

**5086**

**REMOVAL ACTION 17 WORK PLAN  
MODIFICATIONS**

**01/25/94**

**DOE-0828-94  
DOE-FN/EPA  
11  
LETTER  
OU3**



**Department of Energy**  
**Fernald Environmental Management Project**  
P.O. Box 398705  
Cincinnati, Ohio 45239-8705  
(513) 738-6357

JAN 25 1994  
DOE-0828-94

Mr. James A. Saric, Remedial Project Director  
U. S. Environmental Protection Agency  
Region V - 5HRE-BJ  
77. W. Jackson Boulevard  
Chicago, Illinois 60604-3590

Mr. Graham E. Mitchell, Project Manager  
Ohio Environmental Protection Agency  
40 South Main Street  
Dayton, Ohio 45402-2086

Dear Mr. Saric and Mr. Mitchell:

**REMOVAL ACTION 17 WORK PLAN MODIFICATION**

The Department of Energy (DOE) has reviewed the Removal Action 17 Work Plan "Improved Storage of Soil and Debris" based upon comments recently received from Ohio Environmental Protection Agency (OEPA) regarding the Nitric Acid Tank Car Removal Action Final Report. In response to OEPA's comments, DOE is modifying Subsections 3.1.2, 3.5.1, 3.5.2, and 3.9 of the Work Plan (Rev. No. 2, February 1993). The revised text is summarized below and provided as an enclosure to this correspondence in accordance with Section IX.C. of the Amended Consent Agreement between DOE and the United States Environmental Protection Agency (U. S. EPA). Pages ii, 3-4, 3-5, 3-12, 3-14, 3-28, and 3-32 of the Removal Action 17 Work Plan should be replaced with the revised pages enclosed with this letter. The revised text is shaded to facilitate your review.

Excess soils resulting from hazardous waste management unit (HWMU) closure activities will continue to be segregated based on radionuclide activity (100 pCi/g total uranium activity, 5 pCi/g total radium activity, or 50 pCi/g total thorium activity) or the presence of hazardous wastes, PCBs, or petroleum products at concentrations exceeding regulatory limits. Excess soils resulting from HWMU closure activities will no longer be used as backfill at the Fernald Environmental Management Project (FEMP).

To comply with this modification to the Removal Action 17 Work Plan, the FEMP will ensure that stockpiled soils from closure of the Nitric Acid Rail Car and Area HWMU's are not used to backfill other excavations at the FEMP. Furthermore, soil used to backfill the Pilot Plant Sump excavation will remain in place. Excess soils generated from future closure activities at the FEMP will be managed in accordance with these work plan modifications. DOE is

committed to ensuring that contaminant releases from soil and debris at the FEMP continue to be mitigated in a manner that supports the future and final remediation of the site.

If you have any questions regarding these modifications to the Removal Action 17 Work Plan or management of soil from the Nitric Acid Rail Car and Area closure action, please contact either Mr. Art Murphy at 513-648-3132 or Mr. Anand Shah at 513-648-3146.

Sincerely,

  
Jack R. Craig  
Fernald Remedial Action  
Project Manager

FN:Hall

Enclosure: As Stated

cc w/enc:

P. Pardi, OEPA, DHWM  
T. Schneider, OEPA, DERR  
R. J. Janke, DOE-FN  
A. E. Murphy, DOE-FN  
J. R. Reising, DOE-FN  
J. M. Sattler, DOE-FN  
A. Shah, DOE-FN  
K. L. Alkema, FERMCO  
J. E. King, FERMCO  
K. R. Kolthoff, FERMCO  
J. J. McGuire, FERMCO  
M. L. West, FERMCO  
AR Coordinator, FERMCO

**ENCLOSURE:**

**REVISED PAGES FOR  
REMOVAL ACTION 17  
WORK PLAN**

**-508 6**

**ENCLOSURE:**

**REVISED PAGES FOR  
REMOVAL ACTION 17  
WORK PLAN**

**004**

CONTENTS (Continued)

5.0 Management Support . . . . . 5-1

5.1 Roles of Participants . . . . . 5-1

5.2 Project Planning Activities . . . . . 5-1

5.3 Operations and Data Management . . . . . 5-4

5.4 Schedule . . . . . 5-9

5.5 Training of Personnel . . . . . 5-10

6.0 Sampling and Analysis Plan . . . . . 6-1

6.1 Objective . . . . . 6-1

6.2 Parameters for Analysis . . . . . 6-2

6.3 Sampling Procedures . . . . . 6-4

6.4 Chain-of-Custody . . . . . 6-8

6.5 Analytical Procedures . . . . . 6-8

6.6 Quality Assurance . . . . . 6-9

6.7 Data Validation, Manipulation, and Management . . . . . 6-9

7.0 References . . . . . 7-1

REVISIONS

The following pages were reissued under Change No. 1, Rev. No. 2 of this document

