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**PROPOSED PLAN FOR THE INTERIM RECORD
OF DECISION FOR OPERABLE UNIT 3**

12/15/93

**DOE-0615-94
DOE-FN/EPA
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RESPONSES
OU3**



Department of Energy
Fernald Environmental Management Project
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DOE-0615-94

Mr. James A. Saric, Remedial Project Director
U.S. Environmental Protection Agency
Region V - 5HRE-8J
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:

PROPOSED PLAN FOR THE INTERIM RECORD OF DECISION FOR OPERABLE UNIT 3

The purpose of this letter is to transmit the final version of the Proposed Plan (PP) for the Interim Record of Decision (ROD) for Operable Unit (OU) 3. This final version incorporates change pages resulting from revisions necessary due to comments received from the United States Environmental Protection Agency (U.S. EPA) dated December 3, 1993. Specific responses to the U.S. EPA comments are attached.

As a result of verbal approvals from the U.S. EPA and the Ohio Environmental Protection Agency (OEPA) a 30 day public comment period was initiated on December 8, 1993. The Department of Energy (DOE) is evaluating a comment received from the OEPA in a letter dated December 8, 1993 and will respond to this comment in the near future.

If you or your staff have any questions, please contact Johnny Reising at (513) 648-3139.

Sincerely,


Jack R. Craig
Fernald Remedial Action
Project Manager

FN:Reising

Enclosure: As Stated

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cc w/enc:

- K. A. Chaney, EM-424, TREV
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- R. L. Glenn, Parsons
- J. W. Thiesing, FERMCO/2

Original General Comment #3 and Original Specific Comment #6: *These comments indicate that the U.S. Department of Energy (U.S. DOE) should explain the scope and role of this OU3 interim action in relation to other OUs and removal actions (RAs). U.S. DOE's response states that the relation of other OUs and RAs is irrelevant to the scope of the OU3 interim action. U.S. EPA maintains that other OUs and RAs play an important role in overall risk reduction at the FEMP site, and therefore, U.S. DOE should briefly discuss other OUs and RAs in the OU3 interim action proposed plan.*

Response:

U.S. DOE concurs with the approach requested and has added sections to the document identifying the status of other operable units and current removal actions. These sections clarify the scope of the interim action with respect to other FEMP risk reduction actions underway and planned. The affected sections of the document are as follows: Section 1.4, page 1-4; Section 1.7, page 1-9; and Section 2.3, pages 2-13, 2-16, and 2-17 through 2-19.

Original General Comment #6 and Original Specific Comment #25: *These comments address U.S. DOE's incorrect application of the criterion of Overall Protection of Human Health and the Environment. This criterion is a threshold criterion; an alternative either meets the criterion or it does not. If the alternative meets this threshold criterion, comparative analysis is conducted using the five balancing criteria. Comparative analysis is not accomplished by comparing the relative performance of each alternative against the threshold criterion. U.S. DOE should revise the text to properly apply the threshold criterion.*

Response:

U.S. DOE concurs that the criterion of Overall Protection of Human Health and the Environment should be applied as a threshold with comparative analysis of alternatives using the five balancing criterion. Document text associated with the use of the criterion have been revised to comply with the guidance given above. Changes to the following sections were made: Section 5, pages 5-1 through 5-4, and the Fact Sheet (How Alternatives are Evaluated section and Summary Table for the Evaluation of Alternatives).

In addition to the modifications of the Proposed Plan/Environmental Assessment required by the two comments above, Appendix H, page H-6, was modified to be consistent with the FONSI to be issued for the Environmental Assessment. The addition to this appendix describe requirements for mitigation impacts. This change page is also attached.

