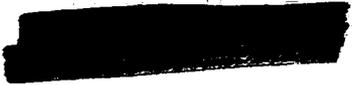


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**OPERABLE UNIT 1 PIT 5 EXPERIMENTAL
TREATMENT FACILITY REMOVAL ACTION
NUMBER 11 FINAL REPORT OCTOBER 1992**

10-29-92



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**WESTINGHOUSE ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT**

**OPERABLE UNIT 1
PIT 5 EXPERIMENTAL TREATMENT FACILITY
REMOVAL ACTION NUMBER 11 FINAL REPORT**

OCTOBER 1992

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ACRONYMS

ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
DOE	Department of Energy
EDPM	Ethylene-Diene-Propylene Monomer
EP	Extraction Procedure
ETF	Experimental Treatment Facility
FEMP	Fernald Environmental Management Project
FFCA	Federal Facilities Compliance Agreement
FMPC	Feed Materials Production Center
FR	Federal Register
HSL	Hazardous Substances List
HSWA	Hazardous and Solid Waste Amendments
HWMU	Hazardous Waste Management Unit
LDRs	Land Disposal Restrictions
LLRW	Low Level Radioactive Waste
NCP	National Oil and Hazardous Substances Contingency Plan
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
OAC	Ohio Administrative Code
Ohio EPA	Ohio Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PCBs	Polychlorinated Biphenyls
RD/RA	Remedial Design/Remedial Action
RI/FS	Remedial Investigation and Feasibility Study
ROD	Record of Decision
RSE	Removal Site Evaluation
SAP	Sampling and Analysis Plan
TBC	To Be Considered
TCA	1,1,1 Trichloroethane
TCLP	Toxic Characteristics Leachate Procedure
TSCA	Toxic Substances Control Act
U.S. EPA	United States Environmental Protection Agency

EXECUTIVE SUMMARY

This document provides an information summary describing the Removal Action activities addressing the Experimental Treatment Facility (ETF). The ETF has been identified as a Hazardous Waste Management Unit (HWMU) at the Fernald Environmental Management Project (FEMP), formerly known as the Feed Materials Production Center (FMPC). The ETF Removal Action began on 13 December 1991 and was completed on 20 March 1992. Over the period, remedial activities removed approximately 350 cubic yards, of waste material and contaminated media. In addition, approximately one hundred and fifty five (155) 55-gallon drums of waste water were generated. These materials were placed in containers and are being stored in a designated area of the Plant 1 Pad. Sampling analysis of the waste material generated from within the ETF structure has been performed, and no hazardous constituents are present. However, because the ETF was identified as a HWMU due to process knowledge of a listed waste (1,1,1 trichloroethane), it will be managed as mixed waste until further disposition. The 155 drums of waste water were generated by pumping the rainwater collected during the removal action from the ETF containment berm into 55-gallon drums. Final disposition of this waste water is under review to determine if other alternatives exist for the disposal or treatment of the waste water on-site.

As part of this Removal Action, technicians from the FEMP performed environmental monitoring before, during and after the actual removal of material from the ETF. Sampling activities have determined the extent of soil contamination from the waste sludge stored in the facility. This Removal Action has greatly reduced the threat of windblown and runoff contamination within the waste pit area. Final remediation and closure of this area will be included with the requirements established for the remedial action taken for Operable Unit 1(OU-1).

SECTION 1.0
INTRODUCTION

This document provides a summary describing activities addressed during the Experimental Treatment Facility (ETF). This Removal Action will reduce the potential release of contaminants from the ETF until final remediation is completed under CERCLA remedial actions for OU-1. This document is consistent with the amended Consent Agreement between the DOE and the Ohio EPA requiring a submittal for the ETF Final Report describing the Removal Action activities.

The FEMP has not proposed to perform physical closure of the ETF at this time. A Closure Plan will be submitted under separate cover at a later date. Once the CERCLA Record of Decision (ROD) is complete, the physical closure of the ETF will be integrated with the activities and approved time schedules designated in the Remedial Design/Remedial Action (RD/RA) Work Plan submitted in accordance with the Amended Consent Agreement between the DOE and the U.S. EPA. Any interim steps taken toward remediation of the ETF will be consistent with the final remediation of the OU-1 area. The intent of this Removal Action was to protect human health and the environment from the immediate threat of contaminated runoff and fugitive dust emissions.

SECTION 2.0
EXPERIMENTAL TREATMENT
FACILITY BACKGROUND INFORMATION

2.1 Unit Description

In an effort to reduce the amount of rotary kiln processing necessary to treat slurried material removed from Waste Pit 5, researchers at the FEMP established the Experimental Treatment Facility in 1984. The entire structure was built above ground and measured 20 feet by 48 feet. At the perimeter were retaining walls six feet high, constructed of wooden panel forms commonly used to form concrete. The design included a sand and gravel filter bed that lay ovetop a 20-mil thickness of plastic liner. The ETF was enclosed with a greenhouse-type roof. The original purpose of the facility was to study possible waste reduction by combining the sand-gravel filter with direct solar heating. In November of 1984, 12,000 gallons of diluted Pit 5 sludge was pumped into the ETF.

The process did achieve a substantial reduction in waste volume. The 12,000 gallons of diluted Pit 5 waste was reduced to 2,400 gallons of dry residue. However, the process proved impractical for large amounts of waste. Based on test data, 1,870 batches of waste would be required in an ETF of that size to dry out all the residue contained in Pit 5 alone. On February 23, 1988 high winds blew the greenhouse roof off the ETF, which still contained the dry Pit 5 material. A small amount of this material was blown out of the building and spread into the surrounding area. To reduce the chance that the remaining material would spread, the residue was sprayed down with water, and a tarpaulin cover was placed over the sludge material contained within the ETF. The Unusual Occurrence Report (WMCO:88-006) recommended the safe removal of the Pit 5 residue and the demolition of the ETF.

2.2 Waste Characterization and Inventory

According to the January 1991 RI/FS document "Initial Screening of Alternatives for OU-1," Waste Pit 5 contains an estimated 98,000 to 105,000 cubic yards of sludge and approximately 750,000 gallons of free liquid over the 161,103 square foot pit area. The pit contains solids from neutralized raffinate (extraction process residues), slag leach slurry, sump slurry, and lime sludge. Within these materials are an estimated 112,000 pounds of uranium and 37,000 pounds of thorium. The pit was taken out of service in February 1987.

A Sitewide Characterization Study sampled the sludge material in Waste Pit 5 that included detailed waste characterization analysis. The study found uranium, radium and thorium at concentrations that require Pit 5 waste to be considered low-level radioactive waste (LLRW). Six boreholes samples from Waste Pit 5 were analyzed and found to be within the regulatory limits for corrosivity, reactivity, ignitability and Extraction Procedure (EP) Toxicity for RCRA metals. The samples were also analyzed for Hazardous Substances Listed (HSL) inorganics and HSL organics. No measurable amounts of volatile or semi-volatile organics were detected in any of the samples analyzed.

The following table, taken from "Initial Screening of Alternatives for OU-1," provides a breakdown of Waste Pit 5 Characteristics:

Operable Unit 1 - Waste Pit 5 Characteristics

Description	Quantity
Radioactive Material Concentrations	
Radium-226	235-999 pCi/g
Uranium-235	14-79 pCi/g
Uranium-238	387-1,230 pCi/g
Thorium-230	3,080-20,200 pCi/g
Thorium-232	21-90 pCi/g
Technetium-99	423-2,990 pCi/g
Volatile Inorganics	
Arsenic	139-2800 mg/kg
Mercury	1.9-6.2 mg/kg
Organics	
PCBs (Aroclor 1254)	750 ppb
HSL Semivolatiles	Below quantification level
HSL Inorganics	
Aluminum	6,373-15,400 mg/kg
Calcium	116,000-206144 mg/kg
Iron	10,979-17,900 mg/kg
Magnesium	807-63,200 mg/kg
Arsenic	139-2,800 mg/kg
Mercury	0.4-1.8 mg/kg
Vanadium	792-5380 mg/kg
Hazardous Materials/Wastes	Within limits established by RCRA
Listed Hazardous Waste	Below quantification level

Although Extraction Procedure (EP) Toxicity testing has not shown the waste to be a characteristic hazardous waste as defined under RCRA, Waste Pit 5 has been determined to be a Hazardous Waste Management Unit (HWMU) based on process knowledge that indicates that process wastewater was directly discharged to Waste Pit 5 until March 1987. This process knowledge indicates that listed hazardous wastes were introduced to Waste Pit 5 from several plant locations including treated process wastewater from the General Sump, and untreated extraction (decladding) process wastewater from the Recovery Plant.

