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**RESPONSE TO COMMENTS AND CHANGE PAGES FOR THE DRAFT REMEDIAL
DESIGN WORK PLAN FOR REMEDIAL ACTIONS AT OPERABLE UNIT 2**

10/17/95

**DOE-0065-96
DOE-FN EPAS
16
RESPONSES**



Department of Energy
Fernald Environmental Management Project
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OCT 17 1995
DOE-0065-96

Mr. James A. Saric, Remedial Project Director
U.S. Environmental Protection Agency
Region V - 5HRE-8J
77 W. Jackson Blvd.
Chicago, IL 60604-3590

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

Dear Mr. Saric and Mr. Schneider:

**RESPONSE TO COMMENTS AND CHANGE PAGES FOR THE DRAFT REMEDIAL DESIGN
WORK PLAN FOR REMEDIAL ACTIONS AT OPERABLE UNIT 2**

The Department of Energy, Fernald Area Office (DOE-FN) is pleased to submit the enclosed Response to Comments and change pages for the Draft Remedial Design Work Plan for Remedial Actions at Operable Unit 2 (OU2). Submittal of this response to the U.S. Environmental Protection Agency (U.S. EPA) and the Ohio Environmental Protection Agency (OEPA) is required by October 18, 1995, which is within 30 days of the receipt of the U.S. EPA and OEPA comment on the draft document.

If you have any questions regarding the enclosed documents, please contact Rod Warner at (513) 648-3156.

Sincerely,

Johnny W. Reising
Fernald Remedial Action
Project Manager

FN:Jalovec

Enclosure: As Stated

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cc w/enc:

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RESPONSE TO U.S. EPA COMMENTS ON THE
DRAFT OPERABLE UNIT 2 REMEDIAL DESIGN WORK PLAN

GENERAL COMMENTS

Comment No. 1

Commenting Organization: U.S. EPA Commentor: Saric
Section #: N/A Page #: N/A Line #: N/A Code:

Original General Comment: 1

Comment: The RD work Plan divides the design into four phases. Phase 1 includes the design of the waste haul road. Phase 2 includes the design of the test pads to verify the permeability of the disposal cell cap and liner systems. Phase 3 encompasses the design of the disposal cell. Phase 4 includes the design of the excavation for the waste units.

Although the design strategy appears reasonable, phases 2 and 3 should be combined because the cap and liner systems are components of the disposal cell. This will demonstrate the manner in which data obtained from the test pads are incorporated into the design of the disposal facility.

Response: Agreed. Phases 2 and 3 will be combined and Phase 4 will be renumbered as Phase 3. In addition, a reference to the groundwater monitoring plan was erroneously included in the description of the design of the on-site disposal facility (page 6-3). This plan will be addressed under remedial action and will be deleted from this section.

Action: Line 8 of page 1-2 has been changed to read, "...Operable Unit 2 remedial design in the following three phases:"

Line 13 of page 1-2 has been deleted.

Line 15 of page 1-2 has been changed to read, "Phase 2 is the design of an engineered on-site disposal facility including test pads and the cap and liner systems; and"

Line 18 of page 1-2 has been changed to read, "Phase 3 is the design of the excavation activities for the waste unit areas."

Line 23 of page 1-2 has been changed to read, "...includes document submittal dates for the three phases...."

Line 3 of page 3-1 has been changed to read, "...for each of the three Preliminary Design Review Packages for remedial action."

Line 10 of page 6-1 has been changed to read, "...which are included in one of the three phases of design."

The sentence on lines 12-13 of page 6-1 has been deleted.

Line 13 of page 6-1 has been changed to read, "Phase 2 is the design of the on-site disposal facility. Phase 3 is the design of the excavation for the waste unit areas."

Section 6.1.2 on pages 6-1 and 6-2 has been deleted.

Section 6.1.3 has been renumbered 6.1.2 and the title now reads, "Phase 2 - Design of On-Site Disposal Facility."

