

4923

**C O N S O L I D A T E D C O N S E N T
A G R E E M E N T / F E D E R A L F A C I L I T Y C O M P L I A N C E
A G R E E M E N T / F E D E R A L F A C I L I T Y A G R E E M E N T
F O R C O N T R O L A N D A B A T E M E N T O F R A D O N -
2 2 2 E M I S S I O N S M O N T H L Y P R O G R E S S R E P O R T
P E R I O D E N D I N G O C T O B E R 3 1 , 1 9 9 3**

11/20/93

**DOE-FN/EPA
100
REPORT**

-4923

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October, 31, 1993

Introduction

The Consent Agreement (CA) As Amended under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Sections 120 and 106(a), the Federal Facility Compliance Agreement (FFCA), and the Federal Facility Agreement for Control and Abatement of Radon-222 Emissions (FFA-CARE) between the U.S. Department of Energy (DOE) and the U.S. Environmental Protection Agency (U.S. EPA) signed September 20, 1991, July 18, 1986, and November 19, 1991, respectively, require that monthly reports be submitted to the U.S. EPA regarding progress made to meet the provisions of those agreements. This report fulfills those requirements by describing actions undertaken at the Fernald Environmental Management Project (FEMP) during the period October 1 through October 31, 1993, and planned actions for the period November 1 through November 30, 1993.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October, 31, 1993

WORK ASSIGNMENTS AND PROGRESS

Descriptions of work progress are presented in the following sections and/or enclosures to this report:

- o CA Section IX - Removal Actions.
- o CA Section X - Remedial Investigation/Feasibility Study.
- o Enclosure A - Wastewater Flows and Radionuclide Concentrations under CA Section XXIII.B.
- o Enclosure B - FFCA: Initial Remedial Measures and Other Open Actions.
- o Enclosure C - FFA: Control and Abatement of Radon-222 Emissions.
- o Enclosure D - Drilling/Boring Logs
- o Enclosure E - Effluent Radiation Discharges to the Great Miami River

CA Section IX. Removal Actions

This section provides an update of activities associated with the implementation of Removal Actions (RAs) at the FEMP during October, 1993. Information is presented for each of the Removal Actions identified in the Consent Agreement As Amended.

Phase I Removal Actions

- o RA No. 1, Contaminated Water Under FEMP Buildings.
- o RA No. 2, Waste Pit Area Run-off Control.
- o RA No. 3, South Groundwater Contamination Plume.
- o RA No. 4, Silos 1 and 2.
- o RA No. 5, Decant Sump Tank.
- o RA No. 6, Waste Pit 6 Residues.
- o RA No. 7, Plant 1 Pad Continuing Release.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October, 31, 1993

Phase II Removal Actions

- o RA No. 8, Inactive Flyash Pile Control.
- o RA No. 9, Removal of Waste Inventories.
- o RA No. 10, Active Flyash Pile Controls.
- o RA No. 11, Pit 5 Experimental Treatment Facility.
- o RA No. 12, Safe Shutdown.
- o RA No. 13, Plant 1 Ore Silos.
- o RA No. 14, Contaminated Soils Adjacent to Sewage Treatment Plant Incinerator.
- o RA No. 15, Scrap Metal Piles.
- o RA No. 16, Collect Uncontrolled Production Area Runoff--Northeast.
- o RA No. 17, Improved Storage of Soil and Debris.
- o RA No. 18, Control Exposed Material in Pit 5.

Phase III Removal Actions

- o RA No. 19, Plant 7 Dismantling.
- o RA No. 20, Stabilization of UNH Inventories.
- o RA No. 21, Expedited Silo 3.
- o RA No. 22, Waste Pit Area Containment Improvement.
- o RA No. 23, Inactive Flyash Pile.
- o RA No. 24, Pilot Plant Sump.

~~-4928~~ **SOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October, 31, 1993

CA Section IX. Removal Actions (continued)

- o RA No. 25, Nitric Acid Tank Car and Area.
- o RA No. 26, Asbestos Removals (Asbestos Program).
- o RA No. 27, Management of Contaminated Structures at the FEMP.
- o RA No. 28, Contamination at the Fire Training Facility
- o RA No. 29, Erosion Control at Inactive Flyash Pile

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 1, Contaminated Water Under FEMP Buildings

Plant 8 VOC Treatment System was restarted on October 19, 1993. Approximately 5,500 gallons of stored perched water was treated as of October 22. CRU5 initiated a RI/FS pumping test at one perched water extraction well at Plant 8 on October 26 with the system dedicated to the treatment of water from this test. Treatment of other accumulated perched water will begin by November 8, followed by restart of the other extraction wells.

RA No. 2, Waste Pit Area Runoff Control

This removal action was completed on August 30, 1992.

RA No. 3, South Groundwater Contamination Plume

Part 1

Completed mid-summer 1993.

Part 2

Pumping and discharge systems remain in operation at 2,000 gpm (400 gpm from each of five recovery wells). Currently water from only one recovery well contains uranium concentrations above 20 ppb.

Part 3

The work plan entails installing and operating an Interim Advanced Wastewater Treatment (IAWWT) system to reduce uranium contaminant loading to the Great Miami River to a level less than 1,700 pounds per year. Due to the relocation of the Part 2 well field to an area having a higher concentration of uranium, the IAWWT system capacity was expanded to maintain the 1,700 pound per year maximum level. The IAWWT system includes two treatment units; the IAWWT unit located at the Storm Water Retention Basin (SWRB) consists of two trailer-mounted assemblies, each with a 150 gpm capacity for a total capacity of 300 gpm, while the unit located at the Biondenitrification Effluent Treatment System has a capacity of 100 gpm. Current activities are described below.

-4928

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 3, South Groundwater Contamination Plume (continued)

IAWWT Storm Water Retention Basin Unit

The unit continues to use cartridge filter elements excessively during operation and the FEMP has had problems keeping them in stock. Accordingly, plans are being made to install multimedia filtration upstream of the ion exchange units. The filter units are scheduled to be installed by March 31, 1994 as part of the Supplemental Project, pursuant to the Operable Unit 2 Dispute Resolution Agreement.

IAWWT Biotenitrification Effluent Treatment System Unit

The FEMP completed installation of a new dual media filtration system. The FEMP received and installed two additional ion exchange vessels in September. The unit was satisfactorily restarted in September.

South Plume Interim Treatment Unit

Construction activity began in October for this unit, which is part of the Supplemental Project. The unit is scheduled for operation by March 31, 1994.

Part 4

Part 4 involves groundwater monitoring and institutional controls. Sampling of private homeowner and existing RI/FS wells in the South Plume area continues.

The two homeowner treatment systems installed south of the FEMP continue to operate successfully. The lead ion exchange columns for both homes are beginning to show evidence of "break through." Procedures for resin column changeout are being developed.

-4928

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 3, South Groundwater Contamination Plume (continued)

Part 5

In order to define the vertical and horizontal extent of the groundwater plume contaminated with 20 ppb of uranium, analysis is being performed on the radiological results of the following phases of Part 5 as well as the groundwater monitoring of Part 4:

- Phase I - two traverse lines of hydropunch borings within the alluvium area and concurrent sampling of existing nearby wells;
- Phase II - two traverse lines of monitoring wells with corresponding hydropunch sampling north and south of the proposed well field; and
- Phase III - seven piezometers clustered near proposed extraction well R-4 (in accordance with the Design, Monitoring, and Evaluation Program Plan [DMEPP]).

A summary report of these analyses is being developed.

Operable Unit 2 Dispute Resolution Supplemental Project (Uranium Reduction in FEMP Discharge)

The Supplemental Project will provide for partial treatment of the South Plume discharge with the objective of reducing uranium discharges from the FEMP to the Great Miami River. The project consists of the following steps; the status of each is provided:

Step 1

Construct one additional IAWWT unit to treat 200 gpm of South Plume flow. This new unit, referred to as the South Plume Interim Treatment (SPIT) project, will be operational by March 31, 1994 and will include the addition of multimedia filtration units to supplement filtration at the IAWWT System (SWRB).

Bids for the SPIT project were opened on September 23, 1993; award of the contract was made on October 12, 1993.

- 4029
**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 3, South Groundwater Contamination Plume (continued)

Step 2

Use off-peak capacity in Phase I of the Advanced Waste Water Treatment (AWWT) system for South Plume flow when no storm water requires treatment. The AWWT package now under construction contains piping and valving to transfer South Plume flow to the existing SWRB pumping station for subsequent transfer to Phase I.

This will be available when Phase I of the AWWT system becomes operational in January 1995.

Step 3

Eliminate low uranium streams (i.e., less than 20 ppb [Sewage Treatment Plant and clean-side General Sump]) from Phase II of the AWWT and use this capacity to treat a portion of the South Plume, estimated to be approximately 200 gpm. Operable Unit 5 has completed changes to the AWWT project scope to eliminate treatment of the Sewage Treatment Plant and clean-side General Sump flows.

FERMCO plans to expedite installation of the 20-inch line that will serve a future AWWT system, Phase III. This will allow South Plume groundwater to be transferred to AWWT Phase II until Phase III is operational.

This will be available in January 1995 when Phase II of the AWWT system becomes operational.

Step 4

Extend the planned operational life of the existing IAWWT SWRB unit, convert from treating storm water to treating South Plume flow, and increase capacity from 300 gpm to approximately 400 gpm.

This would be accomplished by March 30, 1995. No actions have been taken to date.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 4, Silos 1 and 2

Installation of the bentonite in Silos 1 and 2 was completed on November 28, 1991.

The DOE submitted an evaluation detailing a revised method for determining the effectiveness of the bentonite in the silos to the U.S. EPA on December 17, 1992. As discussed with U.S. EPA on April 13, 1993, information contained in the revised Bentonite Effectiveness Evaluation document will be incorporated into the Removal Action Final Report. It is anticipated that the final report will be transmitted to the U.S. EPA in December 1993.

Due to a slight upward trend in headspace radon concentration in Silo 2, FERMCO plans to re-install the close-circuit video camera. The video cameras will be used to inspect the bentonite cap for apparent signs of drying, cracking, or sloughing off the residue mounds. The results of this inspection will be compared against baseline videos of the bentonite surface taken immediately following its installation.

As defined in the Removal Action Work Plan and the FFA-CARE, data associated with monitoring the effectiveness of the bentonite installation are included in Enclosure C.

RA No. 5, K-65 Decant Sump Tank

The FEMP completed removal of the liquid from the K-65 Decant Sump Tank on April 16, 1991, when the liquid was transferred to the holding tanks in Plant 2/3. Treatment of the decant liquid based on the Material Evaluation Form and available analytical results was completed on May 12, 1992.

Current activities include monitoring the liquid level of the K-65 Decant Sump Tank and performing maintenance as required. DOE will advise the EPA when pumping operations will take place.

RA No. 6, Waste Pit 6 Residues

This removal action was completed on December 19, 1990.

4928

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 7, Plant 1 Pad Continuing Release

This removal action consists of three stages. Stage I, which implements the run-on/off control measures, is complete. Stage II, addressing the installation of 80,000 square feet of a newly covered and controlled concrete storage pad, is complete. Stage III involves activities to upgrade the remaining 375,000 square feet of the existing Plant 1 storage pad. Stage III upgrading activities include installation of a polymer-vapor barrier over the existing concrete and the installation of concrete above the barrier with an epoxy sealant. In addition, 22,500 square feet of the Stage III work area will be enclosed beneath a tension support structure.

Phases C and D of Stage III is scheduled for completion in December. During the month of October, the subcontractor placed 2321 cubic yards of concrete and is presently on schedule. It is anticipated that 100% of the concrete work will be completed by November 9 and the Neoguard coating system for the slab will commence. Additionally, the 22,500 square feet covered storage structure will be erected by December 10, 1993.

KEY MILESTONES	STATUS	DUE DATE
Complete Installation of Stage III and Tension Support Structure	Open, ahead of schedule	February 21, 1995

RA No. 8, Inactive Flyash Pile Control

The Inactive Flyash Pile Isolation Activity was completed, ahead of schedule, on December 23, 1991.

RA No. 9, Removal of Waste Inventories

During October 1993, 3,982 drum equivalents of low-level waste (LLW) were dispositioned. The FY1994 goal is to dispose of 78,000 drum equivalents of low-level waste. Shipments were delayed by contract negotiations between FERMCO (ERMC), REECo (M&O of Nevada Test Site), and DOE. Shipments began the week of October 25, 1993.

0010

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 9, Removal of Waste Inventories (continued)

The activities completed in October included the DOE-NV Close Out Surveillance of the FEMP waste shipping/certification program. The DOE-NV audit team closed all but two of the eight findings from the July 1993 audit. The two open findings pertain to the contaminated trash and the asbestos waste streams. The progress demonstrated to the audit team was significant enough to maintain DOE-NV approval to ship waste to the NTS for four current waste streams. Approval of three of the five new waste streams is anticipated in December 1993.

Waste shipping activities for November will include continued closure of the open audit findings and revision of FEMP Application to ship Waste to the Nevada Test Site, Rev.5.

KEY MILESTONES	STATUS	DUE DATE
Submit Annual Work Procedures for 1994	Open, on schedule	June 30, 1994

RA No. 10, Active Flyash Pile Controls

This removal action was completed on June 29, 1992. Any required maintenance will be conducted on an ongoing basis.

RA No. 11, Pit 5 Experimental Treatment Facility

RA No. 11 was completed on March 20, 1992.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 12, Safe Shutdown

The Safe Shutdown Removal Action documents the activities that will remove uranium and other material from equipment and pipelines in former processing equipment and properly disposition the removed materials and equipment off-site.

KEY MILESTONES	STATUS	DUE DATE
Submit Annual Work Procedures for 1994	Open, ahead of schedule	June 30, 1994

The Operational Readiness Review, which will allow Safe Shutdown to proceed with removal of hold-up materials from equipment and lines, was submitted to DOE-FN on August 3, 1993. DOE-FN has determined that a Readiness Assessment, rather than an Operational Readiness Evaluation, will be done to assess the adequacy of the Safe Shutdown Program Planning and Implementation so that field work can proceed. This Readiness Assessment is still in process by DOE-FN.

Equipment and Material Assessments (formerly Preliminary Assessments) are continuing. Field evaluations of Plants 1, 4, 7, 8, and 9 have been completed. The field evaluation of Plant 5 is in process. Red-line, as-built floor plan drawings are being prepared for Plant 5 to reflect present equipment location.

The following is the status of expense items: 2,963 expense items are currently in the data base; 1,496 have been field verified; 578 are on a "shopping list" to ascertain on-site use; 1,042 have been transferred to Maintenance; and 126 have been placed on AC-563 Forms to be excessed. These numbers are expected to fluctuate from month to month as field verification is conducted.

The following is the status of capital equipment: of an estimated 1,696 total number of items, 1,146 have been put on AC-563 Forms to be excessed, and 550 have been identified as "In Use/Future Use" items. The number of items on AC-563 Forms and the "In Use/Future Use" listing may vary due to change of status of equipment items.