Contents . . . . . ii

Section 3.1.2 . . . . . 3-4, 3-5

Section 3.5.1 . . . . . 3-12

Section 3.5.2 . . . . . 3-14

Section 3.9 . . . . . 3-28, 3-32

ATTACHMENTS

- A Removal Site Evaluation
- B Table of ARARs
- C Management of Soil, Debris, and Waste from a Project (SSOP-0044)
- D Identification of Soil and Debris Source Quantities
- E Completing the Material Evaluation Form
- F Engineering Evaluation for Improved Storage of Soil and Debris

"Disposal or On-Site Storage of Thorium or Uranium Wastes from Past Operations" (46 FR 52061). The FEMP will change its previous three-level total uranium policy ( $U < 35$  pCi/g,  $35$  pCi/g  $< U < 100$  pCi/g, and  $U > 100$  pCi/g) for soil management because it cannot be implemented in the field. The hand-held field monitoring instrumentation cannot accurately determine activity concentrations less than 100 pCi/g. The 100 pCi/g activity concentration will be used to separate soil into two major categories: (1) contaminated materials for placement into improved storage facilities or (2) material for placement in a controlled stockpile. Soil that is less than 100 pCi/g (total uranium) and does not contain concentrations of hazardous constituents (that exceed regulatory standards) or does not originate from closure of a hazardous waste management unit will be placed on controlled stockpiles. The storage disposition determination will be based on the contaminant assessment and the associated Material Evaluation Form (MEF). RI/FS data, process knowledge, and other analytical data will be the primary sources of information when completing the MEF. Sampling/analysis will be conducted as required when adequate information does not exist to complete the MEF.

Soil from specific areas of the FEMP (i.e., *OU-1 and OU-4*) may contain thorium and radium contaminants. The contaminant assessment that is conducted to complete the MEF will identify whether radium and thorium are present in the soil. The activity concentration for the storage determination of soils that contain radium (total) is 5 pCi/g above the background activity concentration. This activity concentration is based 40 CFR 192. The activity concentration for the storage determination of soils that contain thorium (total) is 50 pCi/g above the background activity concentration. This activity concentration is based on the Nuclear Regulatory Commission Branch Technical Position entitled, "Disposal or On-site Storage of Thorium or Uranium Wastes from Past Operations (46 FR 52061)". These radium and thorium activity concentrations are not final clean-up standards but are levels designated for storage disposition requirements. Soil that has an activity concentration of radium and thorium that is less than or equal to 5 pCi/g and 50 pCi/g respectively, and an activity concentration of total uranium that is less than or equal to 100 pCi/g will be placed on the *OU* specific controlled stockpiles.

Past construction projects and RI/FS field experience have demonstrated that hand-held radiological detection instrumentation can be correlated to the 100 pCi/g activity concentration for total uranium. The correlation is approximate due primarily to the mix of radionuclides, detector efficiencies, and detection geometries. Excavation surveys will be conducted with real-time radiological measurements. Hand-held radiological instrumentation will be employed to direct the excavation process and to determine when soils exceed the 100 pCi/g activity concentration threshold. A radiological survey will be performed on a study area employing a NaI detector and the protocols defined in the SCQ (DOE 1992). When radium and thorium are expected to be present, samples may be sent to a laboratory because the field instruments may not detect total radium at 5 pCi/g and total thorium at 50 pCi/g with a high level of confidence.

Debris will be decontaminated for free-release in accordance with 40 CFR 268.45, 40 CFR 192, NRC Regulatory Guide 1.86, and DOE Order 5400.5 whenever possible. The FEMP will establish stockpiles

for clean debris that may be shipped off site for disposal in an industrial solid waste landfill. Recoverable debris will be stored in improved storage facilities prior to being decontaminated. Nonrecoverable debris that cannot be decontaminated may be stored in improved storage facilities prior to being packaged and shipped to a DOE-approved disposal facility.

