FINAL

EXPLANATION OF SIGNIFICANT DIFFERENCES FOR OPERABLE UNIT 1

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

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1.0 Introduction to the Site and Statement of Purpose

1.1 Background

The Fernald Environmental Management Project (FEMP) is a former uranium processing facility located in Hamilton and Butler Counties, Ohio approximately 18 miles northwest of Cincinnati, Ohio. The FEMP is owned by the United States Department of Energy (DOE). In November 1989, the FEMP site (formerly the Feed Materials Production Center [FMPC]) was included on the National Priorities List (NPL) of the U.S. Environmental Protection Agency (U.S. EPA). As the owner of the FEMP, the DOE is the lead agency for remediation of the FEMP pursuant to the Consent Agreement as Amended (ACA) under the Comprehensive Environmental Response Compensation and Liability Act as amended (CERCLA) Sections 120 and 106(a) signed with U.S. EPA in September 1991. The Ohio Environmental Protection Agency (OEPA) is also participating in the cleanup process at the site.

Operable Unit 1 (OU1) is one of the five operable units identified in the ACA and encompasses a series of waste storage pits. A Record of Decision (ROD) for OU1 was signed on March 1, 1995 by DOE and U.S. EPA.

1.2 Circumstances Giving Rise to Preparation of an Explanation of Significant Differences (ESD) for Operable Unit 1

This Explanation of Significant Differences (ESD) applies to the Record of Decision (ROD) for Remedial Actions at Operable Unit 1 (OU1) at the FEMP in Fernald, Ohio. DOE is the lead agency for remediation of the FEMP pursuant to the 'Consent Agreement as Amended under CERCLA Sections 120 and 106(a)' (ACA), which was signed by DOE and USEPA in September 1991. The DOE has determined that there are cost effectiveness and safety advantages in using the OU1 remedial infrastructure to process for disposal other FEMP waste streams originating outside of OU1. This ESD has been prepared to document this determination.

1.3 Regulatory Basis

Pursuant to Section 117 of CERCLA and the National Hazardous Substance and Pollution Contingency Plan at 40 CFR 300.435(c)(2)(i), an ESD document should be published when "differences in the remedial or enforcement action, settlement, or consent decree significantly change but do not fundamentally alter the remedy selected in the ROD with respect to scope performance or cost." U.S. EPA guidance (A Guide to Preparing Superfund Proposed Plans, Records of Decision, and other Remedy Selected Decision Documents, EPA 540-R-98-031, dated July 1999) categorizes what defines a significant but not fundamental change to the remedy. DOE, and both U.S. and Ohio EPAs, agree that the change contemplated by this document is significant but not fundamental because it does not change cleanup levels or the basic remedy of removal, safe transportation, and offsite disposal of the OU1 waste streams. In addition, the change will not increase total FEMP remediation costs, and may even lead to significant cost and time savings for the Fernald project as a whole.

This ESD has been prepared in accordance with Section 117(c) of CERCLA and pursuant to Title 40 of the Code of Federal Regulations (CFR) 300.435(c)(2)(i). This ESD is required because a significant, but not fundamental change, is proposed to the implementation of the final remedial action plan described in the OU1 ROD. Specifically, this ESD has been prepared to describe a change to allow materials from other FEMP projects to be managed via the mechanisms established through the OU1 ROD for disposal along with the OU1 wastes at a permitted commercial disposal facility (PCDF).

1.4 Administrative Record

The ESD will become part of the FEMP Administrative Record, which is available at the Public Environmental Information Center (PEIC). Effective October 1, 2002, the PEIC will be located in Trailer 210 at the FEMP, 7400 Willey Road, Hamilton, Ohio 45013-9402, (513) 648-7480. Planned hours of operation for the PEIC, are Tuesdays and Thursdays from 7:30 a.m. to 5:00 p.m.

2.0 Summary of Site History, Contamination Problems, and Selected Remedy

The FEMP is a 1,050 acre DOE-owned, contractor-operated federal facility, located in southwestern Ohio, about 18 miles northwest of the city of Cincinnati, Ohio, that produced high purity uranium metal products for the DOE and its predecessor agencies from 1952 to 1989.

