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DOE-FN/EPA

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REPORT

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

Period Ending February 28, 1994

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 February 1 through February 28, 1994, and planned actions for the period March 1 through March 31, 1994.

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WORK ASSIGNMENTS AND PROGRESS

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

- CA Section IX - Removal Actions
- CA Section X - Remedial Investigation/Feasibility Study
- Enclosure A - Waste Water Flows and Radionuclide Concentrations under CA Section XXIII.B
- Enclosure B - FFCA: Initial Remedial Measures and Other Open Actions
- Enclosure C - FFA: Control and Abatement of Radon-222 Emissions
- Enclosure D - 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 February, 1994. Information is presented for each of the Removal Actions identified in the Consent Agreement As Amended.

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REMOVAL ACTION SUMMARY

NO.	TITLE	SCOPE	STATUS
Phase I			
1	Contaminated Water Under FEMP Buildings	Pump water from piezometers and extraction wells underneath Plants 2/3, 6, 8, and 9. Treat extracted water for volatile organic chemicals and uranium removal before discharge.	Ongoing
2	Waste Pit Area Run-off Control	Collect and treat contaminated storm water run-off from the waste pit area.	Completed 8/30/92
3	South Groundwater Contamination Plume	Part 1 - Install new alternate water supply and transfer to industrial user. Part 2 - Pump and discharge groundwater from South Plume. Part 3 - Install and operate Interim Advanced Waste Water Treatment system to reduce uranium contaminant loading to the Great Miami River. Part 4 - Conduct groundwater monitoring and institutional controls by sampling private and existing RI/FS wells in the South Plume area and installing homeowner treatment systems. Part 5 - Conduct groundwater modeling and geochemical investigating to define the extent of the groundwater plume, contaminated with uranium OU 2 Dispute Resolution Supplemental Project - Provide for partial treatment of the South Plume discharge to further reduce uranium flow to the Great Miami River.	Operational: 12/7/92 Transfer: Ongoing Ongoing Ongoing Ongoing Completed 2/25/94 Ongoing
4	Silos 1 & 2	Install bentonite cap to reduce and monitor radon emissions. Provide follow-on monitoring.	Cap Completed 11/28/91 Monitoring Ongoing
5	Decant Sump Tank	Periodically remove liquid from K-65 decant sump tank.	Ongoing
6	Waste Pit 6 Residues	Eliminate potential airborne contamination by re-submerging exposed pit material.	Completed 12/18/90

* Shading denotes completed actions

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NO.	TITLE	SCOPE	STATUS
7	Plant 1 Pad Continuing Release	Stage I - Implement run-on/off control measures. Stage II - Install new pad. Stage III - Upgrade existing Plant 1 Storage Pad.	Completed 1/17/92 Completed 12/4/92 Ongoing
Phase II			
8	Inactive Flyash Pile Control	Install plastic chain-link barrier and post warning signs.	Completed 12/23/91
9	Removal of Waste Inventories	Disposition of low-level waste off-site.	Ongoing
10	Active Flyash Pile Controls	Phase I - Complete interim surface stabilization. Phase II - Complete active flyash pile controls.	Completed 6/29/92 Maintenance Ongoing
11	Pit 5 - Experimental Treatment Facility	Remove contents, structure, and filter material. Backfill and cap with clay cover.	Completed 3/20/92
12	Safe Shutdown	Remove uranium and other material from former processing equipment and ship material and equipment off-site.	Ongoing
13	Plant 1 Ore Silos	Dismantle fourteen ore silos and their support structures.	Project work was stopped
14	Contaminated Soil Adjacent to Sewage Treatment Plant Incinerator	Isolate or remove and dispose of contaminated soils from the vicinity of the sewage treatment plant.	Ongoing
15	Scrap Metal Piles	Phase I - Disposition LLW ferrous/non-ferrous scrap metal. Phase II - Disposition copper scrap metal.	Ongoing
16	Collect Uncontrolled Production Area Run-off - Northeast	Collect storm water run-off from the northeast perimeter of the former production area in the Storm Water Retention Basin.	Completed 8/20/93
17	Improved Storage of Soil and Debris	Improve storage of existing and future generated soils and debris.	Ongoing
18	Control Exposed Material in Pit 5	Eliminate potential airborne contamination by re-submerging exposed pit material.	Final Report Submitted to U.S. EPA 10/18/93

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NO.	TITLE	SCOPE	STATUS
Phase III			
19	Plant 7 Dismantling	Dismantle and dispose of the Plant 7 structure.	Ongoing
20	Stabilization of UNH Inventories	Neutralize, filter and package UNH inventory.	Ongoing
21	Expedited Silo 3	Mitigate the potential release of hazardous waste material by covering and sealing dust collector hopper, removing dust collector, and capping and covering obvious release pathways	Completed 2/24/93
22	Waste Pit Area Containment Improvement	Stabilize south berm of Pit 4; regrade drainage ditches along Pits 3, 4, 5, and 6; and resurface road between Pits 3, 4, 5, and 6	Final Report Submitted to U.S. EPA 10/18/93
23	Inactive Flyash Pile	Conduct field investigation to identify locations requiring material removal.	Final Report Submitted to U.S. EPA 6/30/93
24	Pilot Plant Sump	Remove liquid and sludge from the sump	U.S. EPA Approved Final Report 1/14/94
25	Nitric Acid Tank Car and Surrounding Area	Remove residual contents from tank car and decontaminate and dispose of tank car	U.S. EPA Approved Final Report 12/9/93
26	Asbestos Removals (Asbestos Program)	Mitigate the potential for contaminant release and migration of asbestos fibers	Ongoing
27	Management of Contaminated Structures at the FEMP	Submit an Engineering Evaluation/Cost Analysis for managing contaminated structures. Identify alternatives for managing contaminated structures.	Final EE/CA Approved 6/16/93
28	Contamination at the Fire Training Facility	Remove, decontaminate, dispose, treat or store contaminated structures, equipment, and soil from the former Fire Training Facility.	Ongoing
29	Erosion Control at Inactive Flyash Pile	Mitigate the threat of erosion induced slope failure and discharge of flyash to Paddy's Run	Final report submitted to DOE 2/94

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Removal Actions

RA No. 1, Contaminated Water Under FEMP Buildings

Current Month:

Due to extremely cold weather, the VOC Treatment System sustained freeze damage on January 19, 1994. During the month of February maintenance and corrective measures were implemented to return the system to operation.

Planned Activities:

- Operation of the VOC Treatment System is expected to be reestablished in March 1994.

RA No. 3, South Groundwater Contamination Plume

Part 1 - Alternate Water Supply

Current Month:

Activities to complete the transfer of ownership of the Alternate Water Supply System from DOE to Albright and Wilson Americas (A&W) is ongoing. The U.S. EPA and Ohio EPA approved deleting Delta Steel from the current scope of the project.

Planned Activities:

- Continue the transfer of ownership of the Alternate Water Supply to A&W.

Part 2 - Pumping and Discharge System

Current Month:

The capture zone evaluation for the well field suggests that arsenic concentrations in the monitoring wells south of the recovery wells are returning to prepumping levels.

Planned Activities:

- Data collected during the first quarter of the recovery well field operation will be compiled and submitted to the U.S. EPA and Ohio EPA in April 1994. This quarterly report will meet the first reporting requirement defined in the Design, Monitoring and Evaluation Program (DMEPP).

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Removal Actions

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

Part 3 - Interim Advanced Waste Water Treatment

IAWWT Storm Water Retention Basin Unit

Current Month:

The unit continues to use cartridge filter elements excessively during operation and the FEMP has had problems keeping them in stock. Accordingly, activities are underway to install multimedia filtration upstream of the ion exchange units.

Planned Activities:

- The filter units are scheduled to be installed and operational by March 31, 1994 as part of the Supplemental Project (discussed below), pursuant to the Operable Unit 2 Dispute Resolution Agreement.

IAWWT Bionitrification Effluent Treatment System Unit

Current Month:

During January and February 1994, this treatment system has been operative on an intermittent basis due to various reasons: frozen pipes, resin depleted in the ion exchangers, and the need to process the spent resin with the dewatering equipment at the BDN/ETS facility.

Planned Activities:

- Repairs to the system are being made and operations are expected to resume in March 1994.

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

Part 4 - Groundwater Monitoring and Institutional Controls

Current Month:

Sampling of private homeowner and existing RI/FS wells in the South Plume area continues. The two homeowner systems installed south of the FEMP continue to operate successfully. The FEMP is continuing to monitor the effectiveness of the ion exchange resins at these two residences. Trending analysis in collected data indicate the changeout of the resin in the lead columns will be required during 1994.

Planned Activities:

- Procedures for resin column changeout should be completed by March 31, 1994.

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

Step 1

Current Month:

The new IAWWT unit referred to as the South Plume Interim Treatment (SPIT) project is proceeding on schedule. Standard operating procedures and operating training has been initiated.