### 3.2 Improved Storage Facilities for Soil and Debris Management

This subsection describes the four improved storage facilities that will be constructed for Phase II. Currently, the structures are all located in *the former production area (OU-3)*. This *area* has the highest potential for generating soil and debris during removal actions. The FEMP proposes to relocate contaminated soil and debris from other *OUs* to the improved storage facilities in *OU-3* as required for protection of human health and the environment. A single centralized storage facility was chosen over multiple storage facilities for the following reasons: (1) The available property for storage structures is limited in *OUs 1, 2, and 4*; (2) It will be easier to control the disposition and management of materials if they are located in a central facility; and (3) since the amount of PCB, asbestos, and hazardous wastes is expected to be limited, central storage of these materials will be most effective. Soil and debris that will be moved to the Central Storage Facility (CSF) structure *in OU-3* will be radioactively contaminated (as presented in Subsection 3.1.2) and/or contaminated with other nonradiological regulated waste materials. *Soil and debris from the other OUs will be stored within the improved storage facilities located in OU-3.* Once soil and debris are moved into the CSF, they will remain in storage until the final remediation options are implemented. It should be noted that additional improved storage facilities may be added as required in the future to support removal actions and other FEMP activities. The following paragraphs introduce and describe the proposed improved storage facilities. Table 3-1 summarizes the disposition alternatives for soil and debris at the FEMP. Section 4 includes a detailed description of the improved storage facilities.

#### Central Storage Facility (CSF)

The CSF will be a containment structure that will store contaminated soil and non-recoverable debris generated from various areas throughout the FEMP. Materials will be segregated in the containment structure based on the type of contamination (i.e., asbestos, petroleum, PCB, hazardous, and radioactive). Material will remain in the CSF until it can be decontaminated, treated, or packaged for final disposal. Material from the CSF will not be used as backfill.

#### Decontamination Facility Pad (DFP)

This containment structure will be located near the new decontamination facility. The DFP will provide short-term storage for contaminated recoverable metal and equipment until they can be decontaminated. Radioactive constituents will be the primary contaminants. However, there may be small quantities of other hazardous contaminants.

### 3.5 Soil Management Plan

This subsection provides the management plan and identifies specific management procedures to allow proper segregation of each type of soil expected to be encountered at the FEMP. *The soil management strategy has three components. The Phase I plan addresses the storage of soil prior to the construction of improved storage facilities. The Phase II plan addresses the disposition and storage of soil in the improved storage facilities. A plan is also developed to handle soil generated during emergency maintenance activities.*

#### 3.5.1 Soil Management Plan Overview

The basic approach for the management of soil at the FEMP is to provide controlled bulk storage of contaminated soils that remain as surplus at the completion of various site activities. Phase I of this management plan requires placement on and covering of contaminated soils with a heavy, nonpermeable tarpaulin. It is intended to improve this current management practice by constructing a containment structure, known as the CSF, for soils which contain a waste material in addition to or other than radioactive constituents (i.e., hazardous waste, mixed waste, petroleum contaminants, or PCBs). In addition to the CSF, controlled stockpile areas will be provided for the storage of soils which have a field-correlated total uranium activity that is less than or equal to 100 pCi/g, a total radium activity concentration less than or equal to 5 pCi/g, a total thorium activity concentration less than or equal to 50 pCi/g, *does not originate from closure of a hazardous waste management unit*, and does not contain concentrations of other nonradiological regulated waste materials that exceed regulatory limits. Soil may be taken from a controlled stockpile and used as backfill in the OU of its origin where the radioactive contaminants are similar. This will reduce the amount of clean fill that will be brought on site and then require treatment during final remediation.

The CSF will improve the management of soil by centralizing the storage operations and maintenance activities. Normal practice will be to store the soil within the CSF in bulk to minimize the material handling required to support the final remediation efforts. However, some of this waste may be containerized to isolate or segregate a specific quantity of soil. The soil that is stored in the improved storage structures (CSF, SRPC) will not be used as backfill. These soils will remain in storage until they can be treated/disposed.

Phases I and II include the establishment of controlled stockpiles. Controlled stockpiles will be outdoor piles for the bulk storage of excess soils resulting from various removal actions, construction projects, and maintenance, closure and environmental response activities. Controlled stockpiles will be limited to soils that contain less than or equal to 100 pCi/g total uranium, 5 pCi/g total radium, 50 pCi/g total thorium, and no other nonradiological regulated waste materials at concentrations that exceed regulatory limits. Each stockpile area will have runoff and runoff controls; runoff will be retained and managed in

3.5.2 Non-Hazardous, Radiological Concentrations Less than the Disposition Limits

The field-correlated activity concentration (based on total uranium) that is established for soil management at the FEMP is 100 pCi/g. The 100 pCi/g total uranium activity concentration has been proposed for similar projects at the FEMP. Also, activity concentrations of 5 pCi/g for total radium and 50 pCi/g for total thorium will be utilized when these radionuclides are present in excess soil. The FEMP will impose institutional controls on soil at these activity concentrations. These activity concentrations do not represent free release levels. In addition, there is a relatively short duration of these management requirements. The time frame for the controlled stockpiles is 10 years which is based on the assumption that the Record of Decision for OU-5 will be issued during that time.