Lines 15-17 of page 6-3 have been changed to read, "The cap and liner design, test pads (to verify the permeability of the cap and liner), stormwater control, leachate management, and waste acceptance criteria screening will be included in the on-site disposal facility remedial design package."

Section 6.1.4 has been renumbered 6.1.3 and the title now reads, "Phase 3 - Excavation of Waste Units."

Comment No. 2

Commenting Organization: U.S. EPA Commentor: Saric
Section #: N/A Page #: Line #: Code:
Original General Comment: 2

Comment: U.S. DOE should also change the schedule of activities to both reflect the combination of phases 2 and 3, and any subsequent schedule accelerations that are consistent with the proposed ten year plan.

Response: It is agreed that the schedule for the draft Work Plan's Phases 2 and 3 should be combined. However, the schedule is not impacted by the proposed ten-year plan.

In addition, the draft Remedial Design Work Plan schedule did not reflect 60 day review periods for the primary Haul Road package. To build in the 60-day review periods and to allow issuance of the subcontract for the roads on or before September 6, 1995 (i.e., 15 months after the signature of the Operable Unit 2 ROD), we propose the following schedule:

Submit Preliminary Design Review Package to EPA January 29, 1996
Submit Final Design Review Package to EPA May 29, 1996

Agency review of the final package by July 29, 1996 should allow the contract to be issued by September 6, 1996.

Action: Line 22 of Page 6-1 has been revised as follows:
"The Primary Waste Haul Road Preliminary and Final Design Review Packages will be..."

Line 24 of Page 6-1 has been revised as follows:
"submitted to EPA and OEPA with the Primary Waste Haul Road Final Design Review Package."

Table 6-1, the Remedial Design Schedule, has been revised as follows:

Phase 1 - Design of the Primary Waste Haul Road dates have been revised as follows:
Preliminary Design Review Package to EPA 01/29/96
Final Design Review Package to EPA 05/29/96
CFC to EPA 08/07/96

Phase 2 Design of Test Pads has been deleted. This phase and associated dates have been incorporated into the new Phase 2, Design of the On-Site Disposal Facility.

Phase 4, Excavation and Restoration of Waste Units, has been redesignated as Phase 3.

The term "Restoration" has also been deleted, since restoration activities will be covered under a separate site-wide plan, as discussed in Section 1.0.

Remedial Action Work Plans - The following changes have been made:

Draft Primary Waste Haul Road Remedial Action Work Plan to EPA 05/29/96

Final Primary Waste Haul Road Remedial Action Work Plan to EPA 08/07/96

RESPONSE TO OHIO EPA COMMENTS ON THE
DRAFT OPERABLE UNIT 2 REMEDIAL DESIGN WORK PLAN

GENERAL COMMENTS

Comment No. 1

Commenting Organization: Ohio EPA Commentor: ODH
Section #: N/A Page #: N/A Line #: N/A Code: C
Original General Comment: 7

Comment: At other sites in the states which are proposing containment cells for disposal of low-level radiological waste, a recurrent concern is how burrowing animals excluded from the areas to preclude damage to any of the barrier layers.

Response: Agreed. In the Disposal Facility Preliminary Design Review Package (30% design package) it is currently planned that a biointrusion (biotic) barrier will be placed over the entire disposal facility to prevent burrowing animals from intruding into the facility from above. The biointrusion barrier is expected to extend approximately 80 feet [24 meters (m)] beyond the limits of disposal to prevent lateral intrusion by burrowing animals. The biointrusion barrier design is expected to consist of a 3 foot (0.9 m) thick layer of hard riprap having a maximum particle size of 18 inches (0.45 m). The biointrusion barrier would be placed as a component of the disposal facility final cover system and would be placed above the infiltration barrier components of the system. See Figure 2-2 which depicts a cross-section of the proposed cap and liner system.

Action: No action.

