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**OU#4-ALTERNATIVES
U.S. DOE - FERNALD
OH6 890 008 976**

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**USEPA/DOE
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LETTER**

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

230 SOUTH DEARBORN ST.

CHICAGO, ILLINOIS 60604-12

**FACSIMILE AND
FEDERAL EXPRESS**

SEP 04 1990

REPLY TO THE ATTENTION OF:

Bobby J. Davis
United States Department Of Energy
Feed Materials Production Center
P.O. Box 398705
Cincinnati, Ohio 45239-8705

RE: OU#4-Alternatives
U.S. DOE-Fernald
OH6 890 008 976

Dear Mr. Davis:

On June 4, 1990, The United States Department of Energy (U.S. DOE) submitted an Initial Screening of Alternatives report for operable unit #4 for the remedial response action at the Feed Materials Production Center (FMPC) in Fernald, Ohio. On July 5, 1990, the United States Environmental Protection Agency (U.S. EPA) disapproved this document and provided specific comments regarding deficiencies. On August 6, 1990, U.S. DOE submitted a revised document.

U.S. EPA has reviewed this subsequent document and has found that the U.S. DOE has failed to adequately revise the report to address deficiencies identified in U.S. EPA's July 5, 1990, letter and that the document is again disapproved. The document does not fulfill the requirements of the National Contingency Plan (NCP) or applicable guidance document (OSWER Directive No. 9355.3-01) for this stage of the FS process.

GENERAL COMMENTS:

1. The remedial action objectives (RAO) and preliminary cleanup goals have not been improved in the revised report. The Comment-Response Document accompanying the revised Initial Screening of Alternatives report did propose ROAs and stated the proposed ROAs will be incorporated into the detailed analysis of alternatives. This approach is deficient and does not meet the intent of the NCP for several reasons. First the NCP states that "the first step in the FS process involves developing ROAs . . . and preliminary remediation goals" (55 Fed. Reg. 8712, March 8, 1990). Second, the ROAs listed in the Comment-Response Document do not specify contaminants of concern, exposure routes and receptors, and an acceptable contaminant level or range of levels for each exposure medium (that is, preliminary remediation goal). Third, preliminary remediation goals have not been and are required to be set for appropriate environmental media and performance standards established for selected engineering controls and treatment systems including controls implemented during the response action (55 Fed. Reg. 8712 and

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8755, March 8, 1990). Finally, preliminary remediation goals should establish the points of compliance where they will be measured (55 Fed. Reg. 8713, March 8, 1990). The final FS should be reviewed to determine if it includes this information.

2. Documentation for eliminating remedial technologies and process options, as required by the NCP and RI/FS guidance document, was not included in the revised report. The RI/FS guidance document states that "the procedures for evaluating, defining, and screening alternatives should be well documented, showing the rationale for each step" (OSWER Directive No. 9355.3-01, page 4-28). This documentation can be presented with speed and efficiency by using the suggested tables (Figures 4-4 through 4-6) listed in the RI/FS guidance document. The final FS must also include this type of information.
3. The RI/FS guidance document suggests that process options in the same technology be screened and one or two be selected and documented for alternative development. For the alternative which proposes the use of chemical stabilization versus vitrification and silo demolition, no selections were made and all process options remained in a single alternative.

Pneumatic removal was selected over hydraulic or mechanical removal methods in Alternative 3 for Silo 3. However, the basis of the selection was not documented as required by the guidance document. For Silos 1 and 2 (which contain K-65 waste), the text states that the removal method is the same as for Alternative 3 (pneumatic); however, the figures and other portions of the text for Alternatives 6, 7, 8, and 9 still discuss hydraulic and mechanical removal methods. The revised report is inconsistent.

4. In accordance with the NCP (55 Fed. Reg. 8849, March 8, 1990) and RI/FS guidance document (OSWER Directive No. 9399.3-01), operation and maintenance (O&M) costs must be included in the cost analysis. These O&M costs have been ignored throughout the revised report and must also be addressed in the final FS report.
5. The nine alternatives listed and screened in the report do not represent complete alternatives for the three silos comprising Operable Unit 4. Alternatives 1 and 2 address Silos 1, 2, and 3, but Alternatives 3, 4, and 5 only address Silo 3, and Alternatives 6, 7, 8, and 9 address only Silos 1 and 2. In the final FS, Alternatives 3, 4, and 5 must be combined with 6, 7, 8, and 9 to incorporate new alternatives addressing all silos. Alternatively (as stated in Response No. 2 in the Comment-Response Document), the FS could be rewritten for two sub-operable units; one for Silos 1 and 2 (K-65 silos) and one for Silo 3 (metal oxide silo).
6. The Initial Screening of Alternatives report only briefly discusses response actions for potentially contaminated soils and ground water surrounding and underlying each of the three silos. This potential contamination could have a significant impact on the detailed analysis

of alternatives. Although response actions for the soils and ground water may be similar for each alternative, this is not explicitly stated, nor does the report list specific remediation goals to determine the final disposition of such materials. For example the the report states on page 5-24 that contaminated berm material may be disposed of as radioactive waste, and clean material may be used as fill material elsewhere. This statement does not consider the underlying soils or ground water, nor does it consider wastes that are contaminated with hazardous substances other than radionuclides. In addition, the report does not list the specific levels that will be used to determine if a material is to be handled as radioactive waste or as clean material.