Planned Activities:

- The SPIT project is scheduled to be operational by March 31, 1994 and will include the addition of multimedia filtration units to supplement filtration at the IAWWT system (SWRB).

Step 2

Current Month:

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.

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

Step 2 (Continued)

Planned Activities:

- The off-peak capacity will be available when Phase I of the AWWT system becomes operational in January 1995.

Step 3

Current Month:

Changes have been made to the AWWT project scope to eliminate treatment of the Sewage Treatment Plant and clean-side General Sump flows. Plans are underway to expedite installation of the 20-inch line that will eventually serve a future AWWT system, Phase III. This will allow South Plume groundwater to be transferred to the AWWT Phase II system to meet this commitment.

Planned Activities:

- The plan is for the line to be available in January 1995 when Phase II AWWT system becomes operational.

Step 4

Current Month:

No action has been taken to date to extend the planned operational life of the existing IAWWT SWRB unit by converting it from treating storm water to treating South Plume flow, and increasing capacity from 300 gpm to approximately 400 gpm.

Planned Activities:

- The conversion of the IAWWT SWRB unit is to be accomplished by March 30, 1995.

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Removal Actions

RA No. 4, Silos 1 and 2

Current Month:

The results of the video camera investigation of the Silo 2 bentonite cap (due to a slight upward trend in headspace radon concentration) were compared against baseline videos of the bentonite surface taken immediately following its installation. Overall, the bentonite cap integrity is in very good condition.

Planned Activities:

- The results of this investigation will be incorporated in the Removal Action Final report which is expected to be completed March 1994.

RA No. 5, K-65 Decant Sump Tank

Current Month:

In an effort to reduce worker exposure to the Decant Sump Tank and to improve confidence in the liquid level measurements, DOE is proceeding to install a submersible pressure indicator/transmitter in the tank. The new water level indicator equipment will allow for accurate, continuous, and remote level readings from the tank.

In order to install the new equipment, the tank is being emptied to allow for calibration. On February 23, 1994 Operable Unit 4 personnel initiated pumping of the contents in accordance with SOP 20-C-510, Removal, Transport, and storage of Decant Sump Liquid from K-65 Silos 1 and 2, with DOE-FN concurrence and U.S. and Ohio EPA notification.

Planned Activities:

- The action to install the new water level indicator is expected to be completed by the end of March 1994.

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Removal Actions

RA No. 7, Plant 1 Pad Continuing Release

Current Month:

No coating of the Plant 1 Storage Pad was applied during February due to inclement weather. However, the new Tension Support Structure (TSS) was 95% completed and the installation of the electrical lighting (outside pad and inside the TSS) was performed.

Planned Activities:

- During March, the TSS will be completed and the relocation of drums from Phase E to portions of Phases C and D will continue. Due to inclement weather conditions, continued attempts will be made to apply the coating.

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

RA No. 9, Removal of Waste Inventories

Current Month:

The volume of waste shipped off-site in February was 3,995 DEs for a total of 23,106 DEs shipped to the NTS in FY-94. This volume includes 5,429 drums of residues shipped to date.

The DOE-NV close-out surveillance for the contaminated trash waste stream was completed on February 17, 1994. The audit team was satisfied with the corrective action taken for the contaminated trash waste stream deficiencies and indicated that reapproval was eminent.

Planned Activities:

- DOE-NV approval of the revised FEMP Application to Ship Waste to the Nevada Test Site, Rev.5.1, and approval of the final confirmatory sampling results for FEMP residues is expected by the end of March 1994. The application approval from DOE-NV will release the AMCCOM metal for shipment to the Nevada Test Site.

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Removal Actions

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

Planned Activities:

- March shipping activities will include the resumption of contaminated trash shipments, initiation of AMCCOM shipments, and initiation of thorium shipments may be possible. March activities will also include the notification to the subcontractor of the resumption of residue shipments to SEG. Shipments are planned to begin April 1994 and continue through June 1994. A one month delay was caused by the extreme cold weather freezing the water in drums to be compacted. The compactor will not effectively remove the ice (free liquid) without first thawing the drums. The month delay will allow the drums to thaw before shipments resume.

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

RA No. 12, Safe Shutdown

Current Month:

The DOE facility representative has reviewed the first three Implementation Plans for the removal of hold-up materials from equipment in Plant 4. Those three plans were for the KOH System, HF Recovery System, and H₂ off-gas system. The KOH system has been completed except for an area of frozen lines, a Safety Assessment is in progress for the HF Recovery System, and the plan for clean-out of the H₂ off-gas system should be initiated in March.

Equipment and Material Assessments (formerly Preliminary Assessments) are continuing. The field evaluations of Plant 6 and the Pilot Plant are 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: 2,964 expense items are currently in the data base; 1,497 have been field verified; 578 are on a "shopping list" to ascertain on-site use; 1,042 have been transferred to Maintenance; and 127 have been placed on AC-563 (Property Disposal Request) Forms to be excessed. These numbers are expected to fluctuate from month-to-month as field verification is conducted.

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RA No. 12, Safe Shutdown (Continued)

Current Month:

The following is the status of capital equipment: of an estimated 1,711 total number of items, 1,122 have been put on AC-563 Forms to be excessed, and 589 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.

Seven hundred and fifty-nine (759) maintenance work orders to isolate and disconnect all utilities/energy sources from equipment not in use have been prepared. Of these, 410 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.

Work continues on the Environmental Assessment covering the packaging and transporting of the sold normal and enriched uranium materials, which is being coordinated by DOE-HQ for Fernald's and Hanford sites.

The second truckload of 100 derbies was shipped on February 7, 1994, to Manufacturing Sciences Corporation (MSC) in Oak Ridge, Tennessee. Following is the status of the material to be shipped to MSC, who purchased all of the Grade 1 depleted uranium derbies:

	<u>No. of Derbies</u>	<u>Net Uranium Pounds</u>
Total Purchased	2,613	973,651
Shipped	<u>200</u>	<u>74,127</u>
Balance	2,413	899,524

British Nuclear Fuels was the successful bidder for 350,000 net pounds (120 metric tons uranium weight) of depleted UF₄. Safe Shutdown is in the process of developing a shipping plan that will explain all of the packaging and transportation costs that BNFL will incur. Once that plan is agreed upon, then BNFL will sign the contract for the materials. Removal of the material from the FEMP is projected to be complete by the end of calendar year 1994, provided the contract is signed in a timely manner.

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RA No. 12, Safe Shutdown (Continued)

Current Month:

Two meetings were held during the month of February regarding the normal and enriched uranium, for which COGEMA of France was the successful bidder. The first, which was held February 9 at Fernald, was a working session with DOE-OR Transportation, WHC, and FERMCO to prepare for COGEMA's visit on February 25, 1994. The second meeting was an information-gathering session for representatives from COGEMA and Transnuclear, the company that will be arranging the transfer of the uranium to France for COGEMA. They had the opportunity to view most of the materials and obtained other process knowledge information that will assist them in their research of packaging options.

Nine (9) of eleven (11) pieces of new equipment that had been installed in Plant 5 have been removed. The equipment is being transferred to the Department of the Army and will be installed at Aerojet Ordnance, Jonesboro, Tennessee.

Planned Activities:

- Initiate the plan for clean-out of the H₂ off-gas system in March 1994.
- Phase II of the 4A Metal Removal Project approval is projected for March 1994.
- During March 1994, the FEMP will continue following the progress on contracts for the sale of the uranium inventory. Continue the issuance of work orders for utility isolation work. Continue the removal of materials from process equipment, and to verify equipment and material evaluations for Plant 6 and the Pilot Plant.
- Continue field inspections to verify completed work orders initiated to isolate all equipment related utility tie-ins.

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

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RA No. 13, Plant 1 Ore Silos

Current Month:

A Termination for Default Notice for schedule performance was issued to Martech on December 17, 1993, and they completed leaving the site in February 1994. Wise Construction will restart dismantling operations in March; there should be no delay in the Consent Agreement commitment dates to complete the Removal Action. An alternate method of dismantling the tile silos is being investigated. March activities will include replacing the missing scaffolding/containment at the concrete silos and removing their caps.

Planned Activities:

- March activities will include replacing the missing scaffolding/containment at the concrete silos and removing their caps.
- Investigate an alternate method of dismantling tile silos.
- Dismantling operations by Wise Construction will be restarted in March.

KEY MILESTONES	STATUS	DUE DATE
Complete Removal Action	Estimated completion date November 1994	December 19, 1994

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

Current Month:

February activities included removal of an additional 15% of the soil (for a total of 85%) in Zone 4 (the former wooded area located northeast of the STP). A response to address the EPA comments to the Work Plan Addendum is currently in internal review. The letter will also address the Thorium Hot Spots and the delays caused by the harsh weather conditions this winter.

