

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION

ORDER NO. 78-4

WASTE DISCHARGE REQUIREMENTS  
FOR  
MAGMA ELECTRIC COMPANY  
GEOTHERMAL FACILITY COOLING WATER BASINS  
East Mesa Area - Imperial County

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

1. Magma Electric Company (hereinafter also referred to as the discharger) P.O. Box 2082, Escondido, CA 92025, submitted a report of waste discharge dated October 13, 1977.
2. The discharger proposes to contain cooling water for the condensers of a 10 megawatt geothermal test plant in 23 acres of storage basins located in the S½, Section 7, T16S, R17E, SBB&M. The basins would be lined with an impervious liner from which there would be no seepage. Since evaporation would increase the salinity of the cooling water, the salinity is to be stabilized by discharging some of the cooling water (blowdown) to Warren Drain and replacing it with fresh canal water.
3. Blowdown wastewater discharged to Warren Drain is subject to waste discharge requirements contained in Order No. 77-73 (NPDES No. CA0104876).
4. The discharger proposes to utilize Imperial Irrigation District water from the East Highline Canal for cooling water. Incoming water will be treated with the following chemicals:

<u>Chemical</u>	<u>Usage</u>	<u>Quantity per MG Incoming Water Treated</u>
Sulfuric Acid	pH Control	1000 lb/MG
Anticor 226L*	corrosion inhibitor	120 lb/MG
Chlorine	anti-fouling	120 lb/MG

\*Anticor 226L consists of Amino (methylene phosphonic acid,) and Hydroxyethylidene Diphosphonic acid and zinc chloride.

*Superseded  
11/20/85  
by 85-95*

5. The Water Quality Control Plan for the West Colorado River Basin was adopted on April 10, 1975. The Basin Plan contains water quality objectives for Imperial Hydrologic Unit.
6. There are no surface waters in the vicinity of the discharge. Table 5 of U.S.G.S. Professional Paper 486-K lists groundwater samples from wells within the East Mesa Area which have a Total Dissolved Solids content of less than 3,000 mg/l at depths of less than 900 feet. The discharger's soils report indicates that the source of shallow groundwater is infiltration from the Coachella and East Highline Canals, and that groundwater is found within ten feet below ground surface at the site in fine and median grained sands with a TDS of 4,700 mg/l.
7. The U.S. Geological Survey, Office of the Area Geothermal Supervisor has prepared Environmental Analysis No. 78 (draft), dated September 12, 1977. This report states that this project will not have any significant effects on the environment, and that possible impacts on shallow groundwater due to leakage from the storage basins, will be mitigated by lining the storage basins.
8. The Board has notified the discharger and interested persons and agencies of its intent to prescribe waste discharge requirements for the proposed discharge.
9. The Board in a public meeting heard and considered all comments pertaining to the discharge.

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

A. Discharge Specifications

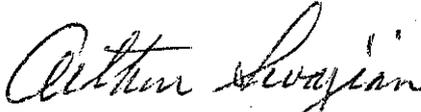
1. Neither the treatment nor the discharge of wastewater shall create a pollution or a nuisance as defined in Division 7 of the California Water Code.
2. A minimum freeboard depth of at least two feet shall be maintained in the storage basins.
3. Adequate measures shall be taken to assure that flood or surface drainage water do not erode or otherwise render portions of the containment facilities inoperable.
4. Shallow groundwaters shall not be degraded by wastewater discharged from cooling water storage basins by infiltration.
5. Basins containing cooling water shall be lined to reduce infiltration of contents to groundwater, and said liners shall have a permeability not greater than  $1 \times 10^{-6}$  cm/sec.

6. The contained cooling water shall not contain chromates or other toxic substances and chemicals which are deleterious to wildlife.

B. Provisions

1. The discharger shall install groundwater monitoring wells at locations approved by the Executive Officer. The wells shall extend into the water table to a depth of not greater than five feet.
2. Prior to the discharge of cooling water into storage basins, the discharger shall submit to the Regional Board a technical report showing the construction of said basins, and a certificate signed by a California Registered Civil Engineer stating that the basin and attendant facilities are constructed to meet the requirements of this Order.
3. The discharger shall notify the Board at least 30 days prior to any modification in this facility which could result in material change in the quality, quantity, or location of this discharge, including any change in water treatment chemicals.
4. In the event of any change in the ownership or control of the land upon which the discharge facilities are located, the discharger shall notify the succeeding owner or operator in writing of the existence of this Order, and also forward a copy of said communication to the Regional Board.
5. The discharger shall comply with the "Monitoring and Reporting Program No. 78-4" and "General Provisions for Monitoring and Reporting", and future revisions thereto, as specified by the Executive Officer.

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 25, 1978.