SECTION 3.0

DESCRIPTION OF ETF REMOVAL ACTION

In November 1991, WEMCO completed a Remedial Site Evaluation for Operable Unit 1 Pit 5 Experimental Treatment Facility, and the DOE/FEMP issued a Removal Action Memorandum in December 1991. DOE determined that a removal action was appropriate because of the potential for off-site exposure to hazardous waste from wind erosion and water runoff from the abandoned Experimental Treatment Facility. The R. M. Parsons Company prepared a Removal Action Work Plan and a Project Specific Health and Safety Plan that would encompass the following activities:

1. Dismantle and remove the ETF structure, reducing the size of its component parts as necessary to fit into shipping containers.
2. Use a Gradall to remove waste from inside the ETF.
3. Use a combination of engineering controls, specific work practices, and personal protective equipment to protect field workers.

The Removal Action included four phases. In the first phase, beginning on 13 December 1991, workers removed all vegetation from the area surrounding the ETF. The vegetation was surveyed for gross alpha and beta contamination, segregated, and placed in appropriate containers for disposition as required by WEMCO Site Operating Procedure "Disposition Requirements for Radiologically Contaminated and Uncontaminated Construction and Maintenance Waste." Each container was closed, lot marked, and labelled in accordance with site procedures for mixed waste material.

The second phase of the removal action accomplished the removal of the ETF waste materials: synthetic liner, liquid collection system, and filter bed materials. This was performed by removing one end of the ETF structure to provide a point of egress for the Gradall that was used to remove the material. All work was done within a lined and bermed area that totally encompassed the ETF; the lining and the berm effectively controlled the potential for run-off of liquids and contained spillage from waste removal activities. Removal of the end of the ETF was performed using only manual tools and equipment, and the wooden forms were cut into pieces able to fit into appropriate containers. Sawdust and other wood waste was placed in containers, stored on-site and managed as a mixed waste.

Waste residues and filter bed materials were removed from the ETF with a backhoe, starting at the point of entry and working inward. The waste materials were then loaded into appropriate containers for storage on the Plant 1 pad within a tension support structure. The Removal Action also addressed miscellaneous equipment such as PVC piping, which was removed and placed in containers separate from the waste materials in the ETF filter bed. The plastic liner beneath the filter bed was removed and placed in a separate container. All of the containers were closed, lot marked, and labelled in accordance with site procedures for mixed waste material.

During the second phase of the project, work crews removed the old collection sump in the bottom of the ETF and placed it in an appropriate container for disposal. The sump was used for the collection of watered liquids, were then pumped back into Waste Pit 5 via a portable pump and flexible hoses. The Removal Action also generated several representative waste samples that were transported to the laboratory for necessary analyses. Section 5.0 identifies the results of the analysis.

In the third phase, workers dismantled the side walls of the ETF and cut the wooden panels into smaller sections. The pieces were then placed in containers. The containers to be stored were entered into the

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site RCRA waste inventory record and were handled as a mixed waste. Representative samples of the waste have been gathered for analysis to determine final disposition. Refer to Section 5.0 for a summary of the analysis taken of the material. Following the complete removal of the ETF structure and contents, the depression left by the removal of the structure was filled with backfill and capped with a clay cover. This material was then compacted and seeded to aid in the prevention of erosion to the area.

The last phase of the removal action involved the sampling and analyses of the soils in the vicinity of the ETF structure. Because the ETF rested directly on top of the Waste Pit 3, workers collected no samples from deeper than six inches to avoid breaching the pit cover. A summary of the results of the sampling are included in Section 5.0 of this document.

SECTION 4.0
DISPOSAL/DECONTAMINATION
OF EQUIPMENT, STRUCTURES, SOILS AND CONSTRUCTION WASTES

During remediation of the ETF, the main objective during disposal and decontamination activities was to ensure that removal action activities did not pose a threat to human health and the environment. The disposal and decontamination activities associated with the remediation of the ETF were conducted in accordance with the Removal Action Work Plan. All sampling and analysis conducted pursuant to decontamination (or other removal action activities) was in accordance with the Work Plan Sampling and Analysis Plan.

4.1 Decontamination of Equipment

Several equipment decontamination methods were available for this removal action. The method selected and the setup for equipment decontamination was designed to contain and reduce the waste generated and to reduce the potential for release of hazardous wastes and constituents to the environment.

All reusable equipment involved in the removal action at the ETF was sampled (using approved sampling procedures) before leaving the work site to verify that the equipment was not radiologically contaminated. Any contaminated equipment was first decontaminated at the work site using approved decontamination procedures. In addition, all materials and equipment was decontaminated utilizing a triple rinse method to remove hazardous constituents from the equipment. This method consisted of the staging of equipment through three successive rinse stations and then allowing the equipment to dry at the site prior to final radiological screening to allow release from the work area. All disposable equipment such as PPE was placed in containers and managed as a mixed waste.

4.2 Waste Material Disposition

The demolition of the ETF generated approximately 120 white metal boxes of waste material. This material was placed within the storage containers and segregated according to the type of material (i.e. vegetation, wood structure, or waste sludge). Included in this waste stream was the construction rubble and personnel protective equipment that was generated by the project. The containers were filled and identified in accordance with applicable FEMP procedures and policies. The material was then sampled in accordance with the Sampling and Analysis Plan that was provided for this project. Following this, the containers were transported to the Plant 1 Pad where they were weighed and labeled in accordance with the Removal Action Work Plan and FEMP procedures and policies.

In addition to the solid waste material, this project generated approximately 7,500 gallons of waste water. During the removal action, decontamination and rinse water was collected in a 10,000 gallon storage tank located at the work site. In addition, rain water that was collected within the bermed area of the containment dike was collected and placed in the same 10,000 gallon storage tank. Following the completion of the removal of the waste material and the ETF structure, this waste water was transferred to 55-gallon drums and transported to the Plant 1 Pad for storage. The project generated approximately 155 drums of waste water. Due to the "contained in" and "derived from" policy, this waste water is being classified and handled as a mixed waste. The drums have been weighed and labeled as a mixed waste in accordance with the Removal Action Work Plan and in accordance with FEMP policies and procedures.

4.3 Work Plan Waste Disposition Clarifications

The Removal Action Work Plan identified that all containers of waste material would be properly marked and labeled as a mixed waste. Since the material is considered to be a "mixed waste", markings and labels for radioactive materials and RCRA wastes will be implemented. Section 4.2.7 of the Removal Action Work Plan states " Each container would be closed, properly marked, labeled and then transported to the RCRA storage area." Based upon current FEMP procedures along with health and safety concerns associated with the weighing of the containers, the containers were sealed, appropriately labeled and transported to Plant 1 Pad where they were weighed.

SECTION 5.0 SAMPLING AND ANALYSIS RESULTS

As part of the ETF Removal Action Work Plan submitted to the Ohio EPA, the requirement to perform post construction sampling at the site was identified. The number of samples was determined by a method outlined in SW-846. Using conservative figures, the analysis determined that four samples should be collected from each strata (beneath and adjacent to the ETF). Using a random-number generator, a computer selected four locations in each strata for testing.

All samples were collected in accordance the Sampling and Analysis Plan (SAP). During the collection of samples a log book was maintained identifying the following:

- Name of sampler
- Purpose of Sampling
- Location of sampling
- Description of sampling points and methodology
- Type of waste sampled
- Sample number and volumes
- Sample date and time
- Field observations
- Prevailing weather conditions

In addition, all samples were handled in accordance with the SAP and transported to the laboratory for analysis accompanied by the required Analysis Request/Custody Record in accordance with FEMP site procedures. A copy of the chain-of-custody records is included in Appendix A.

Sampling in support of the ETF Removal Action was divided according to the phase of the construction. In accordance with the SAP a total of 15 samples were collected.

During the pre-construction phase, the vegetation surrounding the ETF structure was surveyed for radiological contamination. All vegetation obstructing the Removal Action was removed, segregated, and containerized. Representative samples of the vegetation were collected. A total of two (2) composite representative samples were collected for analysis for full radiological analysis (excluding the appropriate field, trip, rinse, and QC samples). In addition, a sample of the plywood material resulting from the demolition was collected and analyzed for total thorium and uranium and for TCLP. Table 1 summarizes the results of this analysis. These samples were collected randomly from waste material contained within a waste storage container and cannot be delineated to any distinct location in and around the ETF structure.

