CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. 85-36

WASTE DISCHARGE REQUIREMENTS
FOR
KENNECOTT, EXPLORATORY GEOTHERMAL WELLS
West of Niland, Imperial County

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

1. Kennecott (hereinafter also referred to as the discharger), P.O. Box 11248, Salt Lake City, Utah, 84147, submitted an updated report of waste discharge, dated December 21, 1984.

2. The discharger proposes to drill six (6) exploratory wells in the Niland area at six (6) of the following seven (7) sites:

IID 1-14	NE¼, NW¼, SE¼ of Sec.14, T11S, R13E, SBB&M
State 2-14	SE¼, NE¼, SE¼, of Sec. 14, T11S, R13E, SBB&M
Imperial 1-13	SW¼, SW¼, NW¼, of Sec. 13, T11S, R13E, SBB&M
Imperial 2-13	SE¼, SE¼, NW¼,of Section 13, T11S, R13E, SBB&M
Wilson 1-12	NW¼, NW¼, SW¼ of Sec. 12, T11S, R13E, SBB&M
C. Belle 1-2	SE¼, SE¼, SE¼ of Sec. 2, T11S, R13E, SB&M
Parmenter 2-12	NE¼, NE¼. NE¼ 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 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 tanks a maximum of 126,000 gallons of drilling mud and drilling cuttings. 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.

5. The drilling mud components which may be used are:

Bentonite	Lime
Lignite	Barite
Caustic Soda	Sepiolite

Superseded
89-074
by 9/20/89

6. The discharger proposes to discharge approximately 200,000 gallons of cleanout fluid into a mud sump and/or steel tanks at each site. Following some evaporation, the residual fluids would be discharged at a Class I or Class II waste management unit approved by the Regional Board to receive this waste.

7. Production flow testing fluids would be reinjected into injection wells.

8. Brine sludge from flashdown vessels and from gravity filter backwash would be discharged to a 150 ft. x 100 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 Class I or Class II waste management unit. The sludge holding basin would be located in the W½, SW¼, Section 13, T11S, R13E, SBB&M.

9. Geothermal brines in portions of Imperial County are known to contain certain constituents which are classified as hazardous by the Department of Health Services, Toxic Substances Control Division, in accordance with California Administrative Code, Title 22, Chapter 30, Article 9, Section 66680; however, DHS, by letter dated January 14, 1985, 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.

10. The Water Quality Control 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 Imperial Hydrologic Unit.

11. 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 Irrigation Drains

        1. Transport of dissolved solids to Salton Sea for agricultural soil salinity control.

        2. Freshwater replenishment for Salton Sea.

        3. Freshwater habitat for fish and wildlife.

        4. Recreation - non-water contact.

12. This discharge has been subject to waste discharge requirements contained in Order No. 83-13 for "Bear Creek Mining Company". The updated report of waste discharge requests a name change to "Kennecott", and additional changes in proposed facilities as set forth in this Order.

13. Imperial County Planning Department certified on January 26, 1983 Mitigated Negative Declaration SCH 83010250 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.

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.

16. Imperial County Planning Department has required that the discharger file a blanket bond in the sum of $150,000 to "indemnify the County for any costs incurred by the County in repairing any drill, test or production facility site, as near as possible to its original state, and abating any public nuisance caused by the principal's exploratory testing or producing operations".

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

A. Discharge Specifications

1. Neither the treatment nor the discharge of wastes shall create a pollution or a 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 Salton Sea.

3. Permanent retention of drilling mud or any other wastes is prohibited at the well sites.

4. Temporary discharge and/or temporary storage for less than one (1) year of drilling mud, cleanout and flow test fluids, and brine sludge, other than in containers that have a lining coefficient of permeability of 1×10^{-6} cm/sec, or less, is prohibited, and the fluids contained within shall not penetrate through the lining during the containment period.

5. Long term storage and/or discharge of geothermal wastes for longer than one (1) year, other than in containers having a lining coefficient of permeability of 1×10^{-8} cm/sec, or less is prohibited, and the fluids contained within shall not penetrate through the lining during the containment period.

6. Adequate protective works and maintenance shall be provided to assure that the sumps will not become eroded or otherwise damaged during the project period, and/or until all materials are removed therefrom.

7. A minimum freeboard of at least two (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 which has 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 Class I or Class II waste management unit approved by the Regional Board to receive said wastes.