Six hundred eighty-one (681) maintenance work orders to isolate and disconnect all utilities/energy sources from equipment not in use have been prepared. Of these, 350 have been completed. Field verification of the completed orders is ongoing. Completion of these work orders is a preliminary step for removal of hold-up material from the equipment in preparation for equipment removal and decontamination and decommissioning. These numbers may vary from month-to-month due to change in status of the equipment.

0012

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 12, Safe Shutdown (continued)

During October, Safe Shutdown also assisted in completing the field activities for the Nitric Acid Tank Car Removal Action No. 25 and the Pilot Plant Sump Removal Action No. 24.

The Kelly Scrubber Unit was utilized in decontamination of Hazardous Waste Management Unit (HWMU) No. 6, Drummed HF Residue/Associated Storage Areas in Plant 4. This decontamination should allow closure of this HWMU once concurrence has been received that the clean-up requirements have been met.

Phase II of the 4A Metal Removal Project covers the shipment of approximately 1,028 metric tons of uranium of Material Description Code 228 to the NTS. Representatives from the Army were on-site October 14 for a program review meeting and were pleased with the status. Actual removal of the material from the site is contingent upon approval of the waste stream by the Nevada Test Site. Approval is expected by the end of November; but since NTS does not receive material the last two weeks in December, removal is slated for January through April 1994.

October activity on the sale of uranium was minimal due to legal issues being resolved between FERMCO and DOE-FN. The shipping plans for the depleted uranium sale have not been finalized due to the hold-up in issuance of contracts. For the normal and enriched sale, which is being managed by Westinghouse Hanford Company, contracts are expected to be awarded in November 1993.

During November, the FEMP will continue following the progress on contracts for the sale of uranium, continue to issue work orders for utility isolation work and will follow completion of the Readiness Assessment. Other key efforts include continuing to develop implementation plans for removing materials from process equipment, and continuing to verify equipment and material evaluations for Plant 5.

RA No. 13, Plant 1 Ore Silos

The Plant 1 Ore Silos Removal Action will include the dismantling of the 14 Plant 1 Ore silos and their support structure. This dismantling will eliminate the potential threat of additional material releases and the safety hazard due to structural deterioration of the silos and their support structure. The activities in this removal action will include characterization, removal, containerization, and disposal of the materials making up the above-ground portion of the facility.

1928

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 13, Plant 1 Ore Silos (continued)

The Operational Readiness Review Board approved the start-up of the Size Reduction Building on September 21. Personnel mobilized on September 21 and the size reduction operation began on September 27. The conveyors that were located on top of the concrete silos have been size-reduced. Two caps and one concrete cylinder has been removed from the concrete silos, size-reduced, and placed in 7A boxes for shipment to NTS. November activities will include removing and size-reducing the remaining concrete silos, the installation of X-bracing, removal of steel from the top of the tile silos, scaffolding installation, and repair work on the southwest silo.

KEY MILESTONES	STATUS	DUE DATE
Complete Removal Action	Open, ahead of schedule	December 19, 1994

RA No. 14, Contaminated Soils Adjacent to Sewage Treatment Plant Incinerator

This removal action will include the isolation or removal and disposition of contaminated soils in the vicinity of the Sewage Treatment Plant (STP). This action will eliminate the potential threat of additional material releases to the environmental media through migration. The activities in this removal action will include characterization, removal, and storage/disposal of the materials.

The revised Work Plan Addendum was submitted to the EPAs on July 12, 1993. A conditional approval was received from Ohio EPA on August 19, 1993. U.S. EPA approval was received August 24.

Excavation resumed in the off-property area immediately east of the sewage treatment plant and in the on-property area west of the STP. The soil is being stockpiled in a controlled area within the production area as per RA No. 17. The areas have been excavated and another walkover survey was performed on September 23. Verification samples were taken from the off-property area and submitted to the on-site lab for analysis. All of the results were below our action level for off-property soils. Soil samples were taken from around the four Thorium hotspot that were discovered during previous sampling. The samples will define the extent of contamination in those areas.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

**RA No. 14, Contaminated Soils Adjacent to Sewage Treatment Plant Incinerator
(continued)**

Scheduled November activities include taking verification samples in the on-property areas to confirm that the action level has been achieved. Intrusive soil sampling around the wooded area located off-property is scheduled for November but completion depends on finding lab capacity to analyze the samples.

KEY MILESTONES	STATUS	DUE DATE
Phase IV - Completion of off-property and on-property excavations	Open, ahead of schedule	February 25, 1994
Phase IV - Submittal of Final Report	Open, on schedule	September 26, 1994

RA No. 15, Scrap Metal Piles

The Scrap Metal Piles Removal Action will detail the stabilization and disposition of LLW scrap metal currently stockpiled on site. This removal action will minimize material releases to the environment. Approximately 1,400 tons of scrap copper along with approximately 2,200 tons of recoverable scrap metals are the focus of this removal action.

A total of 105 tons of non-ferrous metals has been shipped to Quadrex. Shipping of non-ferrous metal is complete. Shipping of ferrous metal to SEG is complete, a total of 2,278 tons. Demobilization and decontamination of the B69 Pad are complete. Through September 18, 1993, 1,807 tons of ferrous metal have been melted. Metal melting will resume the first week in December, 1993, however all remaining metal will be sorted again per SEG's new procedure to identify lead in the stockpile. Metal melting is scheduled for completion by the end of December, 1993. Quadrex began off-site processing of non-ferrous metal on September 16, 1993.

The present removal action schedule shows contract award/Notice to Proceed (NTP) on January 1, 1994, for the scrap copper wire inventory. The subcontractor's Removal Action Project Plan is expected 30 days after NTP. The delay in the procurement of a successful vendor was caused by the need to provide more radiological characteristic data on the copper pile.

0015

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR CONTROL AND ABATEMENT OF RADON-222 EMISSIONS MONTHLY PROGRESS REPORT

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 15, Scrap Metal Piles (continued)

KEY MILESTONES	STATUS	DUE DATE
Complete Phase I	Open, ahead of schedule	March 30, 1994
Phase I - Submit Final Report	Open, ahead of schedule	September 30, 1994
Phase IIB: Submittal of Subcontractor's Removal Action Plan	Open, behind Schedule	September 30, 1993
Phase IIB: Submittal of Final Report	Open, behind schedule	March 30, 1995

RA No. 16, Collect Uncontrolled Production Area Runoff – Northeast

This removal action was completed, ahead of schedule, on August 20, 1993.

RA No. 17, Improved Storage of Soil and Debris

This removal action will establish a site-wide management concept and implementation strategy for the improved storage of existing and future generated soils and debris at the FEMP. This removal action also includes the design and construction of four containment structures for the appropriate improved storage of contaminated soil and debris on site. This will eliminate the potential threat of additional material releases to the environment due to wind, rain, or vehicular traffic. Other activities in this removal action include the revision of site procedures to enhance the characterization, interim storage management of the contaminated soil and debris materials until final remediation under Operable Unit 3.

The revised Request for Exemption from installing automatic sprinklers in tension support structures was submitted to DOE-HQ on June 7. The Request for Exemption was conditionally approved by DOE EM-331 on July 29, 1993. All design issues for the first design package have been agreed upon by DOE-FN and FERMCO as of June 11. DOE-FN granted approval on July 27 to complete the design for the Central Storage Facility pending NEPA review as part of the RA No. 17 Phase I Design Package. The direction to complete with Phase I design package and begin Part II design package (Decontamination Facility Pad only) was given on August 20, 1993.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 17, Improved Storage of Soil and Debris (continued)

October activities included completion of CFC Design package for Phase I construction activities, continued preparation of the 50% Design package for the DFP facility, and preparation of the report to EPA providing the alternate management selection of regrading and seeding for the Soil and Rubble Pile based on recent sampling data results received. Direction to proceed with the Soil and Rubble Pile management alternative design will not be given to the A/E until the EPA approves the plans to regrade and seed the pile.

November activities will include approval of the CFC design package and transfer into construction division for bid preparation. Presentation by A/E and FERMCO review of the 50% design package for the Decontamination Facility Pad (DFP) part of Phase II design. Written approval of the Fire Exemption Request for the three tension support structures in RA 17 scope is expected in November.

RA No. 18, Control Exposed Material in Pit 5

The final report was submitted to U. S. EPA and Ohio EPA on October 18, 1993.

RA No. 19, Plant 7 Dismantling

The Plant 7 Dismantling Removal Action will include dismantling and disposition of the Plant 7 structure. This dismantling will eliminate the threat of additional contaminant releases and the safety hazard due to histoplasmosis. The activities in this removal action will include characterization, gross decontamination, removal, dismantling, packaging, and disposal and potential recycling of the materials making up the above-ground portion of the facility.

The draft final Removal Action Work Plan (RAWP) was submitted to the EPAs on June 30. Ohio EPA granted conditional approval on July 12 with one comment, and U.S. EPA Approval was dated July 30, 1993. The Ohio EPA's comment has been addressed and submitted via letter attachment, dated August 24. The RAWP will not be revised and resubmitted.

Phase I activities began in May 1993 and were completed in August 1993 under the Safe Shutdown Program. Phase II activities began on July 21, 1993 and continued through October. Asbestos abatement activities within Plant 7 were completed in early October. Gross Decontamination activities commenced in early October and were essentially finished November 4, 1993.

0017

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 19, Plant 7 Dismantling (continued)

The bid package went out to pre-qualified bidders on July 30, 1993. There was a pre-bid meeting at the FEMP on August 9, with a walk-through of Plant 7. Bids were received and opened on August 25, 1993. There were nine bidders on the contract. The contract is expected to be awarded to the approved low bidder when FY94 funding is made available.

RA No. 20, Stabilization of UNH Inventories

The Stabilization of UNH Inventories Removal Action will remove and prepare for safe storage approximately 230,000 gallons of acidic UNH that is currently stored in 21 tanks in and around Plant 2/3. Existing processing equipment will be used to neutralize the solutions, filter the precipitate, and package the resulting filter cake in double containment for safe storage. This activity was previously part of RA No. 12, Safe Shutdown, but is being accelerated as a separate expedited response.

Processing remains on hold pending implementation of the recommendations resulting from the Class B investigation of an incident that occurred on April 27.

RA No. 21, Expedited Silo 3

The Expedited Silo 3 Removal Action Final Report was submitted to the U.S. EPA on February 24, 1993.

RA No. 22, Waste Pit Area Containment Improvement

The final report was submitted to U. S. EPA and Ohio EPA on October 18, 1993.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 23, Inactive Flyash Pile

The final report was submitted to EPA on June 30, 1993.

RA No. 24, Pilot Plant Sump

This sump is located on the southwest side of the Pilot Plant. The sump consists of a stainless steel cylinder approximately two feet in diameter and ten feet deep. This sump was built to remove liquids from the floor drains of the Pilot Plant and was used only during the renovation of the Pilot Plant in 1969. The sump is filled with a thick liquid and sludge. Analytical results of the sump contents show high concentrations of metals: lead, copper, chromium, nickel, as well as thorium and volatile organic compounds.

The field portion of the removal action was completed successfully, safely and without incident during the week of October 11, 1993. The final report is scheduled for submission to DOE by November 23, 1993.

RA No. 25, Nitric Acid Tank Car and Area

The Nitric Acid Rail Car was formerly located on the northern perimeter of the production area and east of Building 63. The FEMP RCRA Part A and Part B application identify this tank car and area surrounding it as a Hazardous Waste Management Unit.

This high-grade, stainless steel tank car has a capacity of approximately 100,000 gallons and measures approximately 10 feet wide by 40 feet long by 15 feet high. This unit operated from 1952 until about 1989. The tank car stored nitric acid used at the FEMP. Based on recent analysis, the tank car now contains 50-100 gallons of nitric acid. This removal action includes removing residual contents from the tank car followed by decontamination and disposal of the tank car.

RA No. 25, Nitric Acid Tank Car and Area (continued)

All rinses were transferred to Tank F1-24 of the Nitric Acid Recovery System. The results of the verification samples collected from the base of the excavation of the entire HWMU indicated chromium to be below the background. The field portion of the removal action was completed successfully, safely, and without incident and all of the objectives were met. The Final Report was submitted to DOE on October 18 and was transmitted to the EPAs on November 8.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 26, Asbestos Removals (Asbestos Program)

This removal action documents asbestos abatement activity at the FEMP to mitigate the potential for contaminant release and migration. Abatements within the Asbestos Program to date include small-scale in-situ repairs, encasement, encapsulation, and removals, and the initiation of large-scale asbestos abatement within Plant 7.

The June 1993 Work Procedures submittal included Large-Scale Asbestos Work Practices, which applies to all asbestos abatement on-site (both small- and large-scale). This submittal also provided generalizations of all abatement activities to date as well as planned abatement activities for the next year, including several large-scale abatement projects. The U.S. EPA stated on July 28 that it had no comments on the draft annual work procedures update, therefore no additional submittal is required.

The FEMP is using the large-scale Asbestos Work Practices to perform the asbestos abatement activities associated with RA No. 19, Plant 7 Dismantling. Plant 7 interior Thermal System Insulation and miscellaneous Asbestos-Containing Materials removal was completed on all seven floors by the end of September. The No. 4 Power Feeder Removal Pilot Project was tested on Plant 7, with successful removal of three 200 foot 500 cm cables.

Planned activities for November include the continued removal of Thermal System Insulation from outside pipes and valves around the site. There are no current large-scale asbestos abatement activities due to the lack of funding. O & M activities continue with abatement and repair of asbestos on the outside piping with about 9% completed. O & M activities have completed about 30% of asbestos work orders.

RA No. 27, Management of Contaminated Structures at the FEMP

The final EE/CA was approved June 16, 1993.

RA No. 28, Contamination at the Fire Training Facility

This removal action will address removal, decontamination and disposal, treatment or storage of all structures, tanks, equipment, the underground sump and oil/water separator, in addition to addressing "hot spots" soil staining, and any other surface soils from which a threat of migration of contamination exists.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMOVAL ACTIONS

RA No. 28, Contamination at the Fire Training Facility (continued)

U.S. EPA conditional approval was received August 6 and Ohio EPA disapproval was dated August 4. The revised work plan and comment-responses were submitted to the DOE on September 30, 1993, and subsequently transmitted to the EPAs on October 5, 1993. Comments have not been received from the Ohio EPA on the revised work plan. Planning for the removal action will continue during the month of November.

RA No. 29, Erosion Control at Inactive Flyash Pile

This "time critical" removal action was performed in two phases. Phase I was an interim action completed on May 4, 1993, which involved the placement of a 220-foot long rock berm along the bank of Paddy's Run Creek immediately adjacent to the Inactive Flyash Pile. This initial action was implemented to mitigate the immediate threat of erosion induced slope failure and discharge of flyash to Paddy's Run Creek. Phase II involved design activities to determine the final remedy and implementation of the same. Construction of the final remedy, which is an enhancement of the initial rock berm, began on August 23, 1993 and was completed on September 9, 1993. The final report on this action is being prepared for submittal to EPA in February, 1994.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

1.0 Operable Unit 1

Operable Unit 1, as defined in the Amended Consent Agreement, includes Waste Pits 1 - 6, Clearwell, Bum Pit, berms, liners, and soil within the operable unit boundary.

