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MAR 30 1999

Mr. James A. Saric, Remedial Project Manager
U.S. Environmental Protection Agency
Region V-SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

DOE- 0592-99

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

TRANSMITTAL OF DRAFT OPERABLE UNIT 2 SOUTH FIELD FIRING RANGE REMEDIATION APPROACH AND FACT SHEET

The Fernald Environmental Management Project (FEMP) requests your concurrence to perform *in situ* stabilization treatment of the lead characteristically hazardous soil in the South Field Firing Range with subsequent disposition at the On-Site Disposal Facility (OSDF).

The extent of the lead characteristically hazardous soil estimated during the Remedial Investigation/Feasibility Study (RI/FS) and finalized through predesign sampling was presented in the Area 2, Phase I Southern Waste Units Integrated Remedial Design Package (IRDP). Additionally, all available data indicate that the uranium concentrations within the lead characteristically hazardous soil boundary are near background and below the radiological OSDF Waste Acceptance Criteria (WAC). After treatment, the stabilized soil will be demonstrated by verification sampling to be no longer hazardous per the analysis in the Toxicity Characteristic Leaching Procedure (TCLP) in SW-846 Method 1311. The analysis will follow the requirements specified in Method 1311, Section 7.1.3 regarding particle-size reduction of stabilized materials. Subsequently, successfully stabilized soil can be appropriately disposed at the OSDF.

The Operable Unit 2 (OU2) Record of Decision (ROD) states that lead-containing material from the South Field Firing Range is assumed to be a mixed waste and will be handled as a mixed waste. Further, the OU2 ROD states that as a mixed waste, the material will be treated and shipped to an off-site disposal facility that is approved to accept mixed waste.

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However, for the six reasons listed below, the FEMP believes that in situ stabilization treatment with disposal at the OSDF justifies the requested approach:

1. *Significantly less volume than originally estimated*

The OU2 ROD estimated the quantity of mixed waste within the Firing Range to be approximately 300 cubic yards. After the OU2 ROD declaration in 1995, predesign sampling for the development of the excavation limits refined this quantity to approximately 100 cubic yards based on the lead Final Remediation Level (FRL) of 400 mg/kg, as reflected in the IRDP. Additional predesign sampling using TCLP analysis further differentiated between the 100 cubic yards as lead characteristically hazardous soil, which constitutes handling the soil as a mixed waste per the OU2 ROD, and the characteristically nonhazardous, above-lead FRL soil. This predesign sampling effort defined the quantity of characteristically hazardous soil as approximately 40 cubic yards requiring treatment prior to disposal.

2. *A suitable stabilization technology has been identified*

The OU2 ROD allows the continued evaluation and consideration of new treatment technologies by FEMP if it is determined that the technologies are cost-effective and reduce contaminant toxicity, mobility, or volume (Reference, Page 8-7 of the OU2 ROD). As demonstrated above, this volume has been reduced through intensive predesign sampling and TCLP analysis. Additionally, FEMP proposes to utilize Severson Environmental Services, Inc. in the treatment of the Firing Range characteristically hazardous soil.

Severson Environmental Services, Inc. was selected to stabilize the lead contaminated soil at the Area 1, Phase II Trap Range using their proprietary stabilization reagent. This reagent permeates the soil and chemically bonds leachable lead into hard, microscopic, geochemically stable synthetic mineral crystals which form within the soil matrix. The reagent also reacts with the surface of lead fragments microencapsulating its surface.

Severson Environmental Services, Inc.'s experience includes both stabilization and treatability services for lead contaminated soil. An example includes lead contaminated soil at sixteen small arms training range berms at the Massachusetts Military Reservation in Cape Cod, MA totaling 5,380 cubic yards. Verification sampling resulted in leachable lead below its TCLP limit of 5.0 mg/L.

