company Division shall report monitoring data to the Regional Board in accordance with the following schedule:

1. 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 which would not adversely effect water quality.
2. At least 10 days prior to the discharge of any materials into a temporary storage basin 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 advising the Executive Officer that the temporary storage basin and attendant facilities are constructed to meet the requirements contained in Board Order No. 89-074.
3. The discharger shall submit a monthly report containing the following information:

<u>Constituents</u>	<u>Units</u>	<u>Reporting Frequency</u>
a. Volume of geothermal wastes contained in each sump.	Gallons	Monthly
b. Volume of saline drilling mud and salt and brine waste hauled to a Class I Waste Management Facility, and name of facility.	Gallons	Monthly
c. Volume and total dissolved solids concentration of non-saline drilling mud hauled to a Class III Waste Management Facility, and name of Facility.	Gallons and mg/l	Monthly
d. Total dissolved solids concentration of waste fluid injected into the injection well.	mg/l	Monthly

<u>Constituents</u>	<u>Units</u>	<u>Reporting Frequency</u>
e. Volume of waste fluid injected into each injection well	Gallons	Monthly
f. 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
4. 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.		
5. Report of completion of removal of all geothermal waste from drilling mud sumps - reported within one week following completion of work.		
6. At least 10 days prior to destruction of each drilling mud sump, the discharger shall request a Regional Board staff inspection and approval of the cleanup procedure.		

REPORTING

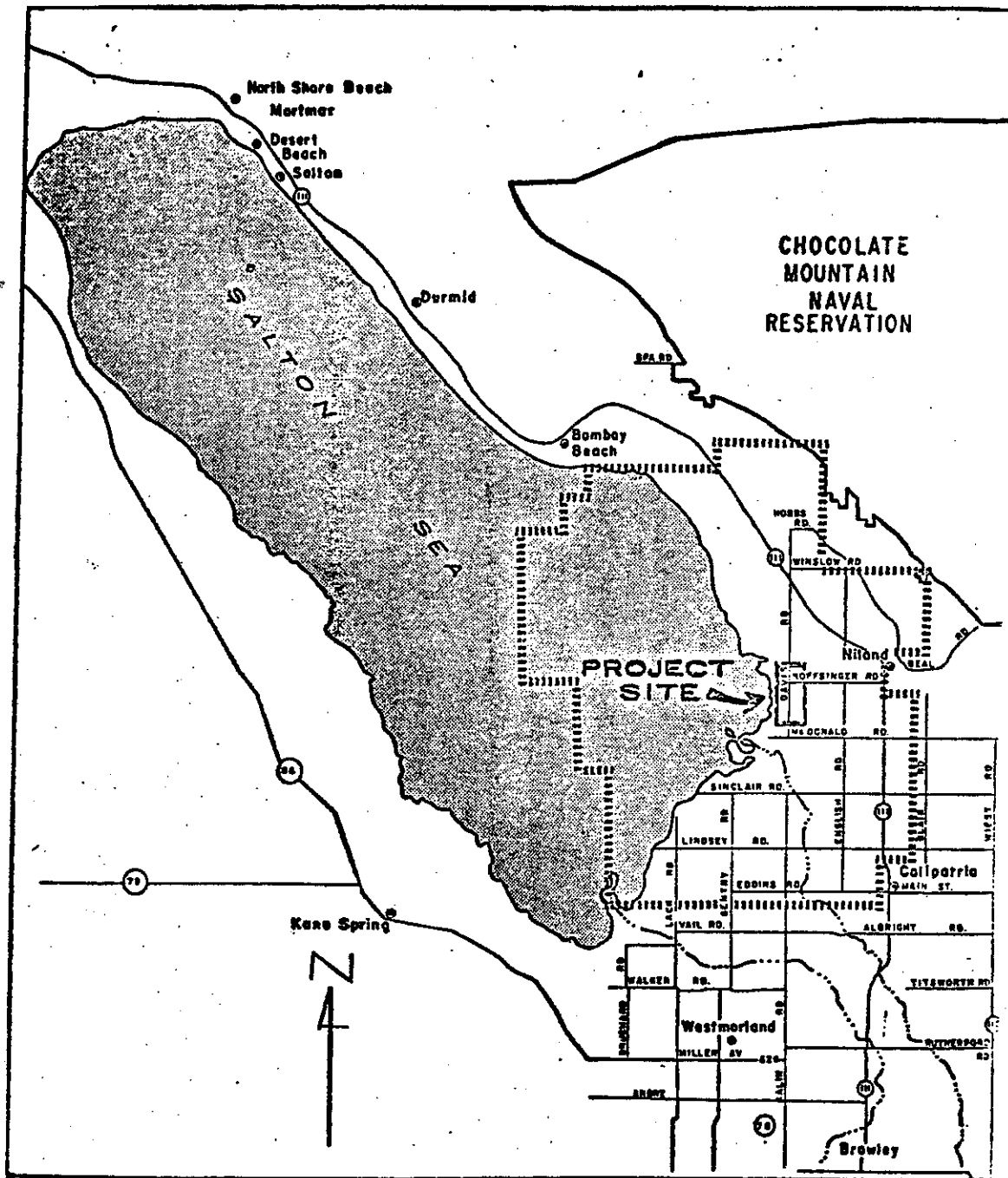
The above monitoring program shall be implemented immediately upon commencement of discharge at each site.

