

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION

ORDER NO. 77-31

WASTE DISCHARGE REQUIREMENTS  
FOR  
McCULLOCH GEOTHERMAL CORPORATION  
Brawley Area - Imperial County

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

1. McCulloch Geothermal Corporation (hereinafter also referred to as the discharger), 10880 Wilshire Blvd., Los Angeles, CA 90017, submitted a Report of Waste Discharge dated February 23, 1977.
2. The discharger proposes to drill one geothermal exploration well in the Brawley area of Imperial County located 2040' E and 2700' S from the NW corner of Section 28, T14S, R14E, SBB&M. The total operation will disturb about 2 acres of surface.
3. The discharger proposes that all drilling muds will be discharged to a storage basin situated approximately 50 feet from the well. Later, the muds will be trucked and discharged at a disposal site approved to receive these wastes. The possible drilling fluid components which may be used are:

gel  
lignite  
lubricating oil

caustic soda  
cyan  
bentonite

4. The discharger reports that the storage basin will be approximately 120 feet long by 60 feet wide by 5 feet deep.
5. The discharger proposes to discharge well cleanout fluid into the storage basin until the basin is full. The fluid would later be reinjected or discharged to a disposal site approved by the Regional Board.
6. The discharger states that a reinjection well will be drilled if geothermal potential is revealed at the site. The discharger proposes that reinjection will occur at a depth below 3,000 feet, where the salinity is estimated to be about 30,000 ppm of total dissolved solids.

*Reviewed  
by 89-015  
1/25/89*

*OK  
Jg/24  
Resubmitted by  
86 ST  
7/9/86*

7. The discharger proposes to flow test the exploration well by discharging a maximum of 168,000 gallons of geothermal fluid into the storage basin, where it would be either reinjected or trucked to a disposal site approved by the Regional Board.
8. The discharger is hereby informed that there are no waste disposal sites in Region 7 at this time that have been approved by the Regional Board to receive geothermal salt wastes.
9. The discharger states that approximately 8-15 persons will be working at the well site at any one time. Portable sanitary facilities will be provided at the site.
10. The Water Quality Control Plan for the West Colorado River Basin was adopted by the Regional Board on April 10, 1975. This Order implements the objectives stated in said Plan.
11. The Imperial County Planning Department has prepared a final Environmental Impact Report, No. 150-77, dated February 2, 1977. This report indicates that the project will not have any significant effects on the environment.
12. Beneficial Uses
  - a. Groundwater
    1. Shallow groundwaters at the discharge location are saline and are not beneficially used.
  - b. Imperial Valley Irrigation Drains
    1. Transport of dissolved solids to the Salton Sea for agricultural soil salinity control.
    2. Limited public fishing activity.
    3. Freshwater habitat for fish and wildlife.
    4. Freshwater replenishment for the Salton Sea.
  - c. Salton Sea
    1. Water contract recreation.
    2. Non-contact recreation.
    3. Water and vegetative habitat for the maintenance of wildlife.

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, McCulloch Oil Corporation, shall comply with the following:

A. Discharge Specifications

1. Neither the treatment nor the discharge of wastes shall cause a pollution or a nuisance.
2. Geothermal fluids and other wastes shall not enter the Salton Sea or any canals, drainage channels, or drains (including subsurface drainage systems or aquifers) which could provide flow or seepage to the Salton Sea.
3. Residual solids, with extractable water containing a total dissolved solids concentration exceeding 6,000 mg/l, shall be discharged at a disposal site approved by the Regional Board to receive said waste. Residual solids, with extractable water containing a total dissolved solids concentration which is less than 6,000 mg/l may be either disposed of at the site or disposed of at a Class II disposal site approved by the Regional Board to receive said waste.
4. The surface discharge of geothermal fluids is prohibited into any container that could cause flow or seepage to irrigation drains.
5. Prior to discharging geothermal fluids into the storage basin, the clay liner shall be maintained in a damp condition to prevent desiccation cracks from developing.
6. Adequate protective works and maintenance shall be provided to assure that the storage basin will not become eroded or otherwise damaged during the project period, and/or until all geothermal materials are removed.
7. A minimum freeboard of at least two (2) feet shall be maintained in the storage basin.

8. The storage basin shall not be located within 50 linear feet of any irrigation drainage ditch.
9. Fluids discharged by subsurface injection at this location shall not be discharged into any subsurface zone which has a total dissolved solids concentration of less than 10,000 mg/l, unless the quality of the injection water is comparable to that of the receiving water.
10. Final disposal of residual wastes, in accordance with Specification No. 3 and 9 above, 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. 77-31", and "General Provisions for Monitoring and Reporting", and future revisions, thereto, as specified by the Executive Officer.
2. Prior to the discharge of any geothermal materials into the storage basin, the discharger shall submit to the Regional Board, a technical report showing the construction of said basin, 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. This Order is for the discharge of only drilling muds, cleanout water and geothermal flow testing fluids from the exploration well specified in Finding No. 2 (above).

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 May 18, 1977.



