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**DISAPPROVAL OF THE REVISED TREATABILITY
STUDY WORK PLAN FOR OU #5**

4-21-92

USEPA/DOE

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LETTER

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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REPLY TO THE ATTENTION OF:

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

HRE-8J

RE: Disapproval of the
Revised Treatability Study Work
Plan for OU #5

Dear Mr. Craig:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the revised Treatability Study Work Plan for Operable Unit #5.

Although the majority of comments were satisfactorily addressed, several issues still remain unresolved.

Therefore, U.S. EPA hereby disapproves the Work Plan pending incorporation of responses to the attached comments.

Please contact me at (312/FTS) 886-0992 if you have any questions.

Sincerely,

James A. Saric
Remedial Project Manager

Enclosure

cc: Graham Mitchell, OEPA-SWDO
Pat Whitfield, U.S. DOE-HDQ

ATTACHMENT

COMMENTS ON RESPONSES TO COMMENTS (RC) AND
DRAFT FINAL TREATABILITY STUDY WORK PLAN (DFTSWP)
FOR OPERABLE UNIT 5 SOIL WASHING
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

1. RC, Pages 18 to 34. Responses to Comments No. 43, 46, 47, 50, 51, 55, 59, 63, and 66 contain action items that will be incorporated into the DFTSWP at a later date. Examples of such action items include the following: (1) the DFTSWP text will be revised and (2) a list of references will be provided. The DFTSWP should clearly state when these action items will be incorporated into the DFTSWP.

2. RC, Page 20, Comment No. 45. The response to Comment No. 45 states that greater detail on the sampling and analytical activities for the treatability studies will be provided during various phases of the bench-scale treatability studies. This statement suggests that the DFTSWP will include a supplement identifying sampling locations and number of samples to be collected (including quality assurance and quality control samples) for each treatability study experiment because these details are not included in the DFTSWP. If this inclusion is to be made, the Final Treatability Study Work Plan should clearly state when the supplement will be submitted for review and what information will be included in the supplement.

3. RC, Pages 29 and 30, Comment No. 60 and DFTSWP, Section 4.4.2, Page 24. The response to Comment No. 60 states that Section 4.4.2 of the DFTSWP has been revised to describe precipitation experiments in more detail. Section 4.4.2, Page 24, Lines 10 through 12 of the DFTSWP state that during treatability study experiments, the treated solutions will be observed for turbidity and sampled for uranium at 1, 4, and 24 hours of operation. It is likely that the turbidity and uranium data collected at 4 and 24 hours of operation may not yield useful information because most precipitation will occur within 1 hour (typical contact times for

metal precipitation range from 0.5 to 1 hour). For this reason, turbidity and uranium concentration data should be collected more frequently in the early stages of precipitation.

Another concern associated with the precipitation experiments is uranium measurement. The DFTSWP states that 0.5 milliliters (ml) of treated solution will be filtered through a 0.45-micron filter and the filtrate will be analyzed for uranium. When 0.5 ml of treated solution is filtered, most of the solution will probably adhere to the filter paper and filtration equipment, leaving little filtrate for analysis. Page 30, Paragraph 2, Lines 2 and 3 of the DFTSWP state that because of the small sample size, filtrate may have to be diluted before analysis. It should be noted that the analytical method detection limit will limit the dilution factor. If the sample is diluted beyond this limit, the diluted sample will have levels of uranium below detection limit making the data unusable. For this reason, it is suggested that the minimum filtrate volume be estimated beforehand using the information on the anticipated uranium levels in the treated water, minimum sample volume required to measure uranium, and the analytical method detection limit.

U.S. Department of Energy
Fernald Environmental Management Project

Treatability Study Work Plan for Operable Unit 5
Soil Washing

Draft Final
Response to Comments
March 1992

Comments by
U.S. Environmental Protection Agency
Region V, Radiation Section

GENERAL COMMENTS

Constituents of Concern (see comments #69, #76) — Inconsistencies still exist between Tables 6-1 and 3-5 (Tables 6-1 and 3-9 in previous draft). It may be reasonable to narrow the scope of the treatability study from the range of contaminants in Table 6-1 to a smaller group of analytes. However, it is not appropriate to specify such target analytes a priori. Responses to previous USEPA comments on this topic indicate that the list of target analytes in the remedy selection stage is chosen based on what contaminants of concern are identified during initial soil characterization. Since initial soil characterization has not been accomplished, how can the list of target analytes in Table 3-5 be justified?

It appears that a number of constituents in Table 6-1 have been eliminated from consideration before any tests have been done. The criteria used to identify "constituents of concern" and/or "target analytes" need to be clearly outlined in the treatability study to ensure that there is consistency in decision making and analysis and that all relevant parameters are included. In this way, the relationship between Tables 6-1 and 3-5 will be unambiguous, and the differences between the two tables can be reconciled.

SPECIFIC COMMENTS

Appendix C, Section C.8.2.1, p. C-17, paragraph 4 (see comment #108) — Concerns regarding the frequency of bioassay sampling have not been adequately addressed. Derived Air Concentrations (DAC) are based only on limiting the radiological dose to workers. With uranium, there is also the problem of kidney toxicity. The dividing line between situations where radiological or chemical hazards are limiting depends on the solubility of the material as well as the enrichment. Neither has been identified thus far by WEMCO. However, because the material in question is depleted uranium, there is the possibility that chemical toxicity is the limiting factor in terms of preventing dangerous worker exposure. A Department of Energy Document, Health Physics Manual of Good Practices for Uranium Facilities (June 1988), cites an OSHA standard of 0.050 mg/m³ for soluble uranium, which is below 25 percent of the DAC if the material is depleted and soluble or transportable.

Routine bioassay sampling on a monthly basis may result in significant missed dose, not only in terms of radiological limits, but also in terms of chemical toxicity. The choice of monthly sampling seems to be a rather arbitrary choice based primarily on convenience. The frequency of bioassay samples should be justified on the basis that it will not result in significant missed dose, and this should be shown. Sampling intervals must also take into account the chemical toxicity of uranium.