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FACT SHEET: REMEDIAL DESIGN UPDATE FOR OPERABLE UNIT 1 REMEDIAL ACTIONS AT FERNALD

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FACT SHEET

United States
Department of Energy
Fernald Environmental Management Project

Fernald Area Office
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Fact Sheet:

Remedial Design Update for Operable Unit 1 Remedial Actions at Fernald

August 1995

This Fact Sheet Describes:

- An overview of the remedial management strategy for Operable Unit 1;
- An overview of remedial design activities to be performed in support of Operable Unit 1 remediation;
- A status of the Operable Unit 1 remedial design;
- Opportunities for public involvement during the Operable Unit 1 remedial design; and
- Where the public can obtain more information.

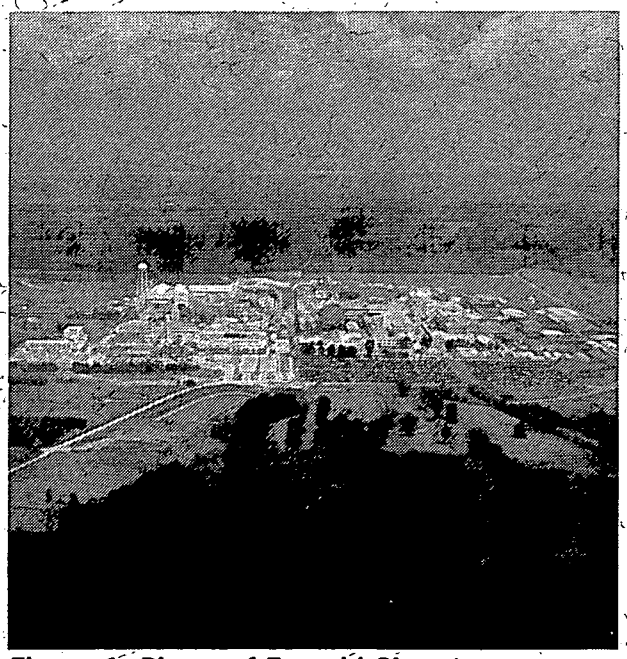

Figure 1 Photo of Fernald Site

INTRODUCTION

This fact sheet was prepared by the U.S. Department of Energy (DOE) to update the public on the remedial design activities planned relative to Operable Unit 1 remedial actions. Specifically, this fact sheet provides a general overview of the remedial design process as it applies to the remediation of Operable Unit 1, including the content and scheduling of proposed design deliverables. This fact sheet also provides a summary of other project-specific issues of public interest, including a discussion of public involvement opportunities during the remedial design process for Operable Unit 1.

BACKGROUND

The Fernald site is a DOE-owned, contractor-operated federal facility that produced high purity uranium metal products for the DOE and its predecessor agencies from 1952 to 1989. Thorium was also processed, but on a smaller scale, and stored on site. Production activities ceased in 1989, and the production mission was formally ended in 1991. The Fernald site was included on the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) National Priorities List in 1989. The current mission of the site is the safe environmental restoration of

the site in accordance with all applicable requirements.

UNDERSTANDING OPERABLE UNIT 1

The Fernald site is divided into five operable units. Operable Unit 1 is a well-defined, 37.7-acre area located in the northwest quadrant of the Fernald site (see Figure 2). Large quantities of liquid and solid wastes were generated by various chemical and metallurgical processing operations and these wastes were stored or disposed in six waste pits and the Clearwell, or burned in the Burn Pit. These waste pits are located in a portion of the Fernald site Waste Storage Area and are contained within the boundaries of Operable Unit 1 (see Figure 3). A detailed discussion of each waste pit's construction, contents, and volume of waste material is provided in the Remedial Investigation Report for Operable Unit 1.