SPECIFIC COMMENTS

Comment No. 2

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 5.2, 5.3 Page #: 5-2 Line #: Code: C
Original Specific Comment: 1

Comment: Ohio EPA believes that the narrative descriptions that describe the tests/studies that are referred to in these section should be updated to more accurately reflect the current status of these projects instead of referring to all of these tests/studies in the future tense. For those activities that are to be completed in the future, a schedule and a tracking mechanism should be described.

Response: Agreed. The narrative descriptions will be updated to more accurately reflect the current status of the projects. DOE commits to working with OEPA to provide schedule information to assist in tracking the additional tests and studies identified in the Operable Unit 2 Remedial Design Work Plan.

Action: The following text has been added to line 35 of page 5-1: "Based on results obtained during the two phases of the Predesign Investigation, an addendum study is being planned to further investigate the location of the on-site disposal facility. This additional field

work is expected to include slug tests, flow meter readings, and sampling of soil, groundwater wells, and lysimeters."

Lines 6-7 of page 5-2 have been changed to read, "This investigation consisted of soil borings...."

Lines 7-8 of page 5-2 have been changed to read, "Soil borings were completed...."

Line 10 of page 5-2 has been changed to read, "Shallow soil sampling was conducted...."

Lines 15-16 of page 5-2 have been changed to read, "Additional hydrogeologic data, including slug testing, was obtained to determine...."

The following text has been added to line 17: "This report is expected to be finalized in fall 1995."

Line 20 of page 5-2 has been changed to read, "A Borrow Area Geotechnical Investigation is currently being conducted to identify local borrow sources...."

Lines 26-27 of page 5-2 have been changed to read, "An investigation of the waste units has also been conducted to characterize and define geotechnical properties...."

The following text has been added to line 30: "This report is expected to be finalized in fall 1995."

Comment No. 3

Commenting Organization: Ohio EPA Commentor: CO/DERR
Section #: 5.3 Page #: 5-2 Line #: 26 Code: C
Original Specific Comment: 2

Comment: What are considered suitable physical properties of the solid waste to be used as a berm or cushion layer for the liner system? Consistent with our comments on the ROD and the Proposed Plan, it is Ohio EPA's expectation that these berms be completely contained within the disposal unit.

Response: The Impacted Materials Handling/Placement Plan will be included with the Disposal Facility Preliminary Design Review Package (30% design package). This plan will describe the required physical properties of materials to be placed around the interior perimeter of the disposal facility and as a cushion layer above the liner system.

Based on the current design, cushion layer material is required to consist of on-site impacted soil or flyash with a maximum particle size of 3 inches [75 millimeters (mm)], placed in lifts to achieve a 1 foot (0.3 m) compacted thickness, and compacted in a manner that satisfies specification requirements for protection of underlying geosynthetics. On-site or off-site granular soils with a maximum particle size of 3 inches (75 mm) may be used as cushion layer material in localized areas to promote percolation of liquid into the leachate collection layer.

DOE recognizes OEPA's concern and ensures that all impacted materials will be completely contained within the limits of the liner and final cover systems.

Action: No action.

Comment No. 4

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 5.5 Page #: 5-3 Line #: 4 Code: C
Original Specific Comment: 3

Comment: There should already be a great deal of engineering studies conducted on the brickmaking technology at the DOE Mound facility. This available data should assist DOE Fernald in accelerating the evaluation, and identification of data needs for this promising, volume reducing technology.

Response: Agreed. DOE is acquiring available brickmaking technology information from personnel at the Mound facility. DOE agrees to keep EPA and OEPA advised as to the status of its evaluation of the feasibility for use of this technology at the Fernald site.

Action: No action.

Comment No. 5

Commenting Organization: Ohio EPA Commentor: CO/DERR
Section #: 6.1.4 Page #: 6-4 Line #: 1 Code: C
Original Specific Comment: 4

Comment: Can DOE provide any more information on the treatment and disposal of the South Field's lead bearing wastes? Are there any candidate technologies under serious consideration?

