

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION

ORDER NO. 91-054

WASTE DISCHARGE REQUIREMENTS  
FOR  
VULCAN/BN GEOTHERMAL COMPANY, A LIMITED PARTNERSHIP  
GEOTHERMAL DEVELOPMENT WELLS  
VULCAN/BN GEOTHERMAL POWER PLANT  
SALTON SEA KNOWN GEOTHERMAL RESOURCE AREA (KGRA)  
Southwest of Niland - Imperial County

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

1. Vulcan/BN Geothermal Company, a Limited Partnership (hereinafter referred to as the discharger), 11770 Bernardo Plaza Court, Suite 366, San Diego, California, 92128, submitted a Report of Waste Discharge dated September 4, 1991.
2. The existing geothermal facilities and geothermal development wells for the Vulcan/BN Geothermal Power Plant are regulated under Board Order No. 86-084, which was adopted by the Regional Board on November 19, 1986.
3. The discharger is planning to expand the capacity of the existing Vulcan/BN Geothermal Power Plant to a net of 45 megawatts (MW). As a result of this expansion project, the discharger is requesting an update of the Waste Discharge Requirements to allow for the increased number of geothermal development wells necessary for this expansion and to allow for an increase in the capacity of the containment basin to 350,000 gallons.
4. The discharger is currently modifying the existing Conditional Use Permit (No. 17-84) issued by the County of Imperial to enable the proper development of 22 geothermal wells.
5. The purpose of this Order is to update Board Order No. 86-084 in order to regulate the discharger under current laws and regulations regarding geothermal operations.
6. Environmental Impact Report SCH No. 79072515 was prepared for this project. Overall, the environmental impacts have been extensively reviewed in the Master EIR for a 49 MW Power Plant and the EIR for the Vulcan Power Plant (EIR # 211-78), including the Supplement of November, 1980 and the Addendum of July, 1984.
7. Geothermal projects on non-Federal lands are regulated by the California Division of Oil and Gas and applicable federal agencies. The Regional Board and the local District of the Division of Oil and Gas (located in El Centro) have reviewed 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.

8. The Water Quality Control Plan for the Colorado River Basin Region of California was adopted May 15, 1991 and designates the beneficial uses of ground and surface waters in this Region.
9. The designated beneficial uses of ground waters in the Imperial Hydrologic Unit are:
  - a. Municipal supply (MUN)
  - b. Industrial supply (IND)
10. Within the Imperial Valley area of the Imperial Hydrologic Unit, much of the ground water is too saline for municipal use. The existing municipal use in this area is practically inconsequential.
11. The beneficial uses of waters in the Imperial Valley Drains are:
  - a. Fresh Water Replenishment of Salton Sea (FRSH)
  - b. Noncontact Water Recreation (REC II)
  - c. Warm Water Habitat (WARM)
  - d. Wildlife Habitat (WILD)
  - e. Preservation of Endangered or Threatened Species (END)
12. The primary purpose of drains in the Niland area is for conveyance of drainage in support of agriculture.
13. Geothermal fluids in this portion of the Salton Sea KGRA contain approximately 25% (by weight) dissolvable solids. These fluids may be classified as hazardous in accordance with the criteria listed in Section 66699, Title 22 of the California Code of Regulations.
14. There are no domestic wells within 500 feet of the geothermal exploratory deep-test wells and other geothermal facilities described in Findings No. 2, and 3, above.
15. The Board has notified the discharger and all known interested agencies and persons of its intent to update waste discharge requirements for this discharge.
16. The Board in a public meeting heard and considered all comments pertaining to this discharge.

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

A. Discharge Specifications

1. The treatment or disposal of wastes at this facility shall not cause pollution or nuisance as defined in Sections 13050(1) and 13050(m) of Division 7 of the California Water Code.
2. Adequate measures shall be taken to assure that flood or surface drainage waters do not erode or otherwise render portions of the geothermal discharge facilities inoperable.

3. The geothermal facilities shall be designed, constructed, operated, and maintained to prevent any washout or erosion of wastes or covering material, and from any inundation which could occur as a result of floods having a predicted frequency of once in 100 years.
4. The discharge of any wastes to any surface waters or surface drainage courses is prohibited.
5. The discharger shall comply with "Monitoring and Reporting Program No. 91-054", and future revisions thereto, as specified by the Regional Board's Executive Officer.
6. Geothermal clean-out fluid, test and production fluid shall be discharged for temporary storage into either:
  - a. Earthen basins with a minimum 6-inch compacted clay lining<sup>1</sup> having a lining permeability of  $1 \times 10^{-6}$  cm/sec. or less.
  - b. Earthen basins lined with a synthetic liner of not less than 40 mil thickness, approved by the Regional Board's Executive Officer, or
  - c. Metal or other type containers approved by the Regional Board's Executive Officer.

