EPA U.S. ENVIRONMENTAL PROTECTION AGENCY REGION 10 April 2000

Revised Proposed Plan

Kerr-McGee Superfund Site

Caribou County, Idaho

Public Comment Opportunity

The U.S. Environmental Protection Agency (EPA) is proposing to revise the original groundwater cleanup plan for the Kerr-McGee Superfund Site. This revision is based upon new information provided by the company regarding the technical feasibility of recycling calcine tailings into fertilizer. We invite you to review and comment on EPA's suggested revision, which is described in detail in this document.

EPA will accept written comments on this proposed plan during a public comment period from April 21, 2000 through May 23, 2000. Comments should be addressed to:

Cami Grandinetti, Project Manager
U.S. Environmental Protection Agency
1200 6th Avenue, (ECL-113)
Seattle, WA 98101

All documents referenced in this proposed plan are available for your review in the Information Repository at the Soda Springs Public Library, 149 South Main Street, Soda Springs, Idaho.

Background

Kerr-McGee Chemical Limited Liability Company (KMC LLC) operated a vanadium extraction and processing plant along State Highway 34 about one mile north of Soda Springs. The plant generated a number of waste streams that were stored on-site in unlined surface impoundments, in waste piles or released into the air. The site was included on the Superfund National Priorities List in October 1989. KMC LLC agreed to conduct a site investigation and a study of clean up alternatives, which were completed in Spring of 1995.

In September 1995, EPA signed a Record of Decision with KMC LLC that outlined cleanup plans for groundwater contamination caused by pollutants migrating from unlined waste water storage ponds. The studies concluded that contaminated groundwater was the only risk to human health and the environment caused by KMC LLC. EPA's 1995 Record of Decision required KMC LLC to: eliminate sources of groundwater contamination; install a lined pond to bury historical process wastes; recycle old calcine tailings in an on-site fertilizer plant; implement a program to restrict the use of contaminated groundwater in the future (called an institutional control plan); and to monitor groundwater contaminant levels.

For more details on the KMC LLC Record of Decision, and cleanup progress to date, see page 2.

Proposed Change to Cleanup Plan

EPA is requesting your input on a proposed change to the original cleanup plan associated with the reuse/recycling of the old calcine tailings and roaster reject materials. Both calcine tailings and roaster rejects are waste by-products from operating the KMC LLC plant.

The reuse/recycling of calcine tailings was to occur in an on-site phosphoric acid plant where the stockpiled materials would be fed and turned into fertilizer as a marketable byproduct. Roaster rejects were to be recycled through the vanadium plant. EPA has received new information from KMC LLC on that portion of the cleanup plan, which indicates that the fertilizer plant is neither technically nor economically feasible to operate. Further, the vanadium plant is not currently operating. Therefore, other options for cleanup of the calcine tailings and roaster reject materials have been evaluated by EPA and are being presented for public comment.

Site Investigation

A thorough investigation of the extent and nature of contamination was completed at KMC LLC in 1995. This investigation revealed groundwater contaminated with hazardous substances, including: vanadium, molybdenum, arsenic, manganese, tributyl phosphate and total petroleum hydrocarbons. Groundwater contamination resulted from previous operational practices, such as discharging waste streams to unlined ponds. Of the contaminants identified, molybdenum and vanadium contributed more than 80% to the groundwater risk to human health.

Since groundwater was identified as the primary pathway of concern, several alternatives were evaluated during the study of cleanup alternatives to address groundwater contamination.

What was the Original Cleanup Plan?