Response: DOE is investigating the possibility of stabilizing the lead bearing waste by cementation. It is currently planned that this stabilized waste would be shipped off site for disposal.

Action: No action.

Comment No. 6

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 6.2 Page #: 6-4 Line #: Code: C
Original Specific Comment: 5

Comment: Ohio EPA requests that a tracking mechanism be suggested by DOE that would expedite Ohio EPA review and allow easy tracking of changes in subsequent submittals. We expect that marginal notations or maybe a combination of marginal notations and a "changes tracking page" may be an easy way to manage the changes.

Response: Agreed. For informational and tracking purposes, DOE will develop a system to track changes made in design document submittals. This system will be developed in coordination with EPA and OEPA.

Action: No action required for this document.

Comment No. 7

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 6.3 Page #: 6-5 Line #: 1-2 Code: C
Original Specific Comment: 6

Comment: Will winter construction shut down occur during a given time frame or will shut down occur on an as needed basis?

Response: The date for winter shutdown in any given year will occur on an as needed basis depending on prevailing weather conditions and availability of material for disposal. If disposal facility operations do continue into late fall or early winter, the scale of the operations will be adjusted to allow timely interim closure of the facility with the onset of inclement weather. Also, frost/freeze protection of liner and cover system geosynthetics will occur on a predetermined schedule independent of the schedule for disposal operations. The schedule for frost/freeze protection will be established during the detailed design of the disposal facility.

Action: No action.

where feasible, utilizing EPA guidance provided in "Superfund Remedial Design and Remedial Action Guidance" (EPA 1986) and "Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties" (EPA 1990).

The Remedial Design Work Plan includes a description of the selected remedy, a discussion of how technical design requirements will be identified, environmental compliance requirements, and general design strategy. This Work Plan addresses the design deliverables and schedules associated with implementation of the Operable Unit 2 remedial design in the following ~~three~~ four phases:

- Phase 1 is the design of a primary waste haul road from the South Field and Inactive and Active Flyash Pile areas to the on-site disposal facility;
- ~~Phase 2 is the design of test pads to verify the permeability of the cap and liner systems;~~
- Phase ~~2~~3 is the design of an engineered on-site disposal facility including test pads and the cap and liner systems; and
- Phase ~~3~~4 is the design of the excavation activities for the waste unit areas.

The specific components of these phases are discussed in greater detail in Section 6.0. The Amended Consent Agreement requires that this Remedial Design Work Plan provide a schedule for the implementation of activities required to complete the remedial design. The schedule is also presented in Section 6.0 of this Work Plan and includes document submittal dates for the ~~three~~ four phases discussed above and submittal dates for the Operable Unit 2 Remedial Action Work Plans.

This Remedial Design Work Plan is comprised of seven sections and one appendix. The sections and a description of the contents are as follows:

- Section 1.0 Introduction
- Section 2.0 Description of Selected Remedy — This section includes a description of the selected remedy and the major components required to complete implementation.
- Section 3.0 Design Criteria Package — This section briefly discusses the Design Criteria Packages to be submitted to EPA independent of this Work Plan.
- Section 4.0 Regulatory Compliance — This section identifies the substantive requirements of applicable or relevant and appropriate requirements (ARARs) pertaining to on-site activities and explains in concept how the remedial action will comply with ARARs and attain performance standards.

3.0 DESIGN CRITERIA PACKAGE

DOE will assemble engineering criteria, technical criteria, and scope information into a concise design criteria package (DCP) for each of the ~~three~~four Preliminary Design Review Packages for the remedial action. Each DCP will be submitted at the same time as its associated Preliminary Design Review Package.

Each DCP will provide the project description and the project design basis. The description will address the physical layout, structures, buildings, services, utilities, etc. that constitute the remedial action project. The design basis will describe how the project design will satisfy compliance with the ARARs, TBCs, and pertinent DOE Orders identified for the project. Within the design basis, the DCPs will identify the system functions, technical requirements, and design constraints and limitations.