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Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 77-31  
FOR  
McCULLOCH OIL CORPORATION  
Brawley Area - Imperial County

Location: SW Corner of Section 28, T14S, R14E, SBB&M

MONITORING

McCulloch Oil Corporation shall report monitoring data to the Regional Board in accordance with the following schedule:

<u>Constituents</u>	<u>Units</u>	<u>Reporting Frequency</u>
1. Volume discharged to the storage basin	Gallons	Monthly
2. Volume injected to sub-surface strata from the storage basin	Gallons	Monthly
3. Volume contained in the storage basin	Gallons	Monthly
4. Total dissolved solids content of waste fluid in the storage basin	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
6. Location and depth of strata for injection disposal		At least 10 days prior to commencement of injection

<u>Constituents</u>	<u>Units</u>	<u>Reporting Frequency</u>
7. Calibrated electrical conductivity of flow from tile drain system underlying the area of each well and holding basin.	Micromhos/cm	Daily*, Monday through Friday
8. Within 10 days after the initial discharge of geothermal fluids from a well, the discharger shall report said initial discharge to the Board.		
9. Immediate reporting of any accidental spillage or release of waste material, and also, plan for immediate measures being taken to correct same and to limit detrimental effects.		
10. Estimate of total amount (tons) of drilling muds hauled to a Class II solid waste disposal site upon completion of operations - reported in final monitoring report.		
11. Report of completion of removal of all geothermal waste from the storage basin and cleanup of the premises - reported within one week following completion of work.		
12. At least ten (10) days prior to destruction of the storage basin 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 9 (above) shall be forwarded immediately, and if at all possible shall be preceded by phone communication to the Regional Board's office. Phone Number (714) 346-7491. Copies of the reports submitted to the Board pursuant to this Monitoring and Reporting shall be maintained at the operations site, and shall also be made available to staff of the Regional Board upon request.

\*Tile drain monitoring shall commence one (1) week prior to the initial discharge of geothermal fluids into the holding basin, and shall continue until wastes are removed from the basin.

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

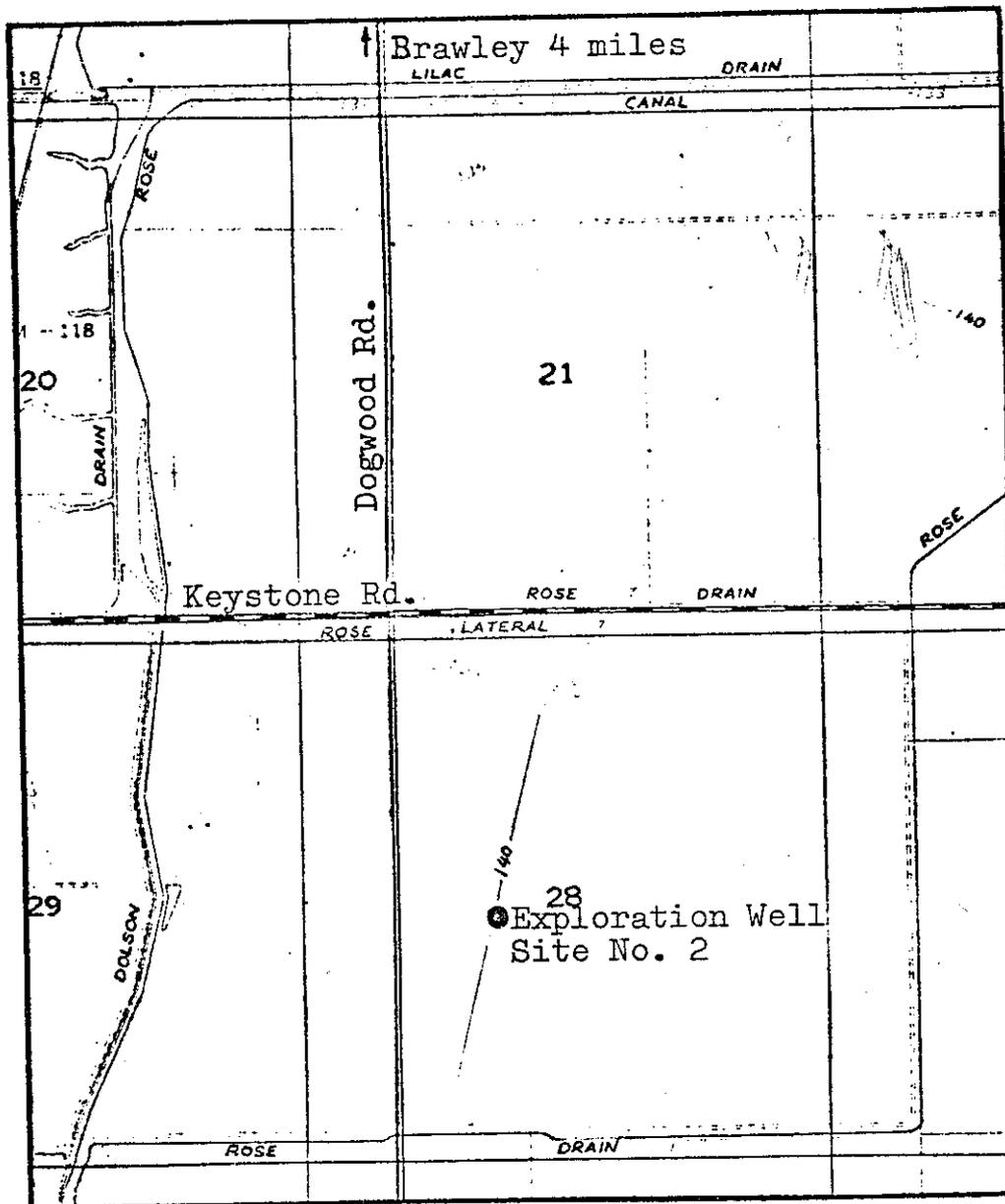
*Arthur L. Harrison*

Executive Officer

May 18, 1977

Date

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - 7



Scale:  
1" = 2,000'

SITE MAP

McCULLOCH GEOTHERMAL CORPORATION  
Brawley Area - Imperial County  
NE $\frac{1}{4}$  SW $\frac{1}{4}$  of Sec. 28, T14S, R14E, SBB&M  
U.S.G.S. Brawley 7.5 Min. Topographic Map

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