Operable Unit 1 is a 37.7-acre area located in the northwest quadrant of the FEMP site. Large quantities of liquid and solid wastes were generated by various chemical and metallurgical processing operations and these wastes were stored or disposed of in six waste pits and the Clearwell, or burned in the Burn Pit. These pits are located in a portion of the FEMP Waste Storage Area and are contained within the boundaries of OU1. Paddy's Run, an intermittent tributary of the Great Miami River, runs along the west side of the FEMP between OU1 and the site boundary.

More definitively, OU1 consists of Waste Pits 1, 2, 3, 4, 5, and 6 which contain sludge, waste materials, debris, and water; the Burn Pit (used for disposal and burning of waste); the Clearwell (a settling basin for surface water runoff from the waste pits and supernatant from Waste Pits 3 and 5); miscellaneous structures and facilities such as berms, liners, concrete pads, underground piping, utilities, railroad tracks, fencing, and soil within the OU1 boundary.

On March 1, 1995, the EPA signed the OU1 ROD. The selected remedy presented in the OU1 ROD generally consists of the following activities: 1) Excavation of wastes from the pits (along with any residual contaminated soils from beneath the pits); 2) Preparation of the wastes (e.g., sorting, crushing, shredding); 3) Treatment by thermal drying (as necessary to remove free water and achieve optimum moisture content to meet the Waste Acceptance Criteria (WAC) of the disposal facility); 4) Blending to achieve a uniform product, and loadout into railcars (or boxes, as applicable); 5) Transportation from the FEMP; and 6) Off-site disposal at a PCDF, or DOE's Nevada Test Site, as necessary, due

to radiological levels in the waste product. The ROD has a full description of all the elements of the selected remedy.

The remedy described in the OU1 ROD addresses the principal threats posed by OU1, by removing waste materials and contaminated soils, and treating waste materials and soils to facilitate waste handling. These actions reduce the potential for contaminant migration and will ensure the PCDF WAC is met. The waste will then be disposed at a PCDF in accordance with applicable requirements. By implementing this remedy, the waste material will not be available for direct human or ecological contact or for migration into the underlying Great Miami Aquifer. The change contemplated by this ESD does not change the protectiveness of the OU1 remedy because it does not change the basic remedy of removal, safe transportation and offsite disposal of the OU1 waste streams, nor increase total costs.

3.0 Description of Significant Differences and the Basis for the Change

The selected remedy, as presented in the ROD for Remedial Actions at OU1, identifies the mechanisms under which the OU1 waste materials would be managed to support off-site disposal at a PCDF. Consistent with the OU1 ROD, facilities were designed and constructed to support the excavation, treatment, load-out, and shipment of the OU1 waste materials. Through the end of 2001, the treatment facility has processed and loaded over 300,000 tons of material excavated from the waste pits, which was subsequently shipped to, and disposed of, at Envirocare of Utah (the selected PCDF).

As these mechanisms have been formulated, facilities constructed, and remedial action activities implemented, the potential for treatment of materials from other FEMP projects has always been a factor for consideration. Specifically, as it became clear that some FEMP soils and other waste materials (with characteristics reasonably similar to those to be encountered through OU1 waste pit excavation activities) would require disposition off-site, the ability to accommodate these materials was integrated into the OU1 remedial action approach. The OU1 ROD presents a detailed discussion as to the cost and safety advantages of bulk rail shipment of OU1 waste for disposal as compared to shipment by truck. These same advantages apply to utilizing the OU1 remedial infrastructure for disposal of other FEMP waste streams. This proposal for integrated remedial planning was a component of the site-wide proposal submitted to the USEPA and Ohio Environmental Protection Agency (OEPA) on August 18, 1995, which highlighted the advantages of integrating such planning into the design phase of the various FEMP projects in supporting site-wide cleanup objectives. In letters of September 8, 1995 and September 15, 1995, the OEPA and USEPA, respectively, stated their support of such an integrated remediation approach.

During finalization of the Operable Unit 5 ROD, it was envisioned that excavated soils demonstrating contaminant concentrations above the waste acceptance criteria of the Onsite Disposal Facility (OSDF) would be dispositioned offsite through the OU1 remedial infrastructure. Accordingly, other FEMP waste streams identified for management through the OU1 remediation facility included soils and soil-like material (e.g., containerized waste, such as AWWT sludges; debris; etc.) which did not meet the WAC for the OSDF, but

could be disposed of at the PCDF without the need for treatment. In other words, this material could be passed through the OU1 remediation facility, and loaded out into railcars, with minimal effort/impact. To date, over 50,000 tons of OU5 soil and/or soil-like material have been processed in this manner, with more planned for processing in the future.