The objective of the engineering design criteria is to identify and define the applicable general and discipline-specific design requirements that must be satisfied in performing the engineering design, and preparing construction drawings and specifications for the final remediation. The DCPs will list pertinent DOE Orders, ARARs and TBCs, Engineering Design Codes (national, state, and local) and Standards, and will also identify any exemptions to be requested from specific DOE Orders.

The engineering design criteria will include technical design requirements that, if modified after the submittal of the On-Site Disposal Facility Preliminary Design Review Package, may impact design and construction schedules. The significance of some of these technical design requirements is such that early consensus between DOE and EPA is required. The most important examples include the following proposed design criteria:

- Design Storm - 2,000 year storm event (mean annual hazard probability of 5×10^{-4}) in accordance with Performance Category 2 in DOE Standard 1020-94;
- Design Seismic Event - maximum horizontal ground surface acceleration of 0.13 gravities in accordance with Performance Category 2 in DOE Standard 1020-94;
- Design Life - the facility is to be effective for up to 1,000 years, to the extent reasonably achievable, and in any case, for at least 200 years as required under 40 CFR 192.02(a) with the design life of certain components being determined through a graded approach based on: (1) whether the component can be replaced/repaired via routine maintenance; (2) whether the failure of the component would jeopardize long-term protection of human health and the environment; and/or (3) how a reasonably achievable design life would be defined for a specific component.

5.0 TESTS AND STUDIES IN SUPPORT OF DESIGN

Various tests and studies have been deemed necessary to support the remedial design of the Operable Unit 2 remediation efforts and the on-site disposal facility. These tests/studies are in various stages of completion. The results of these additional investigations will be factored into the design, and will be summarized in the detailed design packages. The tests/studies that have been, or will be, completed in support of design include the following and are discussed below:

- Predesign Investigation;
- Site-Wide Disposal Facility Field Investigation;
- Geotechnical Studies;
- Liner Compatibility Study; and
- Engineering Studies.

5.1 PREDESIGN INVESTIGATION

The purpose of the Predesign Investigation was to define the most suitable location for the on-site disposal facility within an identified best area at the FEMP. This most suitable area is located on the east side of the FEMP and was chosen because it has the greatest thickness of gray clay and interbedded coarse granular materials which provide a protective layer over the Great Miami Aquifer (see Figure 2-3).

The Predesign Investigation fieldwork was performed in a phased approach. The first phase included preliminary cone penetrometer testing (CPT) and water level measurements of existing wells. This information was used to obtain a preliminary understanding of the existing soil conditions and to optimize the sampling locations for the second phase. This included the installation and sampling of wells, borings, and lysimeters. Data obtained and analyzed in the Predesign Investigation was used to confirm the thickness of the gray clay, identify interbedded coarse granular materials, verify the protectiveness of human health and the environment, and obtain preliminary geotechnical information for the design of the disposal facility.

Based on results obtained during the two phases of the Predesign Investigation, an addendum study is being planned to further investigate the location of the on-site disposal facility. This additional field

work is expected to include slug tests, flow meter readings, and sampling of soil, groundwater wells, and lysimeters.

5.2 SITE-WIDE DISPOSAL FACILITY FIELD INVESTIGATION

The objective of the Site-Wide Disposal Facility Field Investigation is to obtain engineering and geotechnical data necessary for the detailed engineering design of the on-site disposal facility. This investigation ~~will consist~~ of soil borings, shallow soil sampling, CPTs, and slug testing. Soil borings ~~were~~ ~~will be~~ completed within and adjacent to the proposed location for the disposal facility to facilitate additional engineering/geotechnical soil tests and gather additional soil profile information. Shallow soil sampling ~~was~~ ~~will be~~ conducted to facilitate additional soil tests on both the topsoil and underlying till. CPTs will be performed within and adjacent to the proposed location for the disposal facility to provide continuous stratigraphy information and strength data for engineering evaluation and analysis. The data obtained through this investigation will support engineering analyses for the disposal facility design including settlement, earthquake stability, structural support, liquefaction potential, slope stability, and other design requirements. Additional hydrogeologic data, including slug testing, ~~was~~ ~~will also be~~ obtained to determine if engineering controls will be required to minimize potential lateral flow pathways. This report is expected to be finalized in fall 1995.

