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CLOSURE PLAN INFORMATION AND DATA FOR THE WHEELABRATOR DUST COLLECTOR

07/15/94

DOE-FN OEPA
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CLOSURE PLAN

SD-EES-C13-CPI-10009

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

CLOSURE PLAN INFORMATION AND DATA

for the
Wheelabrator Dust Collector

Revision 0

July 1994

U. S. DEPARTMENT OF ENERGY

5771

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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U. S. DEPARTMENT OF ENERGY

000002

Wheelabrator Dust Collector
Closure Plan Information and Data
Revision 0 - July 1994

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ACRONYMS

AEA	Atomic Energy Act
ARAR	applicable or relevant and appropriate requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CPID	Closure Plan Information and Data
CRU3	CERCLA/RCRA Unit 3
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
FEMP	Fernald Environmental Management Project
FERMCO	Fernald Environmental Restoration Management Corporation
FM	Factory Mutual
FMPC	Feed Materials Production Center
FS	Feasibility Study
HWMU	hazardous waste management unit
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPDES	National Pollutant Discharge Elimination System
OAC	Ohio Administrative Code
OEPA	Ohio Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
OU3	Operable Unit 3
PPE	Personal Protective Equipment
PQL	Practical Quantitation Limit
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
RWP	Radiation Work Permit
SACD	Stipulated Amendment to the Consent Decree
SAP	Sampling and Analysis Plan
SCQ	Sitewide CERCLA Quality Assurance Project Plan
SOP	Standard Operating Procedure
SPCC	Spill Prevention, Control and Countermeasure Plan
TCLP	Toxicity Characteristic Leaching Procedure
TSD	treatment, storage, or disposal
UL	Underwriters Laboratory
USEPA	U.S. Environmental Protection Agency
WWTS	Waste Water Treatment System

CLOSURE PLAN INFORMATION AND DATA
for the
Wheelabrator Dust Collector
U.S. Department of Energy
Fernald Environmental Management Project
Fernald, Ohio

1.0 FACILITY DESCRIPTION

1.1 GENERAL DESCRIPTION

The Fernald Environmental Management Project (FEMP) is a U.S. Department of Energy (DOE) owned facility located near Fernald, in Hamilton and Butler Counties, Ohio. A map of the FEMP is presented in Figure 1-1. The FEMP, formerly known as the Feed Materials Production Center (FMPC), produced uranium fuel elements, target cores, and other uranium compounds for use at DOE facilities in support of the U.S. Defense program. The FEMP facility was in operation at this site from approximately 1950 until 1989.

This Closure Plan Information and Data (CPID) has been prepared to ensure that CERCLA response actions meet the RCRA requirements while adhering to the terms of the Amended Consent Agreement. The procedures described in this CPID are consistent with the requirements for response actions under CERCLA, other ARARs, and the Amended Consent Agreement.

This CPID describes activities to close the Wheelabrator Dust Collector Hazardous Waste Management Unit (HWMU), which operated from the mid-1950's until 1987, and is located outside, east of Building 66 on Plant 1 Pad (Figure 1-1 and Appendix 1, Photograph A). The Wheelabrator Dust Collector was used to collect shotblast residues (iron shot particles, steel drum fragments, and paint chips) from reconditioning

operations conducted inside Building 66. Residues collected in the dust collector, from this process, are characterized as RCRA hazardous waste for lead (D008) and have remained in this unit in excess of 90 days since operations ceased. The constituent of concern for this HWMU is lead. Appendix 2 contains the analytical data on lead. In the October 1991 submittal of the RCRA Part B Permit, Section J, the Wheelabrator Dust Collector HWMU residues were also characterized for cadmium (D006). Analytical results do not support the presence of cadmium; therefore, this CPID does not address cadmium. Further discussion on this subject and supporting analytical data are included in Appendix 3 of this CPID. Since storage of hazardous waste in the unit has exceeded the 90 day limit as allowed under 40 CFR 261.4(c), the Wheelabrator Dust Collector, designated as a HWMU in June 1991, is included in the list of HWMUs in the current RCRA Part A Application submitted to the Ohio Environmental Protection Agency (OEPA). The Wheelabrator Dust Collector is also identified as a HWMU in the RCRA compliance schedule submitted pursuant to the 1988 Consent Decree between the State of Ohio and the DOE, as amended by the Stipulated Amendment to the Consent Decree (SACD) in January 1993. The RCRA compliance schedule requires that a CPID be submitted for all identified HWMUs. This CPID is to be submitted on or before July 18, 1994, based upon DOE's April 15, 1994, letter to OEPA regarding "Hazardous Waste Management Unit Information and Request For Extension".