3. *No change regarding final cleanup levels and protectiveness to the groundwater*

The lead characteristically hazardous soil within the Firing Range proposed for treatment and disposal on site requires no modification from the original final

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cleanup level. Therefore, all soil designated as contaminated with lead above its FRL will be excavated, thus removing any threat to further groundwater contamination in the Southern Waste Units. The treated materials will not have unacceptable levels of contaminants within the leachate and therefore can be safely disposed of in the OSDF.

4. *Consistent with the approach allowed in the Operable Unit (OU5) Record of Decision (ROD)*

As identified in the OU5 ROD, there are six other geographic areas of the FEMP with a reasonable potential for the presence of soil that qualifies as a Resource Conservation and Recovery Act (RCRA) characteristically hazardous waste. This approach provides a reasonable opportunity for treatment. Within these geographic areas, soil that has been successfully treated to remove the characteristically hazardous property, and satisfy the OSDF WAC, can be placed in the OSDF (Reference, Page 9-6 of the OU5 ROD).

5. *Consistent with the approach to be implemented in the Area 1, Phase II Trap Range*

The technology and approach suggested for the Area 2, Phase I South Field Firing Range are consistent with the treatability and full-scale in situ stabilization treatment approach to be taken in the Area 1, Phase II Trap Range. The treatability study will consist of initial characterization and testing cure times of three and seven days utilizing a conservative mix ratio of 3 percent reagent developed for the Trap Range.

During full-scale operations, an excavator with a flat-edged bucket or equivalent will be utilized to first remove the deeper (greater than two feet) characteristically hazardous soil and spread it over the remaining characteristically hazardous soil. Next, a combination of water and reagent will be sprayed onto the lead characteristically hazardous soil as it is mixed with the excavator bucket in a folding motion to the depth specified on the construction drawings. After the optimal cure time has elapsed, verification sampling will occur within the stabilized area and TCLP analysis for lead will be performed. If the resulting leachability of lead is below the TCLP limit of 5 mg/L for lead, the soil will be excavated, loaded, hauled, and placed in the OSDF.

6. *Significant cost savings*

Significant cost savings are anticipated for on-site in situ stabilization with subsequent on-site disposal. This savings may be used to accelerate other FEMP remediation or restoration activities.

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Section 117(c) and (d) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) contains provisions for addressing and documenting modifications to the ROD after it is signed. Additionally, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (55FR8666-8865, March 9, 1990) includes post-ROD information and public comment in Sections 300.435(c)(2) and 300.825(b) and (c). Guidance for post-ROD changes and ways in which changes should be documented is outlined in the "Guide to Addressing Pre-ROD and Post-ROD changes" (OSWER Publication 9335.3-02FS-4, dated April 1991).

Based on this guidance and reasons stated above, the FEMP believes the requested approach is non significant and should be documented for the public in a Remedial Design Fact Sheet. Enclosed is a draft of the Remedial Design Fact Sheet for your review and comment prior to its formal release and inclusion in the post decision document file.

The FEMP believes that the on-site stabilization treatment and disposal of this soil, as permissible with this modification to the OU2 ROD thereby aligning its approach with the OU5 ROD, provide equal protectiveness to the groundwater without modification to the FRLs using the in situ stabilization technology with on-site disposal. Additionally, this technology is consistent with the approach identified for use at the Area 1, Phase II Trap Range at the FEMP and will provide cost-effective disposition on site in accordance with the OSDF WAC.

If you have any questions concerning this request, please contact Mr. Robert Janke at (513) 648-3124.