During the dismantling phase, representative samples of waste being containerized were collected. The representative samples consisted of grab samples as identified in the SAP of the waste material within the ETF structure as the material was removed. A total of five (5) samples were collected and analyzed for full radiological and TCLP analysis (excluding the appropriate field, trip, rinse, and QC samples). Table 2 summarizes the results of this analysis. These samples were collected randomly from waste material contained within a waste storage container and cannot be delineated to any distinct location in and around the ETF structure.

Following the completion of the removal of the ETF structure and waste material, samples were collected from the soils in and around the ETF area. Four (4) samples were collected from the area outside of the perimeter where the ETF structure was located. In addition a total of four (4) soil samples were

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collected from the area beneath the ETF structure. These samples were collected as the waste and structure was removed and collected as soon as the ground was exposed. All of these samples were collected from a depth where not greater than six (6) inches. A total of eight (8) soil samples were collected (excluding field and trip blanks) and analyzed for total thorium and total uranium. Additionally, the soils samples collected from beneath the ETF structure were analyzed for constituents of concern which may have been present in the waste material. Table 3 summarizes the results of the analysis of the soil samples collected in the area surrounding the ETF structure. Table 4 summarizes the results of the analysis of the soil samples collected beneath the ETF structure. Figure 1 depicts the approximate location relative to the ETF structure where the soil samples were collected.

One modification to the Work Plan and the SAP requirements was implemented for this sampling. As identified in the Work Plan, the data that was collected would be incorporated into the RI/FS database and all work would be conducted in accordance with the RI/FS Quality Assurance Project Plan (QAPP). These requirements restricted the laboratory that could be used to perform the analysis to one that participates in the EPA Contract Laboratory Program (CLP).

Due to the delays involved in establishing a contract with an approved CLP lab, a modification to the Work Plan and the SAP was requested to exclude the use of a CLP lab. The clarification allowed the radiological analysis to be performed by the FEMP Analytical Lab and the 1,1,1 trichloroethane (TCA) to be performed by a WEMCO Contract Laboratory. This allowed the holding time requirements for the 1,1,1 TCA to be met while maintaining the schedule for the completion of the project. This analysis would then be performed in accordance with all other requirements stated in the Work Plan and the SAP. Verbal concurrence from U. S. EPA for this modification at the February 25, 1992 Project Management Review Meeting.

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TABLE 1, VEGETATION SAMPLE RESULTS

SAMPLE ID # ANALYSIS	3781	3778	3779	3780 (Duplicate)
Sample Matrix	Plywood	Vegetation	Vegetation	Vegetation
Total Th ppm	<45	<45	<45	<45
Total U ppm	2	4	4	3
TCLP Metals ug/l	ND ¹	NR	NR	NR
TCLP Volatiles ug/l	ND	NR	NR	NR
TCLP Semi-vols ug/l	ND	NR	NR	NR
TCLP Pesticides ug/l	ND	NR	NR	NR
TCLP Herbicides ug/l	ND	NR	NR	NR

NR Not Requested

ND Not Detected

Samples not received for all analysis to date.

Barium levels of 940 ug/l detected but below regulatory level of 100,000 ug/l.

TABLE 2, WASTE MATERIAL SAMPLE RESULTS

SAMPLE ID #		3770	3771	3772	3773	3774	3775 ¹
U-235	pCi/g	.42	1.6	<.16	.74	.23	5.6
U-236	pCi/g	.52	1.2	<.11	.58	17	4.7
ALPHA	pCi/g	58	900	<37	<40	67	<47
BETA	pCi/g	<64	540	<64	<69	<70	<70
TOTAL Th	ug/g	<18	N/A	<18	<18	<18	N/A
TOTAL U	ug/g	25	N/A	<11	44	16	N/A
TCLP METALS	ug/l	ND ²	ND ³	ND ⁵	ND ⁶	ND ⁷	ND ⁸
TCLP PESTICIDES	ug/l	ND	ND	ND	ND	ND	ND
TCLP HERBICIDES	ug/l	ND	ND	ND	ND	ND	ND
TCLP VOLATILES	ug/l	ND	ND ⁴	ND	ND	ND	ND
TCLP BNA	ug/l	ND	ND	ND	ND	ND	ND
TCLP SEMI-VOLS	ug/l	ND	ND	ND	ND	ND	ND
1,1,1 TCA	ug/l	ND	ND	ND	ND	ND	ND

ND Not Detected
N/A Not Applicable or requested

- ¹ Sample number 3775 was a duplicate sample for analysis.
- ² Barium levels of 3780 ug/l detected but below regulatory level of 100,000 ug/l. Also lead levels of 222 ug/l but below regulatory levels of 5000 ug/l.
- ³ Barium levels of 2140 ug/l detected but below regulatory level of 100,000 ug/l. Also lead levels of 281 ug/l but below regulatory levels of 5000 ug/l.
- ⁴ Methyl ethyl ketone level of 240 ug/l detected but below regulatory level of 200,000 ug/l.
- ⁵ Barium levels of 467 ug/l detected but below regulatory level of 100,000 ug/l.
- ⁶ Barium levels of 4020 ug/l detected but below regulatory level of 100,000 ug/l.
- ⁷ Barium levels of 4000 ug/l detected but below regulatory level of 100,000 ug/l. Also lead levels of 237 ug/l but below regulatory levels of 5000 ug/l.
- ⁸ Barium levels of 2150 ug/l detected but below regulatory level of 100,000 ug/l. Also lead levels of 280 ug/l but below regulatory levels of 5000 ug/l.

TABLE 3, SOIL SAMPLE RESULTS FOR AREA SURROUNDING ETF STRUCTURE

SAMPLE ID #	SAMPLE MATRIX	TOTAL THORIUM ug/g	TOTAL URANIUM ug/g
3762	Soils	<18	29
2763	Soils	<18	59
3764	Soils	<18	49
3765	Soils	<18	16
3766	Soils	<18	<11
3767	Soils-Duplicate	<18	<11

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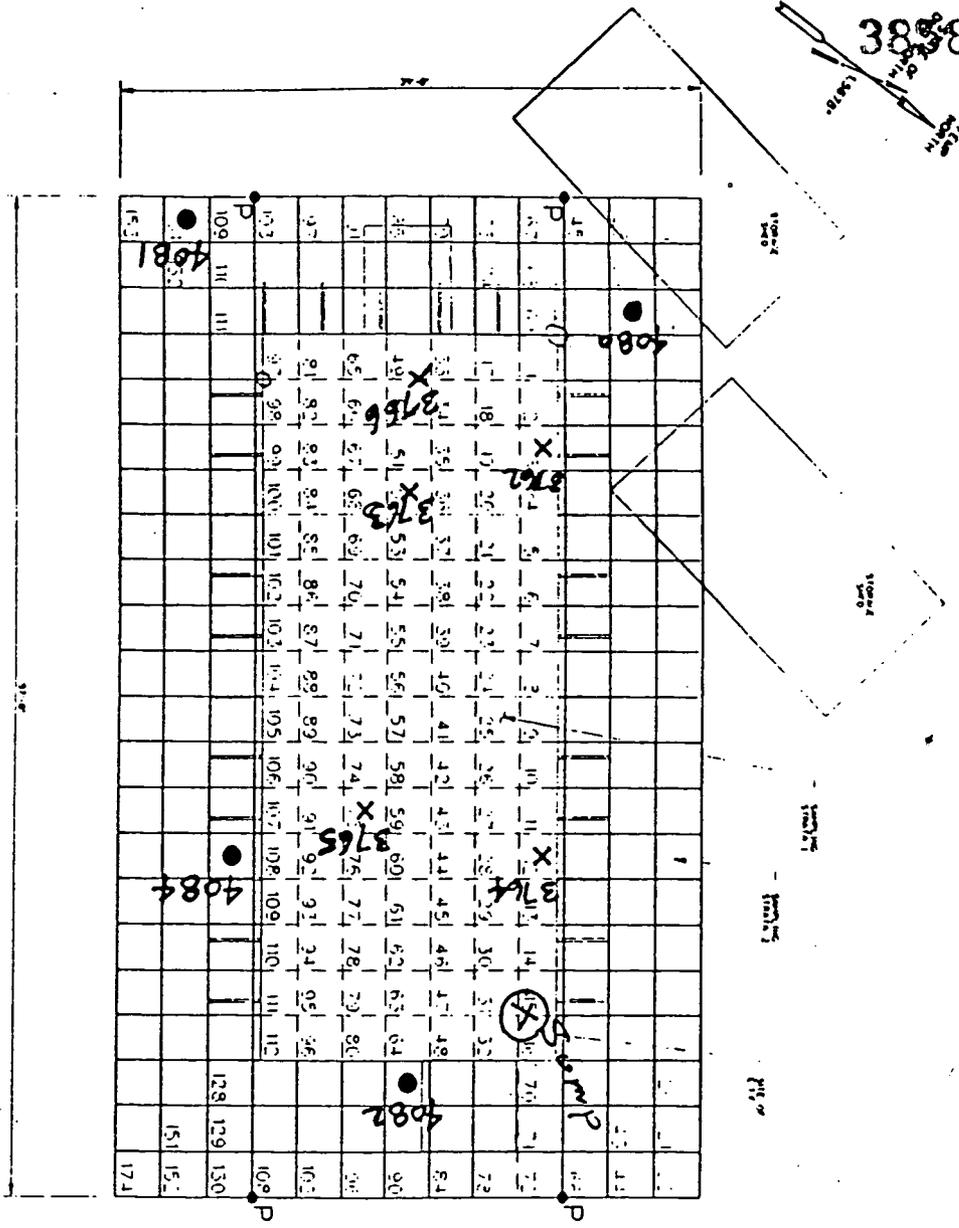
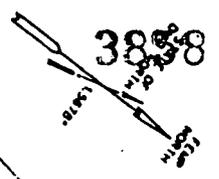
TABLE 4, SOIL SAMPLE RESULTS BENEATH ETF STRUCTURE