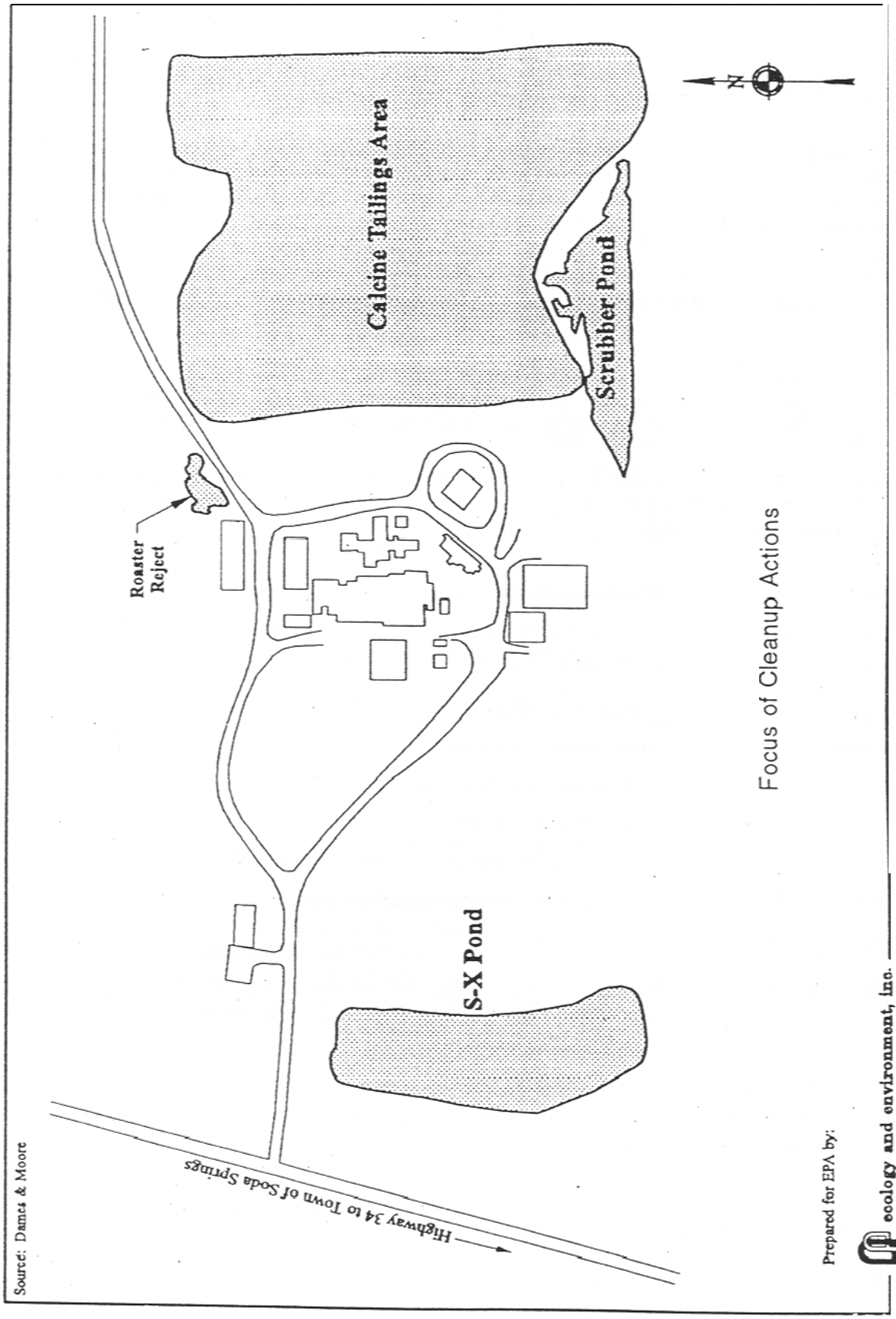
KMC LLC, through its own business decisions, planned to implement several plant operational changes to eliminate all liquid sources to groundwater. These voluntary efforts included building lined ponds for waste stream storage, and operating a phosphoric acid plant to turn waste streams into fertilizer.

Components of the cleanup plan in the 1995 Record of Decision were intended to complement KMC LLC's voluntary efforts to address groundwater contamination. The remedy for groundwater specifically includes:

- Elimination of uncontrolled liquid discharges from the facility as soon as practicable;
- Excavation and Reuse/Recovery of buried calcine tailings over an eight year period;
- Excavation and disposal of Solvent Extraction and Scrubber Pond solids into lined ponds on-site;
- Semi-annual groundwater monitoring to determine the effectiveness of source control in achieving groundwater performance standards for the following contaminants of concern:

  Molybdenum Vanadium Manganese
  Tributyl Phosphate Arsenic
  Total Petroleum Hydrocarbons

- Establishment of Institutional Controls (such as deed restrictions, limited access, well restrictions and/or well-head protection) in affected off-site areas to prevent human ingestion of groundwater for as long as the groundwater exceeds the performance standards.


Calcine Tailings Area
Scrubber Pond
Roaster Reject
S-X Pond
Highway 34 to Town of Soda Springs
N
Focus of Cleanup Actions
Source: Dames & Moore
Prepared for EPA by:
ecology and environment, inc.
International Specialists in the Environment
Seattle, Washington

In addition to the selected remedy for groundwater, which addresses the principal risks posed by this site, the Record of Decision required remedial actions to address two localized problems: 1) migration of windblown calcine tailings to surrounding land, and 2) potential human exposure to roaster reject materials which were stored above ground.

The selected remedial action in the Record of Decision for windblown calcine tailings was excavation and disposal. The selected remedial action for the roaster reject materials was to include them in the Resource Reuse/Recovery effort. It is the Reuse/ Recovery aspect of the 1995 Record of Decision that is the subject of this revised Proposed Plan.

What Cleanup Actions have Already Been Completed?