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Operable Unit 1 reports are currently in preparation and review phases. The Remedial Investigation (RI) Report is being reviewed by EPA and the Feasibility Study (FS) is being prepared for delivery to EPA in March of 1994. For OU2, both the RI and the FS are being prepared and are scheduled for submittal to EPA in February and April of 1994, respectively. Operable Unit 3 is currently undergoing field investigation to support an RI Report submittal to EPA in March 1996. Operable Unit 4 received conditional approval on the RI Report in September of 1993 and EPA is currently reviewing the final version. The FS Report for OU4 is currently being revised based on EPA comments. For OU5, the RI and FS Reports are being prepared for submittal to EPA in June and November of 1994, respectively.

As previously stated, this document presents a Proposed Plan for an interim remedial action to be undertaken within OU3 at the FEMP. A separate Proposed Plan for final actions will be issued for OU3 following completion of the ongoing RI/FS. Operable Unit 3 consists of the following:

- Production Area and Production-associated facilities and equipment (including all above- and below-grade improvements);
- All other facilities and equipment not specifically included in OUs 1, 2, 4, and 5;
- Drummed Waste Inventories;
- Waste Product Materials, Feedstocks and Thorium;
- Wastewater Treatment Facilities and Effluent Lines;
- Fire Training Facilities;
- Scrap Metal, Coal, and Existing Soil Piles;
- Identified Storage Ponds and Basins; and
- Storage Pads, Roadways, and Railroad Tracks.

1.5 Purpose and Need for the Interim Remedial Action

The buildings, equipment and other facilities contained within OU3 exhibit elevated concentrations of radiological and other hazardous substances at levels which exceed certain standards and guidelines for protecting human health and the environment. The existence of

Once the final ROD has determined the treatment and disposal options to be implemented, materials from the interim action will be controlled and managed to meet the requirements of the final ROD. Discussion of this unified remedial strategy will be provided within the RD/RA Work Plan issued subsequent to the final ROD.

Similarly, for each operable unit, a Feasibility Study is being prepared to develop remedial action alternatives. Remedial actions for each operable unit will be coordinated to achieve overall risk reduction for the FEMP. The actions proposed in this document represent one portion of the entire site remediation through removal of structures and buildings within OU3. These activities combined with the other operable unit remedial and removal actions will lead to remediation of the entire site.

It should be noted that contaminated environmental media, including soils and groundwater in the vicinity of or underlying the OU3 facilities are being addressed under a separate operable unit (Operable Unit 5) which is examining such media on a site-wide basis. Remediation interfaces between OU5 and OU3 will require the highest degree of integration during remedial actions to assure removal of above- and below-grade facilities as coordinated with remediation of environmental media. OU3 interfaces with OUs 1, 2, and 4 are physically minimal due to boundaries established around each operable unit; however, remediation activities and waste storage facilities planning for all operable units are coordinated to maximize available resources and limited space.

1.8 Organization of this Proposed Plan

This Proposed Plan has been prepared to satisfy each of the listed objectives. This Proposed Plan is organized such that:

- Section 2 provides a summary of relevant site background information including a more thorough description of OU3 and its associated radiological and chemical contamination. Section 2 also presents a brief discussion of related site actions.
- Section 3 describes each of the alternatives considered for implementation.
- Section 4 presents a detailed evaluation of the alternatives employing the criteria identified under CERCLA for use in the RI/FS process.

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Each item on the component list was reviewed for past and current uses. Many of the facilities have been used for more than one type of process during the 41-year history of the site. Table A.2.1 in the OU3 RI/FS Work Plan Addendum describes these processes and the major associated equipment and provides a subdivision of the major components by processes performed. Segregation by process provides a basis for more detailed description of activities within each facility and supports a structured approach to identification of potential contamination resulting from past and current activities.

2.3 Description of Removal Actions ~~in Operable Unit 3~~

~~Within OU3,~~ Several EPA approved removal actions are currently in progress. These removal actions, as defined in the Amended Consent Agreement (EPA 1991), represent the major projects ~~within OU3~~ and will be coordinated and integrated with the proposed interim remedial action. The removal actions are grouped in ~~three~~ four categories according to their relationship with the interim action. Each removal action is described in the subsections below.

