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RI/FS WORK PLAN ADDENDUM TREATABILITY STUDY OPERABLE UNIT 4 U.S. DOE FERNALD

09-07-90

USEPA/DOE-FSO
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LETTER

[redacted]

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

REPLY TO THE ATTENTION OF:

SEP 07 1990

5HR-12

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

RE: RI/FS WORK PLAN ADDENDUM
TREATABILITY STUDY
OPERABLE UNIT 4
U.S. DOE Fernald
OH6 890 008

Dear Mr. Davis:

On September 6, 1990, the United States Environmental Protection Agency (U.S. EPA) provided comments to the United States Department of Energy (U.S. DOE) on an August 6, 1990, Remedial Investigation/Feasibility Study (RI/FS) work plan addendum for Operable Unit #4 that included a treatability study.

Per a September 7, 1990, telephone conversation with Jack Craig, U.S. EPA is supplementing the September 6, 1990, letter with the enclose attachment.

If you have any questions, I may be contacted at (312/FTS) 886-4436.

Sincerely,

Catherine A. McCord

Catherine A. McCord
Remedial Project Manager

Attachment

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

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GENERAL COMMENTS

1. The processes described in this study do not coincide with the program goals, that is to screen technologies to determine the suitability for treating the K-65 residues to be able to dispose of them as Low Level Radioactive Waste or in a sanitary landfill. The study is geared only toward separation of lead and uranium from the residues, assuming if treatment removes these radionuclides, it will also remove the other radionuclides present. However, the major contaminants of concern in the K-65 residues are radium and thorium, since these are the radionuclides that have been measured at levels that justify the management and disposal standards at 40 CFR 191 as relevant and appropriate requirements. There are no radionuclide analyses planned in this study to ensure that radium and thorium will be removed. Thus, there is no evidence that treatment will be useful in meeting the goals of this study.

2. This document should include estimates of the expected radionuclide emissions from this project, to ensure compliance with the radionuclide emissions standard at 40 CFR 61, Subpart H.

3. This document has so many obvious flaws in it that it seems as if it was not even reviewed by U.S. DOE before submission to U.S. EPA.

SPECIFIC COMMENTS

1. Page 2, paragraph 4 - The assumption that removal of lead and uranium will also remove other radionuclides in the residues should be justified for all radioisotopes in question, including thorium, radium, bismuth, and polonium.

2. Page 2, paragraph 5 - This paragraph is too general. What removal fraction of the radionuclides is required, and what residual levels of radionuclides are acceptable to allow the residues to be disposed of in a hazardous waste landfill?

3. Page 3, paragraph 1 - If the optimum leaching medium and conditions will be those that give that greatest lead and uranium removal, why is only

the lead content to be determined in the leachate to judge the treatment's success? The uranium level and levels of other radionuclides should also be determined.

4. Page 3, paragraph 2 - A continuous radon monitor should be used instead of a CAM to measure radon emissions from the glove box.. Also, quantify the statement that radon emissions will be minimal in field operations.

5. Page 4, paragraph 1 - How will the results of this treatability study be used to guide the methods used in the Removal Action for the silos? The EE/CA does not address treatment.

6. Page 4, Task IA - Describe how samples of the residues in Silos 1 and 2 will be composited by weighted average, according to physical properties.

7. Page 5, Task IB - Preliminary baseline analyses should also include those for thorium, bismuth and polonium.

8. Page 7, paragraph 1 - The processes described on this page for Task IIA are not sufficient. Radium, thorium and uranium levels should be also determined by gamma scan or alpha spectroscopy in both the residue and the extract to justify that these radionuclides are not competing in this process with lead.

9. Page 8, Task IIB - The analysis proposed for uranium is not appropriate. Alpha spectroscopy or fluorimetry analysis should be performed instead. Also, checking for radon leaks around the glove box with a survey meter is inadequate. Radiation survey meters are incapable of detecting radon gas or radon decay products. If there are air leaks in the glove box, then it can be assumed that radon is leaking out of the glove box, too.

10. Page 8, last sentence - The criteria for success is unacceptable. Radium and thorium are the contaminants of concern.

11. Page 9, Task V - It is not appropriate to make the decision whether or not to carry each sample composite through the remainder of the screening programs at this point because the major contaminants of concern have not been analyzed for (radium and thorium).

12. Page 10, Task VII - Specify and describe how it will be determined here if the leached residue is below the radiological requirements for LLRW. Define the criteria for LLRW. How can this conclusion be drawn without determining the full array of radiological constituents? (This comment is also appropriate for Task VIIB and Task VIII.)