5.3 GEOTECHNICAL STUDIES

A Borrow Area Geotechnical Investigation ~~is currently being~~ ~~will be~~ conducted to identify local borrow sources and the properties of the material from these sources. If an on-site borrow source can be located, the material may be used in the construction of the cap and liner of the on-site disposal facility. This information will also be utilized in conjunction with the Site-Wide Disposal Facility Field Investigation to support the design of the on-site disposal facility cap and liner system.

An investigation of the waste units ~~has~~ ~~will also been~~ conducted to characterize and define geotechnical properties of the Operable Unit 2 waste materials to assist in the evaluation of long-term settlement in the disposal facility and for possible use in the construction of the disposal facility. If the geotechnical properties of the waste material are suitable, it may be used as berm material and as a cushioning layer at the top of the liner system. This report is expected to be finalized in fall 1995.

5.4 LINER COMPATIBILITY STUDY

A liner compatibility study will be performed on liner materials to determine the most suitable liner

6.0 REMEDIAL DESIGN STRATEGY

Section 6.0 discusses the phases of remedial design and associated project documentation and deliverable schedules and the process and schedule for review and finalization of the identified deliverables.

6.1 PHASES OF REMEDIAL DESIGN

The basis for Operable Unit 2 remediation includes all of the elements of the selected remedy as presented in Section 2.2. The design approach to these elements will be reflected in the design deliverables which are included in one of the ~~three~~four phases of design. Phase 1 is the design of a primary waste haul road from the South Field and Inactive and Active Flyash Pile areas to the on-site disposal facility. ~~Phase 2 is the design of test pads to verify the permeability of the cap and liner systems.~~ Phase ~~2~~3 is the design of the on-site disposal facility. Phase ~~3~~4 is the design of the excavation for the waste unit areas.

6.1.1 Phase 1 — Design of Primary Waste Haul Road

A primary waste haul road from the waste unit areas to the on-site disposal facility will be constructed during remedial action. This activity will also entail relocating the FEMP North Access Road. The design of this activity will be based on the results of a study to coordinate remedial traffic activities.

Documentation and Schedule

The Primary Waste Haul Road Preliminary, ~~Pre-Final~~, and Final Design Review Packages will be submitted for EPA review and approval (and OEPA review). A remedial action work plan will be submitted to EPA and OEPA with the Primary Waste Haul Road ~~Pre-Final~~ Design Review Package. The schedule associated with this documentation is included in Table 6-1.

~~6.1.2 Phase 2 — Design of Test Pads~~

~~Ohio Solid Waste Disposal Regulations specify the maximum permeability for certain layers of the cap and liner system [OAC 3745-27-08(C)]. Test pads will be designed based on the results of the Predesign Investigation, Site Wide Disposal Facility Field Investigation, and the Borrow Area Geotechnical Investigation to verify that the permeabilities of the recompacted soil liner and the recompacted soil barrier in the cap system will meet the Ohio requirements.~~