7. The report does not address the fact that the K-65 waste will need to be handled as high level wastes (relevant and appropriate requirement) with the same degree health hazards and isolation requirements as transuranic wastes meeting the definition of 40 CFR 191.02(i) and U.S. DOE Order 5820.2A, Attachment 2, Definition 39. The ARARs fail to include the standards for the management and disposal of spent nuclear fuel, high level, and transuranic radioactive waste, as codified at 40 CFR 191, Subparts A and B as a relevant and appropriate requirement. The U.S. DOE Order should be listed as a to be considered (TBC) requirement.
8. Requirements for the disposal of byproduct material associated with the processing of uranium and thorium for source material content, codified at 10 CFR 40, Appendix A, should be added as an action ARAR. Some of the materials associated with Operable Unit #4 (such as low specific activity sediments, some contents of Silo 3, and residues following the radionuclide extraction processes considered in certain alternatives, etc.) will be similar to, if not identical with, "by-product material" as defined under Section 11(e)(2) of the Atomic Energy Act, and will require the same degree of stabilization and containment afforded uranium mill tailings. The ARAR cited provides standards consistent with U.S. EPA's Mill Tailings Standard at 40 CFR 192 (already considered an ARAR for Operable Unit #4) and technical criteria, ownership, and site surveillance considerations and groundwater protection criteria for disposal of such material.
9. All other ARAR comments presented in the ARAR review sessions are required to be incorporated into the report.

SPECIFIC COMMENTS:

In many cases, the specific comments made on the first version of the Initial Screening of Alternatives report were inadequately or incompletely addressed. The most important of those specific comments are listed below with a brief statement as to the deficiency. The chapter and page numbers refer to the original review comments.

10. Page 1-6, Section 1.3.3: The did not address how thorium present in relatively high concentrations and volumes would affect the selection of alternatives.



11. Page 2-2, Section 2.1.2 and Page 2-3, Figure 2-1: In response to the concerns about the general response actions and inconsistencies in Figure 2-1, ASI/IT deleted Figure 2-1, but this deletion does not adequately address the concerns.
12. Page 2-3, Section 3.2: Further information concerning time estimates was not adequately addressed. The this document and the final FS must include this information.
13. Page 3-6, Section 3.5: Although the assumptions used in the analysis of alternatives were listed in the Comment-Response Document, they were not included in the revised report. Additionally, the response document states that the slant boring will confirm the level of contamination five feet below the silos. This statement is not supported by the current slant boring program work plan which indicates the slant borings will only sample subsoils as close as 8 feet beneath the silos.
14. Page 3-7, Section 3.5.4: The revised report does not address the technical reason why implementing off-site disposal may be much easier than on-site disposal.
15. Page 4-7, Section 4.1; Page 5-15, Section 5.4.1.6; Page 5-23, Section 5.6.1.1: The response to the comments on these sections of the original report are not adequately addressed. If hydraulic removal was used, water treatment may very well be required. The response is inadequate for three reasons. First, after all the waste is removed, the water cannot be recycled to the mining head. Second, if solidification is not selected as a process option, the water cannot be disposed of as part of this remedial action. Third, vendor estimates indicate that the quantity of water generated can be up to twice the original waste volume; the report does not seem to consider the volume of water needed for the solidification process.
16. Page 5-3, Section 5.1.4: This comment on this section of the original report is not adequately addressed. There are costs associated with the O&M of technical monitoring equipment which are stated to be \$1 million. It is not adequate to add O&M of the equipment to the text and not change the cost.
17. Page 5-4, Section 5.2.1; Page 5-7, Section 5.3.1: Now that grouting under the silos has been removed, some discussion is needed concerning downward migration of contaminants.
18. Page 5-23, Section 5.6.1.6: The question on this section of the original report was not addressed. It would seem that the short-term risk associated with transfer from one silo to another would be much less than packaging required by other alternatives.
19. Page 5-24, Section 5.6.2.2: The comment on this section was not addressed. The reduction in packaging for this alternative reduces the short-term risk to the environment.



20. Page 5-25, Section 5.7.1: The effect of increased moisture in K-65 wastes on removal was not addressed.

As detailed above, the revised draft Initial Screening of Alternatives is inadequate. The revision does not address the deficiencies previously identified by U.S. EPA and the document is disapproved. In accordance with the terms of the 1990 Consent Agreement, U.S. EPA is invoking dispute resolution as provided for in Paragraph B of Section XII. U.S. EPA is recommending that we meet for informal dispute resolution on September 11, 1990, at 10:00 am in Chicago. Please confirm your availability for this date, or suggest an alternative date to which all necessary participants can agree, within five (5) days of the date of this disapproval.

Sincerely,



Catherine A. McCord
Remedial Project Manger

cc: Richard Shank, OEPA
Graham Mitchell, OEPA - SWDO
Leo Duffy, U.S. DOE - HDQ
Joe LaGrone, U.S. DOE - ORO