SAMPLE ID # ANALYSIS	4080	4081	4082	4083	4084	4085	4086
Sample Matrix	soil	soil	soil	soil	soil	trip blk	fld blk
Cs-137 pCi/g	<0.016	<0.016	0.020	0.058	<0.016	<0.0066	<0.0066
Np-237 pCi/g	<0.24	0.51	<0.23	<0.24	<0.23	<0.0075	<0.0075
Pu-238 pCi/g	<0.16	<0.16	<0.12	<0.16	<0.16	<0.0030	<0.0030
Pu-239/240 pCi/g	<0.13	<0.13	<0.099	<0.13	<0.13	<0.0023	<0.0023
Ra-226 pCi/g	1.6	<0.47	<0.36	<0.46	<0.46	<0.0021	<0.0018
Ra-228 pCi/g	1.2	0.68	0.40	1.9	0.51	<0.00047	<0.00047
Tc-99 pCi/g	<22	<23	24	<23	<23	<0.71	<0.71
Total Th ug/g	<18	<18	<18	<18	<18	<0.0004	<0.0004
Total U ug/g	53	105	18	68	23	<1.0	<1.0
Th-228 pCi/g	1.8	1.6	0.85	1.6	1.1	0.00082	0.00027
Th-230 pCi/g	2.5	5.0	0.82	12.0	1.1	0.00035	<0.00018
Th-232 pCi/g	1.5	1.6	0.54	1.5	0.66	<0.00020	<0.00018
U-234 pCi/g	<3.3	<6.5	<1.1	<4.2	6.6	ND	ND
U-235/236 pCi/g	0.32/0.088	0.54/0.21	0.14/0.042	0.43/0.21	0.18/0.11	ND	ND
U-238 pCi/g	18	35	6.0	23	7.7	ND	ND
TCFE ppm	<0.42	<0.42	<0.42	<0.42	<0.42	<0.17	<0.17
1,1,2 TCE/TFE ppm	<0.42	<0.42	<0.42	<0.42	<0.42	<0.17	<0.17
Acetone ppm	<1.0	<1.0	<1.0	<1.0	<1.0	<0.42	<0.42
Carbon Disulfide ppm	<0.29	<0.29	<0.29	<0.29	<0.29	<0.12	<0.12
Methylene Chloride ppm	<0.25	<0.25	<0.25	<0.25	<0.25	<0.10	<0.10
MEK ppm	1.04	<0.62	<0.62	<0.62	<0.71	<0.25	<0.25
1,1,1 TCE ppm	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
Carbon Tet ppm	<0.38	<0.38	<0.38	<0.38	<0.38	<0.15	<0.15

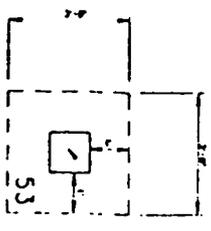
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SAMPLE ID # ANALYSIS	4080	4081	4082	4083	4084	4085	4086
Sample Matrix	soil	soil	soil	soil	soil	trip blk	fid blk
Benzene ppm	<0.21	<0.21	<0.21	<0.21	<0.21	<0.084	<0.08
Trichloroethylene ppm	<0.54	<0.54	<0.54	<0.54	<0.54	<0.22	<0.22
Toluene ppm	<0.42	<0.42	<0.42	<0.42	<0.42	<0.17	<0.17
Chlorobenzene ppm	<0.46	<0.46	<0.46	<0.46	<0.46	<0.18	<0.18
Tetrachloroethylene ppm	<1.2	<1.2	<1.2	<1.2	<1.2	<0.47	<0.47
Ethylbenzene ppm	<0.21	<0.21	<0.21	<0.21	<0.21	<0.084	<0.084
m,p-Xylenes ppm	<0.25	<0.25	<0.25	<0.25	<0.25	<0.10	<0.10
o-Xylene ppm	<0.17	<0.17	<0.17	<0.17	<0.17	<0.067	<0.067
o-Dichlorobenzene ppm	<0.58	<0.58	<0.58	<0.58	<0.58	<0.23	<0.23
2-Nitropropane ppm	ND	ND	ND	ND	ND	ND	ND
Cyclohexane ppm	ND	ND	ND	ND	ND	ND	ND
Ethyl Acetate ppm	ND	ND	ND	ND	ND	ND	ND
Ethyl Ether ppm	ND	ND	ND	ND	ND	ND	ND
Pyridine ppm	ND	ND	ND	ND	ND	ND	ND
Chlorinated Fluorocarbons ppm	ND	ND	ND	ND	ND	ND	ND

NR Not Requested
ND Not Detected



PLAN - POST CONSTRUCTION SAMPLING GRID



TYPICAL GRID CELL

1. THE LOCATION OF SAMPLING POINTS AND THE LOCATION OF SAMPLING POINTS SHALL BE DETERMINED BY THE CONTRACTOR AND SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

2. THE LOCATION OF SAMPLING POINTS SHALL BE DETERMINED BY THE CONTRACTOR AND SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

3. THE LOCATION OF SAMPLING POINTS SHALL BE DETERMINED BY THE CONTRACTOR AND SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

4. THE LOCATION OF SAMPLING POINTS SHALL BE DETERMINED BY THE CONTRACTOR AND SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

TIGCRM

- X Sampling Location
- Sampling Location
- P Sampling Point

UNITED STATES
DEPARTMENT OF ENERGY
FERMILAB ENVIRONMENTAL MANAGEMENT PROJECT

PARSONS
3801 UNIVERSITY AVENUE
CHICAGO, ILL. 60647

POST CONSTRUCTION SAMPLING GRID

DATE: 08-10-2011

SCALE: 1/8" = 1'-0"

PROJECT NO: 04-00119

SECTION 6.0
HEALTH AND SAFETY CONTROLS

3858

The work done for this Removal Action was consistent with the project specific Health and Safety Plan. The plan recognizes, evaluates, and controls all identified safety and health hazards. In addition, it provides for emergency response for hazardous operations and decontamination procedures. The project specific Health and Safety Plan is consistent with 29 CFR 1910.120 and the RI/FS Health and Safety Plan. Safety documentation was prepared according to FMPC-2116 Topical Manual "Implementing FMPC Policies and Procedures for System Safety Analysis." FMPC-2116 has been prepared to implement DOE Order 5481.1B "Safety Analysis and Review System" and DOE/OR-901 "Guidance for Preparation of Safety Analysis Reports."