2.3.1 OU3 Removal Actions Completed Before Interim Action

The following removal actions are anticipated to be complete prior to initiation of the interim action. Some of these removal actions will support the RD/RA work plan design and scheduling. Each of the removal actions detailed in this section have previously obtained NEPA approval through categorical exclusions or Environmental Assessments.

2.3.1.1 Removal No. 7 -- Plant 1 Pad Continuing Release

This interim action was initiated to mitigate the continuing release of contaminants from Plant 1 Pad until final remediation. This removal action was approved in 1991 in the Amended Consent Agreement and involves three stages of activity: (1) interim runoff control; (2) soil removal, new pad addition, and covered, controlled storage pad construction; and (3) installation of sealed concrete over existing contaminated concrete.

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2.3.1.10 Removal No. 28 -- Fire Training Facility

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This removal action is intended to remove contamination associated with the Fire Training Facility (Building 63) structures, equipment, surficial soils, and surface water. Prior to dismantling and removal activities, all liquids will be removed from the open top tank, the skid tank pond, the sump, and the horizontal pressure vessel end piece. These liquids will be treated prior to disposal. Each of these structures, in addition to the block building and asphalt pad, will be demolished and removed for disposal. Recycling or disposal of the structure materials (debris) will be managed in accordance with Removal No. 17 and Removal No. 9.

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2.3.2 OU3 Removal Actions Ongoing and Unrelated to the Interim Action

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These removal actions are programmatic in nature and represent actions being applied to OU3 as a whole. The Removal of Waste Inventories and Asbestos Abatement programs are unconnected to the interim action because they would occur and be completed within specific components before implementation of the interim action. Both of these programs have received NEPA approval.

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2.3.2.1 Removal No. 9 -- Removal of Waste Inventories

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Since 1986, low level wastes generated by production, maintenance, and construction activities at the FEMP have been containerized and stored for future disposition. At that time, the FEMP was also the DOE repository for thorium materials, maintaining an inventory of over 15,000 containers. Much of this thorium remains in storage at the FEMP. Removal No. 9 was initiated to establish waste management procedures and to implement packaging, shipment, and disposal of these materials at the Nevada Test Site (NTS). Activities under this removal action comply with all EPA and Department of Transportation (DOT) regulations, DOE Orders, and NTS waste-acceptance criteria. For the interim remedial action, it is assumed that all inventories addressed by this removal action would be previously removed from buildings, facilities, or structures prior to beginning decontamination and dismantlement activities.

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2.3.2.2 Removal No. 26 -- Asbestos Abatement Program

The Asbestos removal action documents asbestos abatement activity at the FEMP to mitigate potential asbestos release and migration. Abatement within this program includes in-situ repairs, encasement and encapsulation, and removals. Actions under this removal action are a necessary step prior to initiation of decontamination and dismantlement activities. It is assumed that only transite and other non-friable Asbestos Containing Materials (ACM) will remain within the buildings, facilities, or structures after completion of this removal action. Air monitoring for occupational protection purposes showed no levels as high as the 0.2 fiber/cc limit for occupational exposure. ACM removal under the interim remedial action will be in accordance with this removal action.

2.3.3 OU3 Removal Actions Related to the Interim Action

Two actions are directly related to the interim action proposed; these actions are EPA-approved removal actions and impact or are significantly impacted by activities under this Proposed Plan. The two removal actions are Safe Shutdown (Removal No. 12) and Improved Storage of Soil and Debris (Removal No. 17). Safe Shutdown is a related activity because Safe Shutdown activities must occur and be completed before the interim remedial actions can be implemented on a component basis. Improved Storage of Soil and Debris is a related activity, which provides the management structure for interim storage of debris from the proposed action. These two removal actions, their NEPA compliance status, and their impacts on this Proposed Plan are described in the following sections and in Appendices E and F.