1.1 Treatability Studies

Scope:

The Operable Unit 1 treatability studies will evaluate several treatment process options identified in the Operable Unit 1 Initial Screening of Alternatives document, including cement stabilization and vitrification. The FEMP will evaluate the technical feasibility of these technologies through a series of experiments on both composite waste samples and individual strata samples. Where it is appropriate, the FEMP will investigate performance criteria, including formulation ranges, compressive strength, leachability, bulking factor, and permeability. Cement stabilization binding agents, including portland cement, flyash, Blast Furnace Slag, and sodium silicate, are being evaluated. Clay (attapulgite and clinoptilolite) will be added to reduce the leachability of metals in the waste. Glass formers and modifiers considered for vitrification are flyash, soil, and sodium hydroxide.

The stabilization testing was planned to be conducted in two phases. The preliminary phase, now complete, consisted of reagent range-finding experiments on a pit-by-pit basis using composite samples from individual waste pits. The advanced phase consisted of testing on strata samples where available. Each phase contained two stages permitting additional reagent testing as necessary. The advanced phase was discontinued after evaluation of preliminary phase data indicated further test work was unnecessary.

The FEMP will investigate a variety of drying methods including flash drying, rotary drying, and microwave drying. The FEMP will also test agglomeration of dried particles to reduce dusting, depending on the drying method and final particle size of the dried waste material. Polymer encapsulation will be studied using several types of low density polyethylene.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

1.1 Treatability Studies (continued)

Status:

The draft Treatability Study Report was submitted to DOE-FN on October 1, 1993. Comments were received from DOE-FN on October 25, 1993. Comment response is being prepared. The final report is due to DOE-FN November 30, 1993.

Issues/Corrective Actions:

None to report.

1.2 Remedial Investigation

Scope:

The FEMP will prepare an RI Report in accordance with the U.S. EPA Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (EPA Directive 93553-01) and the approved Risk Assessment Work Plan Addendum.

Status:

The draft Remedial Investigation/Baseline Risk Assessment was submitted to U.S. EPA and Ohio EPA on October 5, 1993.

4928

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

1.2 Remedial Investigation (continued)

Issues\Corrective Actions:

None to report.

OPERABLE UNIT 1 REMEDIAL INVESTIGATION REPORT

PRIMARY

SCOPE	SUBMIT TO EPA	RECEIVE FROM EPA	SUBMIT TO EPA FINAL
Details the nature and extent of contaminants within the Operable Unit 1 study area. Estimates the volume of contaminated media and materials. Provides a baseline risk assessment and establishes remedial action objectives.	10/12/93 C	12/11/93 C	01/10/94 C

C = Consent Agreement Date

1.3 Feasibility Study

Scope:

The Feasibility Study evaluates remedial alternatives in detail with respect to the nine evaluation criteria developed by the U.S. EPA. The study analyzes remedial alternatives individually against each criterion and then compares them against one another to determine their respective strengths and weaknesses and to identify the key tradeoffs that must be balanced for the site.

Status:

The schedule remains on target to issue the draft FS Report for internal review by November 9, 1993.

Preparation began on the draft Proposed Plan, also to be submitted for internal review by November 9, 1993.

929

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

1.3 Feasibility Study (continued)

OPERABLE UNIT 1 FEASIBILITY STUDY

SCOPE	SUBMIT TO EPA	RECEIVE FROM EPA	SUBMIT TO EPA FINAL
Describes and analyzes potential remedial alternatives. A comparative analysis is performed for all alternatives.	03/07/94 C	05/06/94 C	06/04/94 C

C = Consent Agreement Date

A = Actual

1.4 Planned Activities for November 1993

- The final Treatability Study Report is scheduled for submittal to DOE-FN November 30, 1993.
- Continue development of the draft Feasibility Study and Proposed Plan for submittal to DOE-FN November 9, 1993.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

2.0 Operable Unit 2

Operable Unit 2, as defined in the Amended Consent Agreement, includes the flyash piles, other South Field disposal areas, lime sludge ponds, solid waste landfill, berms, liners, and soil within the operable unit boundary.

2.1 Field Investigation

2.1.1 RI/FS Work Plan Addendum for Operable Unit 2

Scope:

DOE-FN submitted the Remedial Investigation Report for Operable Unit 2 to the U.S. EPA and Ohio EPA in October 1992. Based on December 17, 1992, review comments from the U.S. EPA and Ohio EPA on the RI Report and subsequent disapproval of the document, Operable Unit 2 will require a second phase of Remedial Investigation sampling and analysis in order to meet the objectives of the March 1988 RI/FS Work Plan.

Status:

Collection and analysis of environmental samples is an integral part of the second phase of the Operable Unit 2 RI/FS. The FEMP prepared this additional Sampling and Analysis Plan in accordance with CERCLA Guidance for Conducting Remedial Investigations and Feasibility Studies.

FERMCO submitted the draft RI/FS Work Plan Addendum for Operable Unit 2 to DOE-FN on March 3, 1993. DOE-FN transmitted the Addendum to the Ohio EPA and U.S. EPA on March 8, 1993. After reviewing EPA and Ohio EPA comments a final Addendum was prepared and submitted to DOE on April 30, 1993. EPA approval of the document was transmitted by a letter dated August 29, 1993.

Pursuant to the informal dispute resolution process with the U.S. EPA, the FEMP began field investigations on March 16, 1993. Field work was completed June 28, 1993.

4928

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR CONTROL AND ABATEMENT OF RADON-222 EMISSIONS. MONTHLY PROGRESS REPORT

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

2.1 Field Investigation (continued)

Issues/Corrective Actions:

The RI schedule for the fate and transport and risk assessment tasks have been successfully accelerated to compensate for delays in completion of the sample analysis and data validation activities.

Fate and transport modeling and baseline risk assessment were conducted simultaneously to allow completion of the revised draft RI report for submittal to DOE as scheduled on November 14, 1993. Laboratory samples collected in the second phase of field investigation was completed in August 1993, with entry of the validated results completed on September 30, 1993. Data reduction and evaluation tasks have been completed.

OPERABLE UNIT 2 REMEDIAL INVESTIGATION REPORT

PRIMARY

SCOPE	SUBMIT TO EPA	RECEIVE FROM EPA	SUBMIT TO EPA FINAL
Submit RI Report/Baseline Risk Assessment	02/18/94 C	04/15/94 C	05/13/94 C

C = Consent Agreement Date

2.2 Feasibility Study

Status:

The revised schedule for the Operable Unit 2 RI/FS program has been evaluated through the informal dispute resolution and is now finalized.

Issues/Corrective Actions:

Evaluate the revised Remedial Investigation results, the RI schedule is being accelerated.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

2.2 Feasibility Study (continued)

Develop Preliminary Remedial Goals for Active Flyash Pile, Inactive Flyash Pile, and South Field.

Start detailed analysis of alternatives.

OPERABLE UNIT 2 FEASIBILITY STUDY REPORT

PRIMARY

SCOPE	SUBMIT TO EPA	RECEIVE FROM EPA	SUBMIT TO EPA FINAL
Describes and analyzes potential remedial alternatives. A comparative analysis is performed for all alternatives.	04/29/94 C	06/27/94 C	07/25/94 C

C = Consent Agreement Date

2.3 Planned Activities for November 1993

- Continue work on the Feasibility Study.
- Perform the Geotechnical Sampling and Analysis Plan for the Solid Waste Landfill and the Operable Unit 2 disposal cell.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

3.0 Operable Unit 3

Operable Unit 3, as defined in the Amended Consent Agreement, includes the Production Area and production-associated facilities and equipment (including all above and below-grade improvements) including all structures, equipment, utilities, drums, tanks, solid waste, waste, product, thorium, effluent lines, K-65 transfer lines, wastewater treatment facilities, fire training facilities, scrap metal piles, feed stocks, and coal pile.

3.1 RI/FS Work Plan

Scope:

The RI/FS Work Plan will detail the approaches and assumptions to be applied to gathering information and the presenting results. Specifically, the Operable Unit 3 RI/FS Work Plan identifies the approach to be employed for baseline risk assessment and the specific sampling and sampling strategy to be performed during the field investigation program.

Status:

The Ohio EPA provided comments and granted conditional approval of the RI/FS Work Plan Addendum on February 16, 1993. In an April 14, 1993, letter, the U.S. EPA conditionally approved the revised Addendum, based on the comment-response package provided to the EPAs on March 19, 1993. After incorporation of the changes proposed in the comment-response package, and addressing some minor U.S. EPA concerns, the U.S. EPA provided final approval of the RI/FS Work Plan Addendum by letter of August 4, 1993.

Eleven Field Work Packages were completed, approved, and distributed in October, with the sampling identified therein, encompassing a large extent of the samples anticipated to be taken in the next couple months of Operable Unit 3 RI/FS sampling.

Issues/Corrective Actions:

None to report.

4928

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

3.2 Field Investigation (continued)

Scope:

The Operable Unit 3 Field Investigation program will gather information necessary to perform a baseline risk assessment, further identify the nature of contaminants in the operable unit, refine estimates of volume of contaminated materials, and support initial screening of applicable alternatives.

Status:

Field Screening for chemical and metals contamination continued throughout October using a field portable X-Ray Fluorescence Analyzer and Photo Ionization detectors. A second X-Ray Fluorescence Analyzer, and the first field portable Gas Chromatograph were received in October and are being field tested prior to integration with the program. Chemical screening was performed, to support selection of intrusive media locations, on the Plant 8 North pad (74R), Plant 2 West pad (74B), Manhole 175 Effluent Line (25B), Plant 9 Sump Treatment Facility (9B), Fire Training Tank (73C), Fire Training Pond (73B), Waste Plant Incinerator (39D), Soil Piles 1&5 (G-013), Sewage Treatment Plant (25G) and Building 12-North Pad (74N).

Intrusive media sampling, for chemical analysis only, was completed in the Pilot Plant (13A), Services Building (12A), Old Tank Farm (19D), Mag Storage Area (32B), Refinery Maintenance Building (3A), Digester Control Building (25E), Soil Piles (G-013), Primary Settling Basin (25G) and the Scrap Recovery Plant (8A). A total of 143 samples for chemical analysis have been collected as of November 1, 1993.

Issues/Corrective Actions:

None to report.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

3.3 Treatability Studies

Scope:

The treatability studies gather information necessary to support remedy selection, engineering, and implementation. Specific studies will be structured to gather the information necessary for specific technologies identified through screening as part of leading alternatives.

Status:

The FEMP will conduct remedy screening treatability studies in parallel with the Field Investigation and Alternatives development. Operable Unit 3 is developing a Treatability Study Work Plan to include initially-identified studies to be performed. Current actions involve the description of planned testing for the initial studies. The plan is scheduled to be complete to meet a January 15, 1994, due date to the EPA; however, additional tests will be planned and submitted as Addenda to the Treatability Study Work Plan. A draft document has been submitted for internal and DOE-FN review on October 19, 1993.

Issues/Corrective Actions:

None to report.

3.4 Remedial Investigation Report

Scope:

The Remedial Investigation Report provides a summary of the field investigations and supports the Feasibility Study by defining the nature and extent of the contaminants in Operable Unit 3, estimating the volume of contaminated media and materials, and providing a baseline risk assessment which establishes remedial action objectives.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

3.4 Remedial Investigation Report (continued)

Status:

Formal development of the RI has not begun, however, report planning, layout and background information collection are ongoing. Data management procedures are being developed to track and manipulate field investigation data.

Issues/Corrective Actions:

None to report.

3.5 Feasibility Study

Scope:

The Feasibility Study evaluates alternatives in detail with respect to the nine U.S. EPA evaluation criteria. The FEMP analyzes the alternatives individually and then compares to one another to determine respective strengths and weaknesses and to identify key tradeoffs. The Feasibility Study also includes an overall assessment of site residual risks through a Comprehensive Response Action Risk Evaluation.

Status:

Operable Unit 3 has not begun formal activities on the Feasibility Study, although alternatives research and document layout planning are underway. As a result of the development of a Proposed Plan for Interim Action, the Feasibility Study will not address initial decontamination or dismantling, but will focus on treatment and disposal issues, which remain the scope of the final action.

Issues/Corrective Actions:

None to report.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

3.6 Interim Action - Proposed Plan/Interim Action - Record of Decision

Scope:

The Interim Action Record of Decision (IROD) will document the preferred alternative from the Interim Action Proposed Plan/Environmental Assessment (PP/EA), as amended through public comment. The IROD draft will be submitted for U.S. EPA review and approval and, once approved, will form the basis for completing the decontamination and dismantlement action for Operable Unit 3 components.

Status:

The draft Interim Action PP/EA was submitted to the U.S. EPA on August 16, 1993. U.S. EPA and Ohio EPA comments were received October 18, 1993. A revised submittal is planned for mid-November. A draft IROD will follow U.S. EPA approval of the draft PP/EA and subsequent public comment.

Issues/Corrective Actions:

None to report.

3.7 RD/RA Work Plan

Scope:

The Interim RD/RA Work Plan will detail how design activities will be performed to meet the scope of the IROD for facility decontamination and dismantlement, and how this design will then be implemented through the Remedial Action.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

3.7 RD/RA Work Plan (continued)

Status:

The annotated outline for the RD/RA Work Plan has been further expanded and continues to be improved. Task groups have been developed based upon distinct activities associated with the development of the Work Plan. Meetings of the Group Coordinators for each of the task groups, as well as meetings for each of the individual task groups, are held at least every other week, or more often, if necessary. With the RD/RA Work Plan being significantly dependent on a clear definition of both the programmatic and implementation strategies (i.e., the construction sequencing and activities coordination, and sequencing within a grid, respectively), additional activities are being undertaken, primarily through the development of a Design Engineering Construction (DEC) Team, to assess, formulate, and document these strategies. The DEC Team is meeting once or twice a week to expedite the strategy definition.

Issues/Corrective Actions:

None to report.

3.8 Planned Activities for November 1993

- Develop comment-response package for U.S. and Ohio EPA comments on the Operable Unit 3 Proposed Plan/Environmental Assessment (PP/EA) and resubmit a revised PP/EA.
- Continue writing of Field Work Packages; continue radiological and chemical screening to support the Field Work Packages.
- Continue preparation of test-specific work plans for initially identified Treatability Studies.
- Continue development of the RD/RA Work Plan for Interim Action, with continued meetings within and among the task groups, and continued meetings of the DEC Team.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

4.0 Operable Unit 4

Operable Unit 4, as defined in the Amended Consent Agreement, consists of Silos 1, 2, 3, and 4, the silo berms, the Decant Sump Tank System, and soil within the operable unit boundary.