All basins and containers shall be constructed, protected, and maintained to ensure their effectiveness.

7. Final disposal of residual wastes and cleanup of all containment basins and sumps shall be accomplished to the satisfaction of the Regional Board's Executive Officer upon abandonment or closure 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 Board Order.
8. A minimum depth of freeboard of two (2) feet shall be maintained at all times in all containment basins.
9. Additional injection and production wells may be drilled and developed as replacement or makeup wells within the areas described in the Project Description with the prior written approval of the Regional Board's Executive Officer and the Division of Oil and Gas. The wastes associated with such drilling, including the construction of drilling mud sumps, must be in accordance with Discharge Specifications No. 3 and 6 of this Order.
10. Fluids discharged by subsurface injection shall be injected into the receiving aquifer under requirements as set forth by the California Division of Oil and Gas.
11. All fluids discharged by subsurface injection shall not be injected into any subsurface aquifer without the approval of the California Division of Oil and Gas.

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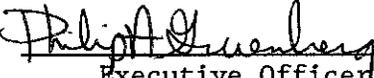
<sup>1</sup>Clay lining shall be defined as at least 40 percent of the material, by weight, passing a No. 200 U.S. Standard Sieve.

12. Prior to the disposal of any material removed from the temporary storage basins, well pads or other project locations, the discharger shall inform the Regional Board's Executive Officer concerning the nature and volume of the materials, and the proposed location of disposal.
13. Permanent (longer than 1 year) disposal or storage of geothermal waste in on-site temporary containment basins is prohibited.
14. At least 10 days prior to the initial discharge of any material into a new temporary containment basin, the discharger shall submit a report signed by a California Registered Civil Engineer to the Regional Board advising the Regional Board's Executive Officer that the containment basin and attendant facilities are constructed to meet the requirements of this Board Order.
15. The discharger shall submit a report prepared by a California Registered Civil Engineer to the Regional Board, certifying that the basin is constructed to meet the requirements of this Board Order at least 10 days prior to the discharge of any material into a new basin as defined in Discharge Specification No. 6, above.
16. Within 30 days of adoption of this Board Order, the discharger shall submit written adequate assurance to the Regional Board, that financial responsibility for cleanup of the facilities is feasible. This shall be in the form of the latest annual report from the discharger, as well as a Securities and Exchange Commission Form 10-K. Should the Regional Board's 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's office within 60 days from the date of said determination.
17. None of the geothermal fluids or cooling tower waters may be used on access roads, well pads, or other developed project locations for dust control.
18. Geothermal fluids or other wastes shall not enter any canals, natural or man-made drainage channels, or drains (including subsurface drainage systems) except as allowed under an appropriate National Pollutant Discharge Elimination System (NPDES) permit.
19. Prior to any modifications in this facility which would result in material change in the quality or quantity of wastewater treated or discharged, or any material change in the location of discharge, the discharger shall report all pertinent information in writing to the Regional Board; and obtain revised requirements before any modifications are implemented.
20. Prior to any change in ownership or management of this operation, the discharger shall transmit a copy of this Board Order to the succeeding owner/operator, and forward a copy of the transmittal letter to the Regional Board.
21. The discharger shall ensure that all site operating personnel are familiar with the content of this Board Order.

22. This Board Order does not authorize violation of any federal, state, or local laws or regulations.

IT IS FURTHER ORDERED that Board Order No. 86-084 be superseded by this Board Order.

I, Philip A. 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 November 20, 1991.

  
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Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 91-054  
FOR  
VULCAN/BN GEOTHERMAL COMPANY, A LIMITED PARTNERSHIP  
GEOTHERMAL DEVELOPMENT WELLS  
VULCAN/BN GEOTHERMAL POWER PLANT  
SALTON SEA KNOWN GEOTHERMAL RESOURCE AREA (KGRA)  
Southwest of Niland - Imperial County

Location of Discharge: Sections 25, 26, 33, 34, and 35, T11S, R13E, SBB&M

MONITORING

1. The discharger shall submit the following information:

<u>Constituent</u>	<u>Unit</u>	<u>Reporting Frequency</u>
a. Volume of discharge contained in each temporary containment basin.	Gallons	Monthly
b. Volume of geothermal waste discharged at a waste management facility, and name of facility.	Gallons	Monthly
c. Total Dissolved Solids concentration and volume of fluid injected into each injection well.	mg/l, Gallons	Monthly
d. Total Dissolved Solids concentration of ground water contained in strata proposed to receive fluid waste injection.	mg/l	At least 10 days prior to commencement of injection
e. Volume of waste fluid injected into each injection well.	Gallons	Monthly

2. Immediate reporting of any accidental spillage or release of waste material, and immediate measures being taken to correct same and to limit detrimental effects.
3. Report of completion of removal of all geothermal waste from temporary storage basins within 10 days of completion of the work.
4. At least 10 days prior to destruction of each temporary storage basin, the discharger shall request a Regional Board staff inspection and approval of the cleanup procedures.