2.3.3.1 Removal No. 12 -- Safe Shutdown

This removal action was created to perform the safe shutdown of all process facilities in preparation for final remediation. Safe Shutdown entails the engineering, planning, scheduling and the actual isolation of process equipment, piping systems, and associated utilities and the removal of residual process materials (e.g. equipment hold-up) and other excess materials, supplies, and combustibles to appropriate disposition and approved storage locations. Activities associated with the interim remedial action would be coordinated with the Safe Shutdown schedule to allow scheduled Safe Shutdown activities to precede or be

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incorporated with activities of the interim remedial action. The NEPA review for Safe Shutdown activities was a categorical exclusion.

2.3.3.2 Removal No. 17 -- Improved Storage of Soil and Debris

Improved Storage of Soil and Debris was initiated to provide controlled storage of excess contaminated soils and debris generated during maintenance, construction, removal, and remedial actions at the FEMP. This removal action includes the implementation of a soil and debris management plan and the installation of a number of tension support structures (TSS). Removal No. 17 would provide a scrap metal pad cover (16,000 ft²), a decontamination facility pad cover (10,000 ft²), and a 40,000 ft² CSF. Five storage facilities in addition to the CSF would be needed to support interim waste storage from activities under this Proposed Plan. The NEPA review for the scrap metal pad cover and the decontamination facility pad cover was a categorical exclusion. However, additional documentation is needed to complete the NEPA review for the CSF; this documentation is being provided as part of this Proposed Plan. Although EPA has approved Removal No. 17, construction of the CSF cannot begin until the NEPA review by DOE is completed.

To facilitate the NEPA review, construction and operation of the CSF has been included within the scope of Alternative 3 in this Proposed Plan. Appendix E contains details of the CSF and the risks involved in construction and operation.

2.3.4. Removal Actions Ongoing in Other Operable Units

Removal actions outside of OU3 requiring integration are discussed below. For each, integration with the OU3 interim action is necessary to continue to provide services for related facilities or to schedule facility dismantlement around removal action activities.

The two removal actions are Contaminated Water beneath FEMP Site Buildings (Removal No. 1) and South Groundwater Contamination Plume (Removal No. 3). Both of these removal actions are within Operable Unit 5.

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2.3.4.1 Removal No. 1 -- Contaminated Water Beneath FEMP Site Buildings

The purpose of this removal action is to minimize the potential for uranium-contaminated perched groundwater in zones beneath some former production buildings to infiltrate the underlying aquifer. A series of wells have been installed to extract the contaminated perched groundwater from within the Production Area. The contaminated water is pumped to a treatment system within Plant 8 to remove volatile organic compounds and is then processed through the existing wastewater treatment system and discharged to the Great Miami River.

2.3.4.2 Removal No. 3 -- South Groundwater Contamination Plume

This removal action is designed to protect public health by actively addressing the uranium-contaminated groundwater in an area south of the FEMP site. The action consists of five parts. Part 1, activated in May 1992, provides an alternate water supply to an industrial user affected by the contamination plume. Part 2, initiated in July 1992, consists of the installation of a recovery well system to remove and pump the contaminated water to the FEMP site for treatment, monitoring, and discharge. Part 3 is construction of an interim advanced wastewater treatment system to remove uranium from FEMP site wastewater streams. Part 4, implemented through the FEMP's existing groundwater monitoring program, involves monitoring and institutional controls to prevent the use of contaminated groundwater by including more frequent monitoring of private wells located near areas of known contamination. Part 5 is additional investigations to identify the location and extent of any remaining contamination attributable to the FEMP site south (downgradient) of the recovery wells being installed under Part 2.

