

2004

**OUI INITIAL SCREENING OF ALTERNATIVES
COMMENTS US EPA COMMENTS
OCTOBER 1990**

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General Comments

COMMENT: 1. The screening procedure did not fully develop specific process options to be combined into specific alternatives to undergo the detailed analysis.

RESPONSE: Noted -- the report was rewritten to follow EPA Guidance on conducting Remedial Investigations and Feasibility studies. Chapters 4 & 5 (Figures 4-1 and 5-1) develop the Alternatives.

COMMENT: 2. U.S. EPA guidance on conducting remedial investigations and feasibility studies was not followed. For example, the report states in Section 3.3 that only similar alternatives are compared in the evaluation and screening process. This does not conform to the guidance that requires screening remedial technologies and then process options within the technologies to evaluate their applicability to the site and waste characteristics. This screening process includes effectiveness, implementability, and cost. Applicable process options are then combined into alternatives. Following alternative development, the technologies used are discussed in detail. The report did not identify specific process options to be combined into alternatives to be carried forward to the detailed analysis.

RESPONSE: Noted -- the document was restructured to closely follow the RI/FS Guidance document. Evaluation of technologies, process options and alternatives are covered in the following sections of the revised report:

- 4.0 Screening of Technologies and Process Options
- 5.0 Evaluation of Process Options
- 6.0 Development of Remedial Action Alternatives
- 7.0 Initial Screening of Alternatives
- 8.0 Alternatives Retained for Detailed Analysis

US EPA COMMENTS (CONTINUED)

COMMENT: 3. Chapter 4 should be revised to more closely reflect U.S. EPA guidance. This chapter evaluated a combination of process options and technologies. Section 4.1 presents a comparison of two process options and incompletely evaluates them by only considering effectiveness and implementability, cost was not considered.

RESPONSE: Noted -- the report has been revised to follow EPA Guidance on Conducting Remedial Investigations and Feasibility Studies.

COMMENT: 4. Generally, the level of detail is not sufficient or comprehensive enough to allow complete technical review of any of the alternatives reviewed, in order to substantiate the preliminary selection of alternatives. Specifically, the following areas required additional information.

- Cost information on the different technologies
- A description of actual or potential threats posed by the waste units to human health and the environment.
- A description of the water treatment plant that will be dedicated to the operable unit. This should include treatment capabilities, costs, and construction timetables.
- Substantiation of remediation time frame estimates.

RESPONSE: Noted -- the document has been revised to include additional technical information. The detailed analysis of alternatives (Task 13) will provide further definition of each alternative.

Table 7-1 has been revised to include cost estimates for each alternative.

Section 1.2.5 has been revised to include a description of risks posed by Operable Unit 1.

Section 6.0 of the document has been revised to include additional information on the water treatment system for the facility.

Remediation time frame estimates were established by evaluating various treatment systems for process flow rates and total volumes of materials to be treated.

US EPA COMMENTS (CONTINUED)

Time was also included for design and construction based on engineering estimates for similar facilities.

COMMENT: 5. Chapter 1 presents estimated volumes of waste to be remediated. However, it appears that only the solids or sludges in the waste pits is considered. The discussion should also take into account the anticipated five feet of soil around the pits. This volume is significant. For example, excavating the required soil surrounding Waste Pit No.1 increases the estimate of contaminated materials from 40,000 cubic yards to 64,000 cubic yards.

RESPONSE: Noted -- Section 1.2.1 was revised to better explain the scope of the remediation effort for OU1.

COMMENT: 6. The report does not include a discussion for the remediation of specific contaminated materials such as soils, sludges, or liquids.

RESPONSE: Noted -- Section 1.2.1 was revised to better explain the scope of the remediation effort and materials to be treated in OU1.

US EPA COMMENTS (CONTINUED)

Specific Comments:

COMMENT: 1. Page 4-1, 4.1.1. The specification of inplace vertical permeability of 1×10^{-7} cm/sec may be premature, in light of USEPA groundwater protection requirements, and containment requirements for 1000 years specified at 40CFR192. DOE-UMTRA Project staff are currently researching the attainment of permeabilities in the 10^{-8} - 10^{-9} cm/sec range, which may be necessary to protect groundwater over the required time frame.