Consistent with the terms of the July 1986 DOE/U.S. Environmental Protection Agency (U.S. EPA) Federal Facilities Compliance Agreement, as amended by the September 1991 Consent Agreement, the FEMP has divided the scope of the Remedial Investigation/ Feasibility Study (RI/FS) into five operable units. The Wheelabrator Dust Collector HWMU is included within Operable Unit 3 (OU3), Former Production Area and Suspect Facilities.

Section XI of the Amended Consent Agreement requires that response actions at the FEMP be performed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requirements and consistent with all applicable or relevant and appropriate requirements (ARARs).

1.1.1 Purpose

This Wheelabrator Dust Collector CPID meets the requirements for RCRA closure. This CPID specifies the procedures that will be followed to accomplish clean closure of the Wheelabrator Dust Collector HWMU and constitutes only a partial closure of the FEMP facility. The applicable RCRA closure requirements, under Ohio Administrative Code (OAC) 3745-66 (40 Code of Federal Regulations [CFR] Part 265, Subpart G), require owners or operators of hazardous waste treatment, storage, or disposal (TSD) facilities to have written and approved closure plans for those units.

Copies of this CPID, and any later revisions, will be kept at the facility until final RCRA closure has been completed and certified according to OAC 3745-66-10 to 3745-66-15, (40 CFR §§ 265.110 to 265.115), or until CERCLA remedial actions are completed.

1.1.2 Exclusions

There are no exclusions applicable to this unit.

1.1.3 Mixed Radioactive and RCRA Wastes

As a result of process knowledge determinations, many FEMP wastes with a hazardous component or characteristic have been handled as mixed hazardous/radioactive low-level wastes. Determination of the radionuclide component of most material on site is based upon process knowledge and analyses to assay the uranium content potentially recoverable from the material. When assay values have not been established, the FEMP considers materials generated in the uranium processing areas to be contaminated with radionuclides, unless proven otherwise.

Recognizing the dual nature of these wastes, the FEMP stores mixed hazardous/ radioactive wastes according to RCRA, as an ARAR to CERCLA, and the Atomic Energy Act (AEA) regulations. The FEMP also meets the U.S. Department of Transportation (DOT) container and labeling requirements through DOE orders concerning low-level radioactive waste. These materials are stored pending the

availability of acceptable treatment/disposal facilities for mixed waste pursuant to the Federal Facilities Compliance Act exclusion.

In accordance with the January 1990 Stipulation and Settlement Agreement (Case No. 88-hw-016), DOE will provide the OEPA with the results of the radiological monitoring that will be conducted during the closure of the Wheelabrator Dust Collector. The radiological monitoring during the closure will be performed according to the existing FEMP Standard Operating Procedures (SOPs).

1.1.4 CERCLA Requirements for FEMP Closure Activities

As discussed above, the RCRA closure activities described in this CPID will be undertaken in conjunction with the CERCLA remediation at the FEMP. In 1986, the DOE initiated the ongoing Remedial Investigation/Feasibility Study (RI/FS) to evaluate and determine remediation requirements under CERCLA. Consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and the Amended Consent Agreement, all remediation activities and any resulting changes to facility schedules must be coordinated and integrated with the RI/FS and CERCLA removal and remedial response actions. In addition, Section XI of the Amended Consent Agreement requires that all remediation activities (including RCRA closure activities) be consistent with the Final Record of Decision (ROD) for the operable unit containing the HWMU.

For each CERCLA response action, ARARs must be identified in accordance with 40 CFR § 300.400(g), and these ARARs must be attained, unless justifiably waived under 40 CFR § 300.430(f)(2)(C). For response actions that address units subject to RCRA closure, these ARARs include OEPA and U.S. EPA substantive requirements for HWMU closures. In addition, pursuant to the Amended Consent Agreement, the FEMP management will:

- Characterize chemical and radiological contamination at the FEMP and establish site cleanup objectives.

- Conduct necessary short-term response actions to eliminate or minimize immediate threats to human health and the environment (i.e., removal actions).
- Implement any necessary long-term monitoring and surveillance of the facility and surrounding environment.

On May 9, 1994, and May 12, 1994, the OEPA and U.S. EPA, respectively, approved the Interim ROD for OU3. The Interim ROD provides for removal, dismantling, and demolition of equipment and structures within OU3. The Wheelabrator Dust Collector HWMU will be dismantled in accordance with the IROD after completion of clean closure. The information and data obtained from the RI/FS and implementation of the IROD will be used to determine the final remediation requirements under the Final ROD for OU3.

Remedial Design/Remedial Action (RD/RA) work plans will be prepared to implement the requirements of the RODs (interim and final) to remediate each of the five operable units. The implementation of the OU3 interim remedial action, specifically the Plant 1 Complex, which includes Building 66 and the Wheelabrator Dust Collector HWMU, will be coordinated with the following activities: the selection of material laydown and staging areas; the transportation, handling, and storage of materials to, and within, interim storage areas; the use of FEMP components/facilities and utilities for existing or future purposes; and the incorporation of waste streams into various operable unit treatment facilities.