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

Planned Activities:

- Scheduled March activities include completion of the soil removal in Zone 4. The soil is being stockpiled on site per criteria contained in RA#17. Verification soil sampling in and around Zone 4 is scheduled to start as soon as the soil is removed.
- Draft letter will be issued in final form in the month of March. Issue final letter to the EPA addressing the work plan comments.

KEY MILESTONES	STATUS	DUE DATE
Phase III - Completion of off-property and on-property excavations	Open, this is a tentative date in the schedule that will be changed	February 25, 1994
Phase V - Submittal of Final Report	Open	September 26, 1994

RA No. 15, Scrap Metal Piles

Current Month:

A Best And Final Offer for Phase IIB was received from the subcontractor on February 18, 1994 and is being evaluated.

Planned Activities:

- Technical Evaluation and pre-award audit is scheduled for the week of March 21, 1994.
- The subcontractor's Removal Action Project Plan is expected 30 days after Notice To Proceed.

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RA No. 15, Scrap Metal Piles (Continued)

Planned Activities:

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. 17, Improved Storage of Soil and Debris

Current Month:

February activities included continued preparation of the bid package for the Certified for Construction (CFC) design package that merged the designs for the Decontamination Facility Pad (DFP) facility (originally part of Phase II design) and the design package for the Central Storage Facility (CSF), Scrap Metal Pad (SMP) structure, and associated facilities (Phase I). Direction was also provided to the Architectural Engineer (A/E) to commence with Title II design for the regrading and placement of a vegetative cover over the existing soil and rubble pile north of Third Street. Completed preparation of the sampling and analysis plan in order to sample remaining residues/debris left from the scrap metal previously stored on the SMP.

Planned Activities:

- March activities will include sampling and laboratory analysis of samples collected in the SMP area in order to characterize the debris/residues remaining in this area.
- Removal and containerization of the remaining debris/residues in this SMP area are also planned for March prior to actual construction activities for the SMP structure.
- Preparation of the bid package for the CFC "merged" design package for subsequent transmittal to qualified bidders will continue.

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RA No. 19, Plant 7 Dismantling

Current Month:

Project Development Inc. personnel are being scheduled for site training and physical exams. The OSHA Safety Walkdown and Utility Cutoff Verification has been completed. A fence surrounding the Construction Zone is in place and equipment and materials are being moved in.

Planned Activities:

- Subcontractor submittals have been written that impact Mobilization; final comments are being incorporated, allowing interior removals to begin March 8, 1994 after the material hoist is approved.

RA No. 20, Stabilization of UNH Inventories

Current Month:

A project manager from FERMCO was appointed to develop an organization and schedule for the resumption of the uranyl nitrate process. A uranyl nitrate process organization has been created to expedite the resumption of this process. Parsons Engineering has contracted to design the new piping, pumps and instrumentation to supplement the use of existing equipment, such as tanks and filters.

In February 1994 the Preliminary Hazard Analysis (PHA) and a Fatal Flaw Analysis was completed for the process. Procurement has been initiated for some of the equipment to be used in the process. Also a procedure has been completed that drained former process piping, stopping several UNH leaks.

Planned Activities:

- Continue design of the new piping system and pumps. Project 90% completion.
- Confirmatory sampling will be taken from all the UNH tanks.
- Bench-scale testing of the UNH will be performed at the FERMCO laboratory facility to determine the process chemistry.

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RA No. 26, Asbestos Removals (Asbestos Program)

Current Month:

Ongoing 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.

Planned Activities:

- Re-evaluate the scope of the removal action.
- Prepare project implementation plan.

RA No. 28, Contamination at the Fire Training Facility

Current Month:

Internal comments on the revised Removal Action Work Plan/Closure Plan Information and Data Package (RAWP/CPID) were resolved and the final RAWP/CPID was resubmitted to the EPAs on February 10, 1994.

Planned Activities:

- Sediments and surface water sampling will be conducted in March 1994. After sampling results are in the design will be finalized.

RA No. 29, Erosion Control at Inactive Flyash Pile

Current Month:

The final report on this removal action was in final review by DOE during February 1994.

Planned Activities:

- DOE to complete review of final report.

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1.0 Operable Unit 1

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

1.1 RI/FS Work Plan

Status:

Complete.

Issues/Corrective Actions:

None to report.

1.2 Remedial Investigation

Status:

Completed revision and comment incorporation of the OU 1 Draft Final Remedial Investigation/Baseline Risk Assessment. In agreement with provisions of the Amended Consent Agreement, the document was submitted to the U.S. EPA and Ohio EPA on Friday, February 4, 1994.

Issues/Corrective Actions:

None to report.

OPERABLE UNIT 1 REMEDIAL INVESTIGATION REPORT

PRIMARY MILESTONES

Table with 4 columns: SCOPE, SUBMIT TO EPA, RECEIVE FROM EPA, SUBMIT TO EPA FINAL. Row 1: Details the nature and extent of contaminants within the OU 1 study area. Estimates the volume of contaminated media and materials. Provides a baseline risk assessment and establishes remedial action objectives. 10/4/93 A, 12/20/93 A, 02/04/94 A

C = Consent Agreement Date
A = Actual
* = Request for extension

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1.3 Feasibility Study/Proposed Plan

Status:

The Draft OU 1 Feasibility Study/Proposed Plan (FS/PP) was submitted to DOE-FN/HQ on November 9, 1993. Comments were received from DOE by December 15, 1993. Revision to address DOE comments and revise OU 1 FS/PP is underway.

Issues/Corrective Actions:

None to report.

OPERABLE UNIT 1 FEASIBILITY STUDY/PROPOSED PLAN PRIMARY MILESTONES

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. The Proposed Plan identifies potential remedial alternatives as listed in the FS and presents the preferred alternative to the U.S. EPA and the public.	03/04/94 A	05/06/94 C	06/04/94 C

C = Consent Agreement Date

A = Actual

1.4 Treatability Studies

The OU 1 treatability studies will evaluate several treatment process options identified in the OU 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.

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1.4 Treatability Studies (continued)

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.

Status:

Remedy Screening/Remedy Selection Treatability Studies in support of the OU 1 Remedial Investigation/Feasibility Study are complete. OU 1 Treatability Studies to support Remedy Design will be developed as needed based on the Proposed Plan and Record of Decision.

Issues/Corrective Actions:

None to report.

1.5 Planned Activities for March 1994

- Incorporate all comments in the Draft OU 1 FS/PP and submit on schedule to DOE-HQ as well as U.S. and Ohio EPAs.
- Begin compiling information for OU 1 Draft Record of Decision (ROD) due for DOE-FN review by April 26, 1994.

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2.0 Operable Unit 2

Operable Unit 2 (OU 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 RI/FS Work Plan Addendum

DOE-FN submitted the Remedial Investigation Report for OU 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, OU 2 required a second phase of Remedial Investigation sampling and analysis in order to meet the objectives of the March 1988 RI/FS Work Plan.

Status:

Complete.

Issues/Corrective Actions:

None to report.

2.1.1 RI Field Investigation

Status:

Second round of groundwater sampling was completed in December 1993 on 61 monitoring wells and data from the wells is being validated and entered into the data base.

Issues/Corrective Actions:

None to report.

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2.2 Remedial Investigation

Status:

The CRU2 Revised Draft RI Report was submitted to the EPA on February 17, 1994. EPA comments are due by April 15, 1994.

Issues/Corrective Actions:

None to report.

OPERABLE UNIT 2 REMEDIAL INVESTIGATION REPORT PRIMARY MILESTONES

Table with 4 columns: SCOPE, SUBMIT TO EPA, RECEIVE FROM EPA, SUBMIT TO EPA FINAL. Row 1: Details the nature and extent of contaminants within the OU 2 study area... 02/18/94 C, 04/15/94 C, 05/13/94 C

C = Consent Agreement Date

2.3 Feasibility Study/Proposed Plan

Status:

DOE provided comments on the January submittal of the OU 2 Feasibility Study Report. Comments were incorporated and the revised draft will be submitted again in March 1994.

Issues/Corrective Actions:

Continue evaluation of the revised Remedial Investigation results and acceleration of the RI schedule.

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2.3 Feasibility Study/Proposed Plan (Continued)

OPERABLE UNIT 2 FEASIBILITY STUDY/PP REPORT

PRIMARY MILESTONES

SCOPE	SUBMIT TO EPA	RECEIVE FROM EPA	SUBMIT TO EPA FINAL
Describes and analyzes potential remedial alternatives. A comparative analysis will be performed for all alternatives. The Proposed Plan identifies potential remedial alternatives as listed in the FS and presents the preferred alternative to the U.S. EPA and the public.	04/29/94 C	06/27/94 C	07/25/94 C

C = Consent Agreement Date

2.4 Treatability Studies

Status:

None to report.

Issues/Corrective Actions:

None to report.