  
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Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 78-4  
FOR  
MAGMA ELECTRIC COMPANY  
GEOTHERMAL FACILITY COOLING WATER BASINS  
East Mesa Area - Imperial County

MONITORING

1. Prior to completion of construction of the basins, the discharger shall submit an analysis of the groundwater below each basin for total dissolved solids, chloride (Cl) and sulfate (SO<sub>4</sub>), and shall also submit the elevation of the water table.
2. The discharger shall report to the Regional Board at least ten days in advance of commencement of use of storage basins.
3. Upon commencement of use of storage basins, the discharger shall obtain a sample of water contained in each basin and each groundwater monitoring well and report to the Regional Board concerning the following:

<u>Constituent</u>	<u>Unit</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Sulfate (SO <sub>4</sub> )	mg/l	Grab	Monthly
Chloride (Cl) *	mg/l	Grab	Monthly
Total Dissolved Solids	mg/l	Grab	Monthly
Zinc	mg/l	Grab	Monthly

4. The discharger shall report the water table elevation in each groundwater monitoring well monthly.

REPORTING

Monthly monitoring reports shall be submitted to the Regional Board by the 15th day of the following month.

Forward monitoring reports to:

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

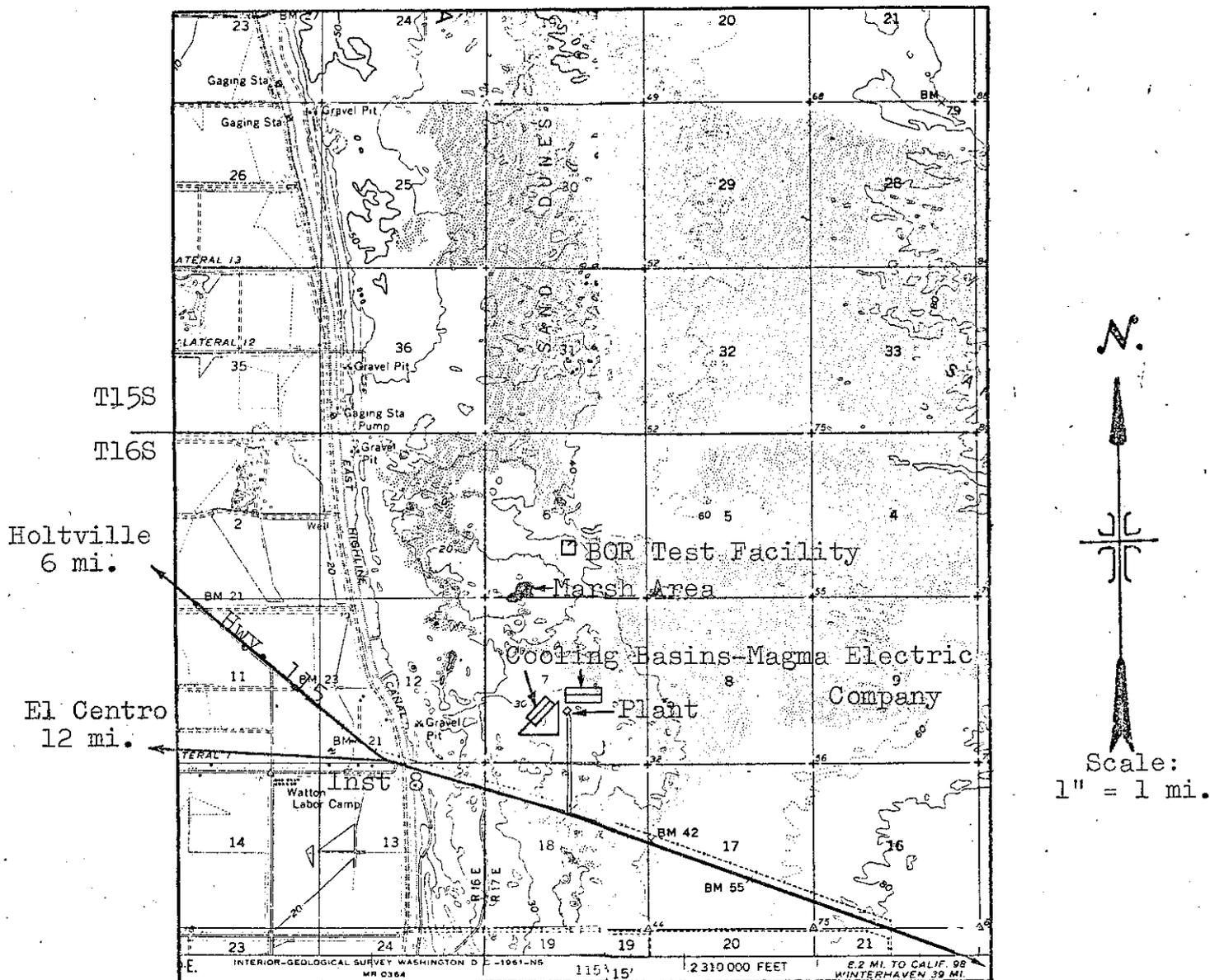
ORDERED BY:

*Arthur Levay*  
Executive Officer

January 25, 1978

Date

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD-7



SITE MAP  
 MAGMA ELECTRIC COMPANY  
 GEOTHERMAL FACILITY COOLING WATER BASINS  
 East Mesa Area - Imperial County  
 S½ of Section 7, T16S, R17E, SBB&M  
 Holtville and Glamis 15 min. Topographic Maps

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