RESPONSE: Noted -- the 1×10^{-7} cm/sec permeability is currently recognized as a standard specification for performance of cover and liner systems. While permeabilities of 10^{-8} and 10^{-9} can be achieved under some conditions there are technical drawbacks associated with achieving them. These include the longevity associated with synthetic materials, shrink/swell problems associated with highly expansive clays and construction QA problems associated with consistent placement. Therefore until there are regulatory or technical changes that dictate lower permeabilities the 1×10^{-7} cm/sec permeability will be used as the design standard.

COMMENT: 2. Page 4-11, Assumption 4. It is incorrect to classify the contents of the waste pits as low level radioactive waste, when they clearly do not meet the applicability of the low level radioactive waste standard at 10 CFR 61 (see above), when they contain the same isotopes and present the same health hazards and containment requirements as AEA 11 (2) byproduct material, and when disposal as low level radioactive waste would not afford stringent enough protection to address this hazard. The contents of the burn pit may be the only exception. All other materials should be managed as 11 (2) byproduct material.

RESPONSE: Noted -- the document (Section 4.4) has been revised to delete the reference to low level waste. The material is referred to as "radioactive waste" which is in agreement with DOE Order 5820.2A, attachment 2, page 3, paragraph 29.

US EPA COMMENTS (CONTINUED)

COMMENT: 3. Page 5-1. paragraph 2. It is somewhat confusing to try to follow the evaluation scheme presented. The alternatives are compared to each other (rather than to some fixed benchmark) for each criterion using the "worst" to "best" scale, then, the criteria scores are added together (given equal weighting) and then the totals are again compared (comparison of sums of comparisons). We thus have intermediate conclusions like 5.1.3.1, and 5.1.3.2, that the No Action alternative is the most constructible and most reliable and best choice from a special engineering and equipment point of view. We also have sums that range over only 11 points out of 32 from No Action to Alternative 5 (largely due to the number of "best" ratings for the No Action) and appear identical between Alternatives 2, 4, 5 (Page 5-20, Table 5-1). Perhaps a different evaluation scheme would have been better in which criteria scores are on a fixed scale of, say 1-10, criteria weighting factors are assigned, and total scores are compared.

RESPONSE: Noted -- the comparison of alternatives has been revised to rate the Alternatives from Unfavorable (1) to Highly Favorable (5). This removes the requirement that there be a "1" or a "5" for each category.

COMMENT: 4. Page A-2, first and second bullets. Control of radon through the clay layer, sufficient to meet the requirements of 40 CFR 61, Subpart Q), or 40 CFR 192 is not addressed. Also the cap description does not include discussion of erosion resistance sufficient to give reasonable assurance of containment of radioactive materials and radon for 1000 years.

RESPONSE: Concur -- Appendix A was revised to reference 40CFR61 and 40CFR192. Also added requirement for erosion control for reasonable assurance of containment for 1000 years.

COMMENT: 5. Page A-3. Reference to the requirements of 10 CFR 61 should be deleted, since it is not an appropriate ARAR, as developed above.

RESPONSE: Noted -- see Response to Comment #2 under "Deficiencies in the ARAR list in Appendix B:"

US EPA COMMENTS (CONTINUED)

COMMENTS ON DEFICIENCIES IN THE ARAR LIST IN APPENDIX B:

COMMENT: 1. The ARAR list should include the standard at 40 CFR 61, Subpart Q, "National Emission Standards for Radon Emissions From Department of Energy Facilities." This standard is applicable for both storage and final disposal of the wastes in Operable Unit 1.

RESPONSE: Concur -- Appendix B of the report has been revised to agree with the comment. The EPA Regulations for National Emission Standard for Radon Emissions from Department of Energy Facilities (40CFR61, Subpart Q) have been included in Appendix B.