2.5 Planned Activities for March 1994

- Prepare response to DOE comments on draft OU 2 FS Report.
- Complete analysis of geotechnical samples from the Solid Waste Landfill and the proposed OU 2 disposal cell.
- Complete retrofit of Work Plan to conform to revised DQO procedure and obtain test samples for the Lime Sludge/Flyash Treatability Study.
- Continue engineering support work for the Solid Waste Landfill.
- Resubmit the Draft Feasibility Study to DOE on March 25, 1994.

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3.0 Operable Unit 3

Operable Unit 3 (OU 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, waste water treatment facilities, fire training facilities, scrap metal piles, feed stocks, and coal pile.

3.1 RI/FS Work Plan

Status:

Ten Field Work Packages (FWPs) were completed, approved, and distributed in February, 1994 with the sampling identified therein, encompassing a large extent of the samples anticipated to be taken in the next couple months of OU 3 RI/FS sampling.

Issues/Corrective Actions:

None to report.

3.1.1 Field Investigations

Status:

Field screening for chemical and metals contamination continued throughout February 1994 using two field portable X-Ray fluorescence analyzers, a field portable gas chromatograph and photo-ionization detectors. Chemical screening was performed to support selection of intrusive media locations on the Plant 8 West Pad, Services Building, Main Electrical Panel and Transformer, Main Electrical Switch House, Plant One Pad, Pilot Plant Shelter, and the Engine House.

Intrusive media sampling was initiated in the Harshaw Fume Digestion Building, Plant 6 Warehouse, and the Slag Recycling Building. Intrusive media sampling continued in the Scrap Recovery Plant, Metals Fabrication Plant, Plant 8 Warehouse, Green Salt Plant, Main Maintenance Building, Plant 5 Electrical Substation, Plant 9 Warehouse, and the Ore Refinery Plant. A total of 82 intrusive samples were collected in February 1994.

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3.1.1 Field Investigations (continued)

Placement of Task Orders 1, 2, and 3 against the Radioanalytical Laboratory Services Task Order Subcontract have been awarded to Datachem Laboratories. All of the solid samples for Task Order 1 were shipped as of February 22, 1994. The liquid samples are expected to be shipped the first week of March 1994. Sample Processing Laboratory (SPL) is now working on shipping out the solid samples for Task Order 2. All solid samples are expected to be shipped to Datachem by mid to late March 1994. Prior to shipment of the liquid samples, special shipping containers will need to be purchased for the shipping of corrosive liquids. Task Order 4 is currently in draft.

Issues/Corrective Actions:

None to report.

3.2 Remedial Investigation

OPERABLE UNIT 3 REMEDIAL INVESTIGATION REPORT

PRIMARY MILESTONES

SCOPE	SUBMIT TO EPA	RECEIVE FROM EPA	SUBMIT TO EPA FINAL
Details the nature and extent of contaminants within the OU 3 study area. Estimates the volume of contaminated media and materials. Provides a baseline risk assessment and establishes remedial action objectives.	02/18/94 C	04/15/94 C	05/13/94 C

C = Consent Agreement Date

Status:

Formal development of the RI has begun in the form of report planning, RI Report layout, Baseline Risk Assessment Report layout, non-data dependent background information collection/integration, and Baseline Risk Assessment approach and scenario development. Data management procedures have been implemented to track and manipulate field characterization data. As of February 24, 1994, approximately 46% of the chemical field characterization analytical data and 0% of the radiological field characterization analytical data have been received from the laboratories. Approximately 23% of planned data to be collected has been validated.

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3.2 Remedial Investigation (continued)

Issues/Corrective Actions:

None to report.

3.3 Feasibility Study/Proposed Plan

Status:

OU 3 has not begun formal activities on the Feasibility Study, although alternatives research, initial screening, and document layout planning have been initiated. 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 and final Record Of Decision.

OPERABLE UNIT 3 FEASIBILITY STUDY/PP REPORT

PRIMARY MILESTONES

SCOPE	SUBMIT TO EPA	RECEIVE FROM EPA	SUBMIT TO EPA FINAL
Describes and analyzes potential remedial alternatives. A comparative analysis will be performed for all alternatives. The Proposed Plan identifies potential remedial alternatives as listed in the FS and presents the preferred alternative to the U.S. EPA and the public.	04/29/94 C	06/27/94 C	07/25/94 C

C = Consent Agreement Date

Issues/Corrective Actions:

None to report.

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37 88

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3.4 Treatability Studies

Status:

The FEMP will conduct remedy screening treatability studies in parallel with the field investigation and alternatives development. OU 3 has developed a Treatability Study Work Plan (TSWP) to include initially-identified studies to be performed. Current actions involve planning the initial studies. The work plan was transmitted to U.S. EPA December 22, 1993, ahead of the scheduled January 15, 1994 due date. Comments were received from the OEPA in January and U.S EPA Conditional Approval was received in February. Comment-responses are being prepared for resubmittal of the TSWP. Additional tests will be planned and submitted as addenda to the Treatability Study Work Plan, once identified and detailed.

Issues/Corrective Actions:

None to report.

3.5 Interim Action - Record of Decision

The Interim Action Record of Decision (IROD) will document the preferred alternative from the Proposed Plan/Environmental Assessment for Interim Action (PP/EA), as amended through public comment. The IROD draft will be submitted for U.S. EPA review and approval April 11, 1994, and once approved, will form the basis for completing the decontamination and dismantlement action for OU 3 components.

Status:

The public comment period for the PP/EA closed February 8, 1994. Comments received indicated general support for the preferred alternative with several issues requiring either further explanation, future commitment, or modification to the selected remedy. A Draft interim ROD with a draft responsiveness summary have been prepared for review by DOE-HQ.

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3.5 Interim Action - Record of Decision (continued)

Issues/Corrective Actions:

None to report.

3.6 RD/RA Work Plan

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

Status:

A draft of the RD/RA Work Plan was distributed January 31, 1994 for internal review and comment. In total, 64 copies of the Work Plan were distributed. Numerous comments were received on and around February 17, 1994, from various organizations on-site (e.g., Legal, Regulatory, Construction, Engineering, QA, QC, etc.), as well as technical support from Haliburton NUS, and external editorial support. Based on the comments, the Work Plan is in the process of being revised to support a March 15, 1994 formal submittal of a Draft Work Plan to DOE-FN. A significant work force across the site is being utilized to get the document revised and turned around to meet this March 15, 1994 milestone commitment.

Issues/Corrective Actions:

None to report.

3.7 Planned Activities for March 1994

- Continue efforts to complete the shipment of samples under the first three task orders against the Radioanalytical Laboratory Services Task Order Subcontract. Continue efforts to support the placement of the fourth task order for possible shipment of samples for radioanalytical analysis in March 1994.

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3.7 Planned Activities for March 1994 (continued)

- Continue development of the RD/RA Work Plan for Interim Action, including the review and incorporation of comments resultant from the internal review of the draft RD/RA Work Plan. Reproduce and distribute the Work Plan to meet the March 15, 1994 milestone of submittal of the Draft RD/RA Work Plan to DOE-FN.
- Continue writing Field Work Packages (FWPs). It is anticipated that about 15 - 20 FWPs will be reviewed and approved in March 1994.
- Continue procurement of vendor services on planned Treatability Studies and continue efforts to identify additional needed studies.
- Complete internal revisions of a draft IROD and Responsiveness Summary Development and transmit to DOE-HQ for review and approval.

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4.0 Operable Unit 4

Operable Unit 4 (OU 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 RI/FS Work Plan

Status:

Complete.

Issues/Corrective Actions:

None to report.

4.2 Remedial Investigation

Status:

The OU 4 Remedial Investigation Final Report was transmitted to the U.S. EPA on October 29, 1993. Ohio EPA approved the document on November 23, 1993. DOE received comments on the Baseline Risk Assessment portion of this report from the U.S. EPA Region V. Revisions to the OU 4 Remedial Investigation Final Report were issued during February 1994.

Issues/Corrective Actions:

None to report.

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4.3 Feasibility Study/Proposed Plan

Status:

Ohio EPA comments on the Draft Final OU 4 Feasibility Study/Proposed Plan were received on January 25, 1994. U.S. EPA comments on the Draft Final OU 4 Feasibility Study Report were received on January 31, 1994. The report was revised to incorporate the comments and the Final Feasibility Study Report for OU 4 was submitted to U.S. and OEPAs on February 22, 1994.

Issues/Corrective Actions:

None to report.

OPERABLE UNIT 4 FEASIBILITY STUDY/PP REPORT

PRIMARY MILESTONES

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. The Proposed Plan identifies potential remedial alternatives as listed in the FS and presents the preferred alternative to the U.S. EPA and the public.	09/10/93 C 09/09/93 A	11/10/93 C 11/12/93 A	12/28/93 C 12/21/93 A

C = Consent Agreement Date
A = Actual Date

4.4 Treatability Studies

Scope:

A Treatability Study Work Plan addresses the additional information that is required to support the FS and subsequent remedy selection for OU 4. There are two separate treatability studies to support the OU 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.

