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WM Project 72

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WM72/MH/05/20/87

James R. Anderson, Project Manager
Uranium Mill Tailings Project Office
U.S. Department of Energy
Albuquerque Operations Office
P.O. Box 5400
Albuquerque, NM 87115

Dear Mr. Anderson:

The Nuclear Regulatory Commission has completed its review of the Preliminary Final CADSAR for the Spook, Wyoming site. Our review consisted of a broad overview to identify fatal flaws, potential issue areas, and omissions. The Final CADSAR is a preliminary document, which is produced before much environmental data has been collected and before detailed engineering data is available. With this in mind, we did not see any fatal flaws at this time which could preclude use of the two proposed alternatives. However, NRC concurrence that either alternative will meet Environmental Protection Agency standards cannot be provided until the detailed information discussed above has been reviewed.

Based on our understanding of the information provided in this CADSAR, the potential for high ground-water levels infiltrating the tailings appears to be the only issue of major significance. Therefore, if a second-phase hydrologic drilling program is required to adequately characterize the site, every effort should be made to include this information in the draft EA/RAP scheduled for issuance in July. Without this information, NRC may not be able to adequately review these documents. The final design for the stabilized tailings will be dependent on a good understanding of ground-water characteristics.

Enclosed are more detailed ground water comments as well as other general comments. If you have any questions regarding these comments, please contact Mark Haisfield at FTS 427-4722.

Sincerely,

DMartin for

Paul H. Lohaus, Acting Chief
Operations Branch
Division of Low-Level Waste Management
and Decommissioning

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Enclosure:
Spook Comments

OFC:	LLOB	:LLOB	:LLOB	:	:	:
NAME:	MHaisfield:	MFliegel	PLohaus	:	:	:
DATE:	5/22/87	: 5/22/87	: 5/22/87	:	:	:

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UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Spook, Wyoming, Date: May 21, 1987
Document: Preliminary Final CADSAR
Commentor: NRC

Comment: 1 Page: 1 of 2

As requested by NRC staff following review of the draft CADSAR, DOE has presented available ground water information to support the preferred alternative of stabilization-in-place (SIP). NRC staff have reviewed and have several questions regarding this information and future ground water conditions.

1. DOE acknowledged that "high ground-water levels may flood the pit floor and the stabilized tailings" (page 22). The CADSAR does not give details how a second-phase hydrologic drilling program will be designed to

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accurately ascertain the likelihood of this problem. For this analysis NRC staff suggest DOE's second phase characterization plan include construction of cored monitor wells in the mine pit floor in order to collect the following data: a) close identification of the water table or multiple aquifers, b) detailed stratigraphic logs of bedrock below the pit, c) lithology, grain-size and porosity of the bedrock, and d) fractures or other small scale structures with potential affects on ground water movement.

2. The ground-water flow directions illustrated in the CADSAR appear to contradict assertions made by DOE that flow direction is generally northeastward. Figure 3.7 depicts ground water flowing southeast, south of the pile. This results in "background" wells 902 and 903 actually being located downgradient of the pile. It is unknown what effect the open pit has on regional ground water flow, but it appears significant from the figure provided in the CADSAR. Although this discrepancy between the text and figure may not affect remedial action plans, it may affect future characterization plans. NRC staff suggest that DOE take this radial flow into account when developing future well construction plans.

Further, NRC staff commented on the Scope of Work for ground-water characterization at the Spook site that the area west of the pit was unmonitored. The staff conclude that monitoring this area could provide an explanation for the apparent radial flow east of the pit, and again suggest that it be considered if future characterization work is initiated.

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SECTION 1

Site: Spook, Wyoming, Date: May 21 1987
Document: Preliminary Final CADSAR
Commentor: NRC

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DOE presented preliminary ground-water quality data in Table 3.2 of the CADSAR for samples taken from pre-existing water wells located in the vicinity of the tailings, and mentioned that "in most cases the well completion data (i.e. total depth and screened intervals) for these six existing wells are incomplete or missing". NRC staff will likely have difficulty accepting these data from wells without completion data. DOE should obtain completion data if reliance is to be placed on these sample results.

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SECTION 1

Site: Spook, Wyoming, Date: May 21 1987
Document: Preliminary Final CADSAR
Commentor: NRC

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DOE mentioned in the CADSAR that if a Phase II drilling program is considered necessary to characterize ground water in the vicinity of the pile, then it may not be possible to include complete results in the draft EA or RAP scheduled for issuance in July, 1987. NRC staff are concerned that an adequate review of the draft EA and RAP will necessarily require these additional data, especially if DOE feels it important enough to collect the data in the first place. Therefore, the staff take the position that if additional drilling is considered necessary by DOE, then the information resulting from this work should be included in the draft EA and RAP, regardless of when the documents are scheduled for issuance.

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SECTION 1

Site: SPOOK, Date: May 21, 1987
Document: Preliminary Final CADSAR
Commentor: NRC

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In response to a comment on the draft CADSAR, DOE provided a topographic map of the site vicinity in the final CADSAR. This map is not of sufficient detail to evaluate surface water drainage and geomorphic features of the proposed disposal site. Subsequent documentation should provide maps of greater detail.

Potential geomorphic hazards, such as mass wasting, channel incision, headcutting, and backfill subsidence (which may lead to surface water ponding), are not discussed in the final CADSAR. These hazards should be fully assessed and their potential impacts considered in the project design. Subsequent documentation should include a discussion of these hazards and their mitigation.

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SECTION 1

Site: Spook, Wyoming , Date: May 21, 1987
Document: Preliminary Final CADSAR
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The staff is concerned how backfilling of the tunnels will be done safely and successfully to prevent surface depressions due to possible collapse of the tunnels. Surface depressions resulting from improperly backfilled tunnels can result in surface water ponding and possible surface erosion. However, if the tunnels are not properly backfilled, DOE will need to discuss the possible impacts on ground-water (recharge, preferential flow, and flow direction) and surface water flows given that the tunnels are not under the planned reclamation site.

The staff recommends that the EA discuss whether backfilling of the tunnels can be safely and successfully accomplished. If it can be accomplished, then the EA should identify the source of material that will be used for backfill, and the RAP should identify the procedures that would be followed and criteria that will be met for proper backfilling.

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SECTION 1

Site: Spook, Wyoming, Date: May 21, 1987
Document: Preliminary Final CADSAR
Commentor: NRC

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The final CADSAR indicates that contamination levels of the windblown tailings may be indistinguishable from those of the overburden and/or the natural surface materials. Since the overburden material has been identified as a potential source of material for the radon barrier, the staff encourages DOE to continue with additional radiological characterization for differentiating between windblown tailings and overburden or low grade ore materials. The staff agrees with DOE that all radiological data and analyses should be included with the RAP.

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