In addition to the requirements of the Health and Safety Plan, this project used the following engineering and procedural controls to avoid the unnecessary spread of contamination to employees or the environment:

1. Installed several sections of Uni-Mat as indicated in on Drawing 91-X5900-M-0002. The Uni-Mat sections were laid atop a 20-mil thickness of liner. All work on the Removal Action took place on top of this protective ground covering. All equipment travel inside the ETF was limited to the mats.
2. Installed a berm by bundling together 3 sections of 12" polyethylene pipe. The pipe bundles were then covered with a 20-mil thickness of liner. This effectively contained any potential runoff during rainfall events.
3. The work of cutting the wooden panels into smaller pieces was done entirely with hand tools. Power tools would have contributed to fugitive dust.
4. Dirty equipment stayed inside the berm until final decontamination; clean equipment stayed outside. During rain and off-shift hours, the waste material inside the ETF was covered with plastic liner. Work was suspended during inclement weather.
5. Workers operating the Gradeall excavated half buckets and travelled slowly inside the ETF in order to reduce spillage.
6. Workers handled the contaminated soil during non-peak personnel traffic times or used an appropriate personnel detour route away from the area.

During the demolition phase of this activity, care was taken to assure that all personnel working in the area were protected from the hazards associated with the materials that were being handled. During this removal action the following personnel protective equipment (PPE) were required to be worn:

- Full-face or half-face respirator with HEPA/Organic vapor cartridges depending upon activity.
- Hard hat when working within the work zone
- Hearing protection as required
- Inner and leather palm gloves
- Tyvek
- Process coveralls
- Safety glasses (only when wearing half-face respirator)
- Safety goggles when additional protection was dictated
- Safety shoes
- Rubber/latex shoe covers

To prevent the spread of contamination, a radiologically controlled access point was established for the work area. This access point identified an area where the workers would remove their PPE prior to exiting the work area to prevent the spread of contamination outside of the work zone. At the access point, workers were monitored to verify that contamination had not been spread to their clothing. No instances of worker contamination were identified during this project. The PPE that was generated by this Removal Action was collected, placed in white metal boxes, sealed and labeled as mixed waste material. The PPE has been stored along the remaining waste material generated by this project in the appropriate storage area on Plant 1 Pad.

3858

APPENDIX A
CHAIN OF CUSTODY/REQUEST FOR SAMPLE ANALYSIS REPORTS

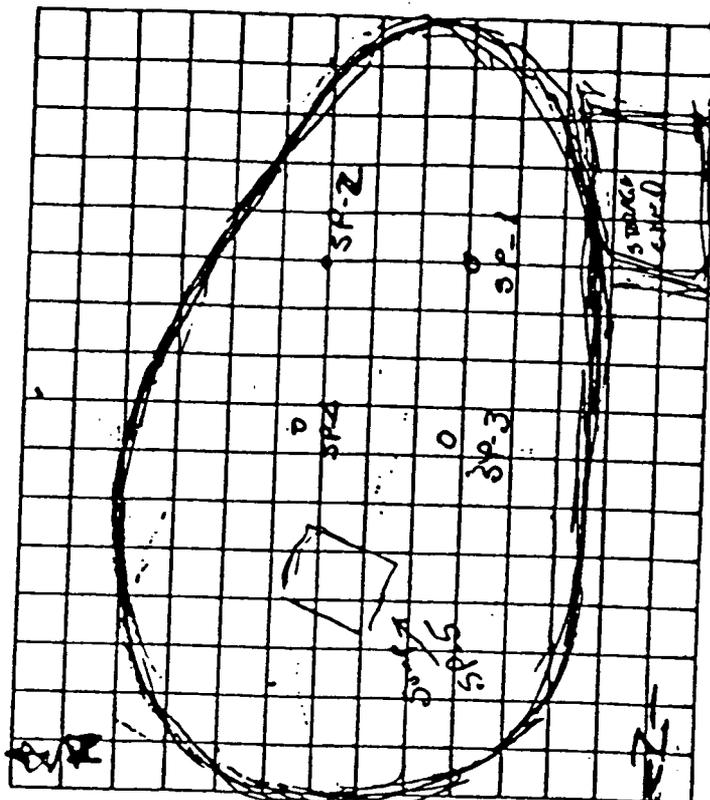
DATE: 03/03/92
 TIME START: 0900
 TIME FINISH: 1230
 PAGE 1 OF 1

FEED MATERIAL PRODUCTION CENTER
 P. O. BOX 398704
 CINCINNATI, OHIO 45239-8704

PROJECT NAME: ETF Removal Action
 PROJECT NO: ~~92-141A~~ 92-141A
 LOCATION: PIT 5 K-66 AREA
 WEATHER: SUNNY
 TEMPERATURE: 65°

CONTACT/EXT: J. LOVE. 6727

PURPOSE OF SAMPLING: RCRA closure
 PROCESS PRODUCING WASTE: U process
 SAMPLE REQUEST NO: 92-141A
 SAMPLE PLAN NO: 92-141A



SAMPLE NUMBER	SAMPLE TYPE	COLLECTION METHOD	DEPTH	TIME	SAMPLE PRESERVATIVE	CONT TYPE	NUMBER/ VOLUME
SP-1 92-141A 3762	SOIL	SCOOPED	0'-6"	1110	COOL 4°C	GLASS TLC	1- PINT 3-4oz
SP-2 92-141A 3763	SOIL	SCOOPED	0'-6"	1125			
SP-3 92-141A 3764	SOIL	SCOOPED	0'-6"	1140			
SP-4 92-141A 3765	SOIL	SCOOPED	0'-6"	1130			
SP-5 92-141A 3766	SOIL	SCOOPED	0'-6"	1115			
SP-6 92-141A 3767	SOIL	SCOOPED	0'-6"	1115			
BLANK 92-141A 3760	L.IQUID	POURED	N/A	0900			1- PINT 3-4oz
BLANK 92-141A 3761	L.IQUID	POURED	N/A	1150			1- PINT 3-4oz

FIELD MEASUREMENTS: SEE ATTACHED GEO MAP

TRANSPORTATION METHOD: VAN TO LAB

SAMPLE TECHNICIANS: D. BACK, G. SPURS, M. STOTT, B. HYATT, J. PRICE

TECHNICIAN SIGNATURES:

[Handwritten signatures of D. Back, G. Spurs, M. Stott, B. Hyatt, and J. Price]

FIELD OBSERVATIONS:

SP-6 IS A DUPL. OF SP-5

IN PIT ARM AT 1105

BAND ON SP-1 & SP-2 IS OVER 9 INCHES DEEP

RUST COLORED WATER SEEP INTO SP-1, SP-2, SP-5, SP-6, SP-4 & SP-3

SAND ON SP-3 & SP-2 IS OVER 9 INCHES DEEP

WATER ENTERED SP-1 TRENCH 4 FEET SAND RENE TO LITIN 3/6/92

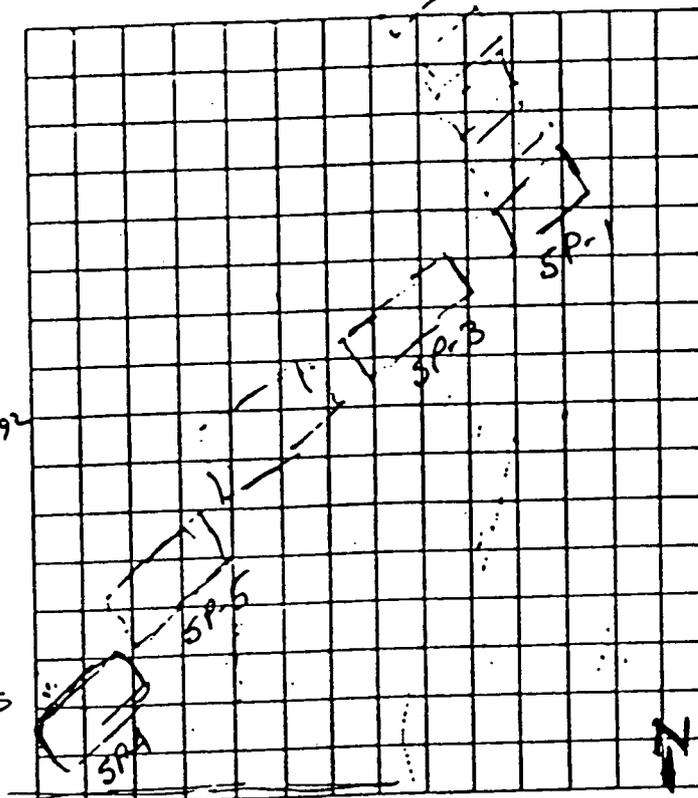
DATE: 3/1/92
 TIME START: 0900
 TIME FINISH: 1700
 PAGE 1 OF 1