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4.5 Record of Decision

Status:

A proposed draft Record of Decision (ROD) for OU 4 was completed on December 14, 1993. This proposed draft ROD is based on the Final Feasibility Study and Proposed Plan issued to the U.S. EPA and Ohio EPA on February 22, 1994. The proposed draft ROD was revised to reflect the additional comments received on the FS/PP and submitted to the DOE for review on February 25, 1994.

4.6 Planned Activities for March 1994

- Complete work on the OU 4 Administrative Record for the RI and FS Reports
- Revise the Proposed Draft Record of Decision based on the DOE comments
- Initiate public review period for the Feasibility Study Report and Proposed Plan for Remedial Action at OU 4 on March 7, 1994
- Conduct Public Meeting for public comment on the Feasibility Study and Proposed Plan for Remedial Action at OU 4 on March 21, 1994.

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5.0 Operable Unit 5

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

5.1 RI/FS Work Plan

Status:

Complete.

Issues/Corrective Actions:

None to report.

5.1.1 RI Field Investigation

Status:

The Groundwater Monitoring staff are developing plans for removing Well 2561, located at the southern end of Paddy's Run, using FERMCO Construction Services personnel and equipment. A Removal Site Evaluation has been prepared for DOE review.

Issues/Corrective Actions:

None to report.

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5.2 Remedial Investigation

Status:

The draft RI report was completed and delivered to DOE on February 25, 1994 for review. RI data compilation and evaluation continue. All data sources to be included in the OU 5 RI 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 geologic and hydrogeologic information contained in RI/FS site files and documents is being compiled, evaluated, and updated. Existing maps and cross sections are being updated where additional information has become available. New maps and cross sections of the glacial overburden continue to be generated.

Validation of the data set to support the RI is complete. Remaining verification, quality control, and formatting of the validated database are continuing. The estimated completion date is mid-March 1994, at which time the data will be available for final fate and transport modeling activities. As of February 25, 1994 the results from approximately 14000 validated samples are available for CRU5 in the Sitewide Environmental Database (SED).

Issues/Corrective Actions:

None to report.

OPERABLE UNIT 5 REMEDIAL INVESTIGATION REPORT

PRIMARY MILESTONES

SCOPE	SUBMIT TO EPA	RECEIVE FROM EPA	SUBMIT TO EPA FINAL
Details the nature and extent of contaminants within the OU 5 study area. Estimates the volume of contaminated media and materials. Provides a baseline risk assessment and establishes remedial action objectives.	06/24/94 C	08/23/94 C	09/22/94 C

C = Consent Agreement Date

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5.3 Feasibility Study/Proposed Plan

Status:

Activities in support of the OU 5 Feasibility Study (FS) continued during February. Preliminary Land Use Objectives and alternatives attaining these objectives were identified for internal review. These objectives/alternatives will form the basis for the Detailed Analysis of Alternatives in the FS.

Detailed outlines for Chapters 1 and 2 have been prepared and subjected to internal review. The Treatability Appendix is in preparation and is expected to be completed in March 1994.

An Integraph based database is in preparation for site-wide soil and sediment data. The database will include all available data. The database, which will support solid block modeling, is expected to be available by March 31, 1994.

Issues/Corrective Actions:

None to report.

OPERABLE UNIT 5 FEASIBILITY STUDY/PP REPORT

PRIMARY MILESTONES

SCOPE	SUBMIT TO EPA	RECEIVE FROM EPA	SUBMIT TO EPA FINAL
Describes and analyzes potential remedial alternatives. A comparative analysis will be performed for all alternatives. The Proposed Plan identifies potential remedial alternatives as listed in the FS and presents the preferred alternative to the U.S. EPA and the public.	11/16/94 C	01/15/95 C	02/14/95 C

C = Consent Agreement Date

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5.4 Treatability Studies

The Treatability Study provides information to support the Feasibility Study and subsequent remedy selection for OU 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 conducted on soil from the following areas: incinerator area (ID-A), Plant 1 Pad Area (ID-B) and maintenance building area (OU 5-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 (Phase 1) began processing radiologically-contaminated soil using sulfuric acid extractant, completing the ID-A and ID-B soil in August 1993. 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.

A soil treatability laboratory has been established at the Fernald facility to support pilot plant testing and expand bench testing to address additional constituents of potential concern (CPCs) in support of all of FERMCO's RI/FS studies. Bench testing on additional CPCs and an expanded range of uranium concentrations is currently being conducted with an expected completion in March 1994. Following completion of the RI/FS-related testing efforts, the focus will shift to remedial design process optimization testing.

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5.4 Treatability Studies (Continued)

Designing and programming of a database to accommodate OU 5 remedy screening and remedy selection data has begun. 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 OU 5 study under the umbrella of the DOE Uranium in Soils Integrated Demonstration Program.

Issues/Corrective Actions:

None to report.

5.5 Planned Activities for March 1994

- Complete validation of the laboratory data from supplemental non-RI/FS programs.
- Verify that the data in the SED is correct and properly coded so data retrievals are consistent and complete.
- Begin data retrievals to support the June draft of the OU 5 RI.
- Complete the "Characterization of Background Water Quality for Streams and Groundwater" report.
- Continue work on the groundwater model improvements. A final "Groundwater Modeling Report - Summary of Model Improvement" will be released in April 1994.

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6.0 Community Relations

Status:

DOE has initiated an Envoy Program at Fernald. The objective is to facilitate communications and improve decision making by utilizing carefully selected DOE and FERMCO employees to build closer relationships with numerous stakeholder groups. Envoys will provide detailed information about Fernald objectives, policy, mission, roles, constraints, and requirements, then will listen to stakeholders' opinions, suggestions, values, questions, and other input. The key element of the Envoy Program will be to take group input back to decision makers and use that information to amend, modify, and improve decisions on public-sensitive documents, programs and projects before final decisions are made on such issues as waste disposition, future use, cleanup standards and priorities, technology and economic impact of Fernald initiatives. Training sessions were held February 22 and 23, 1994 for approximately 40 envoys.

The Fernald Citizens Task Force held its regular monthly meeting on February 12, 1994, at the AmeriSuites Hotel in Forest Park, Ohio. About 12 members of the public, DOE, and FERMCO observed. The Task Force continued considering future land use options for the Fernald site. The Task Force also agreed to add a member to represent the local business community; the membership subcommittee will meet later to discuss possible candidates. The next regular meeting of the Task Force is scheduled for March 12, 1994, at the AmeriSuites in Forest Park, Ohio. An informal information session is scheduled for March 1, 1994, at the AmeriSuites in Forest Park, Ohio.

On February 15, 1994 DOE conducted a public workshop to discuss the FERMCO/DOE Cost Plus Award Fee (CPAF) evaluation process. About ten members of the public attended. A representative from the DOE-FN Office of Oversight & Assessment gave a presentation which explained the CPAF contract FERMCO has with DOE and how the fee is determined through an evaluation process.

On February 18, 1994 DOE submitted the Draft Remedial Investigation Report for OU 2 to U.S. EPA in compliance with the 1991 Amended Consent Agreement Schedule.

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**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
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Period Ending February 28, 1994

Remedial Investigations/Feasibility Studies

6.0 Community Relations (Continued)

On February 22, 1994, DOE conducted a Community Meeting at the Plantation with approximately 160 in attendance. Staff from DOE and FERMCO were available to the public prior to the formal meeting to discuss the exhibits and handouts. Jack Craig gave a brief presentation on the upcoming RI/FS primary document submittals to U.S. EPA and emphasized when the public will have an opportunity to comment this year on the proposed plan for Operable Units 1, 2, and 4. Next Sue Peterman explained the FY94 budget for the Fernald site in a unique way by having the audience participate in an activity called "Clean-upoly". The remainder of the meeting was devoted to updates by several agencies and a Question and Answer session. The entire meeting was recorded and a transcript will be placed in the Public Environmental Information Center.

DOE-FN representatives attended the monthly FRESH meeting on February 24, 1994. Approximately 20 residents attended. DOE spoke about the upcoming activities for Operable Unit 4 involving public participation. DOE also addressed concerns about Fernald's involvement in DOE's tissue and organ sampling programs carried out over the past generation. Other topics discussed at the meeting included:

- Update on the progress of public water supply
- The 1993 Fernald *Site Environmental Report* will be available June 1, 1994
- Provided a timeline showing NEPA/CERCLA activities at the FEMP

Issues/Corrective Action:

None to report.

6.1 Planned Activities for March 1994

- The next regular meeting of the Task Force is scheduled for March 12, 1994, at the AmeriSuites in Forest Park, Ohio.
- A 45-day public comment period will be held on the *Operable Unit 4 Feasibility Study/Proposed Plan-Draft Environmental Impact Statement*. It will begin March 7 and end April 20, 1994.