4.1 Field Investigation (Sampling West of K-65 Silos 1 and 2)

Scope:

The information obtained through this additional investigation will augment the current understanding and conclusions drawn from previous sampling and analytical results which have been used to characterize the extent of contamination in the vadose zone and groundwater in the glacial overburden immediately west of the K-65 Silos 1 and 2. Two 1000-series piezometers were installed in the uppermost perched water interval in the K-65 Silos area. One lysimeter targeted the perched water zone downgradient of the Decant Sump Tank. Three lysimeters were installed in the east bank of Paddy's Run to verify that contamination from the vadose zone or perched water is not entering the stream.

Status:

Data from samples collected as a result of this program have been incorporated into the Operable Unit 4 Feasibility Study. Operable Unit 5 will continue to monitor water levels of wells 11204, 11205, 11206, and 11207. Monitor well 11207 will be sampled if and when the well yields a sufficient volume of water.

Data from this sampling program will be incorporated into the Operable Unit 5 RI report.

-4923

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

4.1 Field Investigation (Sampling West of K-65 Silos 1 and 2) (continued)

Issues/Concerns

Samples collected from perched water in the Operable Unit 4 area show that contamination has occurred directly beneath and to the west of Silos 1 and 2. Groundwater quality data collected from perched water indicate the presence of constituents which are consistent with those found in the decant sump. The data show no direct link between contamination in the Great Miami Aquifer and the contents of the Operable Unit 4 silos.

4.2 Treatability Studies

Scope:

A Treatability Study Work Plan addresses the additional information that is required to support the FS and subsequent remedy selection for Operable Unit 4. There are two separate treatability studies to support the Operable Unit 4 FS. One study considers cement stabilization of Silos 1, 2, and 3 material and chemical extraction, leachate precipitation, and leachate stabilization of Silos 1 and 2 material. The second treatability study considers the vitrification of Silos 1, 2, and 3 material.

Status:

The results from the vitrification studies, the Cement Stabilization Preliminary and Advanced Phase Tests, and the Chemical Extraction test have been summarized and incorporated in Appendix C of the Operable Unit 4 Feasibility Study.

The Cement Stabilization Optional Phase Treatability testing report has been completed and is included in the Operable Unit 4 Feasibility Study as appendix H.

Issues/Corrective Actions:

None

0036

4928

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

4.3 Remedial Investigation Report

Scope:

The RI provides a summary of the field investigations and supports the FS by defining the nature and extent of the contaminants in the Operable Unit 4 study area, estimating the volume of contaminated media and materials, and providing a baseline risk assessment which establishes remedial action objectives.

Status:

The Operable Unit 4 Remedial Investigation Final Report was transmitted to the U.S. EPA on October 29, 1993. A comment response document describing the actions taken to resolve U.S. EPA and Ohio EPA comments on the Draft Final report was also submitted with the Final Report.

4.4 Feasibility Study

Scope:

The FS evaluates remedial alternatives in detail with respect to the nine evaluation criteria developed by the U.S. EPA. The remedial alternatives are analyzed individually against each criterion and then compared against one another to determine their respective strengths and weaknesses, and to identify the key tradeoffs that must be balanced for the site.

Status:

The Feasibility Study was submitted to the U.S. EPA on September 9, 1993. EPA comments are anticipated on November 8, 1993.

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR CONTROL AND ABATEMENT OF RADON-222 EMISSIONS MONTHLY PROGRESS REPORT

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

4.4 Feasibility Study (continued)

Issues/Corrective Actions:

The Operable Unit 4 Feasibility Study contains the first site-wide integrated FS/EIS and also the first sitewide CRARE. Presentation of the required technical information and integration with the RI/FS guidance for both documents are priority issues.

OPERABLE UNIT 4 FEASIBILITY STUDY

PRIMARY

SCOPE	SUBMIT TO EPA	RECEIVE FROM EPA	SUBMIT TO EPA FINAL
Describes and analyzes potential remedial alternatives. A comparative analysis is performed for all alternatives.	09/10/93 C 09/09/93 A	11/10/93 C	12/09/93 C

C = Consent Agreement Date

4.5 Proposed Plan

Scope:

The Proposed Plan identifies the remedial alternatives being considered for the remediation of Operable Unit 4 in the Feasibility Study for Operable Unit 4. The preferred alternative and the reasons for its selection will also be presented. The DOE and the U.S. EPA will solicit public comments on the alternatives presented including the preferred alternative.

Status:

The draft Proposed Plan was submitted to the U.S. EPA on September 9, 1993. EPA comments are anticipated on November 8, 1993.

Issues/Corrective Actions:

None

-4923

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

OPERABLE UNIT 4 PROPOSED PLAN

PRIMARY

SCOPE	SUBMIT TO EPA	RECEIVE FROM EPA	SUBMIT TO EPA FINAL
Identifies potential remedial alternatives as listed in the FS and presents the preferred alternative to the U.S EPA and the public.	09/09/93 A	11/10/93 C	12/09/93 C

C = Consent Agreement Date

4.6 Planned Activities for November 1993

- Receive U. S. EPA approval of the Draft Final RI Report or respond to any EPA concerns or comments on the Operable Unit 4 Draft Final Remedial Investigation Report as a result of a potential EPA conditional approval.
- Continue work on the Operable Unit 4 Administrative Record for the RI and FS reports.
- Continue preparation of the Record of Decision based on the results of the FS and Proposed Plan.
- Continue to monitor water levels for Monitor Well 11207

1928

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

5.0 Operable Unit 5

Operable Unit 5, as defined in the Amended Consent Agreement, includes: groundwater, surface water, soil not included in the definitions of Operable Units 1 - 4, sediments, flora and fauna.

5.1 RI Field Investigation

5.1.1 Operable Unit 5 Work Plan Addenda

Scope:

Soil and perched groundwater sampling was conducted in the following areas under this program: the Plant 1 Pad, the Southeast Quadrant of the Production Area, the Fire Training Area, the KC-2 Warehouse Area, Scrap Metal Area and Electrical Substation, and the K-65 Slurry Line and Clearwell Line.

Status:

Based on conditional approval from the U.S. EPA and Ohio EPA, field investigations for the above-mentioned areas began early in 1993 and were completed in September. Responses to the agencies' additional comments were transmitted in July. In order to reduce costs and save time, a supplement to the work plan is being prepared to document resolution of the comments and incorporate changes rather than issuing a revised work plan. This supplement will be transmitted to the EPAs in November.

Issues/Corrective Actions:

None to report.

-4923

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

5.1.2 Additional Operable Unit 5 Field Investigation Tasks

Scope:

The following seven site characterization programs make up this task:

- FEMP Trap Shooting Range Investigation
- Great Miami Riverbank Investigation
- Pilot Plant Drainage Ditch Seepage and Surface Water Background Investigation
- Surface and Subsurface Soil Sampling
- Additional Monitoring Well Installation and Well Abandonment
- Snapshot Monitoring Well Sampling and Surface Water/Sediment Sampling
- FEMP Glacial Overburden/Vadose Zone Hydraulic Investigation

Status:

Resolution to comments on the draft Project Specific Plans (PSPs) for these programs was the subject of an August 26 meeting with the U.S. and Ohio EPAs. In October, U.S. EPA approved all seven PSPs while Ohio EPA approved with additional comments. In order to reduce costs and save time, a supplement to each PSP is being prepared to document resolution of the comments and incorporate changes rather than issuing revised PSPs.

The field work which involved sampling for the Operable Unit 5 RI Report was completed in September for six of the seven PSPs as well as a few remaining tasks on older sampling plans. The only uncompleted field work was a pump test at Well 1785 near Plant 2/3. That pump test was delayed because the water treatment facility in Plant 8, required to treat water from the test well, was not in operation. The pump test was conducted in the last week of October. The test indicated lower than expected permeability in the geologic materials penetrated by the well and the data are being evaluated to see if redeveloping the well would improve conditions enough to repeat the test.

-4928

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

5.1.2 Additional Operable Unit 5 Field Investigation Tasks (continued)

The final field effort concerned 18 monitoring wells that have been found to be defective or have been damaged and can no longer serve their original function. The following table lists the wells to be abandoned (using a drilling subcontractor), their general location and the date the well was plugged; this program was completed in October. In addition, the Groundwater Monitoring staff are developing the plans for removing Well 2561 (using FERMCO Construction Services personnel and equipment); removal is tentatively scheduled for mid-November.

0042

4928

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

Plugging and Abandonment Record

Well Number		Date Complete
3084	Waste Storage Area	10/1
1004	Waste Storage Area	10/11
1030	Waste Storage Area	9/15
1037	Waste Storage Area	10/7
1072	Waste Storage Area	10/15
1174	Heavy Equipment Building	9/17
1277	North of D&D	10/4
1281	North of D&D	10/4
1291	North of D&D	10/4
1338	West of Plant 1	10/5
1350	West of Tank Farm	10/7
1509	Fire Training Area	10/4
1514	Fire Training Area	10/4
1154	West of Plant 7	10/1
1181	North of Plant 2/3	10/11
1209	South of Plant 2/3	10/12
2018	South of K-65 Silo Area	10/26
3018	South of K-65 Silo Area	10/21

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

5.1.2 Additional Operable Unit 5 Field Investigation Tasks (continued)

Issues/Corrective Actions:

None to report.

5.1.3 Abandonment and Plugging of KC-2 Warehouse Well No. 67

Scope/Status:

During July 1993, attempts were made to remove a sediment-like material present in Well No. 67 of the KC-2 Warehouse. Because of the lack of progress during the sediment removal from the well, the project was halted. A fact sheet containing the analytical results of sediment and groundwater samples and a request to discontinue abandonment activities were prepared and submitted to the U.S. and Ohio EPAs in October. The fact sheet recommended that the well casing remain open until final closure of the KC-2 Warehouse so that groundwater samples could be collected on a semiannual basis for total uranium and HSL metals analyses. The fact sheet also stated that once the KC-2 Warehouse was decommissioned, further attempts would be made with larger equipment to remove the well casing from the ground. The Ohio EPA responded to the request and agreed with the findings and recommendations of FERMCO.

Issues/Corrective Actions:

None to report.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

5.2 Treatability Study

Scope:

The Treatability Study provides information to support the Feasibility Study and subsequent remedy selection for Operable Unit 5. Specifically, the study will demonstrate the feasibility of soil washing as a remedial technology for cleaning soil. The study consists of two phases: I) remedy screening Stages 1 and 2, involving laboratory and bench-scale tests; and II) remedy selection using pilot-scale equipment. The study incorporates a physical separation/chemical extraction process that has the ability to separate a soil into different particle-size fractions. The process uses reagent formulas in the washing solutions to extract contaminants from the soil. The contaminants may be separated from the wash stream into a concentrated residue for further treatment.

Status:

Initial bench-scale studies were done on three soils from the following areas: incinerator area (ID-A), Plant 1 Pad Area (ID-B) and maintenance building area (OU5-A). Results from these bench-scale studies were used to provide the initial operating conditions for start-up of the remedy selection soil washing pilot plant. Initial operating conditions included physical separation processes followed by chemical extraction with a dilute inorganic acid at an elevated temperature. The test system is designed to include spent extractant treatment.

After installing the equipment and training operations personnel, the soil washing pilot plant began processing radiologically contaminated soil, completing the ID-A and ID-B soils by early August. Results from the initial sample analysis, performed in the FERMCO on-site laboratory, were summarized and the mass balance calculated. FERMCO is evaluating the data to satisfy the requirement in the Operable Unit 5 Soil Washing Treatability Work Plan for completion of Stage 1 and Stage 2 work.

The soil treatability laboratory is being established at Fernald to support pilot plant testing and further bench testing for additional constituents of concern in support of all of FERMCO's CRU RI/FS studies. Government-owned laboratory and testing equipment from IT Corporation's ETDC facility in Oak Ridge was shipped to Fernald and is installed in the on-site laboratory.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

5.2 Treatability Study (continued)

The FEMP began design and programming of a database to accommodate Operable Unit 5 remedy screening and remedy selection data. The database is being designed to also accommodate soil washing treatability test data from Oak Ridge National Laboratory. This test program has been conducted in parallel to the Operable Unit 5 study under the umbrella of the DOE Uranium in Soils Integrated Demonstration program.

Phase II of the pilot plant testing program will begin in early December 1993, and will examine other chemical reagents and operational parameters in a batch mode. The Phase II testing activities are being funded primarily by the DOE Office of Technology and Development through the Uranium in Soils Integrated Demonstration program and is being coordinated by FERMCO soil treatability and remedial design organizations.

A Technical Information Exchange meeting was held with the U.S. EPA and Ohio EPA on September 22, 1993 to discuss the above program and the overall FEMP treatment of soils.

Issues/Corrective Actions:

None to report.

5.3 Remedial Investigation

Scope:

The remedial investigation (RI) is the mechanism for collecting data to characterize site conditions, determine the nature of the site's wastes, determine the nature and extent of contamination and assess baseline risk to human health and the environment.

10/31/93
-4923

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

5.3 Remedial Investigation (continued)

Status:

RI data compilation and evaluation continues. All data sources to be included are being identified and evaluated. Chemical and radiological data collected as part of both the RI/FS and other site sampling programs are being posted on maps and evaluated. The FEMP is compiling, evaluating and updating the geologic and hydrogeologic information contained in RI/FS site files and documents. Existing maps and cross sections are being updated where additional information has become available. New maps and cross sections of the glacial overburden have been and continue to be generated.

Validation of the majority of the backlog samples was completed in June. Remaining validation, quality control and formatting of the validated database are continuing. Additional validated data is being added to the database as validation is completed on supplemental data from non-RI/FS programs, new programs and laboratory data that has been received since the beginning of 1993.

Downloading of data from the Site-wide Environmental Database to Operable Unit 5 staff began for the high priority tasks of: surface soil, subsurface soil, surface water/sediment, groundwater and facilities testing. Work began on splitting up the high priority data download into a format suitable to support Sections 4, 5, and 6 of the RI report.

Issues/Corrective Actions:

Due to continuing problems with the downloads, CRU5 has initiated a comprehensive review of all the data to ensure that all information in the Site-Wide Environmental Database is usable for the RI.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

5.4 Planned Activities for November 1993

- Resolve all U.S. EPA, Ohio EPA and internal comments related to the field programs completed in September.
- Complete the site strategy on determining attenuation/release characteristics for uranium. Present this strategy to the EPAs.
- Continue work on RI report, Sections 1, 2 and 3. Continue compiling and evaluating historic data in support of the RI report.
- Continue validation of the laboratory data from the present field programs and from supplemental non-RI/FS programs.
- Verify that the data in the Site-wide Environmental Database is correct and consistently coded so data retrievals are consistent and complete.
- Continue to divide the validated database by media to support work on Sections 4, 5 and 6 of the RI report.
- Continue work on Sections 4, 5 and 6 of the RI report.
- Resolve Ohio EPA comments on the following reports that were submitted to the Agencies in May: "Characterization of Background Water Quality for Streams and Groundwater" and "Groundwater Modeling Evaluation Report and Improvement Plan."
- Complete supplements to work plans to document the resolution of the agencies' comments and incorporate changes to the original work plans rather than revising them.