FEED MATERIAL PRODUCTION CENTER
 P. O. BOX 398704
 CINCINNATI, OHIO 45239-8704

PROJECT NAME: ETF Removal Action
 PROJECT NO: FIELD/K65 AREA
 LOCATION: FIELD/K65 AREA
 WEATHER: Sunny
 TEMPERATURE: 60°

CONTACT/EXT: J. LOVE

PURPOSE OF SAMPLING: RCRA closure
 PROCESS PRODUCING WASTE: U Process
 SAMPLE REQUEST NO: 92-141
 SAMPLE PLAN NO: 92-141



SAMPLE NUMBER	SAMPLE TYPE	COLLECTION METHOD	DEPTH	TIME	SAMPLE PRESERVATIVE	CONT TYPE	NUMBER/VOLUME
SP-1 92-141-3770 Box 165710	SOIL	SCOOPED	N/A	1350	COOL 4°C	GLASS TLC	7-4oz 2-16oz
SP-2 92-141-3771 Box 165793	SOIL	SCOOPED	N/A	1355			
SP-3 92-141-3772 Box 165763	SOIL	SCOOPED	N/A	1405			
SP-4 92-141-3773 Box 165764	SOIL	SCOOPED	N/A	1420			
SP-5 92-141-3774 Box 165279	SOIL	SCOOPED	N/A	1420			
SP-6 92-141-3775 Box 165793	SOIL	SCOOPED	N/A	1430			9-16oz 2-16oz 2-4oz/2-4oz
10.P BLANK 92-141-3768	LIQUID	POURED	N/A	1330			2-16oz 2-16oz 2-4oz/2-4oz
FIELD BLANK 92-141-3769	LIQUID	POURED	N/A	1500			2-16oz 2-16oz 2-4oz/2-4oz
LABT ITEM							92-141-92

FIELD MEASUREMENTS:

TRANSPORTATION METHOD: VAN TO LAB

SAMPLE TECHNICIANS: M. STOTT, M. ARNETT, G. STOVENS, J. POIRIE

TECHNICIAN SIGNATURES: *[Signatures]*

FIELD OBSERVATIONS: SP-6 is a dupl of SP-2

WESTINGHOUSE MATERIALS COMPANY OF OHIO

P.O. BOX 398704, CINCINNATI, OHIO 45239-8704

Pg. 1 of 1

ANALYSIS REQUEST / CUSTODY RECORD

Control #: _____

PROJECT: ETF Removal Action TECHNICIAN EXT.: J. Price 9064

PROJECT #: _____ CLIENT CONTACT: J. Love CHARGE #: RTB02

PERM: S. GUND PHONE: 6727 LOT MARK CODE: N/A

SAMPLE IDENTIFICATION

SAMPLE NUMBER	CUSTOMER NUMBER	DESCRIPTION	MATRIX	DATE/TIME COLLECTED	CONTAINER PRESERVATIVE	# CONTI VOLUME 1-PINT	ANALYSIS REQUESTED											
							1	2	3	4	5	6						
92-141A		SP1	SOIL	3/3/92 / 1110	COOL 4°C	3-4oz												
3762		SP2		3/3/92 / 1125														
92-141A		SP3		3/3/92 / 1140														
2764		SP4		3/3/92 / 1130														
92-141A		SP5		3/3/92 / 1115														
3765		SP6		3/3/92 / 1115														
92-141A		TRIP BLANK		3/3/92 / 0900														
3760		FIELD BLANK		3/3/92 / 1150														
92-141A		SP																
2761																		

Copy To: J. Love / S. GUND / STS

ITEM/REASON	REMOVED BY	RECEIVED BY	DATE	TIME	ITEM/REASON	REMOVED BY	RECEIVED BY	DATE	TIME
OS	<i>[Signature]</i>	<i>[Signature]</i>	3-3-92	1100					

WESTINGHOUSE MATERIALS COMPANY OF OHIO

P.O. BOX 398704, CINCINNATI, OHIO 45239-8704

Pg. 1 of 1

ANALYSIS REQUEST / CUSTODY RECORD

Control #: _____

PROJECT: *ETE Renewal Action* TECHNICIAN/EXT.: *ACNETT*

PROJECT #: *N/A* CHARGE #: *RAMLO*

PEP#: *S. LUND* LOT MARK CODE: *N/A*

CLIENT CONTACT: *L. Love* PHONE: *6727*

SAMPLE IDENTIFICATION

SAMPLE NUMBER	CUSTOMER NUMBER	DESCRIPTION	MATRIX <small>Sand, Gravel</small>	DATE/TIME COLLECTED	CONTAINER/PRESERVATIVE	# CONT./VOLUME	ANALYSIS REQUESTED <small>(SEE REVERSE FOR PARAMETERS)</small>								
							1	2	3	4	5	6			
92-141-3770	920304-196	SP-1		3/4/92 / 1350	Coal 4°C	3-4oz									
92-141-3771	-197	SP-2		3/4/92 / 1355											
92-141-3772	-198	SP-3		3/4/92 / 1405											
92-141-3773	-199	SP-4		3/4/92 / 1420											
92-141-3774	-200	SP-5		3/4/92 / 1420											
92-141-3775	-201	SP-6		3/4/92 / 1430											
92-141-3769	-202	Field Blank	Liquid	3/4/92 / 1330											
92-141-3768	-203	Trip Blank		3/4/92 / 1500											
		<i>Nothing follows</i>													

ITEM/REASON	RECEIVED BY	DATE	TIME	ITEM/REASON	RECEIVED BY	DATE	TIME
<i>Copy To: 5 Copies to S. Lund</i>	<i>Each to L. Love, G. Henderson, S. Grandstaff</i>						
<i>REASON</i>	<i>RECEIVED BY</i>	<i>DATE</i>	<i>TIME</i>	<i>REASON</i>	<i>RECEIVED BY</i>	<i>DATE</i>	<i>TIME</i>
<i>REASON</i>	<i>RECEIVED BY</i>	<i>DATE</i>	<i>TIME</i>	<i>REASON</i>	<i>RECEIVED BY</i>	<i>DATE</i>	<i>TIME</i>

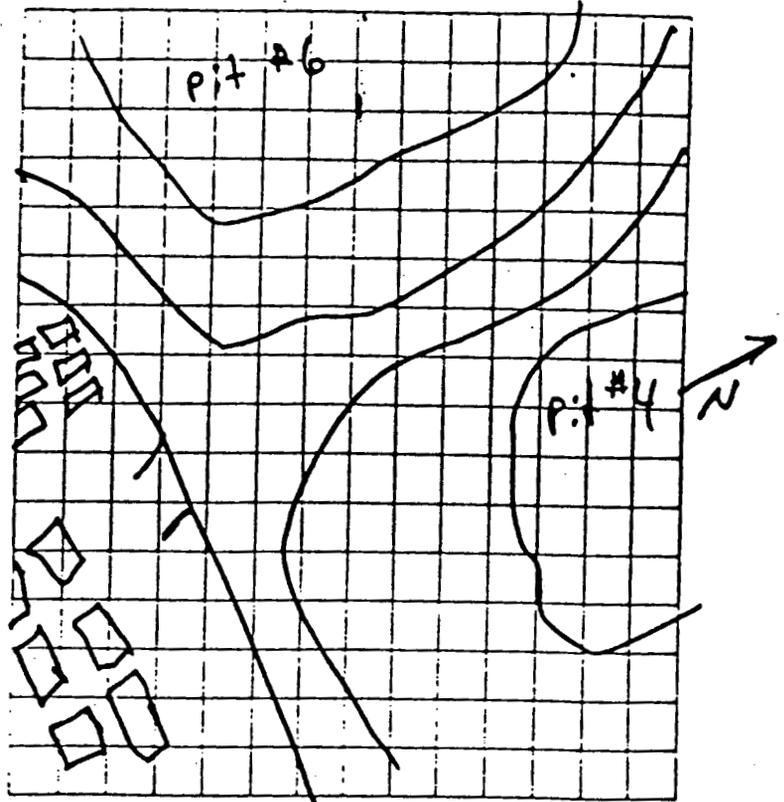
DATE: 03 05 92
 TIME START:
 TIME FINISH:
 PAGE L OF L

FEED MATERIAL PRODUCTION CENTER
 P. O. BOX 398704
 CINCINNATI, OHIO 45239-8704

PROJECT NAME: Ext. of Removal Action
 PROJECT NO: N/A
 LOCATION: Pit 5 area
 WEATHER: Clear
 TEMPERATURE: 65° +

CONTACT/EXT: L. Love / 6927

PURPOSE OF SAMPLING: RCRA - Determine
 PROCESS PRODUCING WASTE: U-Process
 SAMPLE REQUEST NO: #141
 SAMPLE PLAN NO: #92-141



SAMPLE NUMBER	SAMPLE TYPE	COLLECTION METHOD	DEPTH	TIME	SAMPLE PRESERVATIVE	CONT TYPE	NUMBER/ VOLUME
92-141-3776	Liquid	trip Blank	N/A	13:00	cool 4°c	Glass TCC	3 gal 600ml 1.6L 1.4oz
92-141-3777	Liquid	fill Blank		14:35			same
92-141-3778	solid	SP1 Veg		14:00			8.5oz 1.1L 1.4oz
92-141-3779	solid	SP2 Veg		14:20			
92-141-3780	solid	SP3 Veg		14:05			
92-141-3781	solid	SP-1 Plywood		14:30			4.0oz 5.4oz
92-141-3782	Liquid	Rinseate washing Glines	N/A	14:50	cool 4°c	Glass TCC	0.251 Gal 1.0L 1.4oz

See for U
 T1
 See for
 Uth
 See for
 Uth.