▸ **Record of Decision**

On March 1, 1995, the U. S. Environmental Protection Agency (U.S. EPA) signed the *Record of Decision (ROD) for Remedial Actions at Operable Unit 1*. The selected remedy presented in the Operable Unit 1 ROD is excavation of the waste pit contents, waste processing and treatment by thermal drying (as necessary to remove free water), and off-site disposal at a permitted commercial disposal facility.

OU1 REMEDIAL DESIGN

Upon selection of the remedy, the remedial design phase of the project begins. The purpose of the

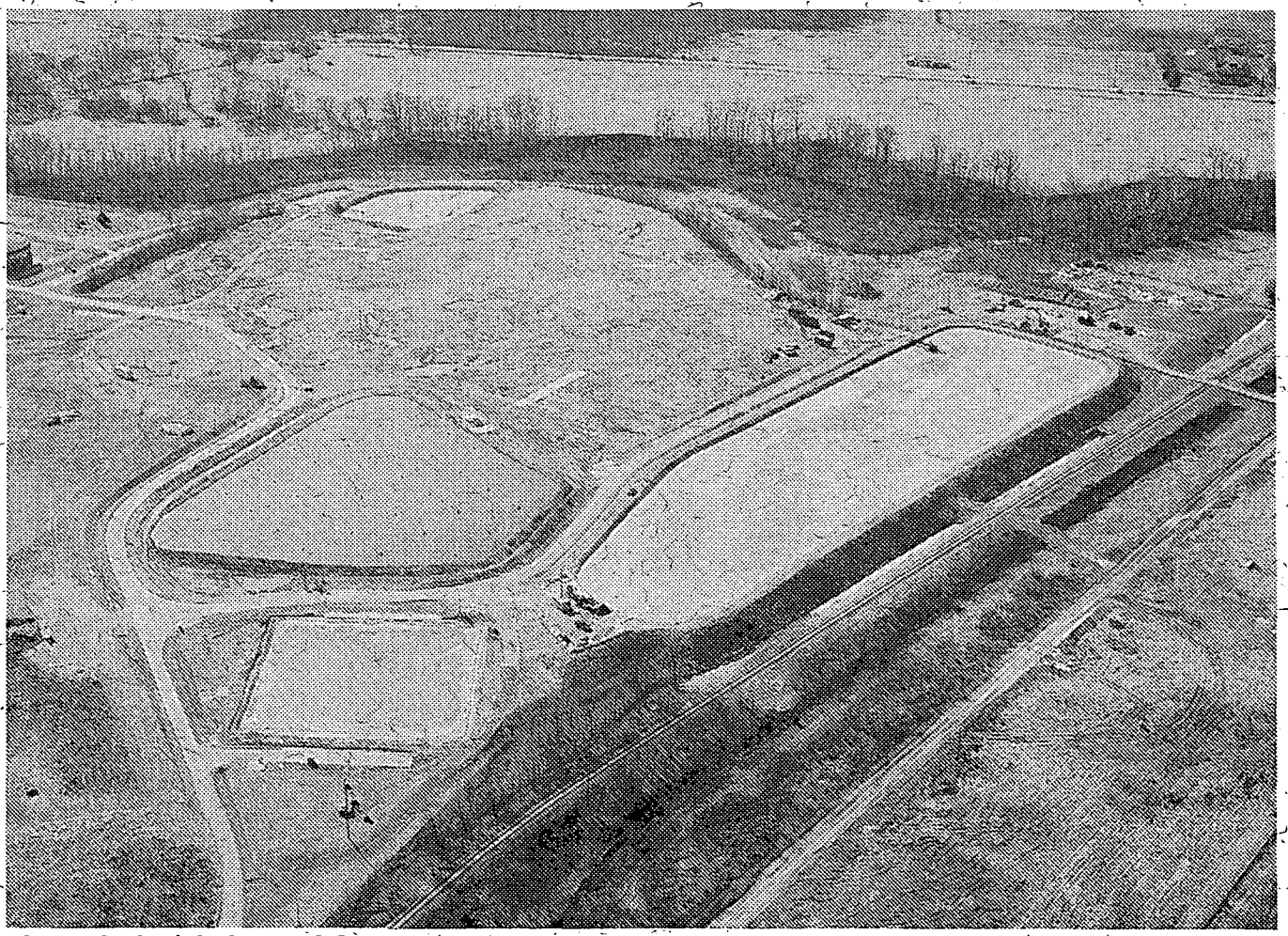

Figure 2 Aerial Photo of Operable Unit 1 Area

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remedial design is to assess and develop technical requirements and direction, based on the selected remedy, to ensure the remedial action is implemented in a manner that meets the requirements of the ROD. Specifically, the remedial design consists of technical analyses and implementing engineering procedures in the development of design documents.

From project and regulatory perspectives, a series of stages and associated documents comprise the remedial design. These stages include the planning and design, as documented in the remedial design work plan; the preliminary design; the prefinal design; and the final design. Particulars on each of these stages, with respect to the Operable Unit 1 design, are provided in the following sections.

▸ **Remedial Design Work Plan**

The *Remedial Design Work Plan for Remedial Actions at Operable Unit 1* was developed to identify the deliverables and present the schedule for their submittal to U.S. EPA (in coordination with the Ohio Environmental Protection Agency). The draft version of the Operable Unit 1 Remedial Design Work Plan was submitted to U.S. EPA and the Ohio Environmental Protection Agency (Ohio EPA) on April 25, 1995. The Operable Unit 1 Remedial Design Work Plan was approved by U.S. EPA on June 21, 1995, and was conditionally approved by Ohio EPA on May 30, 1995. Responses to Ohio EPA comments and a Final Operable Unit 1 Remedial Design Work Plan, reflecting resolution of these comments, were transmitted to U.S. EPA and Ohio EPA on July 7, 1995. Both the Draft and Final Operable Unit 1 Remedial Design Work Plans were