In 1996, KMC LLC installed lined ponds to receive wastewater streams that had previously gone to unlined ponds. Waste piles at the Scrubber Pond and the Solvent Extraction ponds were removed, and consolidated in a lined facility that was constructed on-site and completed in 1997. Finally, the fertilizer plant was constructed in July 1997 to implement the Reuse/Recovery of calcine tailings, and the plant began operating in July 1998.

Why is EPA Proposing to Change the Reuse/Recovery Portion of the Cleanup Plan?

KMC LLC has encountered several problems during the operation of the fertilizer plant. First, several structural and operational problems were discovered. The scrubber system was originally constructed of stainless steel, which was found to be incompatible with the waste stream. The whole system had to be replaced, as well as several pumps and fans.

Next, the mixing paddles at the fertilizer plant wore out quickly, often within days or weeks. Several kinds of paddles were tried before settling on the final design. Problems with the chemistry of the mixture were also encountered --if any of the chemicals were added at an unacceptable rate, a sticky material was produced, which stuck in all of the process equipment. The sticky material had to be manually removed, and quickly, otherwise it hardened to the point that a jackhammer was required to get it off the equipment.

Finally, KMC LLC is unable to sell much of the fertilizer that has been produced because there is such a small market for the low-grade fertilizer that is produced at the plant. As a result of this, and the extensive operational problems, KMC LLC is considering shutting down the fertilizer plant, and has requested this change to the 1995 Record of Decision. Since the plant would no longer be able to process the calcine tailings, a new cleanup remedy must be determined.

What Are The Other Available Cleanup Alternatives?

In the original 1995 remedy evaluation, four alternatives were considered for cleaning up the calcine tailings and roaster reject material. The first alternative was ***No Action***; the second alternative was ***Capping in Place***, the third option was ***Removal and Capping in a Lined Facility*** and the final alternative was ***Reuse/Recycling.***

A ***No Action*** alternative is required by EPA's guidance and is intended to establish a baseline to compare the level of environmental protection provided by the other alternatives. Since the calcine tailings impoundment and roaster reject materials

contribute to groundwater contamination, the ***No Action*** option cannot be further evaluated as a valid cleanup alternative.

The ***Capping in Place*** option was evaluated in the original 1995 evaluation of alternatives and was determined to be effective at eliminating infiltration and leaching of the calcine tailings/roaster reject material through the installation of a plastic liner. The plastic liner serves as an impermeable barrier on top of the waste materials. Institutional controls of the capped area would be required to prevent future exposures, and groundwater monitoring would be necessary to assure that the cap is working as intended. Total costs for this alternative were expected to be approximately $2,000,000.

Removal and Capping of the tailings and roaster reject material in a lined facility would be effective in reducing infiltration, and for eliminating the materials as a source of groundwater contamination. Institutional controls and groundwater monitoring would also be required. The 1995 evaluation of alternatives stated that the expected costs for this cleanup option would be approximately $10,000,000.

The ***Reuse/Recovery*** alternative has operational problems that prevent KMC LLC from processing the calcine tailings in the 8- to 10-year timeframe that was required by the Record of Decision. Due to all of the operational problems, the ***Reuse/Recycle*** alternative has been eliminated because it is not implementable and cannot achieve protection of human health and the environment.

Evaluating the Alternatives

In accordance with Superfund requirements, EPA has used nine criteria summarized below to evaluate and compare alternatives. An alternative must meet criteria 1 and 2, known as threshold criteria, in order to be recommended. Criteria 3 through 7 , called “balancing criteria,” are evaluated to determine which cleanup method provides the best overall solution. After public comment, EPA may alter its preference on the basis of the last two “modifying” criteria. For an amended remedy such as this, EPA compares the proposal against the original decision, using these nine criteria.

1. Overall protection of human health and the environment. *This criterion addresses how well the alternative protects human health and the environment, both during and after construction.*

Modifying the remedy will not change the level of human health or environmental protection at the site. The original site analysis showed that the calcine tailings and roaster rejects contribute negligible amounts of the contaminants, specifically molybedenum and vanadium, to groundwater contamination.

Therefore, the two options to cap the materials with a linear low density polyethylene liner will virtually eliminate any leaching of these contaminants to groundwater, and the cleanup goals will still be met with this modified remedy. ***Removal and Capping*** would be slightly more effective in protecting the environment from leaching since there would be an underliner component. Institutional controls, to restrict land use at the site, will ensure that the capped area is not disturbed, and groundwater monitoring will ensure that the caps are working properly.

2. Compliance with Regulations. *This criterion addresses whether the remedial alternative meets all applicable and relevant and appropriate requirements (ARARs), or if not, justifies issuance of a waiver*.

Both proposals to ***Cap*** the materials will comply with all identified ARARs. No new ARARs are triggered due to the change in the remedy since capping was a component of the original remedy.