Sincerely,



Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:R.J. Janke

Enclosure

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Mr. Tom Schneider

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cc w/enclosure:

G. Jablonowski, USEPA-V, SRF-5J
R. Beaumier, TPSS/DERR, OEPA-Columbus
T. Schneider, OEPA-Dayton (three copies of enclosure)
F. Bell, ATSDR
M. Schupe, HSI GeoTrans
R. Vandegrift, ODH
F. Barker, Tetra Tech
AR Coordinator, FDF/78

cc w/o enclosure:

N. Hallein, EM-42/CLOV
R. J. Janke, OH/FEMP
K. Nickel, OH/FEMP
A. Tanner, OH/FEMP
D. Brettschneider, FDF/52-5
D. Carr, FDF/52-2
J. Chiou, FDF/52-0
T. Crawford, FDF/52-0
T. Hagen, FDF/65-2
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M. Jewett, FDF/52-2
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L. McDaniel, FDF/60
T. Walsh, FDF/65-2
ECDC, FDF/52-7

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT



Remedial Design Fact Sheet for Operable Unit 2 - Area 2, Phase I Southern Waste Units South Field Firing Range

March 1999

OVERVIEW

This Remedial Design Fact Sheet documents a change to the Operable Unit 2 Record of Decision (ROD) which had established off-site disposal of South Field Firing Range soils containing lead.

- The quantity of Firing Range soils containing lead contamination above final remediation levels (FRLs) will change from 300 cubic yards to 100 cubic yards based on the results from additional sampling and analysis.
- The assumption that all lead-containing Firing Range soils above cleanup levels is a mixed waste will change. Forty cubic yards of the soil will be considered a mixed waste (with a characteristically hazardous lead component) and 60 cubic yards will be considered above the FRL for lead only.
- The treatment for Firing Range mixed waste will be clarified from treatment to in situ stabilization treatment.
- The Firing Range mixed waste will be disposed of at the On-Site Disposal Facility (OSDF) instead of off site.

Note that these changes pertain only to Firing Range soil contaminated with lead above the RCRA toxicity characteristic leaching procedure (TCLP) limit of 5.0 mg/L for lead; lead is a constituent of concern (COC) for the Firing Range only and not the entire South Field area.

These changes are consistent with the treatment and disposition approach for six other geographic locations within the FEMP with a reasonable potential for the presence of soil that qualifies as a RCRA characteristically hazardous waste as identified in the Operable Unit 5 ROD (DOE 1996). The need for these changes was discovered:

- After predesign sampling, which was done to determine excavation limits for the Firing Range soil;
- Before the Area 2, Phase I (Southern Waste Units) excavation including the South Field; and
- Before in situ stabilization treatment of the Area 1, Phase II Trap Range.

These particular changes have been identified as "non-significant post-ROD changes," as they do not significantly alter the physical area of remediation, remediation goals, type of waste, or treatment levels to be attained. These changes are believed to decrease the volume of waste that was to be handled as a mixed waste and reduce the clean-up cost of disposal. This optional Fact Sheet was prepared in accordance with U.S. EPA's Guide to Addressing Pre-ROD and Post-ROD Changes (OSWER Publication 9355.3-02FS-4, April 1991), which accommodates refinements to the remedy that were discovered to be necessary after ROD signature.

BASIS FOR THE CHANGES

As identified in the Operable Unit 2 ROD, 300 cubic yards of lead containing material from the South Field Firing Range was assumed to be a mixed waste and would be handled as a mixed waste requiring treatment. Further, the Operable Unit 2 ROD states that as a mixed waste, the material will be treated and shipped to an off-site disposal facility that is approved to accept mixed waste.

However, for the six reasons listed below, in situ stabilization treatment with disposal at the OSDF is justifiable:

1. *Significantly less volume than originally estimated* - Additional sampling and analysis since the OU2 ROD demonstrates that the material to be handled as mixed waste is 40 cubic yards, rather than the 300 cubic yards originally estimated.
2. *A suitable stabilization technology has been identified* - It has been determined that existing in situ stabilization technology has successfully stabilized lead contaminated soil below the TCLP lead limit of 5.0 mg/L. This technology would permit the stabilization of the 40 cubic yards of RCRA characteristically hazardous soil to an above-lead FRL soil that would be below the radiological and lead waste acceptance criteria (WAC) for the OSDF.