FIELD MEASUREMENTS: N/A
 TRANSPORTATION METHOD: Van to Lab
 SAMPLE TECHNICIANS: M. Stott J. Parks G. Stevens
 TECHNICIAN SIGNATURES: *[Signatures]*

FIELD OBSERVATIONS: SP-3 Veg. is a sample duplicate Sample of SP-1 Veg.
 Bill Lutz from QA came out for a few minutes to talk

SP-1 Veg / SP-3 Veg. is Box # 165/35 - SP-2 Veg. is out of Box # 165/33
 SP-1 Plywood 165/68
 in Rev

WESTINGHOUSE MATERIALS COMPANY OF OHIO

P.O. BOX 390704, CINCINNATI, OHIO 45239-0704

Pg 2 of 2

ANALYSIS REQUEST / CUSTODY RECORD

Control #: _____

PROJECT: St. Louis TECHNICIAN/EXT: M. Smith - 6727

PROJECT #: N/A CHARGE #: RMV-01

PEPM: Sally Lund LOT MARK CODE: N/A

CLIENT CONTACT: Leve PHONE: 6727

ANALYSIS REQUESTED
SEE REVERSE FOR PARTICULARS

SAMPLE IDENTIFICATION

SAMPLE NUMBER	CUSTOMER NUMBER	DESCRIPTION	MATRIX	DATE/TIME COLLECTED	CONTAINER/PRESERVATIVE	CONTI/VOLUME	TABLE								
							1	2	3	4	5	6			
✓ 12141-376	920305-025	Trip blank	H ₂ O	03-08-92 13:00	Glass TIC	3ml 1400 1.5ml 1400 1.5ml 1400	X								
✓ 12141-377	080	field blank	H ₂ O	03-08-92 14:35	Glass TIC	3ml 1400 1.5ml 1400 1.5ml 1400	X								
✓ 12141-379	088	SPI processed	Solid	03-08-92 14:30	Glass TIC	4 ml 1400 5-402	X								
✓ 12141-382	087	Reseal	H ₂ O	03-08-92 14:50	Glass TIC	3ml 1400 1.5ml 1400 1.5ml 1400	X								
		Nothing follows													

Copy to: 2 copies to Lead, 1 copy to G. Henderson

ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME	ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME
all process	<i>[Signature]</i>	<i>[Signature]</i>	03-08-92	02:00					

TABLE 1 TCU (Full Spectrum)	TABLE 2 Metals	TABLE 3 Pesticides/Herbicides	TABLE 6 Total VOC's
<p>METALS</p> <ul style="list-style-type: none"> Arsenic Barium Cadmium Chromium Copper Lead Mercury Selenium Silver <p>VOLATILES</p> <ul style="list-style-type: none"> Benzene Carbon Tetrachloride Chlorobenzene Chloroform 2-Chloroethane 1,2-Dichloroethane 1,1-Dichloroethane Tetrachloroethane Trichloroethane Vinyl chloride <p>PESTICIDES/HERBICIDES</p> <ul style="list-style-type: none"> Chlorobenzene 2,4-D Endrin Lindane Methoxychlor Temephos 2,4,5-TP acid (Rats) 	<p>TCUP _TOTALS</p> <ul style="list-style-type: none"> Arsenic Barium Cadmium Chromium Copper Lead Mercury Selenium Silver <p><i>Handwritten: 250</i></p>	<p>TCUP _TOTALS</p> <ul style="list-style-type: none"> Chlorobenzene 2,4-D Endrin 2,4,5-TP acid (Rats) <p><i>Handwritten: 250</i></p>	<p>TABLE 4 TCUP Volatiles & Semi-Volatiles (4 hrs for separate spectra)</p> <p>TCUP _TOTALS</p> <p>VOLATILES</p> <ul style="list-style-type: none"> Benzene Carbon Tetrachloride Chlorobenzene Chloroform 2-Chloroethane 1,2-Dichloroethane 1,1-Dichloroethane Tetrachloroethane Trichloroethane Vinyl chloride <p>SEMI-VOLATILES</p> <ul style="list-style-type: none"> 1,4-Dichlorobenzene 2,4-Dichlorobenzene Hexachlorobenzene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Perfluorobenzene Perfluorobenzene 2,4,6-Trichlorophenol 2,4,6-Trichlorophenol o-Cresol m-Cresol p-Cresol Pyridine <p>TABLE 5 Radiation Analysis (4 hrs for individual analysis)</p> <ul style="list-style-type: none"> Np 239 Am 241 Am 243 Am 244 Am 245 Am 246 Am 247 Am 248 Am 249 Am 250 Am 251 Am 252 Am 253 Am 254 Am 255 Am 256 Am 257 Am 258 Am 259 Am 260 Am 261 Am 262 Am 263 Am 264 Am 265 Am 266 Am 267 Am 268 Am 269 Am 270 Am 271 Am 272 Am 273 Am 274 Am 275 Am 276 Am 277 Am 278 Am 279 Am 280 Am 281 Am 282 Am 283 Am 284 Am 285 Am 286 Am 287 Am 288 Am 289 Am 290 Am 291 Am 292 Am 293 Am 294 Am 295 Am 296 Am 297 Am 298 Am 299 Am 300

WESTINGHOUSE MATERIALS COMPANY OF OHIO

P.O. BOX 398704, CINCINNATI, OHIO 45239-8704

Control #: _____ ANALYSIS REQUEST / CUSTODY RECORD Pg 1 of 2

PROJECT: St. S. Removal CLIENT: 5 MS TECHNICIAN/EXT.: M. S. # 6727
 PROJECT #: N/A CLIENT CONTACT: L. Lane CHARGE #: RMU-01
 PEPM: Saltz Land PHONE: 6727 LOT MARK CODE: N/A

SAMPLE IDENTIFICATION

SAMPLE NUMBER	CUSTOMER NUMBER	DESCRIPTION	MATRIX	DATE/TIME COLLECTED	CONTAINER/ PRESERVATIVE	# CONT/ VOLUME	ANALYSIS REQUESTED					
							SEE REVERSE FOR PRODUCTIONS					
							1	2	3	4	5	6
9211-3778		SP-1 Veg.	Solid	03-05-92 14:00	Glass TIC Cool 4°C	1-pm ⁺ 1-4oz						
9211-3779		SP-2 Veg.	Solid	03-05-92 14:20	Glass TIC Cool 4°C	1-pm ⁺ 1-4oz.						
9211-3780		SP-3 Veg.	Solid	03-05-92 14:05	Glass TIC Cool 4°C	1-pm ⁺ 1-4oz.						
		Nothing Salts										

Copy To: Receipt to Saltz Land sent to C. Henderson

ITEM REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME	ITEM REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME
All P1065	<i>[Signature]</i>	<i>[Signature]</i>	03/19/92	15:20					