10. Non-saline drilling muds, with extractable water containing a total dissolved solids concentration which is less than 6,000 mg/l, and not containing hazardous wastes[1] may be discharged at a Class III waste management unit approved by the Regional Board to receive said wastes.

11. Final discharge of residual wastes in accordance with Specifications 8, 9, and 10 (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 (1) year shall constitute abandonment for the purposes of this Order.

B. Provisions

1. The discharger shall comply with "Monitoring and Reporting Program No. 85-36" and future revisions thereto, as specified by the Executive Officer.

2. At least five (5) days prior to the discharge of any materials into a mud sump, or containment basin, the discharger shall submit to the Regional Board a technical report showing the construction of the sump, or basin, and a certificate signed by a California Registered Civil Engineer stating that the sump or 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 comencement 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 effect water quality.

4. This Order supersedes Board Order No. 83-13.

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 March 13, 1985.

Arthur Swajian
Executive Officer

1. See Attachment A

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ATTACHMENT A
to Board Order No. 85-36

Threshold Limit Concentrations
for
Bioaccumulative Toxic Substances

A. Limitations

Drilling mud, cuttings, and other geothermal wastes containing the following substances having concentrations equal to or greater than those listed below are designated as hazardous by the State of California Department of Health Services.

	Soluble Threshold Limit wet weight mg/kg	Total Threshold Limit wet weight mg/kg
1. Arsenic and compounds	5	50
2. Barium (excluding barite) and compounds	100	1,000
3. Lead compounds, inorganic	5	50
4. Lead compounds, organic	—	13
5. Zinc compounds	20	200

B. Definitions of Limitations

1. The waste is designated hazardous if the wet weight analysis of any of the above constituents exceed the Total Threshold Limits as listed above. The waste would therefore not be acceptable for disposal in a Class II-2 waste disposal site. No further analyses are necessary.

2. The waste is considered to contain non-hazardous levels of the above substances if all of the weight analyses of the above constituents do not exceed the Soluble Threshold Limits as listed above. The waste would therefore be acceptable for disposal in a Class II-2 waste disposal site provided the waste also complies with the other Discharge Specifications and Provisions in this Order. No further analyses of the metal constituents are necessary.

3. If the analyses of the waste do not conform to the conditions described under Section A or B, above, extractions of the soluble waste constituents must be made in accordance with a procedure approved by the Executive Officer and analyzed for those constituents in which the wet weight concentrations exceeded the Soluble Threshold Limits as listed above.

   (a) If the wet weight analysis of <u>any</u> of the soluble constituents exceeds the Soluble Threshold Limits listed above, the waste is designated hazardous and is not acceptable for disposal in a Class II-2 waste disposal site.

   (b) If the wet weight analyses of <u>all</u> of the soluble constituents do not exceed the Soluble Threshold Limits as listed above, the waste is considered to contain non-hazardous concentrations of these constituents. The waste would therefore be acceptable for disposal in a Class-II waste disposal site provided the waste also complies with the other Discharge Specifications and Provisions in this Order.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 85-36
FOR
KENNECOTT, EXPLORATORY GEOTHERMAL WELLS
West of Niland - Imperial County

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

MONITORING

Kennecott 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 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 five (5) days prior to the discharge of any drilling mud or geothermal materials into a mud sump 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 stating that the container and attendant facilities are constructed to meet the requirements contained in Board Order No. 85-36.

3. A least ten (10) days before the initial discharge of any geothermal fluids from each well, the discharger shall report said plan to discharge to the Board.

Constituents	Units	Reporting Frequency
4. Volume of geothermal wastes contained in each sump.	Gallons	Monthly
5. Volume of saline drilling mud and salt and brine waste hauled to a Class I or Class II Waste Management Unit, and name of unit.	Gallons	Monthly
6. Volume and total dissolved solids concentration of non-saline drilling mud hauled to a Class III Waste Management Unit, and name of Unit.	Gallons and mg/l	Monthly

Constituents	Units	Reporting Frequency
7. Total dissolved solids concentration of waste fluid injected into the injection well.	mg/l	Monthly
8. 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

9. Representative samples of drilling mud, cuttings, and geothermal fluid to be discharged at a Class III Waste Management Unit shall be analyzed for the following constituents (in accordance with Attachment A of Order No. 85-36), and shall be reported to the Regional Board five days prior to discharge:

Constituents	Unit
Arsenic and Compounds	mg As/kg wet sample weight
Barium (excluding barite) and compounds	mg Ba/kg wet sample weight
Lead compounds, inorganic	mg Pb/kg wet sample weight
Lead compounds, inorganic	mg Pb/kg wet sample weight
Zinc Compounds	mg Zn/kg wet sample weight

10. 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.