2.4 Nature and Extent of Contamination

The processes and operations within the former Production Area at the FEMP required the use of a variety of source feed materials and other radioactive and chemical reactants for both production and secondary operations. The production operations also generated a wide variety of waste materials containing both radiological and chemical constituents. During operations at the FEMP, material handling procedures resulted in chemical and radiological

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5.0 SELECTION OF PREFERRED ALTERNATIVE

In this section, Alternatives 1, 2, and 3 are compared to allow selection of a preferred alternative. This comparative evaluation is performed based on EPA's standard evaluation criterion, which are defined in Section 4.1. The comparative evaluation is summarized in Section 5.1. DOE's preferred alternative is selected in Section 5.2.

OU3 components have generally exceeded their design life and no use has been identified for them other than support for remedial activities at the site. In time, the components will pose a safety hazard. Therefore, DOE will propose eventual decontamination and dismantlement of the components independent of the interim remedial action implemented. As a consequence, the comparison of Alternatives 1, 2, and 3 presented here assumes eventual decontamination and dismantlement of OU3 components. This assumes that if Alternative 3 is not implemented, then decontamination and dismantlement is assumed to be selected under the final ROD.

5.1 Summary of Comparative Analysis of Alternatives

The comparative evaluation of the alternatives for interim remedial action is summarized in Sections 5.1.1 through 5.1.9 and Table 5-1.

5.1.1 Overall Protection of Human Health and the Environment

~~As discussed in Section 4, each alternative is protective of human health and the environment. Engineering and administrative measures would be used during the remedial action periods for Alternatives 2 and 3 such that no significant adverse impacts would occur to the general public, on-site workers not directly involved in remediation, or the environment. Remediation worker exposures would be similarly controlled to levels that would be health protective.~~

~~Because it is assumed that decontamination and dismantlement of OU3 components would eventually occur independent of which alternative is implemented, similar overall protection of human health and the environment would eventually be provided by each alternative.~~

TABLE 5-1 Alternative Evaluation Summary

Evaluation Criteria	Alternative 1 No Interim Action	Alternative 2 Decontaminate Surfaces Only	Alternative 3 Decontaminate and Dismantle	
Overall protection of human health and the environment	<p>This alternative would be protective of human health and the environment following final remediation. However, before final remediation, migration of contaminants into soils and groundwater and releases to the atmosphere could occur. This alternative provides overall protection of human health and the environment.</p>	<p>Same as Alternative 1, although most removable contamination would be removed during the interim action. This alternative provides overall protection of human health and the environment.</p>	<p>This alternative would be most protective of human health and the environment. Acceleration of the remediation would provide increased protection to human health and the environment compared to Alternatives 1 and 2. This alternative provides overall protection of human health and the environment.</p>	
Compliance with ARARs	<p>Before the final ROD, deteriorating conditions of the buildings may result in potential exposures to the public and contaminant releases to the groundwater.</p>	<p>This alternative would comply with ARARs during the action, but before the final ROD, deteriorating conditions of the buildings may result in potential exposures to the public and contaminant releases to the groundwater.</p>	<p>This alternative would comply with ARARs.</p>	8 9
Long-term Effectiveness and Permanence	<p>Because this alternative is an interim action, this criterion was not evaluated.</p>	<p>Same as Alternative 1.</p>	<p>Same as Alternative 1.</p>	10 11 12
Short-term Effectiveness	<p>This alternative would allow final remediation of OU3 in a manner protective of human health and the environment. However, this alternative would not accelerate the remediation, and the time until remedial objectives are reached would be longer than for Alternative 3.</p>	<p>Same as Alternative 1. Additionally, this alternative would be protective of human health and the environment during implementation.</p>	<p>This alternative would be protective of human health and the environment during implementation. Engineering and administrative controls would be used to maintain worker and public protection. This alternative would allow acceleration of remediation and would achieve remedial action objectives and protection against threats earlier than for Alternatives 1 and 2 and would accelerate OU5 remediation of environmental media.</p>	13 14

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TABLE 5-1 Alternative Evaluation Summary (Cont'd)