REPORTING

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

Submit monitoring reports to:

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

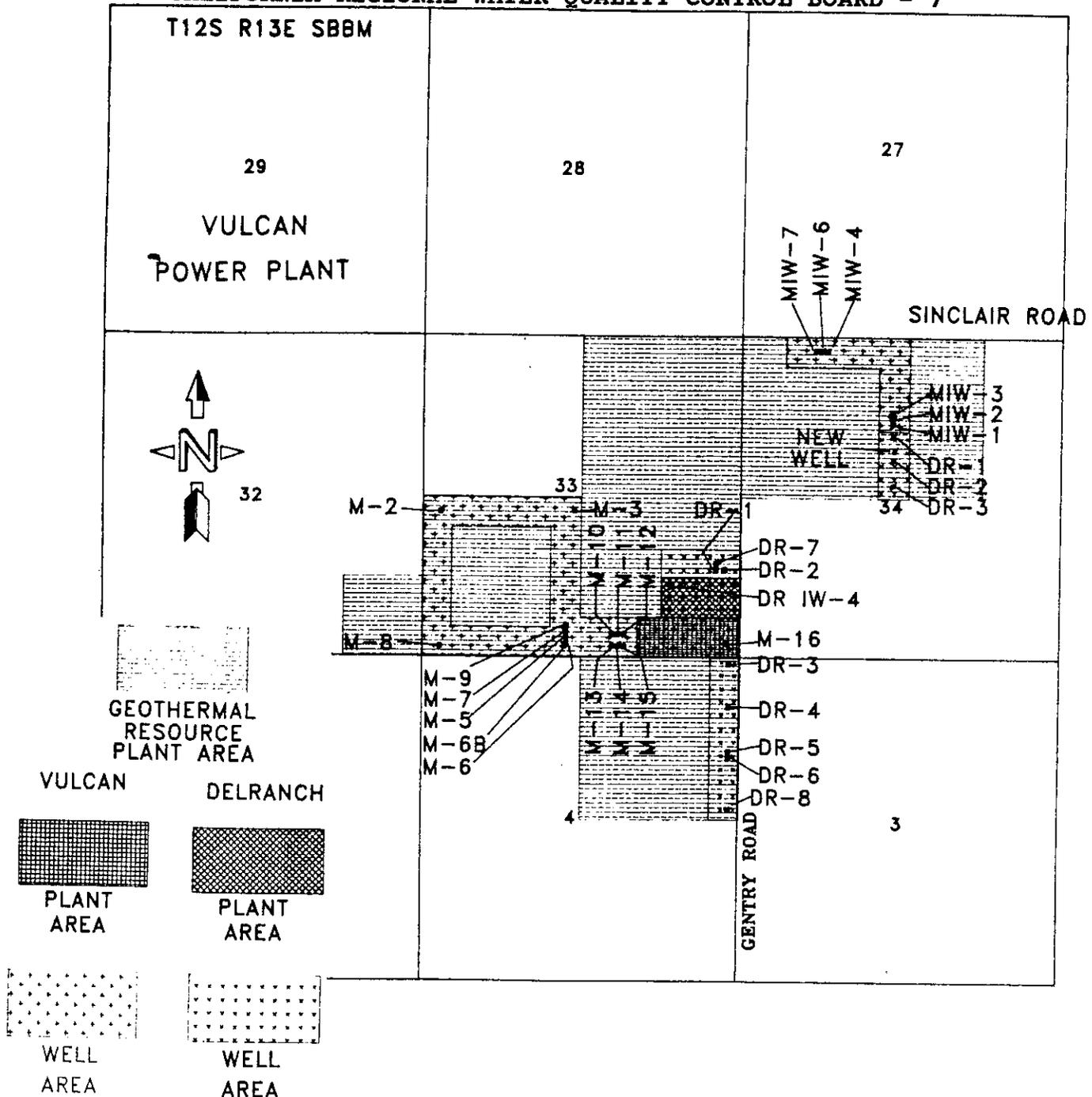
ORDERED BY:

Philip A. Gnanapavan  
Executive Officer

November 20, 1991

Date

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - 7



**SITE MAP**

VULCAN/BN GEOTHERMAL COMPANY, A LIMITED PARTNERSHIP  
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