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
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Remedial Investigations/Feasibility Studies

6.1 Planned Activities for March 1994 (Continued)

- DOE will conduct a formal public hearing to discuss the Operable Unit 4 remedial alternatives and accept public comments on March 21, 1994, beginning at 7 p.m. at the Plantation, 9660 Dry Fork Road, Harrison, Ohio.
- The monthly FRESH meeting will be held on March 24, 1994 beginning at 7:30 p.m. at the Venice Presbyterian Church in Ross, Ohio.
- DOE will hold a workshop to discuss the draft Feasibility Study and Proposed Plan for OU 1 at 7:00 p.m. on March 29, 1994 at the Ross Fire Station in Ross, Ohio.

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**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
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ENCLOSURE A

**WASTE WATER FLOWS AND RADIONUCLIDE
CONCENTRATIONS UNDER CA SECTION XXIII.B**

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

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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 waste water flows, radionuclide concentrations, and loadings released to the Great Miami River and an estimate of runoff and radionuclide concentrations to Paddy's Run during February 1994.

Summary - February 1994

The total quantity of uranium discharged from the FEMP to the Great Miami River via Manhole 175 (Outfall 11o00004001) was 70.48 kilograms. The average uranium concentration for the previous 12 months was 0.45 mg/L. This is 50.6 % of the Derived Concentration Guide (DOE Order 5400.5) for ingested water.

There was no discharge from the Storm Water Retention Basin Spillway (Outfall 11o00004002) to Paddy's Run via the Storm Sewer Outfall Ditch in February 1994. Based on 1.83 inches of rainfall in February 1994, the total quantity of uranium discharged to Paddy's Run from uncontrolled areas of the FEMP is estimated to be 5.20 kilograms.

**CONSOLIDATED CONSENT AGREEMENT FACILITY
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EFFLUENT RADIATION REPORT

FACILITY: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O.Box 398705
Cincinnati, Ohio 45239-8705
9002 M 9501 900212

LOCATION: 11000004001
001 Total Discharge
Manhole 175 (Effluent to Great Miami River)

DATE: FEBRUARY 1994

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	1.599	338	221	0.50	3.02	169
2	1.401	347	216	0.51	2.70	172
3	0.837	401	225	0.55	1.74	186
4	0.946	365	149	0.58	2.08	196
5	1.530	383	153	0.58	3.36	196
6	1.331	0	0	0.58	2.92	196
7	0.431	0	0	0.95	1.55	321
8	0.539	0	0	0.84	1.71	284
9	0.938	0	0	0.66	2.34	223
10	0.788	0	0	0.73	2.18	247
11	0.410	0	0	0.88	1.36	297
12	0.860	0	0	0.78	2.54	264
13	1.340	0	0	0.60	3.04	203
14	0.811	0	0	0.61	1.87	206
15	0.463	0	0	0.88	1.54	297
16	0.388	0	0	0.86	1.26	291
17	0.407	0	0	1.20	1.85	405
18	0.321	0	0	0.94	1.14	318
19	0.992	0	0	0.72	2.70	243
20	1.382	0	0	0.61	3.19	206
21	0.999	0	0	0.70	2.65	236
22	0.819	0	0	0.74	2.29	250
23	0.646	0	0	0.72	1.76	243
24	1.129	0	0	0.70	2.99	236
25	1.537	0	0	0.68	3.95	230
26	1.429	0	0	0.75	4.05	253
27	1.400	0	0	0.81	4.29	274
28	1.367	0	0	0.85	4.40	287
Total	ERR				ERR	

0 45 Analytical results not yet available.

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**CONSOLIDATED CONSENT AGREEMENT FACILITY
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EFFLUENT RADIATION REPORT (cont.)

FACILITY: Fernald Environmental Management Project

LOCATION: 001 Total Discharge

DATE: FEBRUARY 1994

	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.	ERR	ERR	ERR	ERR	ERR	ERR
Max.	ERR	ERR	ERR	ERR	ERR	ERR
Min.	ERR	14	99	0.02	0.02	7

The average uranium concentration for the previous twelve months was 0.45 mg/l. This is 50.6 percent 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 FACILITY
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EFFLUENT RADIATION REPORT

FACILITY: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O.Box 398705
Cincinnati, Ohio 45239-8705
9002 M 9501 900212

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

DATE: FEBRUARY 1994

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

Based on 1.83 inches of rainfall for the month, the uranium discharge to Paddy's Run from uncontrolled areas of the FEMP is estimated to be 5.20 kgs.

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**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY COMPLIANCE
AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
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ENCLOSURE B

FFCA: INITIAL REMEDIAL MEASURES

AND OTHER OPEN ACTIONS

**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
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Period Ending February 28, 1994

INTRODUCTION

Enclosure B describes actions undertaken at the FEMP during the period February 1 through February 28, 1994, 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).

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

3. Reports and Record Keeping

Section B

The RI/FS Monthly Technical Progress Report for January 1994 was transmitted to the U.S. EPA on February 21, 1994, 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 January 1994, was transmitted to the U.S. EPA on February 21, 1994, 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**

FEBRUARY 28, 1994

<u>ACTION</u>	<u>DESCRIPTION</u>	<u>COMPLETION TIME AFTER FFCA SIGNED</u>	<u>FY1994 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 January 1994 was transmitted to the U.S. EPA on February 21, 1994.
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).

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

FEBRUARY 28, 1994

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	No stacks related to production were operating in 1993. Periodic confirmatory measurements to demonstrate compliance with NESHAP Subpart H were conducted on three laboratory exhaust stacks. These tests were conducted in accordance with a program to verify low emissions from stacks without continuous in-stack monitoring. Due to the permanent shutdown of metals production, resumption of the FFCA Stack Testing Program is unlikely. A proposal is being developed to substitute the NESHAP Subpart H testing/monitoring program for the FFCA Stack Testing. When this proposal is completed it will be formally submitted to U.S. EPA.
D.2	Provide U.S. EPA with stack-test results for stacks tested that year.	45 days	No stacks related to production were operated or tested in 1993.
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.

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TABLE 1

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

FEBRUARY 28, 1994

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.
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REPORTING REQUIREMENTS

B.	Issue monthly progress report of actions taken to ensure compliance with FFCA requirements.	monthly	January's FFCA Monthly Progress Report was transmitted to the U.S. EPA on February 21, 1994.
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**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
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ENCLOSURE C

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

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**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
COMPLIANCE AGREEMENT/FEDERAL FACILITY AGREEMENT FOR
CONTROL AND ABATEMENT OF RADON-222 EMISSIONS
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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 February 1, through February 28, 1994, to implement Part V, Radon-222 Control and Abatement Plan, paragraphs 19-33 of the FFA-CARE.

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
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<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 off-site 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.

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<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 February 1994.
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.

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<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.

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**CONSOLIDATED CONSENT AGREEMENT/FEDERAL FACILITY
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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).

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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 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.

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C-7

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

MONTH: **FEBRUARY**
YEAR: **94**

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)
02/01/94	0.6	0.6	0.5	1.6
02/02/94	0.7	0.6	0.7	1.5
02/03/94	0.4	0.6	0.5	1.4
02/04/94	0.7	0.7	0.7	1.3
02/05/94	0.5	0.6	0.6	1.3
02/06/94	0.8	0.9	0.8	1.5
02/07/94	0.6	0.5 (c)	0.7	1.4
02/08/94	0.4	(c)	0.5	1.4
02/09/94	0.4	(c)	0.4	1.4
02/10/94	0.4	(c)	0.4	1.4
02/11/94	0.4	(c)	0.4	1.4
02/12/94	0.4	(c)	0.5	1.4
02/13/94	0.4	(c)	0.4	1.3
02/14/94	0.3	(c)	0.4	1.3
02/15/94	0.4	(c)	0.6	1.1 (b)
02/16/94	1.0	0.1 (c)	1.5	(b)
02/17/94	1.0	0.2	1.7	(b)
02/18/94	1.0	0.2	1.7	(b)
02/19/94	0.5	0.1	0.5	(b)
02/20/94	0.4	0.1	0.5	(b)
02/21/94	0.5	0.2	0.6	(b)
02/22/94	0.4	0.7	0.5	(b)
02/23/94	0.4	0.6	0.5	(b)
02/24/94	0.3	0.6	0.4	(b)
02/25/94	0.5	0.7	0.5	(b)
02/26/94	0.6	0.8	0.5	(b)
02/27/94	0.8	0.9	0.5	0.3 (b)
02/28/94	0.6	0.7	0.5	1.4

Monthly Averages:	AMS-6 (pCi/L)	AMS-6 (pCi/L)	PILOT PLANT (pCi/L)	BKGD (pCi/L)
AVERAGE:	0.5	0.5	0.6	1.3
MAXIMUM:	1.0	0.9	1.7	1.6
MINIMUM:	0.3	0.1	0.4	0.3
MEDIAN:	0.5	0.4	0.5	1.3
STD. DEV.:	0.2	0.3	0.4	0.3

- 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.