5.4 Planned Activities for November 1993 (continued)

- A TIE meeting is scheduled for November 2 with U.S. EPA and Ohio EPA to continue discussion from the October 5 TIE on groundwater fate and transport model improvements. These technical discussions are designed to involve the U.S. and Ohio EPA technical staffs in the model improvement activities. Task Objectives/Technical Approach summaries detailing current improvement tasks are provided to the EPAs in these meetings.

-4923

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

6.0 On-Site Disposal Cell

The Engineered Waste Management Facility (EWMF) scope has been modified to evaluate the On-Site Disposal Cell (OSDC) alternatives along with the complete evaluation of off-site alternatives. All further reference to the EWMF will be entitled OSDC.

The technical approach for the evaluation will be based on a information previously developed for the EWMF. This information is being expanded to include the development of engineering assessment to evaluate the On-Site Disposal/Storage, Off-Site Disposal, and Transportation Risk Assessment for Off-Site Disposal. The information generated by these technical reports and the reports that will be generated from the information gathered for the EWMF Siting Report will serve as a basis for evaluating the disposal options and alternatives.

6.1 EWMF General Siting Report

Scope:

The EWMF Siting Report was scoped to evaluate the feasibility of locating an EWMF facility at the FEMP. The intent was to deliver all of the information necessary to meet the requirements in a singular document. In order to expedite the delivery of the technical information, the report has been subdivided into six stand-alone technical reports. The technical reports will be identified as follows with the appropriate scope:

- **Geotechnical Engineering Analysis for an On-Site Disposal Cell** - This report will contain the engineering analysis prepared for the EWMF structure. This will include an analysis of the barrier and cap design, drainage system, erosion analysis, slope stability analysis and an estimated cost of construction for an on-site tumulus. The report will be entitled, "Technical Report 5.1A, Engineering Evaluation Report for On-Site Disposal".
- **Site Characterization Report** - This report will include the investigation and evaluation of the site geology, radiation measurements, well installation diagrams, boring logs, and analytical data. This report will be entitled "Technical Report 5.1B, Site Characterization/Geological Report for On-Site Disposal".
- **Material Source Survey** - This report will discuss the availability and cost of materials in the local area required to construct the OSDC. This report will be entitled "Technical Report 5.1C, Material Source Survey for On-Site Disposal".

-4923

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

6.1 EWMF General Siting Report (continued)

- **ARARs Report** - This report will identify and discuss the ARARs that will be applicable to the construction of an OSDC. This report will be entitled "Technical Report 5.4, ARARs for On-Site Disposal Cell Concept".
- **Survey of Local Geology in the Alternate Siting Areas** - This report will cover the investigation of two alternative sites for the OSDC adjacent or near the FEMP situated on bedrock highs. The two sites to be evaluated are the Girl Scout Camp and another located west of the FEMP. The report will be entitled, "Technical Report 5.3A, Geological Report for Off-Site Disposal".
- **Ecological Characterization** - This report will discuss the ecological characterization of the two off-site locations. The two sites to be evaluated are the Girl Scout Camp and another located west of the FEMP. The report will be entitled, "Technical Report 5.3B, Ecological Characterization of the Off-Property Disposal Cell Study Area".

Status:

All six technical reports have been completed. These reports will be incorporated into the appropriate FS reports as needed. The risk-based evaluation of an on-site disposal cell containing treated wastes has been delayed pending further review of the legality of on-site disposal.

Issues/Corrective Actions:

None to report.

6.2 Planned Activities for November 1993

- Coordinate disposal planning activities with other operable units.

50

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

7.0 Community Relations

Status:

On October 4, approximately 600 Fernald stakeholders attended a public meeting on the work force and restructuring plan, conducted by DOE-Headquarters. The majority of those attending the meeting were FEMP employees from the Fernald Atomic Trades and Labor Council and the Greater Cincinnati Building and Construction Trades Council. Robert DeGrasse, Special Assistant to the Secretary of Energy and Chairman of the Task Force on Community and Worker Transition, made brief comments and opened the meeting at 7:00 p.m. About 40 employees and community residents provided comments.

On October 21, 1993, approximately 200 people attended a DOE Community Meeting to discuss cleanup issues at Fernald. A new format was introduced allowing everyone to choose two of three different break-out sessions to attend for 30 minutes each. The topics of the sessions were: (1) Waste Disposition, (2) Future Use of Land at Fernald, and (3) Public Participation. When the groups reconvened, statements were made by representatives from U.S. EPA, OEPA, and FRESH. This was followed by a Question and Answer session. Results taken from the evaluation forms and a telephone survey showed overwhelming approval of the meeting and the new format. DOE will send all the information recorded from the break-out sessions to everyone who registered. This will be followed in a few weeks with a letter answering specific questions that were raised.

In Cincinnati, from October 5 through October 8, DOE conducted a workshop for local government officials. Fernald DOE personnel gave presentations on transportation issues and public communication programs. Participants representing fire departments, CSX Railroad, government contractors and emergency response teams conducted a role-playing exercise for hazardous materials emergencies and voiced concerns to DOE personnel. The workshop included a tour of the Fernald site, with emphasis on areas devoted to the packaging and shipping of waste.

The *Fernald Project Cleanup Report* was mailed to the DOE Fernald site mailing list the week of October 11.

929

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

7.0 Community Relations (continued)

The draft Remedial Investigation Report for Operable Unit 1 was submitted to U.S. EPA on October 4. The Amended Consent Agreement milestone date was October 12, 1993.

Members of the Fernald Citizens Task Force held their first actual meeting on October 14; about 25 members of the public, DOE and FERMC0 attended. The Task Force approved its charter and procedural ground rules and discussed how members would go about addressing its mission. Task Force members determined that they needed outside staff to support them in their deliberations. The next Task Force meeting is scheduled for November 18. The presentations scheduled for that meeting include land use planning and radioactive and hazardous waste disposal cell technology.

On October 14, a community roundtable was held to discuss "Proposed Plans and Technology for Operable Unit 4 Remediation." Approximately 11 people from the community attended the meeting. The roundtable included the following topics: the history of the Operable Unit 4 Silos; status of the remedial investigation; Decant Sump Tank and underdrain system; perched groundwater; Operable Unit 4 feasibility study and proposed plan; public participation; Vitrification Pilot Plant; status of Silos 1 and 2, (K-65) Removal Action, plans for camera installation inside the silos and current radon levels.

The Community Environmental Education Course initiated last year at DOE-FN has a new title -- Science, Technology, the Environment, and the Public (STEP). Public meetings were held on October 5 and October 19 at the Plantation in Harrison, Ohio. The sessions provided an opportunity for participants to learn about Fernald and the environmental issues being addressed.

DOE-FN representatives attended the monthly FRESH meeting on October 28, 1993. Thirty members of the community attended the meeting. Invited to the meeting was Bridgette Mariea, Director of Environmental Research, Ohio Environmental Council (OEC), who gave a presentation on the Midwest Low-Level Radioactive Waste Disposal Compact. DOE distributed a written report on updates at Fernald that included:

- Phase II non-destructive test work on the silos
- Restart of MAWS operations
- Status of the South Plume pumping

Issues/Corrective Action:

None.

0052

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES

7.0 Community Relations (continued)

Planned Activities for November 1993:

- The STEP program will conduct meetings for the public on November 2 and 16. All meetings will be held at the Plantation in Harrison, Ohio.
- On November 15, DOE will preview the "Technology Demonstration Day" at the site for Thomas Grumbly, Assistant Secretary for Environmental Restoration and Waste Management who will be visiting. On November 30, a full-scale technology day is planned for the media, invited guests, and other stakeholders.
- The Fernald Citizen's Task Force will hold its monthly meeting on November 18 from 4 - 6 p.m. at the Meadowbrook in Ross, Ohio.
- A workshop to discuss "groundwater" at the Fernald site will be held, November 23, beginning at 7:00 p.m. at the ERA ALPHA Building.
- The monthly FRESH meeting is scheduled for November 18.

-4923

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

PERIOD ENDING OCTOBER 31, 1993

ENCLOSURE A

**WASTEWATER FLOWS AND RADIONUCLIDE
CONCENTRATIONS UNDER CA SECTION XXIII.B**

0054

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

Introduction

The accompanying Effluent Radiation Reports provide, in accordance with the requirements of Section XXIII.B of the Consent Agreement As Amended under CERCLA Sections 120 and 106 (a), data on the daily wastewater flows, radionuclide concentrations, and loadings released to the Great Miami River and an estimate of runoff and radionuclide concentrations to Paddy's Run during October 1993.

Summary - October 1993

The total quantity of uranium discharged from the FEMP to the Great Miami River via Manhole 175 (Outfall 11000004001) was 18.06 kilograms. The average uranium concentration for the previous 12 months was 0.57 mg/L. This is 64.0% of the Derived Concentration Guide (DOE Order 5400.5) for ingested water.

There was no discharge from the Stormwater Retention Basin (Outfall 11000004002) to Paddy's Run via the Storm Sewer Outfall Ditch in October 1993. Based on 2.98 inches of rainfall in October 1993, the total quantity of uranium discharged to Paddy's Run from uncontrolled areas of the FEMP is estimated to be 8.46 kilograms.

1029

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

Wastewater Flows and Radionuclide Concentrations

Facility: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398705
Cincinnati, Ohio 45239-8705

Location: 11000004001

Month: October 1993

001 Total Discharge
Manhole 175 (Effluent to the Great Miami River)*

Day	Flow (MGD)	Total Alpha (pCi/L)	Total Beta (pCi/L)	Total U (mg/L)	Total U (kgs)	Calculated Total U-238 (pCi/L) (1)
1	0.143	#	#	0.02	0.01	7
2	0.052	#	#	0.01	0.00	3
3	0.058	#	#	0.02	0.00	7
4	0.156	#	#	0.02	0.01	7
5	0.148	#	#	0.02	0.01	7
6	0.221	#	#	0.05	0.04	17
7	0.241	#	#	0.02	0.02	7
8	0.231	#	#	0.03	0.03	10
9	0.287	#	#	0.04	0.04	14
10	0.192	#	#	0.05	0.04	17
11	0.269	#	#	0.03	0.03	10
12	0.246	#	#	0.02	0.02	7
13	0.288	#	#	0.01	0.01	3
14	0.340	#	#	0.02	0.03	7
15	0.522	#	#	0.01	0.02	3
16	0.497	#	#	0.01	0.02	3
17	0.632	#	#	0.15	0.36	51
18	0.421	#	#	0.15	0.24	51
19	0.721	#	#	0.37	1.01	125
20	1.403	#	#	0.40	2.12	135
21	1.565	#	#	0.40	2.37	135
22	0.557	#	#	0.34	0.72	115
23	0.528	#	#	0.26	0.52	88
24	1.377	#	#	0.31	1.61	105
25	1.361	#	#	0.36	1.85	122
26	1.290	#	#	0.44	2.15	149
27	1.324	#	#	0.43	2.15	145
28	1.223	#	#	0.41	1.90	139
29	0.276	#	#	0.26	0.27	88
30	0.255	#	#	0.38	0.37	128
31	<u>0.163</u>	#	#	0.15	<u>0.09</u>	51
TOTAL	16.987				18.06	

* Discharges from South Plume removal action not included.

Analytical results not yet available.

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR CONTROL AND ABATEMENT OF RADON -222 EMISSIONS MONTHLY PROGRESS REPORT

Period Ending October 31, 1993

Wastewater Flows and Radionuclide Concentrations

Facility: Fernald Environmental Management Project

Location: 001 Total Discharge

Month: October 1993

	Flow (MGD)	Total Alpha (pCi/L)(2)	Total Beta (pCi/L)(2)	Total U (mg/L)(2)	Total U (kgs)	Calculated Total U-238 (pCi/L)(1)(2)
Avg.	0.548	#	#	0.28	0.58	95
Max.	1.565	#	#	0.44	2.37	149
Min.	0.052	#	#	0.01	0.00	3

The average uranium concentration for the previous twelve months was 0.57 mg/L. This is 64.0% of the Derived Concentration Guide (DOE Order 5400.5) for ingested water.

- Comments: (1) The activity of this discharge has been and will continue to be reported as Uranium-238 (pCi/l) in accordance with the Ohio EPA format for reporting uranium. Since this does not account for the activity of the other uranium isotopes in the effluent, the total uranium data is also presented. The calculated total U-238 is based on a conversion factor of 337.84 pCi U-238/mg Total U applied to the measured value of total uranium.
- (2) Average values presented are flow-weighted.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

Wastewater Flows and Radionuclide Concentrations

Facility: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398705
Cincinnati, Ohio 45239-8705

Location: 11000004002
002 Discharge (Overflow) to Storm Sewer Outfall Ditch
Stormwater Retention Basin Spillway (Effluent to Paddy's Run)

Month: October 1993

There was no discharge to Paddy's Run from the Stormwater Retention Basin.

Based on 2.98 inches of rainfall for the month, the uranium discharge to Paddy's Run from uncontrolled areas of the FEMP is estimated to be 8.46 kgs.

4928

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY COMPLIANCE
AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

PERIOD ENDING OCTOBER 31, 1993

ENCLOSURE B

FFCA: INITIAL REMEDIAL MEASURES

AND OTHER OPEN ACTIONS

0059

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

INTRODUCTION

Enclosure B describes actions undertaken at the FEMP during the period October 1 through October 31, 1993, that are not covered by the reporting requirements of the Consent Agreement As Amended under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Sections 120 and 106(a).

WORK ASSIGNMENTS AND PROGRESS

Descriptions of ongoing work progress are presented in the following sections of this report. The status of ongoing work in support of the Federal Facility Compliance Agreement (FFCA) is summarized in Table 1 of Enclosure B. Completed work previously reported upon has been eliminated for the sake of brevity. In this portion of the report and in Table 1, descriptions of actions are presented in a format consistent with that of the FFCA.

**COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND
LIABILITY ACT (CERCLA)**

1. Initial Remedial Measures

Section C

K-65 Silo Project - Status information on the K-65 Silo project normally reported in this section is being provided under Operable Unit 4: Silos 1-4.

2. Remedial Investigation/Feasibility Study (RI/FS)

Status information on the Remedial Investigation/Feasibility Study (RI/FS) normally reported in this section is being provided separately in accordance with the requirements of Section X of the Consent Agreement As Amended under CERCLA Sections 120 and 106(a).