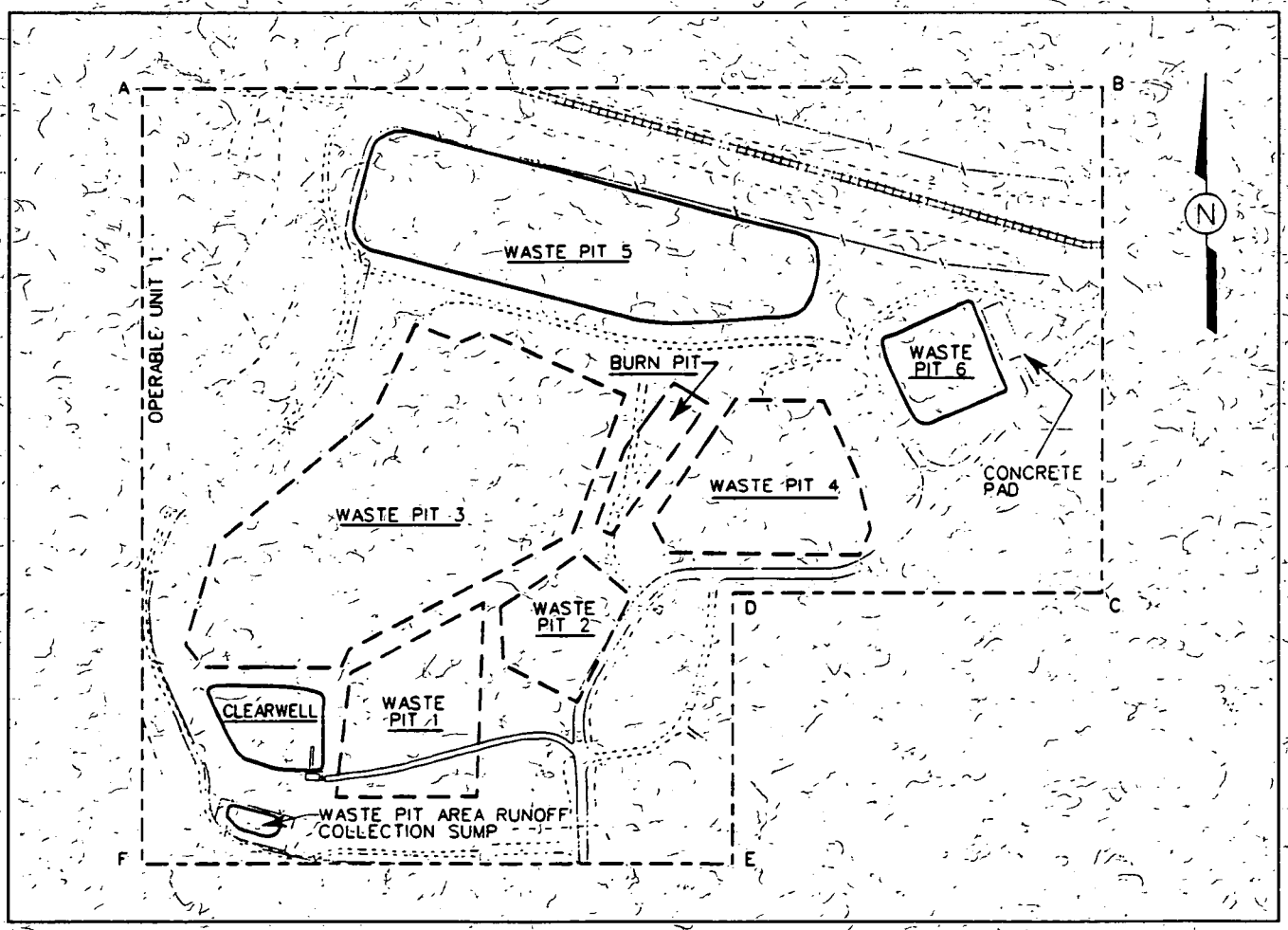

Figure 3 Figure of Operable Unit 1

placed in the Public Environmental Information Center (PEIC) for public inspection at the time of submittal to the regulators.

The design activities reflected in the Remedial Design Work Plan are based on a strategy providing a facility capable of operation through a wide range of throughput rates. The strategy also provides for the potential future need to modify the processing facilities to increase processing rates and to modify the process train to reflect enhancements to operations or equipment. The need for actual future design modifications and/or additions will be evaluated as the project progresses, and constraints, conditions, etc. change. In this regard, the design will be based on a facility whose processing capacity during operation is approximately 22 tons per hour (wet feed basis). In addition, the design will have the capability for expansion to higher processing capacities if needed, based on available future funding decisions. Figure 4 provides a conceptual layout of the proposed Operable Unit 1 remediation facilities.

The design approach, as related to the remedial action elements identified in Figure 5, will be reflected in design deliverables which generally fall within one of two broad categories, identified as Packages I and II. Package I represents the equipment and facilities directly associated with the processing of the waste and the plan which details site preparation activities necessary to support processing, and Package II provides operational plans associated with excavation, site preparation, and transportation and disposal.