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: FEBRUARY 1994

REPORT GENERATED: 03/07/94

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.
02/01/94	155,000	433,000	48,000	67,000	2,439,000	3,149,000	1,616,000	395,000
02/02/94	268,000	819,000	48,000	192,000	2,679,000	3,268,000	1,568,000	512,000
02/03/94	109,000	634,000	12,000	125,000	2,230,000	3,316,000	1,353,000	548,000
02/04/94	359,000	911,000	21,000	266,000	3,107,000	3,484,000	1,568,000	392,000
02/05/94	376,000	918,000	56,000	263,000	3,080,000	3,484,000	1,856,000	355,000
*02/06/94	263,000	591,000	142,000	128,000	3,227,000	3,388,000	3,077,000	72,000
*02/07/94	167,000	735,000	39,000	148,000	2,808,000	3,340,000	2,167,000	296,000
02/08/94	450,000	1,114,000	77,000	263,000	2,787,000	3,412,000	2,047,000	304,000
02/09/94	248,000	886,000	104,000	143,000	2,681,000	3,125,000	2,191,000	179,000
02/10/94	164,000	618,000	50,000	99,000	2,339,000	2,861,000	1,927,000	197,000
02/11/94	183,000	930,000	21,000	183,000	2,456,000	3,125,000	1,927,000	241,000
02/12/94	420,000	1,224,000	71,000	372,000	2,872,000	3,484,000	2,311,000	347,000
02/13/94	85,000	482,000	21,000	80,000	2,680,000	3,149,000	1,999,000	231,000
02/14/94	280,000	787,000	50,000	177,000	2,796,000	3,292,000	1,856,000	294,000
02/15/94	116,000	592,000	11,000	96,000	2,970,000	3,292,000	2,335,000	294,000
02/16/94	381,000	889,000	67,000	269,000	3,031,000	3,197,000	2,837,000	104,000
**02/17/94	430,000	905,000	74,000	290,000	3,464,000	4,250,000	2,766,000	601,000
02/18/94	521,000	919,000	66,000	305,000	3,901,000	4,082,000	3,316,000	146,000
02/19/94	550,000	936,000	129,000	260,000	3,545,000	3,987,000	2,095,000	474,000
02/20/94	491,000	905,000	64,000	227,000	3,540,000	3,915,000	2,071,000	260,000
02/21/94	138,000	897,000	14,000	194,000	3,585,000	3,867,000	2,646,000	284,000
02/22/94	78,000	790,000	6,000	120,000	2,437,000	3,651,000	946,000	790,000
02/23/94	328,000	1,175,000	10,000	326,000	2,716,000	3,867,000	802,000	1,007,000
02/24/94	57,000	720,000	7,000	74,000	2,349,000	3,436,000	1,329,000	514,000
02/25/94	457,000	1,176,000	19,000	378,000	3,049,000	3,795,000	1,281,000	716,000
02/26/94	99,000	436,000	25,000	51,000	3,121,000	3,627,000	2,550,000	294,000
02/27/94	258,000	906,000	31,000	190,000	3,510,000	3,843,000	3,053,000	180,000
02/28/94	161,000	807,000	33,000	155,000	3,610,000	4,130,000	2,933,000	236,000

Grab Samples of Headspace

Date	SILO 1	SILO 2
	Concentration	Concentration
02/03/94	115,000	3,687,000
02/07/94	93,000	3,710,000
02/15/94	49,000	5,011,000
02/17/94	1,393,000	3,236,000
02/22/94	37,000	2,617,000
02/24/94	90,000	1,694,000
02/28/94	81,000	3,387,000

- Notes:
- All values reported to the nearest thousand pCi/L to remain consistent with the precision of the calibration source.
 - Data lost due to data logging system malfunction (02/06/94 03:46 - 02/07/94 09:41).
 - Data edited due to changeout of radon monitoring equipment (02/17/94 10:51 - 14:51).

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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: February 1994

Day	Ambient Temp ° F	Press In. Hg.	Temperature Head Space ° F	Inter. Hum. %	Diff. Press In. HG	Head Space Radon (pCi/l)
1	8.4	29.74	35.5	*	-0.009	30,365
2	19.8	29.54	34.5	*	-0.008	54,150
3	20.4	29.63	34.7	*	-0.009	21,687
4	28.8	29.54	34.5	*	-0.007	73,713
5	28.8	29.40	35.0	*	-0.007	77,362
***6	14.8	29.48	35.1	*	-0.009	52,516
***7	26.9	29.63	35.0	*	-0.006	33,306
8	23.7	29.29	35.0	*	-0.000	93,053
** 9	12.9	29.50	34.8	*	0.147	49,700
** 10	13.5	29.76	34.0	*	-0.108	32,334
** 11	21.1	29.58	33.9	*	-0.137	36,746
** 12	26.5	29.50	34.0	*	-0.077	88,203
** 13	27.6	29.65	34.3	*	-0.041	16,596
14	32.8	29.68	34.3	*	-0.006	56,394
15	39.3	29.61	34.8	*	-0.005	22,911
16	30.1	29.83	35.0	*	-0.006	72,102
****17	35.0	29.74	35.1	*	-0.005	354,032
18	43.5	29.67	35.5	*	-0.004	485,873
19	58.1	29.58	36.6	*	-0.001	514,409
20	55.3	29.51	38.0	*	-0.002	462,301
21	40.7	29.63	38.8	*	-0.005	293,649
** 22	30.5	29.56	38.2	*	-0.017	76,179
** 23	40.2	29.09	38.0	*	-0.035	307,156
24	23.3	29.33	37.9	*	-0.008	55,658
** 25	25.9	29.38	37.2	*	-0.000	423,574
** 26	16.5	29.76	36.6	*	0.095	97,388
** 27	19.7	29.88	35.8	*	0.031	247,943
28	28.6	29.74	35.7	*	-0.006	155,650
ARITHMETIC MEAN	28.3	29.58	35.6	*	-0.009	153,034
MAXIMUM	58.1	29.88	38.8	*	0.147	514,409
MINIMUM	8.4	29.09	33.9	*	-0.137	16,596
MEDIAN	27.3	29.60	35.1	*	-0.006	74,946

Note: * - Silo #1 Relative Humidity was inoperable, default value = 0.
 ** - Some or most Delta Pressure values were outside of range restrictions.
 *** - Limited data available due to DLS system malfunction (02/06/94 03:46 - 02/07/94 09:41).
 **** - Radon data edited due to changeout of radon monitoring equipment (02/17/94 10:51 - 14:51).

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 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: February 1994

Day	Ambient Temp °F	Press In. Hg.	Temperature Head Space °F	Inter. Hum. %	Diff. Press In. HG	Head Space Radon (pCi/l)
1	8.4	29.74	36.5	93.6	-0.004	2,438,697
2	19.8	29.54	35.8	93.4	-0.004	2,678,634
3	20.4	29.63	35.9	93.1	-0.005	2,229,936
4	28.8	29.54	35.9	93.1	-0.004	3,106,630
5	28.8	29.40	36.3	93.0	-0.004	3,080,025
***6	14.8	29.48	36.4	93.1	-0.004	3,226,693
***7	26.9	29.63	36.2	93.0	-0.005	2,808,289
8	23.7	29.29	36.1	93.0	-0.005	2,786,880
** 9	12.9	29.50	36.0	93.0	0.105	2,680,795
** 10	13.5	29.76	35.4	93.0		2,339,014
** 11	21.1	29.58	35.2	93.0		2,456,155
** 12	26.5	29.50	35.3	93.0	0.025	2,872,429
** 13	27.6	29.65	35.5	93.0	0.034	2,680,047
14	32.8	29.68	35.5	93.0	-0.005	2,795,692
15	39.3	29.61	36.1	93.0	-0.004	2,970,116
16	30.1	29.83	36.3	93.0	-0.002	3,030,558
****17	35.0	29.74	36.4	92.9	-0.002	3,454,530
18	43.5	29.67	36.7	92.7	-0.004	3,900,850
19	58.1	29.58	37.7	92.4	-0.007	3,545,184
20	55.3	29.51	39.0	92.0	-0.007	3,540,363
21	40.7	29.63	39.7	92.0	-0.007	3,560,599
22	30.5	29.56	39.2	92.7	-0.015	2,437,366
23	40.2	29.09	38.8	92.4	-0.084	2,715,630
24	23.3	29.33	38.8	92.9	-0.007	2,348,991
25	25.9	29.38	38.1	92.9	-0.006	3,048,849
26	16.5	29.76	37.5	93.0	-0.005	3,121,262
27	19.7	29.88	36.9	92.8	-0.005	3,510,183
28	28.6	29.74	36.7	92.6	-0.006	3,610,282
ARITHMETIC MEAN	28.3	29.58	36.8	92.9	-0.001	2,963,381
MAXIMUM	58.1	29.88	39.7	93.6	0.105	3,900,850
MINIMUM	8.4	29.09	35.2	92.0	-0.084	2,229,936
MEDIAN	27.3	29.60	36.4	93.0	-0.005	2,921,273

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

*** - Limited data available due to DLS system malfunction (02/06/94 03:46 - 02/07/94 09:41).

**** - Radon data edited due to changeout of radon monitoring equipment (02/17/94 10:51 - 14:51).

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

PERIOD ENDING FEBRUARY 28, 1994

ENCLOSURE D

EFFLUENT RADIATION DISCHARGES TO THE GREAT MIAMI RIVER

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

Period Ending February 28, 1994

Introduction

Enclosure E lists monthly discharges to the Great Miami River. This information is required by the DOE/U.S. EPA 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."

