

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION

ORDER NO. 89-005

WASTE DISCHARGE REQUIREMENTS  
FOR  
UNOCAL CORPORATION  
RESIDUE PROCESSING FACILITY  
North of Westmorland - Imperial County

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

1. Unocal Corporation (hereinafter referred to as the discharger), P. O. Box 1805, Indio, CA 92202, submitted a Report of Waste Discharge dated August 11, 1988.
2. The discharger currently operates a geothermal salt dissolving and injecting facility in accordance with Waste Discharge Requirements (Board Order No. 81-22) as adopted by the Regional Board on May 20, 1981. Said facility has processed geothermal salt from containment basins located in the SE 1/4, Section 4, T12S, R13E, SBB&M. Salt from the original basins was dissolved and injected into a previously drilled geothermal well (IID-5) located at the Salton Sea Unit I Power Plant. Said Power Plant is operated in accordance with Waste Discharge Requirements (Order No. 88-57) adopted by the Regional Board on November 30, 1988.
3. The discharger reports that the salt dissolving process was completed in July 1988 and that 30,000 tons of undissolvable residues remained after injection of the soluble components. Said residues are mainly silt and clay, containing lead in concentrations slightly above the hazardous threshold as defined in Section 66699, Title 22 of the California Code of Regulations.
4. The discharger proposes to convert the existing facility into a geothermal residue processing facility to accommodate materials generated by Unocal Geothermal Division's operations in the Salton Sea Known Geothermal Resource Area (KGRA). The discharger proposes to process said materials in two steps as described below:
  - a. Materials would be rinsed to remove any dissolvable solids and the produced rinsate which would be injected subsurface through an approved geothermal well.
  - b. Remaining residual solids would be utilized to make a type of concrete, referred to by the discharger as "Geocrete", or utilized to make soil cement. The "Geocrete" and soil

cement would be tested to verify that they are non-hazardous and that they meet applicable water quality standards prior to being used for on-site construction purposes.

5. The discharger proposes to use the 30,000 tons of residual solids from the original facility to produce soil cement to be laid as a foundation for a 40-acre storage area along the east side of the facility and to be used for road construction within the facility.
6. The discharger proposes to construct up to four lined containment basins to be used to hold and dry the residual solids after the salt has been removed by dissolving the incoming materials in steel tanks. Residual solids would be slurried to the basins from the dissolving tanks and would be allowed to settle out in the basins. Excess liquids would be periodically decanted from the basins and injected subsurface.
7. The discharger would utilize new and existing salt dissolving equipment and proposes to construct a residue stockpile area to receive incoming loads of material prior to processing. Said stockpile area would have a liner and a secondary containment system.
8. The discharger reports that water is supplied to the facility from Imperial Irrigation District (IID) canals and that runoff from rainfall at the facility is directed to a central sump area and contained on site.
9. Geothermal fluids in this portion of the Salton Sea KGRA contain approximately 25% (by weight) dissolvable solids and may be classified as hazardous in accordance with the criteria listed in Section 66699, Title 22 of the California Code of Regulations.
10. The Water Quality Control Plan for the Colorado River Basin Region of California was adopted by the Regional Board on November 14, 1984.
11. 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. Freshwater replenishment for Salton Sea.
    2. Freshwater habitat for fish and wildlife.
    3. Recreation - nonwater contact.

The primary purpose of these waters is for conveyance of surface and subsurface drainage in support of agricultural production.

12. These waste discharge requirements govern an existing facility, which the discharger is currently operating. Therefore, this facility is exempt from the provisions of the California Environmental Quality Act in accordance with Section 15301, Chapter 3, Title 14 of the California Code of Regulations.
13. Geothermal projects are also regulated by the California Division of Oil and Gas. Regional Board staff 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 approved in August 1982.
14. The Board has notified the discharger and interested agencies and persons of its intent to update waste discharge requirements for the discharge.
15. The Board in a public meeting heard and considered all comments pertaining to the discharge.

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

A. Discharge Specifications and Prohibitions

1. Neither the treatment nor the discharge of wastewater shall create pollution or nuisance as defined in Division 7 of the California Water Code.
2. Containment basins described in Finding No. 6 above shall be constructed with a minimum six (6) inches compacted clay lining having a coefficient of permeability of  $1 \times 10^{-7}$  cm/sec or less. Clay lining shall be defined as at least 40 percent of the material, by dry weight, passing a No. 200 U.S. Standard Sieve. Alternative liner designs (including synthetic liners) may be used if the discharger demonstrates to the satisfaction of the Regional Board Executive Officer that said design will afford an equal or greater containment ability. Written approval of said designs must be obtained from the Executive Officer prior to use of said alternative liners.
3. Containment basins shall be designed and constructed to ensure that fluids contained in said basins do not penetrate through the lining during the operational life of said basins. Basins shall be protected and maintained to ensure their effectiveness.
4. A minimum depth of freeboard of at least two (2) feet shall be maintained in all containment basins at all times.