COMMENT: 2. Use of 10 CFR 61 as an ARAR with respect to the material in question is not appropriate (not applicable, possibly relevant but not appropriate):

- a. 10 CFR 61.1 (b) (2) cites that these regulations do not apply to byproduct material to which the regulations at 10 CFR 40 (App.A) do apply:

"The regulations in this part do not apply to (2) disposal of uranium or thorium tailings or wastes (byproduct material as defined in 40.4 (a-1)) as provided for in Part 40 of this chapter in quantities greater than 10,000 kilograms and containing more than five (5) millicuries of radium-226;" (emphasis added)

- b. Total mass of material and total radium-226 quantities exceed values specified at 10 CFR 61.1 (b) (2) for all the waste pits.
- c. The degree of health hazards posed and containment requirements for this material are identical to those of uranium/thorium mill tailings. 10 CFR 61 offers no explicit means of classifying these wastes as either Class A, B, C, or greater than C low level radioactive waste since 61.55 Table 1 does not contain radium, uranium, or thorium, and since 61.1 (b) (2) explicitly cites that 10 CFR 40 applies to this type of material.
- d. The requirements for the most restrictive waste category in Part 61 (Class C - Intruder barrier must function for 500 years) are not as stringent as those at 10 CFR 40, Appendix A, or at 40 CFR 192, (containment of radioactive materials for

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1000 years) which are specifically designed to address the hazard associated with intermediate concentrations of long lived alpha emitters. Moreover, there is no groundwater protection of containment requirements in Part 61. Therefore, 10 CFR 61 is not appropriate.

RESPONSE: Noted -- use of 10CFR61 is both relevant and appropriate for the waste contained within the Operable Unit, as a consequence of the measured quantities of fission products in the wastes. The presence of these radioactive wastes necessary makes 10CFR both relevant and appropriate. Performance objectives and technical requirements for Land Disposal Facilities presented in 10CFR61 are not inconsistent with the requirements of the other ARARs proposed for this Operable Unit.

COMMENT: 3. The ARARs list should exclude 10 CFR 61 and include 10 CFR 40 Appendix A as relevant and appropriate, for the reasons given in 2, above.

RESPONSE: Noted -- see response to Comment #2 above for exclusion of 10CFR61. 10CFR40, Appendix A will be added to list of ARARs as relevant and appropriate.

COMMENT: 4. The TBC list should include the DOE Order 5400.xy (effluent monitoring).

RESPONSE: Concur -- DOE Order 5400.xy has been added to TBC list.

COMMENT: 5. The TBC list should include DOE Order 5820.2A, Chapter IV "Management of Waste Containing AEA 11 (2) By-Product Material and Naturally Occurring and Accelerator Produced Radioactive Material", which specifically requires that storage and disposal of such waste material be in accordance with the requirements of the Mill Tailings Standards at 40 CFR 192, and that only small quantities of such material may be managed as "low level waste".

RESPONSE: Noted -- DOE Order 5820.2A is already listed as a TBC and therefore all chapters (including Chapter IV) will be considered as TBCs. No change to the test is required.

COMMENT: 6. The TBC list should include the following technical documents and guidelines as developed by the DOE/UMTRA project:

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- a. UMTRA-DOE/AL 400503 - "Remedial Action Planning & Disposal Cell Design"
- b. UMTRA-DOE/AL 050425 - "Technical Approach Document"
- c. UMTRA-DOE/AL 350124 - "Project Surveillance and Maintenance Plan"
- d. UMTRA-DOE/AL 163 - "Plan for Implementing EPA Standards"

The above list is not necessarily complete, and should include other UMTRA technical documents that have been developed as guidance to stabilize uranium and thorium wastes in order to achieve compliance with 40 CFR 192.

RESPONSE: Agree. The text will be revised to include the following as TBCs:

- "DOE Plan for Implementing EPA Standards for UMTRA Sites (UMTRA-DOE/AL-163) (January 1984) - Presents guidelines for implementing EPA standards or uranium mill tailings remedial action sites.
- DOE Technical Approach Document - Revision II (UMTRA-DOE/ AL 050425.0002) (December 1989) - Presents the technical approach for remediation of uranium mill tailings remedial action sites.
- DOE Remedial Action Planning and Disposal Cell Design (UMTRA - DOE/AL 4500503) (January 1989) - Presents guidance for complying with the proposal 40CFR192 for planning and disposal all design for uranium mill tailings remedial action sites.
- DOE Project Surveillance and Maintenance Plan (UMTRA-DOE/AL 350124) - Presents guidance for surveillance and maintenance of uranium mill tailings remedial action sites.

Note: No other TBCs have been identified at this time. If additional documents are identified they will be added.