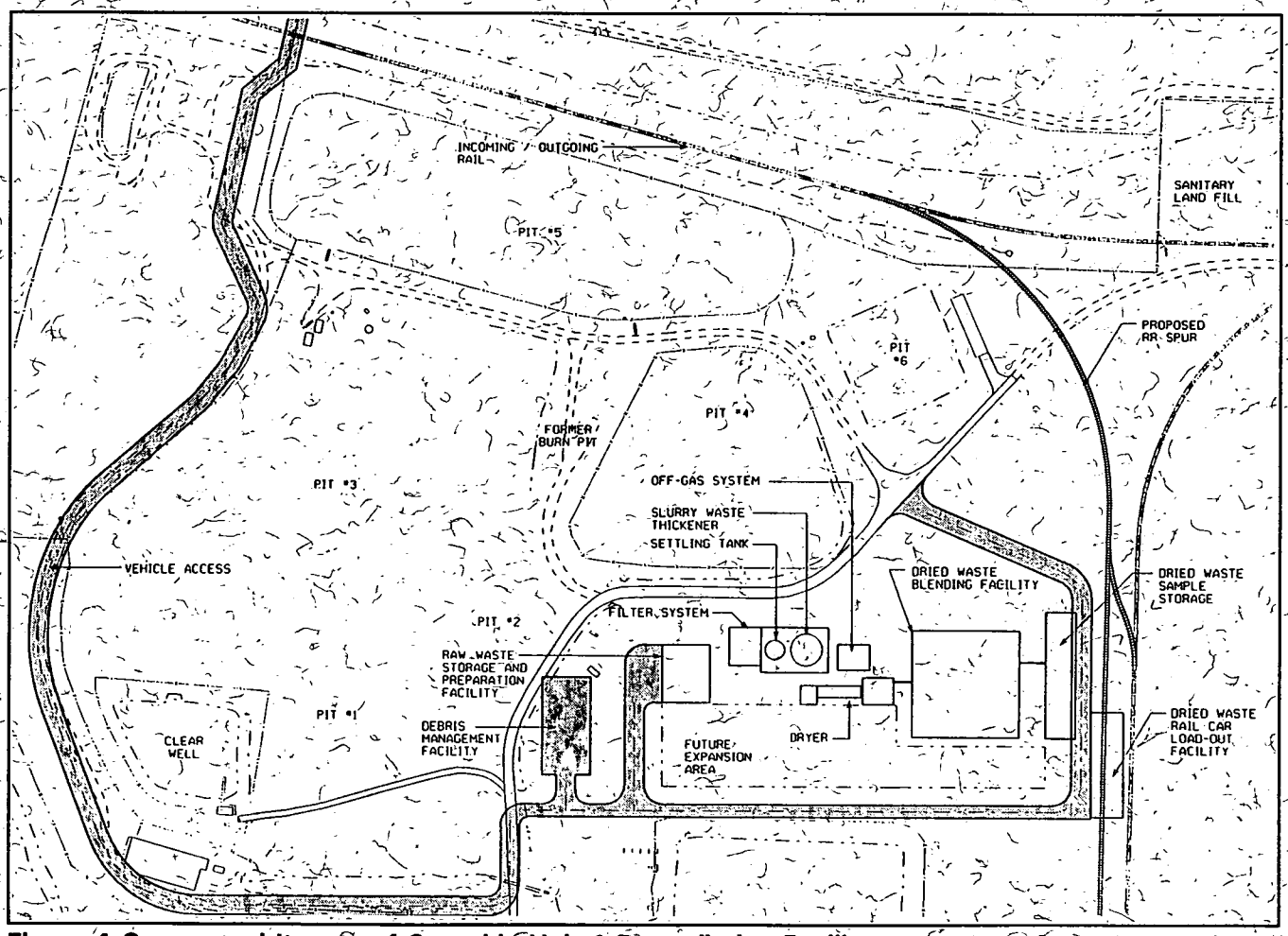

Figure 4 Conceptual Layout of Operable Unit 1 Remediation Facility

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KEY ELEMENTS OF THE OPERABLE UNIT 1 REMEDIAL ACTION

- **Removal of materials from the waste pits, excavation of surrounding soils, and placement of backfill into excavations;**
- **Confirmation sampling of waste pit excavations to verify achievement of remediation levels;**
- **Pretreatment (crushing/sorting/shredding) of waste;**
- **Treatment of waste by thermal drying (to remove free waters);**
- **Operational storage and loading;**
- **Off-site shipment of waste for disposal at a permitted commercial disposal facility, or to the Nevada Test Site (NTS), for waste which cannot conform to the radiological waste acceptance criteria for the permitted commercial disposal facility;**
- **Decommissioning and removal of the drying treatment unit and associated facilities, as well as miscellaneous structures and facilities with the operable unit; and**
- **Placement of a cover consistent with the future land-use strategy selected in the Operable Unit 5 Record of Decision.**

