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sub. 2/10/96
Jan 20th 9/11/96

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN • REGION 7**

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GTF 000005



FEB 14 1996

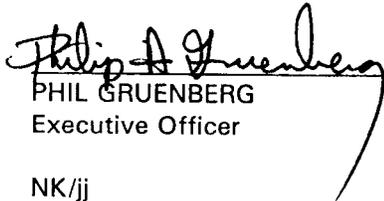
Certified Mail No. P 305 679 726

Jim Turner, Manager
United States Department of Energy
Oakland Operating Office
1301 Clay Street
Oakland, CA 924612-5208

Re: Cleanup and Abatement Order No. 96-023 Against United States Department of Energy,
Oakland Operating Office

Enclosed for your consideration and immediate action is a copy of Cleanup and Abatement Order No. 96-023 concerning soil pollution at the Department of Energy's Test Site near Holtville, CA.

If you have any questions regarding this matter, please contact Neal Krull at (619) 776-8942 or Robert Perdue at (619) 776-8938.


PHIL GRUENBERG
Executive Officer

NK/jj

cc: Robert W. Johnson, U. S. Bureau of Reclamation, Boulder City, NV
Tom Zale, United States Bureau of Land Management, El Centro, CA
Thomas Wolf, Imp. County Environmental Health, El Centro
Jurg Heuberger, Imperial County Planning Commission, El Centro,
Steven Birdsall, Air Quality Control Officer, Imperial County, El Centro
Karen O'Haire, OCC, Sacramento

File Ref: USDOE, Board Order No. 89-027

FEB 20 1996

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION**

**CLEANUP AND ABATEMENT ORDER NO. 96-023
AGAINST
UNITED STATES DEPARTMENT OF ENERGY
OAKLAND OPERATING OFFICE
East of Holtville - Imperial County**

The Executive Officer of the California Regional Water Quality Control Board, Colorado River Basin Region, finds that:

1. The United States Department of Energy (hereinafter referred to as the discharger), is named in this Order for the former Geothermal Test Facility (hereinafter referred to as the Site), located three miles east of Holtville, CA. The United States Bureau of Land Management is the owner of the site and the United States Department of Energy is the operator of the site.
2. In May 1989, this Regional Water Quality Control Board adopted waste discharge requirements for the U.S. Department of Energy, (Board Order No. 89-027) for the geothermal test facility, including the pond. The Order required cleanup and disposal of the waste from the pond to a site approved by the Executive Officer.
3. The U.S. Bureau of Reclamation initiated studies of the geothermal resources at the site in 1968, as a potential method of augmenting the Lower Colorado River water supply. Operation of experimental desalting plants at the site began in 1972. The Department of Energy became the exclusive operator of the site in October, 1978. Operation of three pilot-scale geothermal desalting plants were among numerous geothermal research activities performed at the site. A 10-mil PVC-lined brine holding pond was installed in 1972 to temporarily store and evaporate brine blowdown water as well as untreated brines extracted during the geothermal exploration process.
4. During site operations from 1972 to 1975, the waste brine was discharged into a 10 mil pvc-lined brine holding pond. The brine holding pond was used intermittently after installation of the geothermal brine injection system. Geothermal research activities at the site were discontinued in 1987.
5. The brine holding pond is roughly square and covers approximately six acres. An eight-foot high soil berm surrounds the six to nine foot deep brine holding pond. A four-to eight-inch layer of brine sludge remains in the pond. The brine layer is underlain by a six-to nine-inch protective sand layer over a 10-mil PVC liner. No free-standing water is present in the pond. The first two to four inches of brine residues are typically dry and brittle and the underlying residues are moist with the consistency of a plastic clay.
6. There are eight monitoring wells in the vicinity of the site.
7. In September 1991, a field investigation of the brine holding pond was conducted by Bechtel Environmental, Inc., to determine the concentrations of various constituents in the pond. The results of this 100 sample test for metals were as follows:

SUMMARY OF TOTAL METALS RESULTS
(results in mg/kg)