5. Adequate protective works and maintenance shall be provided to assure that containment basins and processing equipment shall not become eroded or otherwise damaged by floods occurring during the project life of said basins.
6. Geothermal fluids and 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.
7. Fluid discharged by subsurface injection shall not be injected into any subsurface aquifer which has a TDS concentration of less than 10,000 mg/l, unless the TDS concentration of the injection water is less than or equal to that of the receiving water.
8. Any subsurface injection at depths less than 1000 feet below ground surface shall have written approval of the Executive Officer prior to subsurface injection after the date of adoption of this Order.
9. The design and construction of the liner and secondary containment systems for the stockpile area, described in Finding No. 7 (above) shall receive written approval of the Executive Officer prior to the acceptance of additional materials into the stockpile area.
10. "Geocrete" and soil cement may be used for on-site construction or maintenance only if all of the following conditions are met:
  - a. "Geocrete" and soil cement shall not exceed the Soluble Threshold Limit Concentration (STLC) or the Total Threshold Limit Concentration (TTLC) values in accordance with Section 66699, Title 22 of the California Code of Regulations, and any future revisions, thereto.
  - b. Leachate produced from representative samples of "geocrete" and soil cement shall be tested using a bioassay procedure approved by the Executive Officer. Results of the bioassays shall demonstrate to the satisfaction of the Executive Officer that the produced leachate does not contain substances in concentrations toxic to human, animal, plant or aquatic life.
  - c. Use of "geocrete" and soil cement shall not cause violations of any applicable water quality standards for receiving waters adopted by the Regional Board or the State Water Resources Control Board as required by the Clean Water Act and regulations adopted thereunder.
11. Runoff from rainfall at the facility that comes in contact with wastes, residues, or equipment shall be collected on site and treated to remove all contaminants or shall be injected subsurface.
12. Final disposal of residual wastes and cleanup of containment facilities shall be accomplished upon abandonment or closure of operations to the satisfaction of the Executive Officer. Lack of

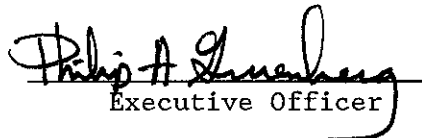
construction or operational activity on-site for a period of one year shall constitute abandonment for the purposes of this Order.

B. Provisions

1. The discharger shall comply with "Monitoring and Reporting Program No. 89-005", and future revisions thereto, as specified by the Executive Officer.
2. At least ten days prior to the discharge of any material into a containment basin, the discharger shall submit to the Regional Board a report signed by a California Registered Civil Engineer or Certified Engineering Geologist advising the Executive Officer that the containment basin and attendant facilities are constructed to meet the requirements of this Order.
3. The discharger shall submit to the Board, at least 30 days prior to discharge to any constructed facilities, written adequate assurance that money is committed in the amount of \$50,000.00 to ensure that all facilities are cleaned up and closed in accordance with the requirements of this Order.
4. Only geothermal wells approved by the Regional Board for injection of geothermal fluids shall be used as described in Finding No. 4.a. above.
5. In the event of any change in operation, or in control or ownership of land or waste disposal facilities owned or controlled by the discharger, the discharger shall:
  - a. Notify this Board of such change; and
  - b. Transmit a copy of this Order to the succeeding owner or operator, and file a copy of the transmittal letter with this Board.
6. This Order does not authorize violation of any federal, state, or local laws or regulations.

IT IS FURTHER ORDERED that Board Order No. 81-22 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 January 25, 1989.

  
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 89-005  
FOR  
UNOCAL CORPORATION  
RESIDUE PROCESSING FACILITY  
North of Westmorland - Imperial County

Location of Discharge: W 1/2, SE 1/4, Section 4, T12S, R13E, SBB&M

MONITORING

Unocal Corporation 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 new containment basin, a written report on the proposed method and estimated costs of cleanup and closure in accordance with the requirements of this Order.
2. At least ten days prior to the discharge of any material into a containment basin, the discharger shall submit to the Regional Board a report signed by a California Registered Civil Engineer or Certified Engineering Geologist advising the Executive Officer that the containment basin and attendant facilities are constructed to meet the requirements of this Order.
3. The discharger shall submit the following information:

<u>Constituent</u>	<u>Reporting Unit</u>	<u>Frequency</u>
a. Volume of discharge contained in each containment basin.	Gallons	Monthly
b. Volume of geothermal material received at the facility for processing, and origin of the material.	Gallons	Monthly
c. Total dissolved solids (TDS) concentration and volume of geothermal fluid injected into each injection well.	mg/l and Gallons	Monthly
d. TTLC and STLC values for "Geocrete" and	mg/l	Monthly

soil cement (inorganics only).

e. Volume and location of emplacement of "Geocrete" and soil cement.                      cubic feet                      Monthly

<u>Constituent</u>	<u>Reporting Unit</u>	<u>Frequency</u>
f. Bioassay results from "Geocrete" and soil cement leachate tests.	-	Quarterly
g. Total dissolved solids concentration of ground water contained in strata proposed to receive geothermal fluid injection.	mg/l	At least ten days prior to commencement of injection

4. Following each rainfall event that results in runoff from the facility being discharged to the IID drain system, or into any drainage network that flows to Salton Sea, a representative sample of said runoff shall be analyzed for TDS and for soluble lead (using the Waste Extraction Test). Results shall be submitted monthly, if available.
5. Immediate reporting of any accidental spillage or release of waste material and immediate measures being taken to correct same and to limit detrimental effects.
6. Report of completion of removal of all geothermal waste from containment basins within one (1) week following completion of work.
7. At least ten days prior to destruction of each containment basin, the discharger shall request a Regional Board inspection and approval of the cleanup procedures.