11. Report of completion of removal of all geothermal waste from mud sumps - reported within one week following completion of work.

12. At least ten (10) days prior to destruction of each 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.

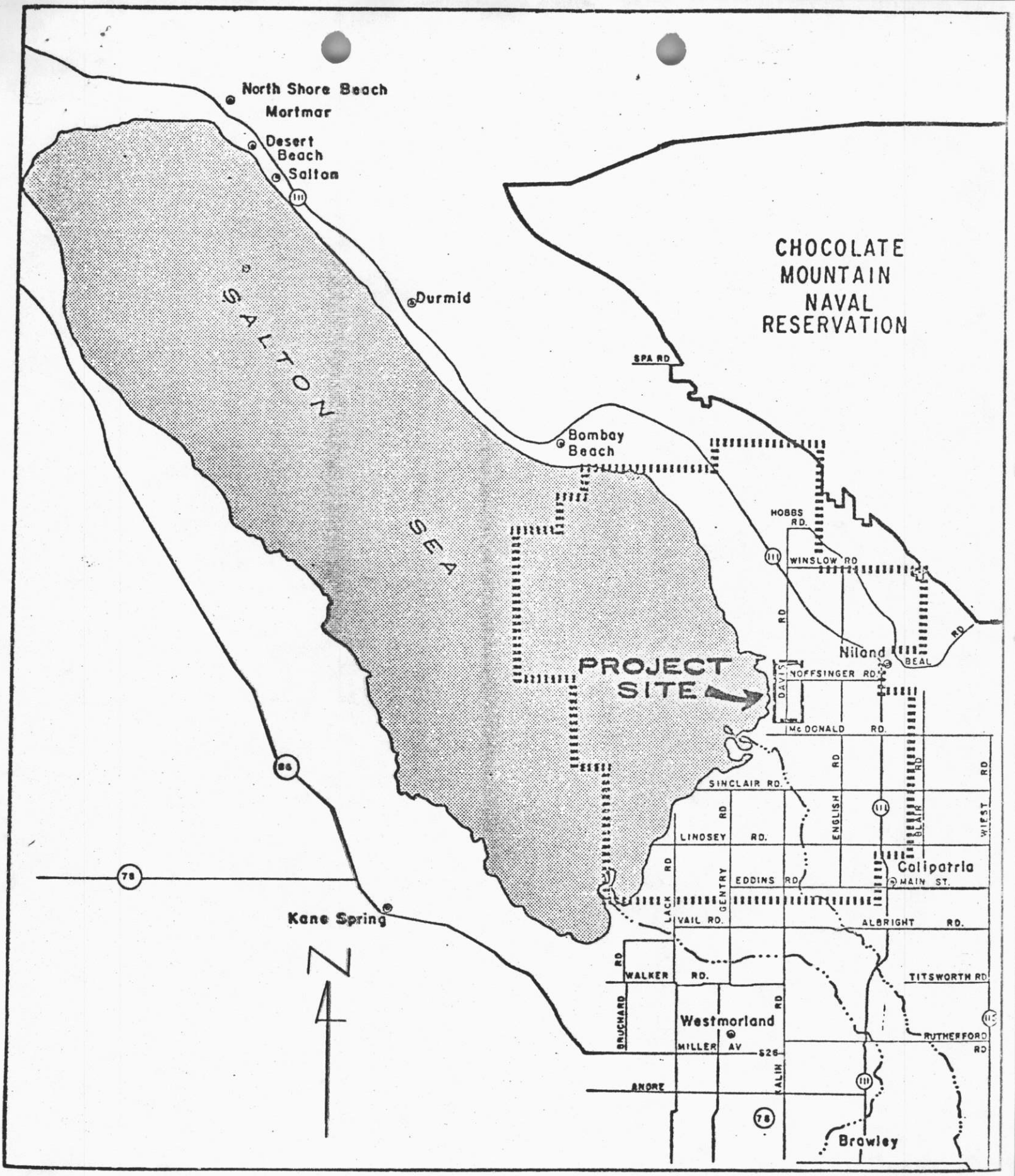
Monthly reports shall be submitted to the Regional Board by the 15th day of the following month. Reports for Item No. 10 (above) shall be forwarded immediately and if at all possible shall be preceded by phone communication to the Regional Board's office (Phone No. (619) 346-7491). Copies of the reports 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.