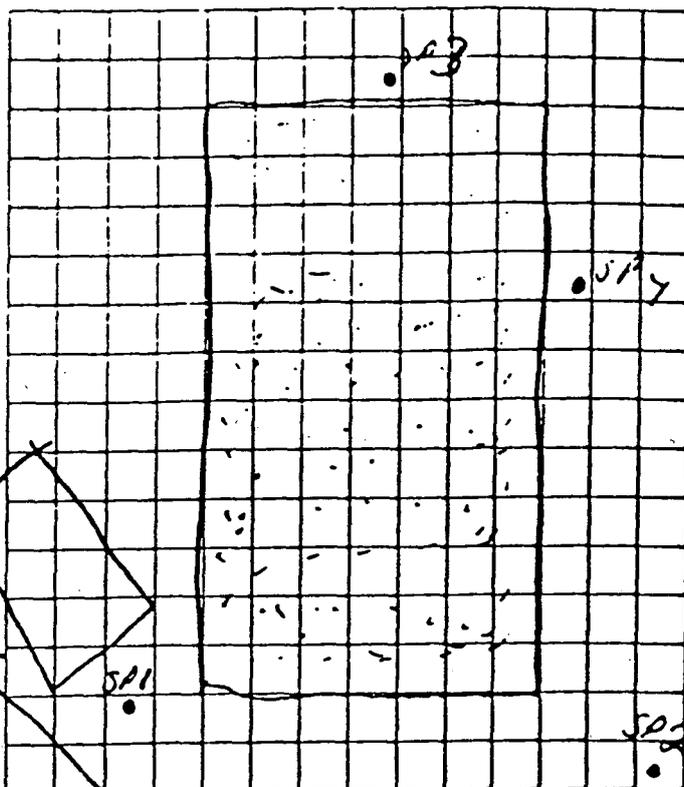
DATE: 4/15/92
 TIME START: 0700
 TIME FINISH: 1630
 PAGE 1 OF 1

FEED MATERIAL PRODUCTION CENTER
 P. O. BOX 398704
 CINCINNATI, OHIO 45239-8704

PROJECT NAME: EFT REMOVAL ACTION
 PROJECT NO: N/A
 LOCATION: PIT 5
 WEATHER: CLOUDY & COOL
 TEMPERATURE:

CONTACT/EXT: J. LORE / 6727

PURPOSE OF SAMPLING: RCRA DETERMINA
 PROCESS PRODUCING WASTE:
 SAMPLE REQUEST NO: 92-141
 SAMPLE PLAN NO: 141



SAMPLE NUMBER	SAMPLE TYPE	COLLECTION METHOD	DEPTH	TIME	SAMPLE PRESERVATIVE	CONT TYPE	NUMBER/ VOLUME
92-141-4080	SOIL	SS SCOOP	SP1 0-6"	1045	COOL Y ^o	GLASS	1 PINT 4 532
92-141-4081	SOIL	SS SCOOP	SP2 0-6"	1050			
92-141-4082	SOIL	SS SCOOP	SP3 0-6"	1055			
92-141-4083	SOIL	SS SCOOP	SP4 0-6"	1059			LOW +1072
92-141-4084	SOIL	SS SCOOP	SP5 0-6"	1105			1 PINT 4 532
92-141-4085	LIQUID	POOR TRAP	TRAP	0930	KOH 4/15/92	KOH 4/15/92	640ml 462 242
92-141-4086	LIQUID	POOR FIBER	FIBER	1140	COOL Y ^o	GLASS	462 242 JUNE 6 412
Nothing Found							

FIELD MEASUREMENTS: N/A
 TRANSPORTATION METHOD: VAN IN COOLER TO LAB
 SAMPLE TECHNICIANS: K. HUBBARD M. ARNETT
 TECHNICIAN SIGNATURES: *[Signatures]*
 FIELD OBSERVATIONS: SP5 IS A DUPLICATE OF SP3

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

P.O. BOX 398704, CINCINNATI, OHIO 45239-8704

Page 1

ANALYSIS REQUEST / CUSTODY RECORD

Control #:

PROJECT: EFT Remedial Action CLIENT: *SABER* *5MS* TECHNICIAN EXT: *K. HUBBARD 8643*
 PROJECT #: *N/A* CLIENT CONTACT: *J. LOVE* CHARGE #: *RMU 01*
 PEPM: *STEVE BRANOSTETTER* PHONE: *6227* LOT MARK CODE: *N/A*

SAMPLE IDENTIFICATION

ANALYSIS REQUESTED
(SEE REVERSE FOR PARAMETERS)

SAMPLE NUMBER	CUSTOMER NUMBER	DESCRIPTION	MATRIX	DATE/TIME COLLECTED	CONTAINER/ PRESERVATIVE	# CONT/ VOLUME	TABLE										
							1	2	3	4	5	6	7				
92-141-4080		SP1	SOIL	4/15/92/1045	COOL 4°C	1 pint											
92-141-4081		SP2	SOIL	11050													
92-141-4082		SP3	SOIL	11055													
92-141-4083		SP4	SOIL	11100													
92-141-4084		SP5	SOIL	11105													
92-141-4085		TRIP BLANK	LIQUID	4/15/92/0900	COOL 4°C	8 500ml											
92-141-4086		FIELD BLANK	LIQUID	4/15/92/1140	COOL 4°C	2 500ml											

Copy To: *J. LOVE, J. BRANOSTETTER, L. LOVE*

ITEM REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME	ITEM REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME
14	<i>J. Love</i>	<i>J. Love</i>	4/15/92	11:30					

TABLE 6 TOTAL VOA

Acetone
Benzene
Carbon Disulfide
Carbon Tetrachloride
Chlorinated Fluorocarbon
Chlorobenzene
Chloroethane
Chloromethane
1,1 - Dichloroethane
1,2 - Dichloroethane
Trans - 1,2 -
Dichloroethane
o - Dichlorobenzene
2 - Ethoxyethanol
Ethyl Acetate
Ethyl Benzene
Ethyl Ether
Isobutanol
Methanol
Methyl Isobutyl Ketone
Methyl Ethyl Ketone
Methylene Chloride
Nitrobenzene
2 - Nitropropane
Pyridine
Tetrachloroethylene
Toluene
1,1,1 - Trichloroethane
1,1,2 - Trichloro-1,2,2
- Trifluoroethane
Trichlorofluoromethane
Vinyl Chloride
Xylenes

TABLE 5 RAD

✓ Cs 137
✓ Kp 237
✓ Pu 238
✓ Pu 239/240
✓ Ra 226
✓ Ra 228
- Ru 106
✓ Tc 99
✓ Th Total
✓ Th 228
✓ Th 230
✓ Th 232
✓ U Total
✓ U 234
✓ U 235/236
✓ U 238
✓ Gross Alpha/Beta

TABLE 4 VOASEMI VOA
- TCLP - TOTALS

VOLATILES
Benzene
Carbon Tetrachloride
Chlorobenzene
Chloroform
2 - Butane
1,1 - Dichloroethane
1,2 - Dichloroethane
Tetrachloroethylene
Trichloroethylene
Vinyl Chloride

SEMI VOLATILES
1,4 - Dichlorobenzene
2,4 - Dinitrotoluene
Hexachlorobenzene
Hexachloroethane
Hexachloro - 1,3 -
Butadiene
Nitrobenzene
Pentachlorophenol
2,4,5 - Trichlorophenol
2,4,6 - Trichlorophenol
o - Cresol
m - Cresol
p - Cresol
Pyridine

TABLE 1 TCLP (Full Spectrum)

SEMI VOLATILES
1,4 - Dichlorobenzene
2,4 - Dinitrotoluene
Hexachlorobenzene
Hexachloroethane
Hexachloro - 1,3 -
Butadiene
Nitrobenzene
Pentachlorophenol
2,4,5 - Trichlorophenol
2,4,6 - Trichlorophenol
o - Cresol
m - Cresol
p - Cresol
Pyridine

TABLE 2 METALS
- TCLP - TOTALS

METALS
Arsenic
Barium
Cadmium
Chromium
Lead
Mercury
Selenium
Silver

TABLE 3 PEST/HERB
- TCLP - TOTALS

PESTICIDE/HERBICIDE
Chlordane
2,4 - D
Endrin
Lindane
Methoxychlor
Toxaphene
2,4,5 - TP Acid -
(Silver)

VOLATILES
Benzene
Carbon Tetrachloride
Chlorobenzene
Chloroform
2 - Butane
1,1 - Dichloroethane
1,2 - Dichloroethane
Tetrachloroethylene
Trichloroethylene
Vinyl Chloride

PESTICIDE/HERBICIDE
Chlordane
2,4 - D
Methoxychlor
Endrin
Toxaphene
Lindane
2,4,5 - TP Acid -
(Silver)

TABLE 7

Paint Filter Liquid
Test (PFLT)
pH (if PFLT fails)
Flash Point
(if PFLT fails)
HSL
Fuel
Extended
Abbreviated