0060

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR CONTROL AND ABATEMENT OF RADON-222 EMISSIONS MONTHLY PROGRESS REPORT

Period Ending October 31, 1993

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA)

3. Reports and Record Keeping

Section B

The RI/FS Monthly Technical Progress Report for September 1993 was transmitted to the U.S. EPA on October 20, 1993, as an integral part of the Consolidated Consent Agreement/Federal Facility Compliance Agreement/Federal Facility Agreement for Control and Abatement of Radon-222 Emissions (CA/FFCA/FFA-CARE) Monthly Progress Report in accordance with the requirements of Section X of the Consent Agreement As Amended.

CLEAN AIR ACT (CAA)

Section E

The Quarterly Particulate Emissions Report will now be incorporated into the Annual NESHAP Compliance Report.

RADIATION DISCHARGE INFORMATION

Section A

This information will now be submitted on an annual basis as part of the FEMP Annual Site Environmental Report.

REPORTING REQUIREMENTS

Section B

The Federal Facility Compliance Agreement Monthly Progress Report for September 1993, was transmitted to the U.S. EPA on October 20, 1993, as Enclosure B of the Consolidated Consent Agreement/Federal Facility Compliance Agreement/Federal Facility Agreement for Control and Abatement of Radon-222 Emissions (CA/FFCA/FFA-CARE) Monthly Progress Report.

TABLE 1

**STATUS OF ASSIGNMENTS FOR WORK REQUIRED ON
FEDERAL FACILITY COMPLIANCE AGREEMENT ACTIONS**

OCTOBER 31, 1993

<u>ACTION</u>	<u>DESCRIPTION</u>	<u>COMPLETION TIME AFTER FFCA SIGNED</u>	<u>FY1992 STATUS</u>
CERCLA			
1.	INITIAL REMEDIAL MEASURES		
1.C	Implement radon control plan approved by the U.S. EPA.	----	No longer applicable. Progress on actions to address radon emissions from the K-65 Silos are being reported separately under Section IX-Removal Actions of the Consent Agreement/FFCA Monthly Progress Report.
2.	REMEDIAL INVESTIGATION/FEASIBILITY STUDY		No action required.
2.A	RI/FS work is to be conducted in accordance with the U.S. EPA guidelines.	N/A	
2.B	--No Action Required--	----	Status information on the RI/FS is being reported in accordance with the requirements of Section X of the Consent Agreement As Amended under CERCLA Sections 120 and 106(a).
2.E	Amend and submit revised RI/FS Work Plan to U.S. EPA if deficiencies are found.		Status information on the RI/FS is being reported in accordance with the requirements of Section X of the Consent Agreement As Amended under CERCLA Sections 120 and 106(a).
2.F	Implement tasks described in the approved RI/FS Work Plan		Status information on the RI/FS is being reported in accordance with the requirements of Section X of the Consent Agreement As Amended under CERCLA sections 120 and 106(a).
3.	REPORTS AND RECORD KEEPING		
3.B	Submit monthly RI/FS progress reports.	monthly	The RI/FS Monthly Progress Report for September 1993 was transmitted to the U.S. EPA on October 20, 1993.
CLEAN AIR ACT			
B.4	Prepare annual progress report installation and replacement of emission control devices.	yearly	The Fifth Annual Progress Report on the installation and replacement of emission control devices was transmitted to the U.S. EPA on March 9, 1993 (DOE-1305-93).

TABLE 1

STATUS OF ASSIGNMENTS FOR WORK REQUIRED ON FEDERAL FACILITY COMPLIANCE AGREEMENT ACTIONS

OCTOBER 31, 1993

C.	Provide annual reports to the U.S. EPA per 40 CFR 61.94(c).	yearly	The Annual NESHAP Compliance Report for CY1992 was transmitted to the U.S. EPA on June 28, 1993 (DOE-2281-93).
D.1	Provide U.S. EPA with yearly stack-testing schedule.	yearly	The 1989 stack testing schedule was transmitted to the U.S. EPA on June 16, 1989. A letter (DOE-1615-89) was transmitted to the U.S. EPA on September 15, 1989, indicating that, due to the uncertainty concerning resumption of production at the FEMP, the 1989 FFCA Stack Testing Program was being deferred. In August 1991, the DOE confirmed that no further production would take place at the facility, and renamed the facility the FEMP. Stacks in areas such as the Laboratory are currently being identified for potential testing during FY1993.
D.2	Provide U.S. EPA with stack-test results for stacks tested that year.	45 days	Because the FEMP has been out of production since mid-1989, there was no opportunity to perform stack testing. The DOE, in August 1991, confirmed that no future production will take place at the FEMP. Stacks in areas such as the Laboratory are currently being identified for potential testing during FY1993.
E.1	Maintain records of monthly particulate matter emissions.	-----	Ongoing.
E.2	Provide quarterly reports to U.S. EPA on these emissions.	-----	The Quarterly Particulate Emissions Report will now be incorporated into the Annual NESHAP Compliance Report.
RCRA			
A.1	Conduct a hazardous waste determination on all waste streams.	30 days	Complete. Pursuant to the Proposed Amended Consent Decree, a RCRA waste evaluation was conducted on all identified waste streams pertaining to the PACD.
A.2	Commence a hazardous waste analysis program for materials in the landfill and going to the incinerator.	30 days	Complete. Operation of these units was discontinued and data on the waste which had gone to them was provided in a 30-day FFCA deliverable on August 17, 1986.
A.5	Update the facility closure plan to reflect the year the facility expects to begin closure.	30 days	The Facility closure date is dependent upon closure schedules for individual TSD units as presented most recently in Section I of the RCRA Part B Permit Application transmitted to the Ohio EPA and the U.S. EPA on March 26, 1993 (DOE-1471-93). Facility closure will be completed on a date the last TSD unit is closed.

63

TABLE 1

928

STATUS OF ASSIGNMENTS FOR WORK REQUIRED ON
FEDERAL FACILITY COMPLIANCE AGREEMENT ACTIONS

OCTOBER 31, 1993

RADIATION DISCHARGE INFORMATION

A.3	Report to U.S. EPA, Ohio EPA and Ohio Department of Health the results of the continuous liquid discharge samples.	yearly	The twenty-first Quarterly Discharge Report for the period October through December 1991 was transmitted to the U.S. EPA on February 20, 1992 (DOE-941-92). This information will now be reported on an annual basis.
-----	--	--------	---

REPORTING REQUIREMENTS

B.	Issue monthly progress report of actions taken to ensure compliance with FFCA requirements.	monthly	September's FFCA Monthly Progress Report was transmitted to the U.S. EPA on October 20, 1993.
----	---	---------	---

0064

~~54923~~

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

PERIOD ENDING OCTOBER 31, 1993

ENCLOSURE C

**FEDERAL FACILITY AGREEMENT:
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS**

0065

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR CONTROL AND ABATEMENT OF RADON-222 EMISSIONS MONTHLY PROGRESS REPORT

Period Ending October 31, 1993

Introduction

The Federal Facility Agreement for Control and Abatement of Radon-222 Emissions (FFA-CARE) between the U.S. Department of Energy (DOE) and the U.S. Environmental Protection Agency (U.S. EPA), signed November 19, 1991, requires that a monthly report be submitted to the U.S. EPA regarding all steps undertaken in the preceding month to implement Part V of the agreement and that all data generated as a result of those actions be submitted.

Enclosure C fulfills those requirements by describing steps taken at the FEMP during the period October 1, through October 31, 1993, to implement Part V, Radon-222 Control and Abatement Plan, paragraphs 19-33 of the FFA-CARE.

After four months of data collection for the applicable parameters, preparation is now underway to evaluate the data for use in the Transport Release Models.

Work Assignments and Progress

In this section of Enclosure C, action descriptions and work progress are presented in a format consistent with that of the FFA-CARE. Immediately following this section are the K-65 Silos Report and the Selected Radon Data Report. Reporting this data is also a requirement included in the U.S. EPA approved Silos 1 and 2 Removal Action Work Plan (Removal Action No. 4).

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

4923

Period Ending October 31, 1993

<u>FFA Part, Paragraph(s)</u>	<u>Description of Commitment</u>	<u>FFA Due Date</u>	<u>Status of Commitment</u>
Part V, 19 & 21	Implement the K-65 Silos 1 and 2 Removal Action in accordance with the approved Silos 1 and 2 Removal Action Work Plan.	12/1/91	Completed. Installation of the bentonite completed 11/28/91.
Part V, 20	Reduce radon-222 to a level As-Low-As Reasonably-Achievable (ALARA) with the goal as specified in the Silos 1 and 2 Removal Action Work Plan.	5/22/92	Completed. Concentrations offsite remain well below performance goal of removal action.
Part V, 22	Submit proposed methodology for estimating radon-222 concentration reductions resulting from completion of the Silos 1 and 2 Removal Action.	Within 60 days of completing removal action; 1/27/92.	The Bentonite Effectiveness Environmental Monitoring Plan was resubmitted to the U.S. EPA for comment and approval on 3/13/92. EPA approval was received on 4/24/92. DOE has prepared a revision to the methodology. Comment responses to the U.S. EPA's disapproval of the revised methodology is under way. Applicable information contained in this revised methodology will be included in the final report, which is now being prepared.

0067

<u>FFA Part, Paragraph(s)</u>	<u>Description of Commitment</u>	<u>FFA Due Date</u>	<u>Status of Commitment</u>
Part V, 23	Evaluate performance of the removal action and determine whether or not additional actions are needed prior to final remediation.	None specified.	Methodology for estimating radon-222 concentration reduction submitted to U.S. EPA per paragraph 20 of Part V. The first Bentonite Effectiveness Environmental Monitoring Report was issued to the U.S. EPA on 5/22/92. DOE submitted a revision to the methodology to the U.S. EPA on 12/17/92. Comment responses to the U.S. EPA's disapproval of the revised methodology is under way. Applicable information contained in this revised methodology will be included in the final report, which is now being prepared.
Part V, 24, 25, and 33	Demonstrate compliance with NESHAP Subpart Q at the completion of final remediation using a methodology approved by the U.S. EPA. Applicable to: Silos 1, 2, and 3; Waste Pits 1, 2, 3, 4, and 5 and the Clearwell; and any newly discovered radon-222 emission sources.	None specified.	No information to report for October 1993.
Part V, 26	Directly measure radon-222 flux from Waste Pits 1, 2, 3, 4, and 5 and the Clearwell in the RI/FS under the CERCLA Consent Agreement.	None specified.	Radon sampling is complete for Pits 1, 2, and 3. All measurements were below the criteria set by the U.S. EPA. A final report was issued to the U.S. EPA on 6/25/92. A letter was received from the U.S. EPA on 10/16/92 giving approval of the proposed method for measuring the radon flux from Pit 4. The letter also stated that since the Clearwell is water covered, and Pit 5 is nearly 100% water covered, the flux from Pit 5 and the Clearwell may be assumed to be zero.
Part V, 26	Include direct measurement data from Waste Pits 1, 2, 3, 4, and 5 and the Clearwell in the RI/FS under the CERCLA Consent Agreement.	None specified.	See above.

4923

<u>FFA Part, Paragraph(s)</u>	<u>Description of Commitment</u>	<u>FFA Due Date</u>	<u>Status of Commitment</u>
Part V, 27	Estimate radon-222 emissions from Silo 3 based upon characterization data; include the estimated radon-222 emission data from Silo 3 in the RI/FS that includes Silo 3 under the CERCLA Consent Agreement.	None specified.	Completed. An estimate of radon flux from the K-65 Silo 3 was submitted to the U.S. EPA on 12/17/91. Radon flux for the silo was estimated to be above 20 pCi/m ² -s.
Part V, 28	Submit documentation or estimates of current radon-222 emissions from existing but newly discovered sources that contain radium-226 in sufficient concentrations to emit radon-222 in excess of NESHAP Subpart Q prior to final remediation.	Within 30 days of discovery.	No new sources identified.
Part V, 30	Submit methodology for direct measurement or other appropriate means of characterization of the relevant emissions pursuant to paragraph 29 of the FFA.	Within 45 days of the U.S. EPA response pursuant to paragraph 29.	None required.
Part V, 31	Submit results of measurements pursuant to paragraph 30.	Within 30 days of U.S. EPA approval of characterization method.	None required.
Part VI, 31	Submit monthly report on steps undertaken to implement Part V of the FFA-CARE and the data obtained in the preceding month.	20th day of succeeding month.	The progress report being submitted herewith as an integral part of the CERCLA Consent Agreement Monthly Progress Report.

1029

0069

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

Data Reporting Requirements: RA No. 4: Silos 1 and 2

As defined in the Silos 1 and 2 Removal Action Work Plan and the Federal Facility Agreement, data associated with monitoring the effectiveness of the bentonite installation are included in the following tables: the K-65 Silos Report and the Selected Radon Data Report.

The K-65 Silos Report includes data on the following parameters:

- Ambient temperature and pressure near the silos.
- Silos 1 and 2 headspace temperature.
- Silos 1 and 2 differential pressure.
- Silos 1 and 2 radon headspace concentration.
- Silos 1 and 2 headspace humidity

The Selected Radon Data Report includes radon data from the following locations:

- Air monitoring station number 5 (AMS-5)
- Air monitoring station number 6 (AMS-6)
- Pilot Plant
- Background data
- K-65 Monitoring Data (K-65 NW, K-65 SW, K-65 NE, K-65 SE).

The radon data submitted in Enclosure C: Radon Data for the K-65 Removal Action and in all previous consent agreement status updates is considered to be draft. The radon data, although collected by qualified technicians using detailed procedures, was not obtained in a manner which would withstand a rigorous validation process. The various field and laboratory procedures are currently being reviewed and modified to be in accordance with the conditionally approved Site-Wide CERCLA Quality Assurance Project Plan (SCQ). Once the sampling and analysis procedures have been modified and approved, along with specific validation protocols, suspect radon data will either be qualified or rejected.