<u>Parameter</u>	<u>Frequency of Detection (percent)</u>	<u>Minimum Concentration Detected</u>	<u>Maximum Concentration Detected</u>
Antimony	79	<0.25	3.4
Arsenic	100	7	73
Barium	100	43	3600
Beryllium	0	<0.5	NA
Cadmium	93	<0.5	8.1
Chromium (VI)	0	<0.05	NA
Chromium (III)	100	1.4	3.4
Cobalt	3	<2.5	2.6
Copper	79	<0.5	14
Lead	100	1	3.8
Mercury	17	<0.01	0.015
Molybdenum	21	<2.5	4.9
Nickel	52	<2.5	4.4
Selenium	3	<0.25	0.36
Silver	7	<0.5	3.2
Thallium	59	<0.25	5.1
Vanadium	100	3.3	7.1
Zinc	100	10	120

8. In addition to the metals, the same study conducted by Bechtel Environmental, Inc. in September 1991, showed the brine contains an average total dissolved solids content of 16,000 milligrams-per-Liter (mg/L). (Water is added to the solids in the laboratory as per Standards methods).

9. The geothermal test facility is presently regulated by Waste Discharge Requirements prescribed in Board Order No. 89-027.
 - a. Discharge Specification A.1 states:

"The temporary containment basin described in Finding No. 3, above, shall be properly cleaned and closed to the satisfaction of the Regional Board's Executive Officer; and all wastes, including contaminated soil and the liner, will be removed prior to abandonment."
 - b. Discharge Specification A.3. states:

"Final disposal of residual wastes shall be accomplished to the satisfaction of the 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 Order."
 - c. Discharge Specification A.4. states:

"Any geothermal waste that is not injected shall be disposed of at a disposal site approved by the Regional Board to receive said waste."

10. The discharger is in violation of Discharge Specifications A.1., A.3. and A.4. of Board Order No. 89-027.
11. Section 13304 of the California Water Code states:

"Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, ..., shall upon order of the Regional Board clean up such waste or abate the effects thereof, or take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts."
12. Section 13267 of the California Water Code states in part:
 - (a) A regional board, in establishing or reviewing any water quality control plan or waste discharge requirement, or in connection with any action relating to any plan or requirement or authorized by this division, may investigate the quality of any waters of the State within its region.
 - (b)(1) In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge, waste outside of its region that could affect the quality of water within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports.
13. The Water Quality Control Plan for the Colorado River Basin Region (Basin Plan) was adopted by the Regional Board on November 17, 1993, and designated the beneficial uses of ground and surface waters in the Region.
14. The designated uses of ground waters in the Colorado Hydrological Unit are:
 - a. Municipal supply (MUN)
 - b. Industrial supply (IND)
15. Pursuant to Section 13304 of the California Water Code, the discharger is hereby notified that the Regional Board is entitled to, and may seek reimbursement for all reasonable costs actually incurred by the Board to investigate the unauthorized discharge of waste, and to oversee cleanup of such wastes, abatement of the effects thereof, or other remedial action required by this Order. The discharger shall reimburse the Board upon receipt of a billing statement for those costs.
16. This enforcement action is exempt from the California Environmental Quality Act pursuant to Section 15321, Chapter 3, Title 14 of the California Code of Regulations.

IT IS HEREBY ORDERED, that pursuant to Sections 13304 and 13267 of Division 7 of the California Water Code, the discharger and their agents or assigns, shall prepare technical reports and shall clean up and abate the effects of the discharge of geothermal brines by complying with the following:

1. By July 1, 1996, issue a draft workplan for brine pond remediation .
2. By August 15, 1996, issue final workplan for brine pond remediation for the Regional Board's Executive Officer approval.

3. By September 1, 1996, implement the remediation plan in accordance with the time schedule approved by the Regional Board's Executive Officer. Cleanup efforts shall continue until such time as the Regional Board's Executive Officer considers the site to be remediated to the fullest extent practical.
4. Quarterly status and progress reports on cleanup efforts at the subject facility shall be submitted. Quarterly reports are to be submitted on January 15, April 15, July 15 and October 15 of every year until the Regional Board's Executive Officer considers the subject pollution to be no longer a threat to ground water quality.

All technical and monitoring reports required in conjunction with this Order are required pursuant to Section 13267 of the California Water Code and shall include a statement by the discharger or an authorized representative of the discharger certifying under the penalty of perjury under the laws of the State of California that the report is true, complete, and accurate.


Executive Officer

2-14-96
Date