3. Long-term Effectiveness and Permanence. *This criterion addresses how well the remedial alternative protects human health and the environment after cleanup goals have been reached and what, if any risks will remain at the site, and the adequacy and reliability of controls.*

The proposals to ***Cap*** the materials will remain effective in protection of human health and the environment as long as the cap is maintained. Both the ***Removal and Capping*** and the ***Capping in Place*** alternatives will provide an adequate impermeable surface so that the calcine tailings and roaster reject materials will no longer leach contaminants to groundwater through infiltration.

4. Reduction of Toxicity, Mobility or Volume. *This criterion addresses whether the toxicity, mobility or volume of the hazardous substance is significantly reduced through treatment, to what degree are reductions expected, whether the treatment is irreversible, and what type and quantity of residuals will remain.*

The proposals to ***Cap*** are containment strategies which will not reduce the toxicity, mobility or volume of hazardous substances through treatment. Reduction of toxicity and mobility with capping will occur through engineering controls such as capping with an impermeable liner. This liner will prevent contaminant leaching and migration to groundwater. ***Removal and Capping*** would provide slightly better controls through engineering since this alternative will include an underliner for the waste materials.

5. Short-term Effectiveness. *This criterion addresses whether there are any potential adverse effects to either the community, site workers or the environment during construction or implementation of the remedial alternative, and how quickly the alternative reaches the cleanup goal.*

The original remedy prescribing ***Reuse/ Recycling*** of the calcine tailings was projected to take approximately 8 years to complete. Under the proposal to ***Cap in Place***, the calcine tailings and roaster reject material will be capped and the remedy will be complete within a year. This greatly reduces the timeframe for remedy implementation, as well as reducing potential exposure to on-site workers. ***Removal and Capping*** will involve excavating and relocating the contaminated materials, which will increase contaminant exposure to workers while they are performing that work.

6. Implementability. *This criterion addresses whether the remedial alternative is both technically and administratively feasible and whether the alternative has been used successfully on other similar sites.*

Both ***Removal and Capping*** and ***Capping in Place*** are implementable and capping has been proven successful at many other Superfund sites. Linear low density polyethylene caps are standard for covering waste materials and pose no unique installation problems.

7. Cost. *This criterion addresses the estimated present worth costs of the alternative.*

KMC LLC currently estimates the costs for ***Capping in Place*** to be approximately $3,000,000. These costs do not include operation and maintenance costs associated with the cap, but do include moving the roaster reject materials to the calcine impoundment. In the 1995 evaluation, ***Removal and Capping*** was estimated to cost approximately $10 million, due to the cost of relocating the materials and constructing the

underliner. Recent evaluations of this alternative suggest that costs could be much higher the old estimates. Due to the large cost difference in these two capping options, the ***Removal and Capping*** alternative was not considered further in that evaluation process, and will not be considered further here.

8. State Acceptance. *This criterion addresses the state's comments or concerns about the modifications to the alternative, and whether they support or oppose the changes.*

EPA is consulting with Idaho Department of Environmental Quality on behalf of the state of Idaho.

9. Community Acceptance. *This criterion addresses the community's comments and concerns about the modifications, and whether the community generally supports or opposes the proposed changes.*

EPA is addressing this criterion by soliciting your input on this proposed plan. Community acceptance will be evaluated based upon comments received during the public comment period.

EPA's Recommended Alternative

After reviewing the four alternatives for cleanup up of the calcine tailings and roaster reject materials, EPA proposes to change the remedy from ***Reuse/Recycling*** to ***Capping in Place,*** in combination with institutional controls restricting land use and continued groundwater monitoring. This alternative will provide protection to human health and the environment by reducing infiltration of rainwater through the calcine tailings, thereby reducing groundwater contamination.

The Next Step

EPA will consider all public comments received during the publc comment period before selecting a final cleanup action at the site. EPA will prepare a responsiveness summary that contains a summary of public comments and EPA responses. The final cleanup action will be described in a revised Record of Decision.

For More Information

Documents related to the Kerr-McGee Superfund Site are available for review at the Soda Springs Public Library, 149 Main Street, in Soda Springs, Idaho.

An Administrative Record file, which contains the information upon which the revised cleanup remedy was based, is also located at the Library and at EPA's Regional office in Seattle.

Questions?

Contact Cami Grandinetti,
Remedial Project Manager, at
(206) 553-8696

or call EPA's toll free number
(800) 424-4372, extension 8696.

To ensure effective communications with everyone, additional services can be made available to persons with disabilities by contacting EPA as indicated above.

If there is sufficient community interest, EPA will hold a public meeting to discuss this revised proposed plan. If you are interested in having a public meeting, write to us at the address on the mailing label of this fact sheet, or call Cami Grandinetti at (800) 424-4372, extension 8696, before April 30, 2000.

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Caribou County, Idaho

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Environmental Protection
Agency

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Caribou County, Idaho

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