Evaluation Criteria	Alternative 1 No Interim Action	Alternative 2 Decontaminate Surfaces Only	Alternative 3 Decontaminate and Dismantle
Reduction in toxicity, mobility, or volume through treatment	This alternative provides no treatment before the final ROD. In the interim before final remediation, releases to the environment might occur increasing the volume of contaminated material.	This alternative would reduce contaminant mobility through removal of gross surface contamination, but uses only physical treatment. In the interim before final remediation, releases to the environment might occur increasing the volume of contaminated material.	This alternative would reduce the mobility of contaminants by removing contaminants to an improved storage configuration and would minimize waste generation as compared to Alternatives 1 and 2.
Implementability	Easier and more direct to implement in the short-term than Alternatives 2 or 3. However, requires duplication of multiple studies, documents, regulatory reviews, and public comment periods.	Easier and more direct to implement in the short-term than Alternative 3.	Technically and administratively feasible to implement. In the long-term, similar to Alternatives 1 and 2.
Cost (Millions) Current year (FY94)	\$2,520	\$2,602	\$2,164
Present worth	\$1,548	\$1,619	\$1,476
State acceptance	State concerns will be incorporated into the IROD and included into the final version of this Proposed Plan.	State concerns will be incorporated into the IROD and included into the final version of this Proposed Plan.	State concerns will be incorporated into the IROD and included into the final version of this Proposed Plan.
Community acceptance	This criterion cannot be addressed until comments on this Proposed Plan are received from the public.	This criterion cannot be addressed until comments on this Proposed Plan are received from the public.	This criterion cannot be addressed until comments on this Proposed Plan are received from the public.

~~However, under Alternative 1, potential sources of contamination would remain in place for an additional four years prior to the commencement of remedial activities. Before remediation of components, releases of contaminants to the environment could potentially occur through floors into soils and groundwater and through airborne releases to the atmosphere and could result in the exposure of on-site and off-site receptors to contaminants.~~

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~~For Alternative 2, the components would undergo a gross surface decontamination to remove significant levels of removable contamination. Without removal of the interior equipment and utilities, a full decontamination could not occur, and some removable contamination would still remain in place. Leaving some contamination in place could potentially lead to releases to the environment and subsequent exposures of receptors before final remediation.~~

~~For Alternative 3, dismantlement of components would be accelerated. This alternative would substantially reduce the time before remedial actions would begin for OU3. Figure 5-1 illustrates schedule comparisons between the three alternatives and details the potential for early remediation offered by Alternative 3. Overall, Alternative 3 would provide the greatest protection for human health and the environment as a result of the acceleration of remedial action.~~

Each alternative represents the eventual decontamination and dismantlement of OU3 components at differing time periods. Therefore, each alternative would be protective of human health and the environment. Overall protection of human health and the environment draws on the assessments of other evaluation criteria, especially long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs. As such, the comparative evaluation is conducted using the five balancing criteria.

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The proposed action may result in long-term and direct impacts from the permanent filling of approximately 1.2 acres of wetlands on the east and west sides of OU3. Continuous equipment traffic and stockpiling of building and structure contents will alter the topography, resulting in sediment deposition into wetland areas. Additionally, removal of roads, utilities, trenches, and piping may impact wetlands through excavation and soil stockpiling activities, resulting in possible sediment deposition into wetland areas. Impacts to wetland areas, however, would be positive due to the removal of contaminant sources.

The impacted wetland areas consist of man-made drainageways with minimal quality habitat. Best management practices will be utilized to minimize the amount of wetland area impacted. The area north of the proposed CSF locations will not be impacted by the proposed action.

Mitigation for wetland impacts would be determined using the 404 (b)(1) guidelines of the Clean Water Act in consultation with the U.S. Army Corps of Engineers, USEPA, and OEPA.

H. 5 References

Ebasco Environmental, 1993, *Wetlands Delineation Report of the FEMP*, Draft, prepared by Fernald Environmental Restoration Management Corporation, Cincinnati, Ohio.