Figure 5

Elements included in Package I include the following:

- Site preparation activities in support of remediation facility implementation, including on-site and off-site rail improvements.
- Processing of waste materials involving:
  - Waste homogenization and size reduction
  - Dewatering
  - Waste drying using a rotary dryer
- Storage of processed waste and loadout for off-site disposal at a permitted commercial disposal facility or at the Nevada Test Site.
- Disposition of contaminated soils, as amenable, consistent with selected remedies for contaminated process area soils as documented in the Operable Unit 5 Record of Decision.

Elements included in Package II include the following:

- Excavation of the waste and liner materials.
- Debris segregation and management for debris originating from the excavation activities.
- Excavation of contaminated subsoils and surface soils.
- Packaging and/or containerizing the waste:
  - Within railcars for disposal at a permitted commercial disposal facility.
  - Within boxes for disposal at the Nevada Test Site.
- Shipping the waste to a permitted commercial disposal facility or to the Nevada Test Site. Provision for shipment to the Nevada Test Site is included as a backup disposal alternative.

These elements are applicable to remediation efforts for each of the Operable Unit 1 waste pits, although the specific approach to each may differ.

▸ **Design Deliverables**

Based on the packages identified above, Figure 6 presents a description of the project documentation and deliverables, which DOE will prepare and submit to the U.S. EPA and the Ohio EPA for review and comment as part of the Operable Unit 1 design effort. This list of deliverables is applicable for both the preliminary and prefinal design packages, with the prefinal design deliverables reflecting any additional detail and changes made during design and support activities subsequent to the submittal of the preliminary design deliverables, as well as changes addressing comments received from the U.S. EPA, Ohio EPA, and other stakeholders on the preliminary design deliverables. In other words, the preliminary design documents will not be revised and resubmitted to the regulators, but necessary changes to these

design elements will be reflected in the prefinal design deliverables. Similarly, comments received from U.S. EPA, Ohio EPA, and other stakeholders on the prefinal design deliverables will be reflected in the final design submitted to the regulators. All design deliverables will be placed in the PEIC for public inspection at the time of submittal to the regulators.

The schedule for the submittal of the preliminary and prefinal design deliverables for each of the packages identified in Figure 6 is provided in Figure 7. In addition to the schedule for issue of design deliverables identified above, Figure 7 also provides a date for submittal to U.S. EPA (and the Ohio EPA) of the Operable Unit 1 Draft Remedial Action Work Plan.

REMEDIAL DESIGN PROJECT DOCUMENTATION AND DELIVERABLES

Package I

Plant Facilities Design Criteria Package - Documents the specific criteria which affect the design, including all pertinent DOE orders, engineering design codes, standards and requirements, etc., and shows how the ARARs and TBC requirements will be addressed by the various design elements. Also summarizes the results of studies, reports, and/or evaluations in support of the design.

Plant Facilities Engineering - Description of the operation and process used to treat the waste (including wastewater), including: process flow diagram, mass and energy balance, general arrangement drawing(s), site plot plan, process description, instrumentation concept and material handling discussion (including provisions for preventing fugitive emissions).

Equipment Specifications - Performance specifications for the major equipment items, such as the crusher/shredder, dryer, loadout facilities, and the off-gas control system. These specifications will be used to competitively procure items requiring long lead fabrication times.

Site Improvement Plan - Description of site preparation activities and utilities requirements. Description of on-site rail improvements, including a layout drawing showing the rail upgrades and construction required to support on-site operations, along with a description of the logistics associated with receiving, loading, storing, and moving of full and empty cars. A discussion of the work to be performed by CSXT to repair or upgrade the rail, switches, trestles, and culverts and other features from the FEMP to Cottage Grove, Indiana.