#### REPORTING

The above monitoring programs shall be implemented immediately upon commencement of discharge at the site.

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

Monthly reports shall be submitted to the Regional Board by the 15th day of the following month. Quarterly monitoring reports shall be submitted to the Regional Board by January 15, April 15, July 15, and October 15 of each year. Reports for Item 5 (above) shall be forwarded immediately and 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.

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:

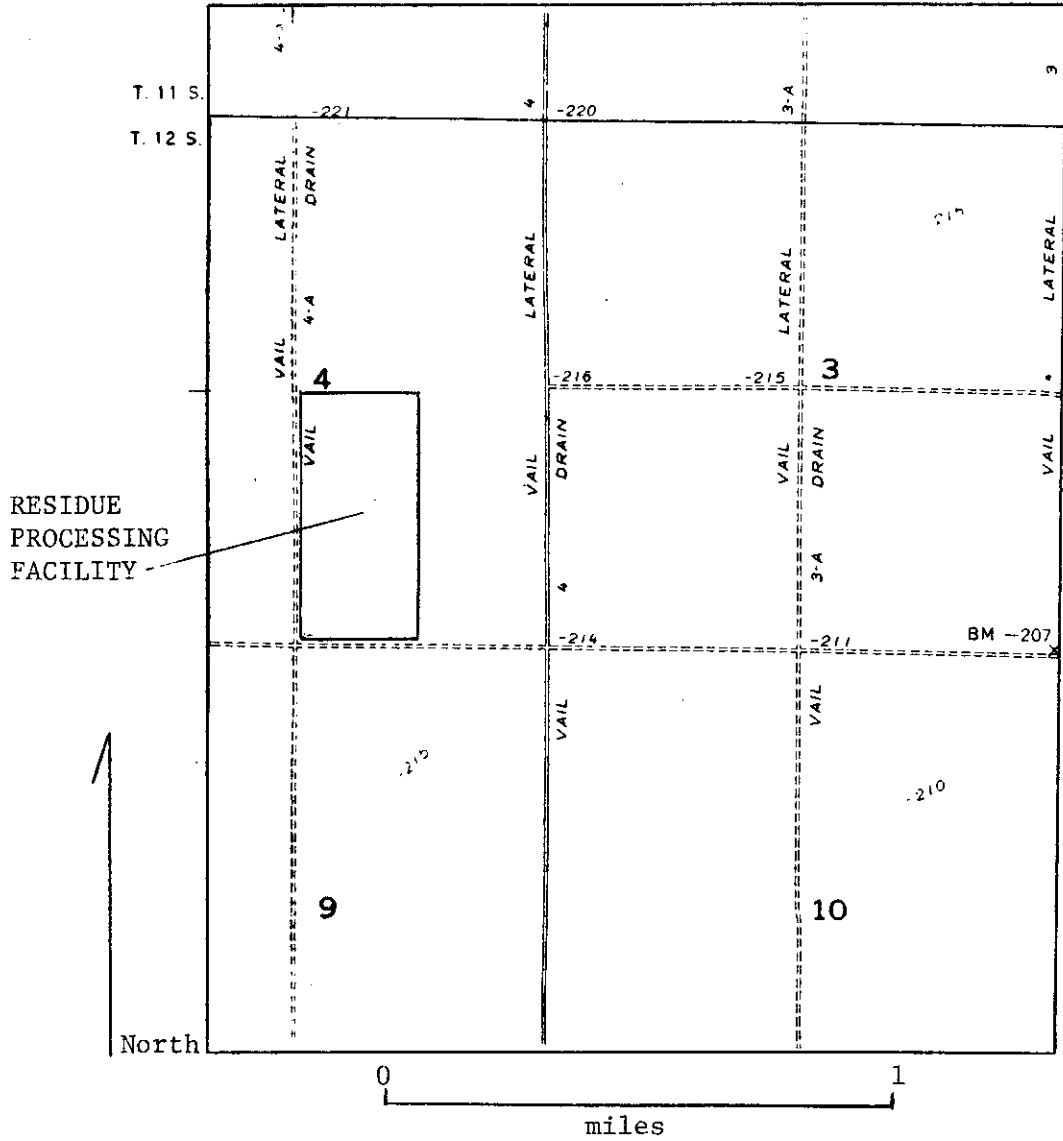
Philip A. Gumbert  
Executive Officer

January 25, 1989

Date



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - 7



UNOCAL CORPORATION  
RESIDUE PROCESSING FACILITY  
North of Westmorland - Imperial County

SE 1/4, Section 4, T12S, R13E, SBB&M  
USGS Niland 7.5 min. Topographic Map

Order No. 89-005