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 Seaquist
Executive Officer

March 13, 1985
Date

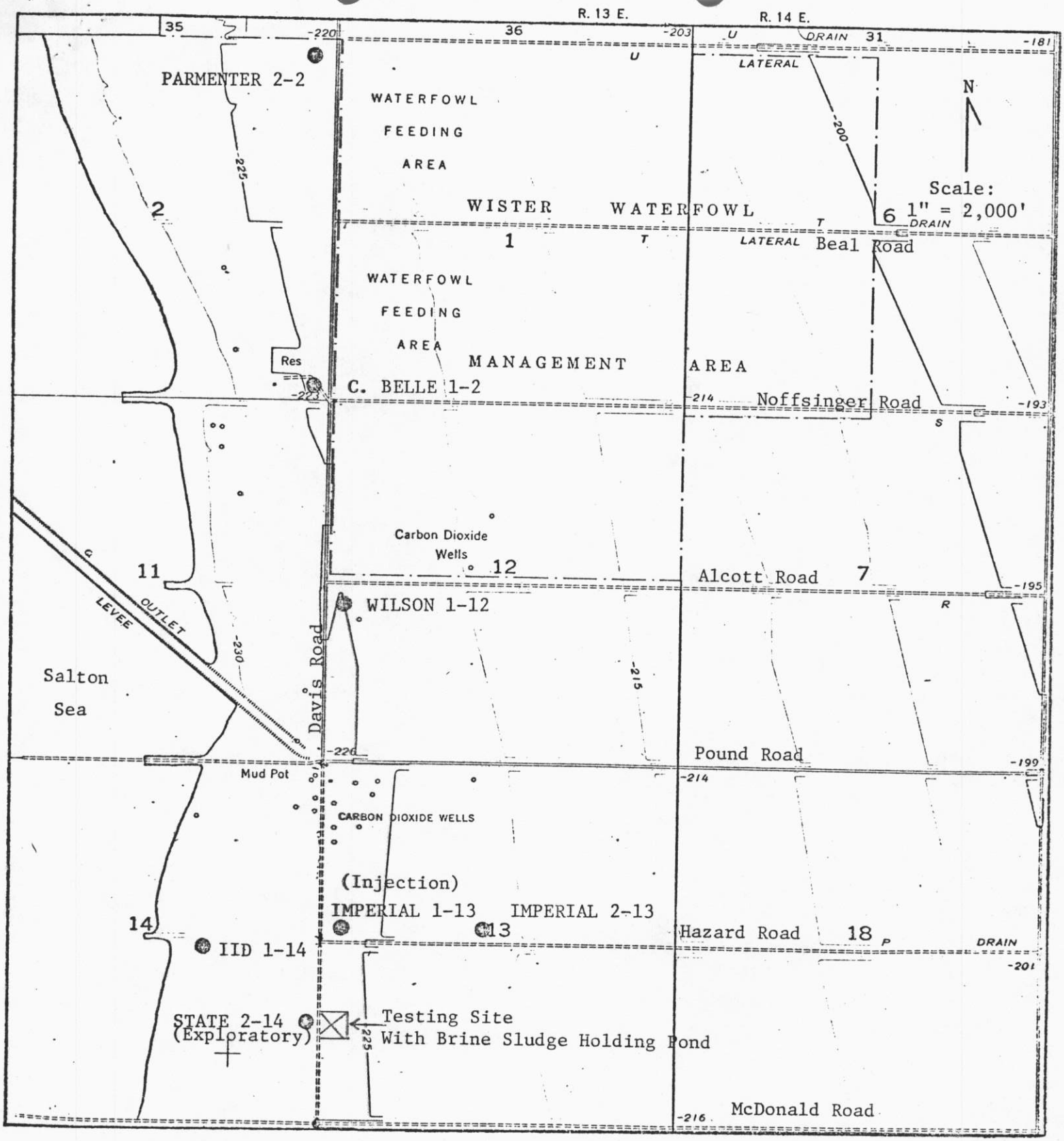


SITE MAP NO. 1

KENNECOTT, EXPLORATORY GEOTHERMAL WELLS
West of Niland - Imperial County

Order No. 85-36

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD



SITE MAP NO. 2

Kennecott Exploratory Wells
West of Niland - Imperial County
Sections 2, 12, 13 and 14 of T11S, R13E, SBB&M
USGS Niland 7.5 min. Topographic Map

ORDER No. 85-36