Construction Schedule - A schedule which provides an estimate of the time required to complete the remedial action activities including an identification of the major construction tasks and subtasks.

Package II

Excavation Plan - Description of processes to be used in the excavation of waste from each of the various waste units and transfer to the processing facility, the basis of which will be reflective of the results of the Dewatering Excavation Evaluation Program. Discussion will also be provided on stormwater management, dust and fugitive emissions control, and monitoring during excavation, although specific sampling and analysis details will be identified in the Remedial Action Work Plan. The plan will also discuss needed coordination with Operable Unit 5 and Operable Unit 2 relative to soils excavation and disposal as acceptable within the on-site disposal facility, and with Operable Unit 3 for the management of oversized debris to be transferred over to Operable Unit 3.

Site Restoration Plan - Description of backfill and waste pit closure activities including final grading, drainage, and wetland restoration.

Transportation and Disposal Plan - Description of plan for shipping waste to the permitted commercial disposal facility and as required to the Nevada Test Site, including discussion of rail transportation concepts, shipment containers, plan for tracking of shipments, emergency response plan, and waste characterization testing and analysis requirements associated with meeting the waste acceptance criteria of the disposal facilities.

Figure 6

REMEDIAL DESIGN DELIVERABLE SCHEDULE	
Remedial Design Work Plan	
Submit Draft RD Work Plan to EPA	5/01/95
Ohio EPA Conditional Approval	5/30/95
U.S. EPA Approval of RD Work Plan	6/21/95
Submit Final RD Work Plan to EPAs	7/07/95
Remedial Design Package I	
Submit Preliminary Design Package to EPA	10/24/95
Submit Prefinal Package to EPA	3/21/96
Package II	
Submit Preliminary Design Package to EPA	10/24/95
Submit Prefinal Package to EPA	3/21/96
Remedial Action Work Plan	
Submit Draft RA Work Plan to EPA	10/22/96

Figure 7

PUBLIC INVOLVEMENT

The DOE values public involvement in the Fernald decision-making process and, shall continue to offer opportunities for public involvement beyond those required by regulations. Under the remedial design phase of the cleanup, requirements include revising the Community Relations Plan, as was recently done, and notifying the public at the beginning of the remedial design stage and prior to beginning remedial action. The revised Community Relations Plan provides more information on both required and supplemental public involvement opportunities.

Additional information or related clean-up documents are available to the public at the following location:

Public Environmental Information Center
JAMTEK Building
10845 Hamilton-Cleves Highway
Harrison, Ohio 45030
(513) 738-0165

If you have any additional questions, you may contact Mr. Gary Stegner at 513-648-3153. For information on Fernald-related public meetings and documents available to the public, you may call the community access line at 513-648-6272.

Opportunities for Public Involvement during the Operable Unit 1 Remedial Design

Availability of Key Decision-Making Documents: Throughout the remedial-design process, DOE will continue to make key decision-making documents available to the public for their inspection. As these documents are issued, DOE will inform the public of their availability. For Operable Unit 1, such documents will include, but not necessarily be limited to the OU1 Remedial Design Work Plan, and those design deliverables identified in Figure 7 of this Fact Sheet. The Draft and Final versions of the Operable Unit 1 Remedial Design Work Plan were made available to the public in April 1995 and July 1995, respectively. Copies of these documents will be made available at the Public Environmental Information Center, JAMTEK Building, 10845 Hamilton-Cleves Highway, Harrison, Ohio 45030, (513) 738-0165.

Public Briefings: DOE will continue to update the public through briefings at township and citizens' group meetings, community roundtables, workshops, etc., on timely topics of interest. One such briefing will be the public workshop tentatively scheduled for some time in November, 1995 to discuss specifics on Operable Unit 1 Remedial Design activities, including specifics of the Remedial Design Work Plan and the preliminary design for Operable Unit 1.

Fact sheets: In addition to the above, other mechanisms such as fact sheets may be used to provide the public with information on key decision-

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