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY COMPLIANCE AGREEMENT/
FEDERAL FACILITY AGREEMENT MONTHLY PROGRESS REPORT

FACILITY: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398704
Cincinnati, Ohio 45239 Hamilton

K-65 SILO REPORT

LOCATION: Silo # 1

DATE: October 1993

Day	Ambient		Temperature Head Space °F	Inter. Hum. %	Diff. Press In. HG	Head Space Radon (pCi/l)
	Temp °F	Press In. Hg.				
1	59.5	29.39	60.3	*	-0.003	274558
2	53.7	29.47	60.8	*	0.001	172097
3	47.7	29.56	60.1	*	-0.005	188567
4	58.4	29.38	59.8	*	-0.003	165025
5	53.2	29.64	60.0	*	-0.004	102057
6	54.3	29.70	59.7	*	-0.003	320501
7	60.4	29.60	59.9	*	-0.002	362163
8	59.9	29.40	60.1	*	-0.002	475609
** 9	51.6	29.26	60.3	*	-0.010	328731
** 10	40.6	29.58	59.2	*	0.024	132810
11	41.3	29.48	58.2	*	-0.006	296463
12	47.8	29.36	57.9	*	-0.005	147810
13	49.2	29.47	57.8	*	-0.005	148185
14	49.7	29.55	57.7	*	-0.005	156956
15	53.9	29.56	57.6	*	-0.004	331738
16	59.1	29.36	58.1	*	-0.054	544912
17	60.9	29.19	58.5	*	-0.062	247411
18	55.2	29.45	58.6	*	-0.004	233112
** 19	55.6	29.46	58.5	*	-0.063	302564
** 20	61.9	29.39	58.6	*	-0.021	384353
** 21	50.7	29.55	58.7	*	0.028	50843
22	41.0	29.75	57.5	*	-0.007	121402
23	43.5	29.74	56.6	*	-0.005	268786
24	46.2	29.59	56.1	*	-0.005	290282
25	49.9	29.51	55.9	*	-0.005	346380
26	55.7	29.39	56.3	*	-0.004	233928
27	44.5	29.40	56.2	*	-0.006	80106
28	40.8	29.21	55.5	*	-0.007	202460
29	43.1	29.23	55.1	*	-0.007	106444
30	29.9	29.26	54.3	*	-0.009	148477
31	32.2	29.28	53.2	*	-0.009	79596
ARITHMETIC MEAN	50.0	29.46	58.0	*	-0.009	233688
MAXIMUM	61.9	29.75	60.8	*	0.028	544912
MINIMUM	29.9	29.19	53.2	*	-0.063	50843
MEDIAN	50.7	29.46	58.2	*	-0.005	233112

Note: * - Silo #1 Relative Humidity was inoperable, default value = 0.
** - Some Delta Pressure values were outside of range restrictions.

4928

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY COMPLIANCE AGREEMENT/
FEDERAL FACILITY AGREEMENT-MONTHLY PROGRESS REPORT

FACILITY: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398704
Cincinnati, Ohio 45239 Hamilton

K-65 SILO REPORT

LOCATION: Silo # 2

DATE: October 1993

Day	Ambient Temp °F	Press In. Hg.	Temperature Head Space °F	Inter. Hum. %	Diff. Press In. HG	Head Space Radon (pCi/l)
1	59.5	29.39	59.7	96.1	-0.010	1853985
2	53.7	29.47	60.0	96.0	0.007	2300520
3	47.7	29.56	59.5	96.1	-0.008	2170327
4	58.4	29.38	59.2	96.0	-0.009	2011782
5	53.2	29.64	59.4	96.0	-0.009	2139399
6	54.3	29.70	59.1	96.3	-0.009	2274831
7	60.4	29.60	59.3	96.1	-0.009	2379502
8	59.9	29.40	59.5	96.3	-0.009	2492487
** 9	51.6	29.26	59.6	96.9	0.010	2185956
10	40.6	29.58	58.6	97.0	0.050	2146798
11	41.3	29.48	57.7	97.0	-0.008	2304429
12	47.8	29.36	57.5	97.0	-0.008	2191111
13	49.2	29.47	57.4	97.0	-0.008	2335355
14	49.7	29.55	57.3	97.0	-0.008	2388980
15	53.9	29.56	57.2	97.0	-0.008	2456654
16	59.1	29.36	57.6	97.0	-0.043	2666828
17	60.9	29.19	57.9	97.0	-0.054	2473615
18	55.2	29.45	57.9	97.0	-0.009	2528236
19	55.6	29.46	57.9	97.0	-0.040	2584604
** 20	61.9	29.39	57.9	97.0	-0.034	2549686
21	50.7	29.55	58.1	97.0	0.038	1875850
22	41.0	29.75	57.0	97.0	-0.008	2440192
23	43.5	29.74	56.3	97.0	-0.008	2490242
24	46.2	29.59	55.9	97.0	-0.008	2563820
25	49.9	29.51	55.7	97.0	-0.008	2650034
26	55.7	29.39	55.9	96.9	-0.009	2691021
27	44.5	29.40	55.9	97.0	-0.008	2549270
28	40.8	29.21	55.2	96.8	-0.008	2275163
29	43.1	29.23	54.9	96.8	-0.008	2460395
30	29.9	29.26	54.2	97.0	-0.008	2446512
31	32.2	29.28	53.1	97.0	-0.008	2646210
ARITHMETIC MEAN	50.0	29.46	57.5	96.8	-0.008	2371735
MAXIMUM	61.9	29.75	60.0	97.0	0.050	2691021
MINIMUM	29.9	29.19	53.1	96.0	-0.054	1853985
MEDIAN	50.7	29.46	57.7	97.0	-0.008	2440192

Note: ** - Some Delta Pressure values were outside of range restrictions.

0073

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITIES COMPLIANCE AGREEMENT/
FEDERAL FACILITY AGREEMENT MONTHLY PROGRESS REPORT**

MONTH: **OCTOBER**
YEAR: **93**

FACILITY: **Fernald Environmental Management Report**
U.S. Department of Energy
7400 Willey Road, P.O. Box 398704
Cincinnati, Ohio 45239 Hamilton

SELECTED RADON DATA REPORT
(Monthly Summary of Selected Sampling Locations)

Daily Averages:	K-65, NW (pCi/L)	K-65, SW (pCi/L)	K-65, NE (pCi/L)	K-65, SE (pCi/L)
10/01/93	1.3	1.2	1.0	1.0
10/02/93	1.0	0.9	1.3	1.1
10/03/93	1.3	1.4	2.1	1.5
10/04/93	1.6	1.9	2.0	1.4
10/05/93	1.5	1.6	1.8	1.7
10/06/93	2.6	2.6	5.5	3.4
10/07/93	3.0	3.2	9.0	4.0
10/08/93	3.5	3.6	12.0	5.6
10/09/93	1.9	2.1	4.2	2.5
10/10/93	1.2	1.5	2.4	1.7
10/11/93	2.0	2.5	6.1	3.4
10/12/93	1.6	1.6	2.2	1.3
10/13/93	1.8	2.0	2.2	2.1
10/14/93	2.3	2.3	5.8	3.4
10/15/93	2.8	2.5	5.9	4.3
10/16/93	2.0	1.2	1.2	1.6
10/17/93	0.8	0.5	0.9	0.9
10/18/93	1.6	0.7	0.7	0.9
10/19/93	2.4	1.8	0.8	1.0
10/20/93	1.6	2.1	1.1	1.3
10/21/93	0.8	0.4	2.3	1.1
10/22/93	1.6	1.3	5.4	2.7
10/23/93	2.5	2.2	9.5	4.4
10/24/93	2.6	2.2	11.6	4.8
10/25/93	3.5	2.8	10.0	5.4
10/26/93	3.1	2.7	7.7	4.8
10/27/93	1.0	0.8	3.0	1.5
10/28/93	1.3	0.8	1.7	1.0
10/29/93	1.1	0.8	1.6	1.5
10/30/93	0.9	0.7	0.6	1.1
10/31/93	0.8	0.5	1.0	2.0

Monthly Averages:	K-65, NW (pCi/L)	K-65, SW (pCi/L)	K-65, NE (pCi/L)	K-65, SE (pCi/L)
AVERAGE:	1.8	1.7	4.0	2.4
MAXIMUM:	3.5	3.6	12.0	5.6
MINIMUM:	0.8	0.4	0.6	0.9
MEDIAN:	1.6	1.8	2.3	1.7
STD. DEV.:	0.8	0.8	3.4	1.5

STANDARD LEGEND:

1. "(a)" indicates censored data due to erroneous readings.
2. "(b)" indicates data loss due to monitor malfunction.
3. "(c)" indicates operator error in programming monitor.
4. "(d)" indicates data loss due to relocation of monitor.

0074

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY COMPLIANCE AGREEMENT/
FEDERAL FACILITY AGREEMENT MONTHLY PROGRESS REPORT**

FACILITY: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398704
Cincinnati, Ohio 45239 Hamilton

**K-65 SILO REPORT
RADON CONCENTRATIONS**

MONTH: OCTOBER, 1993

REPORT GENERATED: 11/01/93

**Daily Summary of Recorded Headspace Concentrations
(recorded at 5 minute intervals)**

Date	SILO 1				SILO 2			
	Average	Maximum	Minimum	Std. Dev.	Average	Maximum	Minimum	Std. Dev.
10/01/93	274,558	603,751	33,163	135,831	1,853,985	2,526,070	754,230	524,137
10/02/93	172,097	674,596	28,612	137,290	2,300,520	2,550,020	1,089,450	193,372
10/03/93	188,567	523,790	53,230	106,626	2,170,327	2,478,190	1,831,700	126,850
10/04/93	165,025	511,421	17,680	115,027	2,011,782	2,454,240	1,185,220	307,855
10/05/93	102,057	467,457	2,888	95,350	2,139,399	2,382,410	1,711,980	146,738
10/06/93	320,501	667,831	87,173	216,310	2,274,831	2,454,240	1,999,310	113,417
10/07/93	362,163	698,720	53,230	229,908	2,379,502	2,573,960	2,166,920	81,963
10/08/93	475,609	801,014	66,291	226,113	2,492,487	2,669,740	1,951,420	91,189
10/09/93	328,731	886,641	3,519	308,420	2,185,956	2,693,680	1,328,880	404,713
10/10/93	132,810	543,484	6,094	104,062	2,146,798	2,478,190	1,544,380	156,887
10/11/93	296,463	741,971	66,932	190,969	2,304,429	2,502,130	2,047,200	119,661
10/12/93	147,810	555,881	37,666	99,016	2,191,111	2,550,020	1,472,550	207,143
10/13/93	148,185	550,068	33,798	122,084	2,335,355	2,526,070	1,807,760	154,683
10/14/93	158,956	560,261	33,163	120,541	2,388,980	2,526,070	2,095,090	75,603
10/15/93	331,738	649,860	28,612	225,820	2,456,654	2,669,740	2,142,970	129,219
10/16/93	544,912	775,612	200,872	145,920	2,666,828	2,765,510	2,454,240	48,687
10/17/93	247,411	851,393	2,888	286,692	2,473,615	2,789,460	1,879,590	188,399
10/18/93	233,112	643,865	28,612	176,732	2,528,236	2,741,570	1,855,650	146,582
10/19/93	302,564	640,137	87,818	151,754	2,584,604	2,741,570	1,999,310	116,065
10/20/93	384,353	751,844	61,701	221,414	2,549,686	2,789,460	1,496,490	232,255
10/21/93	50,843	434,535	4,833	58,671	1,875,850	2,478,190	1,065,500	333,177
10/22/93	121,402	429,518	31,839	57,425	2,440,192	2,645,790	2,190,860	99,304
10/23/93	268,786	632,691	55,199	204,929	2,490,242	2,693,680	2,142,970	152,286
10/24/93	290,282	673,857	68,855	205,134	2,563,820	2,789,460	2,286,640	124,258
10/25/93	346,380	710,798	59,089	240,244	2,650,034	2,909,180	2,334,520	142,214
10/26/93	233,928	624,526	24,753	164,619	2,691,021	2,933,120	1,903,540	226,204
10/27/93	80,106	397,632	18,312	56,943	2,549,270	2,933,120	1,496,490	247,189
10/28/93	202,460	575,716	38,992	110,943	2,275,163	2,765,510	1,113,390	404,602
10/29/93	106,444	555,162	9,935	79,812	2,460,395	2,885,230	1,352,830	233,038
10/30/93	148,477	449,501	50,623	67,304	2,446,512	2,837,340	1,927,480	221,413
10/31/93	79,596	369,483	27,343	38,941	2,646,210	2,885,230	2,286,640	148,104

Grab Samples of Headspace

Date	SILO 1 Concentration	SILO 2 Concentration
10/01/93	462,000	2,406,000
10/05/93	23,000	2,337,000
10/08/93	1,057,000	3,030,000
10/12/93	58,000	2,777,000
10/14/93	47,000	3,008,000
10/21/93	No Sample	206,000
10/22/93	60,000	2,518,000
10/26/93	1,035,000	3,564,000
10/29/93	1,000	3,184,000

0075

Notes: 1. All values reported in pCi/L.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITIES COMPLIANCE AGREEMENT/
FEDERAL FACILITY AGREEMENT MONTHLY PROGRESS REPORT**

MONTH: **OCTOBER**
YEAR: **93**

FACILITY: **Fernald Environmental Management Report
U.S. Department of Energy
7400 Willey Road, P.O. Box 398704
Cincinnati, Ohio 45239 Hamilton**

SELECTED RADON DATA REPORT
(Monthly Summary of Selected Sampling Locations)

Daily Averages:	AMS-6 (pCi/L)	AMS-6 (pCi/L)	PILOT PLANT (pCi/L)	BKGD (pCi/L)
10/01/93	0.6	0.7	0.5	0.6
10/02/93	0.6	0.6	0.4	0.6
10/03/93	0.9	0.7	0.5	0.6
10/04/93	0.7	0.7	0.5	0.6
10/05/93	0.8	0.7	0.5	0.7
10/06/93	2.0	1.7	1.4	1.2
10/07/93	2.5	1.9	1.6	1.2
10/08/93	2.4	1.9	1.9	0.6
10/09/93	1.0	0.9	0.8	0.5
10/10/93	0.7	0.6	0.4	0.9
10/11/93	1.1	1.4	0.9	0.6
10/12/93	0.8	0.8	0.5	0.6
10/13/93	1.1	0.9	0.6	0.8
10/14/93	1.6	1.3	1.3	1.0
10/15/93	1.9	1.7	1.8	1.2
10/16/93	1.0	1.0	0.8	0.7
10/17/93	0.4	0.5	0.5	0.5
10/18/93	0.6	0.6	0.5	0.5
10/19/93	0.8	0.8	0.7	0.7
10/20/93	0.7	0.9	0.8	0.8
10/21/93	0.4	0.5	0.4	0.4
10/22/93	1.1	1.1	0.9	0.6
10/23/93	1.6	1.5	1.4	0.8
10/24/93	1.8	1.7	1.5	1.0
10/25/93	2.2	1.9	1.7	1.0
10/26/93	2.0	1.9	1.7	1.0
10/27/93	0.5	0.6	0.5	0.6
10/28/93	0.6	0.6	0.5	0.5
10/29/93	0.6	0.6	0.6	(b)
10/30/93	0.5	0.7	0.5	(b)
10/31/93	0.4	0.6	0.4	(b)

Monthly Averages:	AMS-6 (pCi/L)	AMS-6 (pCi/L)	PILOT PLANT (pCi/L)	BKGD (pCi/L)
AVERAGE:	1.1	1.0	0.9	0.7
MAXIMUM:	2.5	1.9	1.9	1.2
MINIMUM:	0.4	0.5	0.4	0.4
MEDIAN:	0.9	0.9	0.7	0.7
STD. DEV.:	0.6	0.5	0.5	0.2

STANDARD LEGEND:

1. "(a)" indicates censored data due to erroneous readings.
2. "(b)" indicates data loss due to monitor malfunction.
3. "(c)" indicates operator error in programming monitor.
4. "(d)" indicates data loss due to relocation of monitor.