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

Period Ending February 28, 1994

EFFLUENT RADIATION REPORT

FACILITY: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O.Box 398705
Cincinnati, Ohio 45239-8705
9002 M 9501 900212

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

DATE: JANUARY 1994

Day	Flow (MGD)	Total Alpha (pCi/l)	Total Beta (pCi/l)	Total U (mg/l)	Total U (kgs)
1	AC				
2	AC				
3	0.471	369	257	0.61	1.09
4	1.125	450	239	0.63	2.68
5	1.070	450	252	0.59	2.39
6	1.060	437	198	0.60	2.41
7	1.054	405	171	0.61	2.43
8	0.615	541	171	0.62	1.44
9	AC				
10	AC				
11	AC				
12	AC				
13	0.019	320	162	0.47	0.03
14	AC				
15	AC				
16	AC				
17	AC				
18	AC				
19	AC				
20	AC				
21	AC				
22	AC				
23	AC				
24	AC				
25	0.597	302	113	0.50	1.13
26	0.967	356	140	0.50	1.83
27	0.921	288	189	0.50	1.74
28	1.039	275	207	0.47	1.85
29	1.050	261	149	0.45	1.79
30	0.989	270	144	0.42	1.57
31	1.047	243	140	0.42	1.66
	<u>12.024</u>				<u>24.04</u>

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

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

Period Ending February 28, 1994

EFFLUENT RADIATION REPORT

FACILITY: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O.Box 398705
Cincinnati, Ohio 45239-8705
9002 M 9501 900212

LOCATION: [605]
Biode-nitrification Tower
BDN Tower Effluent

DATE: JANUARY 1994

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	0.071	946	1261	1.9	0.51			
2	0.070	140	212	0.28	0.07			
3	0.071	86	144	0.17	0.05			
4	0.070	104	176	0.20	0.05	0.72		
5	0.069	95	189	0.21	0.05			
6	0.072	23	95	0.04	0.01			
7	0.077	14	95	0.02	0.01			
8	0.092	23	95	0.03	0.01			
9	0.071	23	167	0.06	0.02			
10	0.069	36	198	0.06	0.02			
11	0.071	135	270	0.25	0.07	1.40		
12	0.071	113	279	0.24	0.06			
13	0.070	14	149	0.03	0.01			
14	0.082	14	216	0.01	0.00			
15	0.103	18	315	0.02	0.01			
16	0.097	**	**	**	**			
17	0.085	14	189	0.02	0.01			
18	0.078	14	144	0.02	0.01	1.78	2	
19	0.027	77	351	0.16	0.02			
20	0.071	631	1126	1.1	0.30			
21	0.111	450	676	0.82	0.34			
22	0.128	541	811	0.98	0.47			
23	0.126	586	766	1.1	0.52			
24	0.127	676	856	1.3	0.62			
25	0.128	676	811	1.3	0.63	4.42		
26	0.128	856	811	1.3	0.63		2	
27	0.127	721	495	1.3	0.62			
28	0.165	676	1216	1.2	0.75			
29	0.177	766	437	1.4	0.94			
30	0.161	901	631	1.5	0.91			
31	0.163	721	631	1.6	0.99			
Total	3.028				8.71			

*: Value is less than detectable limit.
**: Sample not collected due to extremely cold weather.

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

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Period Ending February 28, 1994

EFFLUENT RADIATION REPORT

FACILITY: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O.Box 398705
Cincinnati, Ohio 45239-8705
9002 M 9501 900212

LOCATION: [605]
Biode-nitrification Tower
BDN Tower Effluent

DATE: JANUARY 1994

Day	Flow (MGD)	NO3-N (mg/l)	Chromium (ug/l)	Copper (ug/l)	Nickel (ug/l)	Hex-Chrom (ug/l)
1	0.071					
2	0.070	0.6	*	*	*	*
3	0.071					
4	0.070					
5	0.069					
6	0.072					
7	0.077					
8	0.092					
9	0.071					
10	0.069	0.7	*	*	*	*
11	0.071					
12	0.071					
13	0.070					
14	0.082					
15	0.103					
16	0.097					
17	0.085					
18	0.078	0.5	*	*	*	*
19	0.027					
20	0.071					
21	0.111					
22	0.128					
23	0.126					
24	0.127					
25	0.128					
26	0.128	**	*	*	*	*
27	0.127					
28	0.165					
29	0.177					
30	0.161					
31	0.163					
Total	3.028					

*: Value is less than detectable limit.
**: Analytical result invalid due to equipment malfunction.

File 5855

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

Period Ending February 28, 1994

EFFLUENT RADIATION REPORT

FACILITY: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O.Box 398705
Cincinnati, Ohio 45239-8705
9002 M 9501 900212

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

DATE: JANUARY 1994

Day	Flow (MGD)
1	0.000
2	0.000
3	0.471
4	1.125
5	1.070
6	1.060
7	1.054
8	0.615
9	0.000
10	0.000
11	0.000
12	0.000
13	0.019
14	0.000
15	0.000
16	0.000
17	0.000
18	0.000
19	0.000
20	0.000
21	0.000
22	0.000
23	0.000
24	0.000
25	0.597
26	0.967
27	0.921
28	1.039
29	1.050
30	0.989
31	1.047
Total	12.024

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

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Period Ending February 28, 1994

EFFLUENT RADIATION REPORT

FACILITY: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O.Box 398705
Cincinnati, Ohio 45239-8705
9002 M 9501 900212

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

DATE: JANUARY 1994

Day	Flow (MGD)	Total Alpha (pCi/l)	Total Beta (pCi/l)	Total U (ug/l)	Total U (kgs)	TSS (mg/l)	pH (Grab (S.U.))
1	1.603	14	* 99	14	0.08		7.4
2	1.803	* 14	* 99	13	0.09		7.3
3	1.840	* 14	* 99	13	0.09		7.4
4	1.823	* 14	* 99	13	0.09		7.4
5	1.889	* 14	* 99	13	0.09		7.4
6	1.801	* 14	* 99	13	0.09	1.4	7.4
7	2.000	* 14	* 99	13	0.10		7.4
8	1.792	* 14	* 99	13	0.09		7.7
9	1.795	14	* 99	13	0.09		7.3
10	1.808	14	* 99	13	0.09		7.5
11	1.863	* 14	* 99	13	0.09		7.4
12	1.750	* 14	* 99	14	0.09		7.4
13	1.807	* 14	* 99	14	0.10	4.8	7.5
14	1.816	14	* 99	14	0.10		7.4
15	1.562	* 14	* 99	16	0.09		7.4
16	1.459	**	**	**	**		7.5
17	1.472	14	* 99	18	0.10		7.4
18	1.458	* 14	* 99	16	0.09		7.5
19	1.478	* 14	* 99	16	0.09		7.5
20	1.391	* 14	* 99	16	0.08	2.2	7.5
21	1.470	* 14	* 99	17	0.09		7.0
22	1.501	* 14	* 99	17	0.10		7.1
23	1.353	* 14	* 99	17	0.09		7.3
24	0.804	* 14	* 99	18	0.05		7.1
25	1.400	14	* 99	17	0.09		7.3
26	1.448	14	* 99	17	0.09		7.1
27	1.297	* 14	* 99	17	0.08	1.4	7.3
28	1.352	14	* 99	17	0.09		8.2
29	1.914	* 14	* 99	13	0.09		7.2
30	1.989	* 14	* 99	13	0.10		7.5
31	1.679	* 14	* 99	13	0.08		7.2
Total	50.417				2.69		

*: Value is less than detectable limit.

**: Sample not collected due to extremely cold weather.

5855

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

Period Ending February 28, 1994

EFFLUENT RADIATION REPORT

FACILITY: Fernald Environmental Management Project
U.S. Department of Energy
7400 Willey Road, P.O.Box 398705
Cincinnati, Ohio 45239-8705
9002 M 9501 900212

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

DATE: JANUARY 1994

Day	DO (mg/l)	IRON (mg/l)	MANGANESE (mg/l)
1			
2			
3			
4			
5			
6	11.2	0.70	0.1
7			
8			
9			
10			
11			
12			
13	9.9	0.60	0.1
14			
15			
16			
17			
18			
19			
20	8.7	0.57	0.1
21			
22			
23			
24			
25			
26			
27	11.5	0.59	
28			
29			
30			
31			

*: Value is less than detectable limit.