As discussed in Subsection 3.1.2, an activity concentration of 100 pCi/g that has been field-correlated for total uranium represents a level of surface radioactivity in soil that can be used to determine the storage disposition. Excess soil which is statistically less than or equal to this concentration over an area of 100 square meters, and does not contain hazardous wastes, PCBs, or petroleum products, at concentrations that exceed regulatory limits, will either be used as backfill within the OU of origin, placed in a controlled stockpile (*within the OU*) area with drainage controls, or left in place with the installation of improved drainage controls. It should be noted that excess soil *that does not originate from closure of a hazardous waste management unit* will be used as backfill in its OU of origin if the soil has radioactive constituents that are similar to the soils where it will be used as backfill. *Separate controlled stockpiles will be created within the OU of origin for soils meeting the disposition limits specified in this section and originating from closure of a hazardous waste management unit. Soil stored in these stockpiles will not be used as backfill.* Field monitoring (Section 3.1.2) using hand-held instruments will be used to determine if the soil can be placed in a controlled stockpile. The field survey and determination of whether the soil exceeds the 100 pCi/g activity concentration will be conducted in accordance with existing FEMP procedure SP-P-35-023 (WEMCO 1992a) entitled "Radiological Contamination Surveys." Laboratory radiological analysis may also be performed (as required) in conjunction with the field surveys. A Student's "t" test (or equivalent statistical procedure) will be used for statistical analysis (if necessary) to determine whether soil activity concentrations are significantly higher than *the activity concentrations designated for soil disposition*. Large quantities of material are expected to be utilized as backfill or stored in the controlled stockpiles.

*The disposition of soil from controlled stockpiles will be tracked by the use of a database. This database will ensure that, when the remediation of soil begins, information will be available as to where soil from the controlled stockpile has been dispositioned.*

### 3.7.3.6 Petroleum-Contaminated Debris

Petroleum-contaminated non-recoverable debris and radioactive contaminated UST debris will be stored in a designated storage area during Phase I. Material will be containerized if off-site disposal is possible. This material will be *containerized and* stored in a segregated area in the CSF (or an improved storage facility within the *OU*) pursuant to OAC 1301:7 during Phase II. Small amounts of these materials are expected. The FEMP is investigating the potential for shipping these materials off site for treatment.

### 3.8 Specific Debris Management Procedures

This subsection describes the specific Phase I and Phase II management procedures for the types of debris that will be encountered at the FEMP. The Phase I and Phase II debris disposition requirements are summarized in the Debris Management Plan (Table 3-6). Figures 3-3 and 3-4 provide the flow diagrams for the Phase I and Phase II debris management plans, respectively. It should be noted that the Figures include activities that are not specifically addressed in this RAWP (i.e., selection and implementation of the final CERCLA remedial measures, and the sitewide post-remediation risk assessment activities). These future activities are included in the figures to indicate how the Phase I and Phase II soil management plans are integrated into the overall CERCLA remediation effort.

### 3.9 Post-Storage Activities

Storage Documentation - A yearly update report will be submitted by January 15 for all soil and debris dispositioned in the previous fiscal year. The report will document the activity concentrations, chemical concentrations, quantities, and the disposition of soil and debris. The report will be submitted to the regulatory agencies and placed in the FEMP CERCLA Administrative Record. *Future Removal Actions expected to generate excess soil and/or debris will be documented with the Phase III Removal Actions submitted from DOE to the US EPA annually on January 15.*

Improved Storage - Soil and debris placed in an improved storage facility will remain there until treatment/disposal becomes available or until the selected remedial alternative is available. Once treated, the soil and debris will be disposed in compliance with the *clean-up levels specified in the RODs for OU-5 and OU-3 respectively.*

Materials in Controlled Stockpiles - Soil and debris placed in a controlled stockpile may be used for backfill during construction and closure projects. Material from the controlled stockpile will be used as backfill within the *OU* of origin if the radiological constituents of the backfill are similar to the surrounding soils *and if the soil does not originate from closure of a hazardous waste management unit.* The activity concentrations will be monitored by FEMP personnel and recorded within a computerized data base. This monitoring will allow material tracking so that the origin, quantity, and concentration

will be traceable to locations where the soil and debris is utilized. All available characterization data will be entered into the database. *Soil will be removed from the controlled stockpiles and treated/disposed in accordance with the clean-up levels established by OU-5 ROD. Soil from a controlled stockpile that has been used as backfill will be treated/disposed along with the soils adjacent to the area of backfill (in accordance with the clean-up levels established by the OU-5 ROD).*