Beyond these OU5 waste streams, other FEMP waste streams have been identified which have the potential to be managed through the OU1 remediation facility (i.e., for disposal at the PCDF), and in doing so save cost and/or time in completing the overall FEMP remediation. An example waste stream is approximately 600 containers of enriched, non-restricted uranium waste. Unlike the initial other FEMP wastes, however, some of these new waste streams may require processing through the OU1 remediation facilities to ensure that the waste meets the PCDF WAC, may require augmentation of existing facilities to perform all necessary management/treatment, and/or may require mixing with OU1 waste pit material to provide for a product which meets the PCDF WAC. Although the management of these additional FEMP waste streams through the OU1 facility does not fundamentally change the plan identified in the OU1 ROD for the management of the OU1 waste material, it has the potential to become a significant element of the OU1 remediation process. Processing the additional FEMP waste through the OU1 remediation facility may be considered significant, because it may be necessary to add substantial facilities/equipment to manage this material in order to support processing through the existing facility.

Accordingly, this ESD has been prepared to formally include the processing of other FEMP waste streams through the OU1 remediation facilities and processes, as a component of the plan for the remediation of OU1. These will be waste streams that with processing available as part of OU1 remedial actions, including mixing with waste pits materials, can meet the waste acceptance criteria of the receiving offsite disposal facility. In addition to meeting the definition of low-level radioactive waste as provided by DOE Order 435.1 (formerly DOE Order 5820.2A), restrictions on the waste to be accepted include:

- cannot be regulated under RCRA
- cannot contain any radionuclides that are not indigenous to OU1
- cannot contain radionuclides in concentrations beyond those considered by the safety basis documentation.

Further, the characteristics of these non OU1 waste streams will be such that managing them through OU1 remedial systems will not negatively affect the site's ability to meet the performance requirements set forth in the OU1 ROD. This ESD does not include the processing of any wastes from outside the FEMP through the OU1 remediation facility.

Any FEMP waste stream that meets the criteria listed above may be managed in the OU1 remediation facility. As indicated above, the processing of these waste streams through the OU1 remediation facilities will be implemented to facilitate a reduction in costs/schedule for the cleanup of the FEMP, while preserving the basic elements of the plan for the remediation of OU1, as specified in the OU1ROD. The applicable or relevant and appropriate requirements (ARARs) established in the OU1 ROD are not modified by this ESD.

It is not expected or anticipated that substantive changes to EPA-approved documents (e.g., the OU1 Remedial Action Package) will be required to support the management of these additional FEMP waste streams through the OU1 remediation facility. Substantive changes are those changes that affect the ability of the established plans/methods to achieve compliance with ARARs, increase the potential for discharges to surface water, air or groundwater, or are otherwise non-trivial in scope. If substantive changes to an EPA-approved document are necessitated to accommodate the processing by OU1 of other FEMP waste streams, information in support of these changes will be provided to the Federal and State EPAs for review and concurrence. In addition, DOE will project in advance for EPA concurrence, non-OU1 wastes to be managed consistent with this ESD, and provide any supporting documentation requested by the EPAs.

4.0 Statutory Determinations

Considering the changes that will be made, the selected remedy will remain protective of human health and the environment, comply with federal and state requirements identified in the OU1 ROD as ARARs at the time the original ROD was signed, and be will be cost-effective.

5.0 Public Participation

This ESD and the information upon which it is based have been included in the Administrative Record file for the FEMP. The Administrative Record is available for public review at the location listed below:

Public Environmental Information Center (PEIC)
Fernald Environmental Management Project, Trailer 210
7400 Willey Road
Hamilton, Ohio 45013-9402

Additionally, public participation in the issuance of this ESD included a discussion of the proposed ESD at the February 12, 2002 Fernald Cleanup Progress Briefing. Inclusion of the ESD as a discussion topic at this Cleanup Progress Briefing, was identified through a post card announcing the briefing. Finally, upon issuance of this ESD, a notice briefly summarizing this ESD, including the reasons for the differences which form the basis of the ESD, will be published in a major local newspaper of general circulation.

Questions or comments on this ESD can be directed to:

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