

RECORD OF DECISION

KENNECOTT SOUTH ZONE, OPERABLE UNIT 2

SOUTHWEST JORDAN RIVER VALLEY GROUND WATER PLUMES

U. S. Environmental Protection Agency, Region VIII
Utah Department of Environmental Quality

December 13, 2000

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PART 1: DECLARATION

A. Site Name and Location

This Record of Decision covers Operable Unit 2 (Southwest Jordan River Valley Ground Water Plumes) of the Kennecott South Zone Site, proposed for the NPL in 1994. Operable Unit 2 is located in Salt Lake County, Utah, and encompasses the groundwater beneath all or portions of the municipalities of West Jordan, South Jordan, Riverton, Herriman, and portions of unincorporated Salt Lake County. The CERCLIS ID is UTD000826404.

B. Statement of Basis and Purpose

This decision document presents the Selected Remedy for the Kennecott South Zone Operable Unit 2 Site in Salt Lake County, Utah, which was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), 42 U.S.C. §§ 9601 et. seq, and, to the extent practicable, the National Contingency Plan (NCP), 40 C.F.R. Part 300. This decision is based on the Administrative Record file for this site.

The State of Utah concurs with the Selected Remedy. Their concurrence is based upon the belief that the remedy will benefit the public within the affected area and begin to protect public health and the environment.

C. Assessment of Site

The response action selected in this Record of Decision is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances and pollutants or contaminants into the environment.

D. Description of Selected Remedy

The selected remedy for Operable Unit 2 (Southwest Jordan River Valley Ground Water Plumes) addresses the ground water contamination for this Kennecott South Zone Site. The surface contamination which originally constituted the principal threat at the site has already been addressed in other removal and remedial actions at OU1 (Bingham Creek), OU3 (Butterfield Creek), OU4 (Large Bingham Reservoir), OU5 (ARCO Tails), OU6 (Lark Tailings and Waste Rock), OU7 (South Jordan Evaporation Ponds), OU10 (Copperton Soils), and OU17 (Bastian Area).

For purposes of clarifying agency authority over the cleanup operations of this action, the agencies plan on using a joint CERCLA and State NRD approach. The cleanup strategy presented within the text of this ROD is concerned primarily with the acid plume in Zone A, under CERCLA authority. EPA maintains the right to intervene in the cleanup of the sulfate plume in Zone B, if it is not addressed sufficiently by the State NRD action. The State of Utah will maintain authority of operations, in both Zones A and B, as they are intended to fulfill the requirements of the NRD settlement. (Please refer to the footnote at the bottom of page 28.)

The performance standards for the selected remedy include achieving the primary drinking water standards in the aquifer of Zone A at the Kennecott property line (as of the date of the signing of this document) for all hazardous substances (i.e. metals). Active remediation (pump and treat) is required to achieve the health-based goal of 1500 ppm for sulfate while monitored natural attenuation is used to achieve the State of Utah primary drinking water standard for sulfate at 500 ppm. The water treated and delivered for municipal use must achieve all drinking water standards of the State of Utah, as a requirement of both the CERCLA action and the Natural Resource Damage (NRD) settlement between the State of Utah and Kennecott Utah Copper Corporation. The performance standard for treatment residuals as measured at or before the end of the tailings pipe is demonstration that the tailings/treatment residuals combination meets the characteristics of non-hazardous waste.

The selected remedy involves treatment and containment of contaminated ground water plumes. The principal threats which caused the ground water contamination have been addressed in previous actions or are contained under provisions of a Utah Ground Water Protection Permit.

The selected remedy contains the following elements:

- Continuation of source control measures as administered through the State of Utah Ground Water Protection Program.
- Prevent human exposure to unacceptably high concentrations of hazardous substances and/or pollutants or contaminants by limiting access to the contaminated ground water. Institutional controls include purchases of land, purchases of water rights, limiting drilling of new wells and increased pumping of nearby old wells as approved (on request) and administered through the State of Utah State Engineer (Division of Water Rights).
- Prevent human exposure to unacceptably high concentrations of hazardous substances and/or pollutants or contaminants through point-of-use management which includes providing in-house treatment units to residents with impacted wells, replacement of their water by hooking the properties up to municipal drinking and/or secondary supplies, and/or modifying their

wells to reach uncontaminated waters.

- Contain the acid plume in Zone A by installation of barrier wells at the leading edge of the contamination (1500 ppm sulfate or less), pump and treat the waters to provide a hydraulic barrier to further plume movement while providing treated water for municipal use. The treatment technology for the barrier well waters is reverse osmosis.
- Withdraw the heavily contaminated waters from the core of the acid plume in Zone A and treat these contaminated waters using pretreatment with nanofiltration or equivalent technology, followed by treatment with reverse osmosis to provide drinking quality water for municipal use.
- Monitor the plume to follow the progress of natural attenuation for the portions of the Zone A plume which contain sulfate in excess of the state primary drinking water standard for sulfate (500 ppm sulfate).
- Disposal of treatment concentrates in existing pipeline used to slurry tailings to a tailings impoundment prior to mine closure.
- Development of a post-mine closure plan to handle treatment residuals for use when the mine and mill are no longer operating.

E. Statutory Determinations

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial action, is cost-effective, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

This remedy also satisfies the statutory preference for treatment as a principal element of the remedy (i.e., reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element through treatment).

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure the remedy is, or will be, protective of human health and the environment.

F. ROD Data Certification Checklist

The following information is included in the Decision Summary section of this Record of Decision. Additional information can be found in the Administrative Record file for this site.

- Chemicals of concern and their respective concentrations, pages 44-45.
- Baseline risk represented by the chemicals of concern, pages 48-49.
- Cleanup levels established for chemicals of concern and the basis for these levels, pages 88-89.
- How source materials constituting principal threats are addressed, page 19.
- Current and reasonable anticipated future land use assumptions and current and potential future beneficial uses of ground water used in the baseline risk assessment and ROD, pages 40-42.
- Potential land and ground water use that will be available at the site as a result of the Selected Remedy, page 42.
- Estimated capital, annual operation and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected, pages 83-87.
- Key factor(s) that led to selecting the remedy (i.e., describe how the Selected Remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision), pages 73-79.

G. Authorizing Signatures

The following authorized officials at EPA Region VIII and the State of Utah approve the selected remedy as described in this Record of Decision:

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| _____ | _____ |
| Max H. Dodson | Date |
| Assistant Regional Administrator | |
| Office of Ecosystems Protection and Remediation | |
| U. S. Environmental Protection Agency, Region VIII | |

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|--|-------|
| _____ | _____ |
| Dianne R. Nielson, Ph.D. | Date |
| Executive Director | |
| Utah Department of Environmental Quality | |