**TABLE 6-1
REMEDIAL DESIGN SCHEDULE**

DELIVERABLES	SCHEDULED DATE
REMEDIAL DESIGN WORK PLAN	
Submit Draft Remedial Design Work Plan to EPA	08/07/95
REMEDIAL DESIGN	
Phase 1 - Design of the Primary Waste Haul Road	
Submit Primary Waste Haul Road Preliminary Design Review Package to EPA	01/29/96
Submit Primary Waste Haul Road Pre-Final Design Review Package to EPA	05/03/96 05/29/96
Issue Primary Waste Haul Road Final Design Review Package/CFC ¹ to EPA	06/21/96 08/07/96
Phase 2 - Design of Test Pads	
Submit Draft Test Pad Work Plan to EPA	01/15/96
Submit Final Test Pad Work Plan to EPA	03/07/96
Phase 3 - Design of On-Site Disposal Facility	
Submit Disposal Facility Preliminary Design Review Package to EPA	12/22/95
Submit Disposal Facility Pre-Final Design Review Package to EPA	06/28/96
Issue Disposal Facility Final Design Review Package/CFC to EPA	10/14/96
Phase 4 - Excavation and Restoration of Waste Units	
Submit Waste Unit Preliminary Design Review Package to EPA	05/28/96
Submit Waste Unit Pre-Final Design Review Package to EPA	10/22/96
Issue Waste Unit Final Design Review Package/CFC to EPA	03/20/97
REMEDIAL ACTION WORK PLANS	
Submit Draft Disposal Facility Remedial Action Work Plan to EPA	04/12/96
Submit Draft Primary Waste Haul Road Remedial Action Work Plan to EPA	05/03/96 05/29/96
Submit Final Disposal Facility Remedial Action Work Plan to EPA	06/28/96
Submit Final Primary Waste Haul Road Remedial Action Work Plan to EPA	06/21/96 08/07/96
Submit Draft Waste Unit Remedial Action Work Plan to EPA	10/22/96
Submit Final Waste Unit Remedial Action Work Plan to EPA	03/20/97

¹ CFC = certified for construction

Documentation and Schedule

~~Due to the single focus of this phase, the design, specifications, and drawings will be included in a single work plan. The Draft and Final Test Pad Work Plan will be submitted to EPA for review and approval (and OEPA for review). The schedule associated with this documentation is included in Table 6-1.~~

6.1 23 Phase 23 — Design of On-Site Disposal Facility

The on-site disposal facility will be designed to accommodate 2.5 million cubic yards of remediation waste from the FEMP. The facility will include a multi-layer geocomposite cap and liner system with leak detection and leachate collection layers. For Operable Unit 2 remediation waste, a maximum on-site disposal facility waste acceptance criteria of 346 pCi/g uranium-238 or 1,030 ppm total uranium has been established to protect the Great Miami Aquifer, which underlies the FEMP. Similar waste acceptance criteria for other COCs are in the process of being established for remediation waste in Operable Units 3 and 5. Upon finalization, these additional waste acceptance criteria will be incorporated into the design. The cap and liner design, ~~test pads (to verify permeability of the cap and liner),~~ stormwater control, leachate management, ~~and~~ waste acceptance criteria screening, ~~and groundwater monitoring plan~~ will be included in the on-site disposal facility remedial design package.

Documentation and Schedule

The on-site disposal facility Preliminary, Intermediate, Pre-Final, and Final Design Review Packages will be submitted to EPA for review and approval (and OEPA review). The schedule associated with this documentation is included in Table 6-1. The Intermediate Design Review Package is not an Amended Consent Agreement submittal and therefore is not included in Table 6-1.

6.1 34 Phase 34 — Excavation of Waste Units

The excavation activities for the waste units will be designed during this phase. The material with concentrations of COCs above the cleanup levels will be excavated from each of the five Operable Unit 2 waste units. The excavated material will be screened in the field and samples will be analyzed, as necessary, to determine the uranium concentration. This waste acceptance criteria attainment certification is to verify on-site or off-site disposal of the excavated material. If the material is at or below the on-site disposal facility waste acceptance criteria of 346 pCi/g of uranium-238 or 1,030 ppm total uranium, it will be transported for disposal in the on-site disposal facility. If the uranium concentration is above the on-site disposal facility waste acceptance criteria, the material