Monthly reports shall be submitted to the Regional Board by the 15th day of the following month. Reports for Item No. 4, above, shall be forwarded immediately and if at all possible shall be preceded by telephone 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:

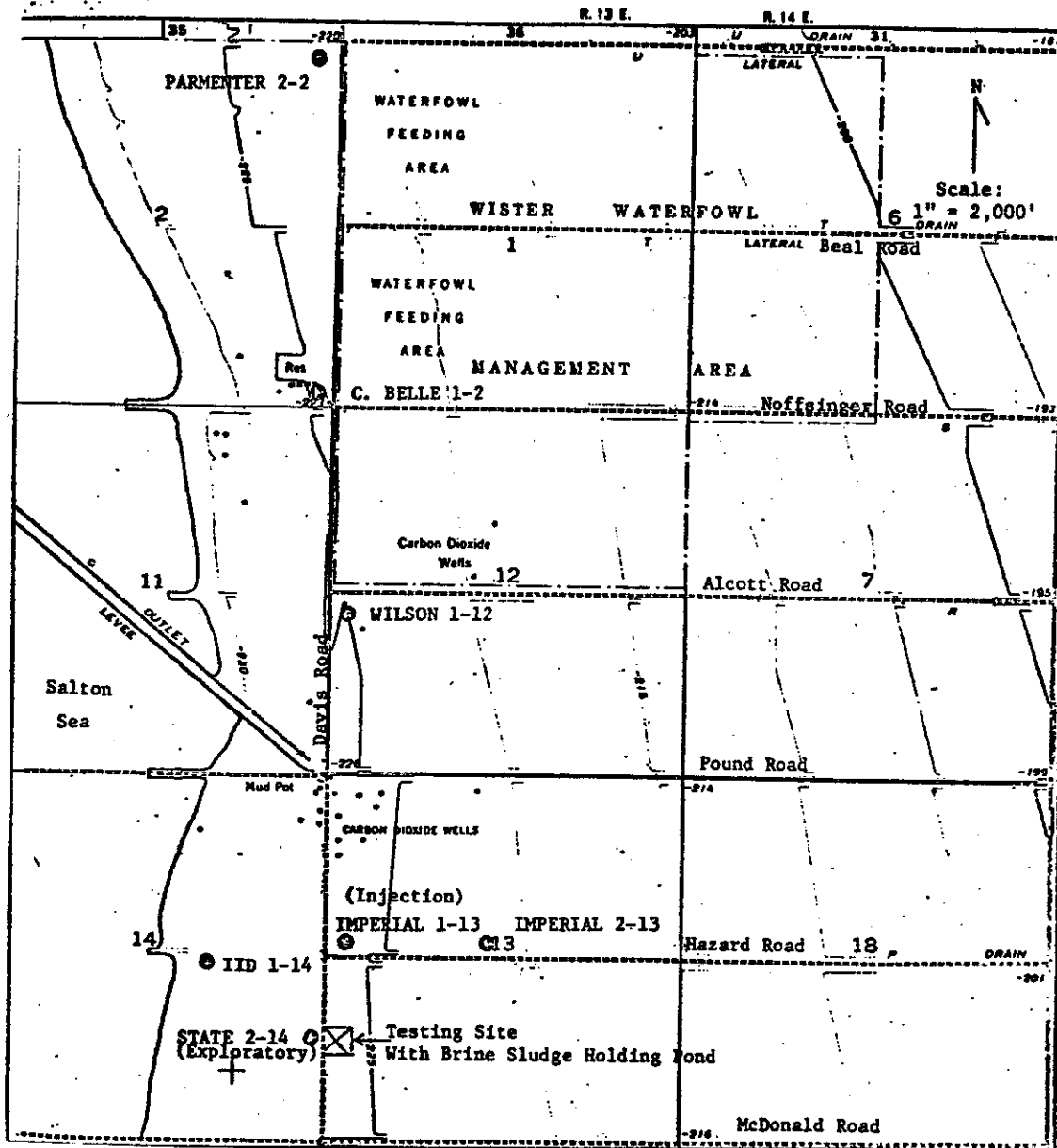
California Regional Water Quality Control Board
Colorado River Basin Region
73-271 Highway 111, Suite 21
Palm Desert, CA 92260

ORDERED BY: Phil Hemenberg
Executive Officer
September 20, 1989
Date



SITE MAP NO. 1

FREEMPORT-MCMORAN RESOURCE PARTNERS, LIMITED PARTNERSHIP
GEYSERS GEOTHERMAL COMPANY DIVISION
EXPLORATORY GEOTHERMAL WELLS
West of Niland - Imperial County
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SITE MAP NO. 2

FREEPORT-MCMORAN RESOURCE PARTNERS, LIMITED PARTNERSHIP
 GEYSERS GEOTHERMAL COMPANY DIVISION
 EXPLORATORY GEOTHERMAL WELLS
 West of Niland - Imperial County
 Sections of 2, 12, 13, and 14 of T11S, R13E, SBB&M
 USGS Niland 7.5 min. Topographic Map

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