0076

-4923

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

PERIOD ENDING OCTOBER 31, 1993

**ENCLOSURE D
DRILLING/BORING LOGS**

0077

-4923

No Boring Logs Generated for October

78

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

PERIOD ENDING OCTOBER 31, 1993

ENCLOSURE E

EFFLUENT RADIATION DISCHARGES TO THE GREAT MIAMI RIVER

0079

-4928

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

Introduction

Enclosure E lists monthly discharges to the Great Miami River. This information is required by the DOE/USEPA Agreement Resolving Dispute Concerning Denial of Request for Extension of Time to Submit Operable Unit 2 Document and discussed in the "Addendum No. 1 to the South Groundwater Contamination Plume Removal Action Parts 2 and 3 Work Plan." Initially, tables listing August and September, 1993 discharges to the river are included in the October 1993 report. Thereafter, only one month's discharge information will be contained in the CA/FFCA report.

-4923

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT

Period Ending October 31, 1993

Facility: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398705
Cincinnati, Ohio 45239-8705

Location: [SP1] Month: August 1993
IAWWT (SWRB) Discharge
Interim Advanced Wastewater Treatment Effluent

Day	Flow (MGD)	Total Alpha (pCi/l)	Total Beta (pCi/l)	Total U (ug/l)	Total U (kgs)	TSS (mg/l)	pH (MIN) (S.U.)	pH (MAX) (S.U.)
	0.085	0.9	6.8	<1	0.000	<1	8.5	8.8
	0.209	0.9	5.0	<1	0.001	<1	8.6	9.4
	0.160	225.2	103.6	340	0.206	2.2	8.5	9.7
	0.146	3.6	4.5	2	0.001	<1	7.8	8.4
	0.199	157.7	63.1	3	0.002	4.4	8.4	8.8
	0.205	3.2	5.0	3	0.002	<1	8.2	8.3

Total 1.004

0.212

0081

-4923

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

Facility: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398705
Cincinnati, Ohio 45239-8705

Location: [SP2] Month: August 1993
Stormwater Retention Basin Emergency Bypass
SWRB Bypass Effluent

<u>Day</u>	<u>Flow</u> <u>(MGD)</u>
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	0.478
13	1.233
14	1.073
15	0.728
16	
17	
18	
19	
20	
21	
22	
23	
24	0.579
25	1.098
26	1.131
27	0.985
28	1.083
29	0.426
30	
31	0.505
Total	9.319

- 4923

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT

Period Ending October 31, 1993

Facility: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398705
Cincinnati, Ohio 45239-8705

Location: [SP3] Month: August 1993
SWRB Valve House
South Groundwater Contamination Plume

Day	Flow (MGD)	Total Alpha (pCi/l)	Total Beta (pCi/l)	Total U (mg/l)	Total U (kgs)	TSS (mg/l)	pH (grab) (S.U.)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17	0.948	81.08	36.04	0.03	0.11		AH
18	2.924	85.59	31.53	0.03	0.33		AH
19	2.764	67.57	184.68	0.03	0.31		AH
20	2.918	171.17	58.56	0.03	0.33		AH
21	2.899	189.19	58.56	0.03	0.33		AH
Total	12.453			1.41			

AH: No data available. Samples taken at improper location.
Note: Flow data compiled from daily log sheets for each well in South Plume.

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT

-4923

Period Ending October 31, 1993

Facility: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398705
Cincinnati, Ohio 45239-8705

Location: [SP4] Month: August 1993
Parshall Flume
Effluent Downstream of Manhole 176B

<u>Day</u>	<u>DO</u> <u>(mg/l)</u>	<u>IRON</u> <u>(mg/l)</u>	<u>MANGANESE</u> <u>(mg/l)</u>
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			

0084

-4923

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR CONTROL AND ABATEMENT OF RADON-222 EMISSIONS MONTHLY PROGRESS REPORT

Period Ending October 31, 1993

Facility: Fernald Environmental Management Project U.S. Department of Energy 7400 Willey Road, P.O. Box 398705 Cincinnati, Ohio 45239-8705

Location: [605] Month: August 1993 Biodenitrification Tower BDN Tower Effluent

Table with 9 columns: Flow (MGD), Total Alpha (pCi/l), Total Beta (pCi/l), Total U (mg/l), Total U (kgs), C-BOD5 (mg/l), TSS (mg/l), NH3-N (mg/l). Rows include various flow rates and corresponding pollutant levels, with some cells containing codes like AE, AH, and 4.

Biodenitrification tower placed on recycle mode. No discharge occurred. Result not valid due to sample exceeding hold time. Sample not requested due to administrative oversight. Value is less than detectable limit.

0085

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

1928

Period Ending October 31, 1993

Facility: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398705
Cincinnati, Ohio 45239-8705

Location: [605]
Biodenitrification Tower
BDN Tower Effluent

Month: August 1993

<u>Day</u>	<u>Flow (MGD)</u>	<u>NO3-N (mg/l)</u>	<u>Chromium (ug/l)</u>	<u>Copper (ug/l)</u>	<u>Nickel (ug/l)</u>	<u>HexChrom (ug/l)</u>
1	0.013					
2	0.014					
3	0.013					
4	0.014	1.9	6.5	<14.0*	<17.0*	AE
5	0.014					
6	0.014					
7	0.013					
8	0.013					
9	AC					
10	0.008					
11	0.025	2.0	6.0	<14.0*	<17.0*	<6.0*
12	0.048					
13	0.016					
14	0.014					
15	0.013					
16	0.013	5.9	6.1	<14.0*	<17.0*	<6.0*
17	0.013					
18	0.012					
19	0.013					
20	0.013					
21	0.011					
22	0.012	7.6	7.1	<14.0*	<17.0*	<6.0*
23	0.012					
24	0.013					
25	0.014					
26	0.012					
27	0.014					
28	0.013					
29	0.013					
30	0.012					
31	0.012					
Total	0.434					

AC: Biodenitrification tower placed on recycle mode. No discharge occurred.

AE: Sample collected. Exceeded sample holding time.

*: Value is less than detectable limit.

0086

4923

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR CONTROL AND ABATEMENT OF RADON-222 EMISSIONS MONTHLY PROGRESS REPORT

Period Ending October 31, 1993

Facility: Fernald Environmental Management Project U.S. Department of Energy 7400 Willey Road, P.O. Box 398705 Cincinnati, Ohio 45239-8705

Location: [606] SWRB Pump Station Discharge Stormwater Retention Basin Effluent Month: August 1993

Table with 6 columns: Day, Flow (MGD), Total Alpha (pCi/l), Total Beta (pCi/l), Total U (mg/l), Total U (kgs). Rows 1-31 with data and 'AC' entries, plus a Total row at the bottom.

AC: Stormwater levels in retention basins not high enough to necessitate discharge.

928

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT

Period Ending October 31, 1993

Facility: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398705
Cincinnati, Ohio 45239-8705

Location: [SP1]
IAWWT (SWRB) Discharge
Interim Advanced Wastewater Treatment Effluent

Month: September 1993

<u>Day</u>	<u>Flow</u> (MGD)	<u>Total</u> <u>Alpha</u> (pCi/l)	<u>Total</u> <u>Beta</u> (pCi/l)	<u>Total U</u> (ug/l)	<u>Total U</u> (kgs)	<u>TSS</u> (mg/l)	<u>pH</u> (MIN) (S.U.)	<u>pH</u> (MAX) (S.U.)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11	0.133	AH	AH	<1	0.001	<1	7.7	9.0
12	0.166	AH	AH	<1	0.001	1.4	7.5	7.7
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
Total	0.299				0.002			

AH: Data not available.

0088

-4923

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT

Period Ending October 31, 1993

Facility: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398705
Cincinnati, Ohio 45239-8705

Location: [SP2]
Stormwater Retention Basin Emergency Bypass
SWRB Bypass Effluent

Month: September 1993

<u>Day</u>	<u>Flow</u> <u>(MGD)</u>
1	0.177
2	
3	
4	
5	
6	
7	0.607
8	1.146
9	1.104
10	
11	0.508
12	0.639
13	1.233
14	1.073
15	0.728
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	0.745
28	0.715
29	0.426
30	
31	
Total	5.641

0089

-4928

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

Facility: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398705
Cincinnati, Ohio 45239-8705

Location: [SP3]
SWRB Valve House
South Groundwater Contamination Plume

Month: September 1993

<u>Day</u>	<u>Flow (MGD)</u>	<u>Total Alpha (pCi/l)</u>	<u>Total Beta (pCi/l)</u>	<u>Total U (mg/l)</u>	<u>Total U (kgs)</u>	<u>TSS (mg/l)</u>	<u>pH (grab) (S.U.)</u>
1	3.102	76.58	58.56	0.03	0.35		AH
2	3.600	76.58	<40.54	0.02	0.27		AH
3	2.206	67.57	90.09	0.03	0.25	<1	AH
4	2.262	58.56	<45.05	0.03	0.26		AH
5	2.999	108.11	<45.05	0.02	0.23		AH
6	2.889	58.56	49.55	0.02	0.22		AH
7	2.851	18.02	40.54	0.02	0.22		AH
8	3.041	117.12	<45.05	0.02	0.23		AH
9	2.677	117.12	<36.04	0.02	0.20		AH
10	2.795	36.04	<36.04	0.02	0.21	<1	AH
11	3.068	63.06	90.09	0.10	1.16		AH
12	2.798	49.55	<45.05	0.02	0.21		AH
13	2.878	49.55	58.56	0.02	0.22		AH
14	2.876	36.04	31.53	0.02	0.22		AH
15	2.831	22.52	49.55	0.02	0.21		AH
16	2.967	9.01	<36.04	0.02	0.22	1.8	AH
17	2.908	22.52	63.06	0.02	0.22		AH
18	2.909	22.52	45.05	0.02	0.22		AH
19	2.904	22.52	<36.04	0.02	0.22		AH
20	2.877	31.53	<40.54	0.01	0.11		AH
21	2.931	18.02	45.05	0.02	0.22		AH
22	2.815	18.02	36.04	0.02	0.21		AH
23	3.009	9.01	<36.04	0.02	0.23	1.2	AH
24	2.898	9.01	45.05	0.02	0.22		AH
25	2.210	31.53	121.62	0.02	0.17		AH
26	2.085	45.05	139.64	0.03	0.24		AH
27	2.725	36.04	58.56	0.02	0.21		AH
28	3.680	18.02	202.70	0.02	0.28		AH
29	2.049	36.04	<27.03	0.01	0.08		AH
30	2.890	49.55	189.19	0.02	0.22	1.2	AH
31							
Total	84.730			7.52			

AH: No data available. Samples taken at improper location.

Note: Flow data compiled from daily log sheets for each well in South Plume.

4928

CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT

Period Ending October 31, 1993

Facility: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398705
Cincinnati, Ohio 45239-8705

Location: [SP4]
Parshall Flume
Effluent Downstream of Manhole 176B

Month: September 1993

<u>Day</u>	<u>DO</u> <u>(mg/l)</u>	<u>IRON</u> <u>(mg/l)</u>	<u>MANGANESE</u> <u>(mg/l)</u>
1			
2			
3	7.7	0.57	0.1
4			
5			
6			
7			
8			
9			
10	9.6	0.38	0.1
11			
12			
13			
14			
15			
16	9.4	0.51	0.1
17			
18			
19			
20			
21			
22			
23	9.0	0.63	0.2
24			
25			
26			
27			
28			
29			
30	9.4	0.85	0.2
31			

0091

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

-4988

Period Ending October 31, 1993

Facility: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398705
Cincinnati, Ohio 45239-8705

Location: [605]
Biodenitrification Tower
BDN Tower Effluent

Month: September 1993

Day	Flow (MGD)	Total Alpha (pCi/l)	Total Beta (pCi/l)	Total U (mg/l)	Total U (kgs)	C-BOD5 (mg/l)	TSS (mg/l)	NH3-N (mg/l)
1	0.012	752	1635	1.67	0.08			<0.10*
2	0.011	761	1761	1.70	0.07			
3	AC							
4	0.003	739	1613	1.67	0.02			
5	AC							
6	AC							
7	AC							
8	AC							
9	AC							
10	AC							
11	AC							
12	AC							
13	AC							
14	AC							
15	AC							
16	AC							
17	AC							
18	AC							
19	AC							
20	AC							
21	AC							
22	AC							
23	AC							
24	AC							
25	AC							
26	AC							
27	AC							
28	AC							
29	AC							
30	AC							
31	AC							
Total	0.026				0.17			

AC: Biodenitrification tower placed on recycle mode. No discharge occurred.
*: Value is less than detectable limit.

0092

929

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

Period Ending October 31, 1993

Facility: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398705
Cincinnati, Ohio 45239-8705

Location: [605]
Biodenitrification Tower
BDN Tower Effluent

Month: September 1993

<u>Day</u>	<u>Flow (MGD)</u>	<u>NO3-N (mg/l)</u>	<u>Chromium (ug/l)</u>	<u>Copper (ug/l)</u>	<u>Nickel (ug/l)</u>	<u>Hex-Chrom (ug/l)</u>
1	0.012	6.3	6.3	<14.0*	<17.0*	<6.0*
2	0.011					
3	AC					
4	0.003					
5	AC					
6	AC					
7	AC					
8	AC					
9	AC					
10	AC					
11	AC					
12	AC					
13	AC					
14	AC					
15	AC					
16	AC					
17	AC					
18	AC					
19	AC					
20	AC					
21	AC					
22	AC					
23	AC					
24	AC					
25	AC					
26	AC					
27	AC					
28	AC					
29	AC					
30	AC					
31	AC					
Total	0.026					

AC: Biodenitrification tower placed on recycle mode. No discharge occurred.
*: Value is less than detectable limit.

0093

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
MONTHLY PROGRESS REPORT**

1020

Period Ending October 31, 1993

Facility: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O. Box 398705
Cincinnati, Ohio 45239-8705

Location: [606]
SWRB Pump Station Discharge
Stormwater Retention Basin Effluent

Month: September 1993

<u>Day</u>	<u>Flow (MGD)</u>	<u>Total Alpha (pCi/l)</u>	<u>Total Beta (pCi/l)</u>	<u>Total U (mg/l)</u>	<u>Total U (kgs)</u>
1	0.178	279	104	0.35	0.24
2	AC				
3	AC				
4	AC				
5	AC				
6	AC				
7	0.607	144	86	0.35	0.80
8	1.146	468	81	0.35	1.52
9	1.104	167	95	0.35	1.46
10	AC				
11	0.641	266	77	0.20	0.48
12	0.805	342	32	0.20	0.61
13	AC				
14	AC				
15	AC				
16	AC				
17	AC				
18	AC				
19	AC				
20	AC				
21	AC				
22	AC				
23	AC				
24	AC				
25	AC				
26	AC				
27	0.745	306	68	0.34	0.96
28	0.715	234	135	0.22	0.60
29	AC				
30	AC				
31					
	----- 5.941			----- 6.67	

AC: Stormwater levels in retention basins not high enough to necessitate discharge.

0094