A number of removal actions have been identified to provide immediate response actions necessary to stabilize or remove contamination for protection of human health and the environment. Removal Actions No. 7, 9, 12 are directly relevant to the closure of the Wheelabrator Dust Collector HWMU.

Removal Action No. 7 - Plant 1 Pad Continuing Release

This removal action provided for the upgrade of the Plant 1 Pad and improvement of storage facilities on the pad. The pad previously stored carbon steel drums which were deteriorating as a result of extended exposure to the elements, thereby increasing the risk of a hazardous materials release. The upgrade was implemented

by excavating soils adjacent to the pad, expanding the existing pad, and resurfacing the entire pad with 8" of new concrete. In addition, tension support structures were added to the pad to provide for improved storage. The Wheelabrator Dust Collector HWMU is located on the Plant 1 Pad.

Removal Action No. 9 - Removal of Waste Inventories

This removal action provides for the disposition of low-level radioactive wastes generated by production, maintenance, construction, and environmental restoration activities at the FEMP. This removal action also includes procedures for packaging, shipping, and disposing of radioactively contaminated wastes. Where decontamination procedures performed during closure of the Wheelabrator Dust Collector HWMU fail to remove sufficient radioactivity, non-hazardous materials may be classified as low-level waste.

Removal Action No. 12 - Safe Shutdown

This removal action was created to perform the safe shutdown of all process facilities in preparation of final remediation. Safe Shutdown entails the engineering, planning, and scheduling for isolation of process equipment, piping systems, and associated utilities; removing residual and excess materials, supplies, and combustibles to appropriate disposition and approved storage locations; and decontaminating process equipment and operating areas.

Safe Shutdown management activities include the following:

- Development of appropriate safety documentation (Risk Assessment, Risk Management Plan)
- Performance of task-specific hazard analyses (under Safe Shutdown Health and Safety Plan and Safety Assessment)
- Preparation of task-specific lesson plans
- Review of SOPs and updates
- Performance of a preliminary assessment for all process buildings and process equipment

- Evaluation of the preliminary assessment
- Preparation of work requests and Task Orders to address equipment isolation and cleanout
- Continuation of efforts to dispose of the surplus equipment and uranium contaminated materials
- Evaluation of process buildings for future use or demolition
- Initiation of the development of engineering studies and packages to guide equipment isolation/de-energization activities

Safe Shutdown field work activities include:

- Isolation of process equipment
- Removal of excess equipment and materials, supplies, and combustibles
- Removal of residual materials from process equipment
- Decontamination

Under Safe Shutdown all buildings are being inventoried for residual material and excess equipment. Necessary documentation is being processed to characterize and identify proper disposition of these materials.

1.1.5 Financial and Liability Exemptions

The FEMP is a federally owned facility. According to OAC 3745-66-40, the Federal Government is exempt from financial requirements of OAC 3745-66-40 through OAC 3745-66-48. A similar exclusion from 40 CFR Part 265, Subpart H (Financial Requirements) is provided in 40 CFR § 265.140(c).

1.2 TOPOGRAPHIC MAP

The general topography of the FEMP Production area is shown in Figure 1-1. The Wheelabrator Dust Collector HWMU is located on the Plant 1 Pad, which is a level surface.

1.3 OTHER FEMP HWMUS

There are 46 HWMUs located on the FEMP, as shown on Figure 1-1. The closure of other HWMUs will be conducted in accordance with unit-specific schedules and documentation. Closure of the Wheelabrator Dust Collector HWMU will constitute partial closure of the FEMP.

1.4 HYDROGEOLOGIC INFORMATION

The FEMP lies in the Till Plains section of the Central Lowland physiographic province, characterized by structural and sedimentary basins and domes. The underlying bedrock in the region is shale and fossiliferous limestone of Middle and Late Ordovician age.

The FEMP is located within a 2 to 3 mile wide sedimentary basin known as the New Haven Trough. The basin formed as a valley during the Pleistocene glaciation and subsequently filled with glacial outwash materials (predominantly sands) and is overlain by silty clay tills. The bedrock in the vicinity of the FEMP consists of predominantly flat-lying, olive-gray Ordovician shales with thin, interbedded layers of limestone. This shale forms the base and sides of the New Haven Trough.

Groundwater monitoring compliance activities at the FEMP are now being conducted under the Project-Specific Plan for the Routine Groundwater Monitoring Program Along the "Downgradient Boundary of the FEMP, Revision 1, October 1993". This plan is the Alternate Program referenced in the DF&O that were signed by the DOE-FN, FERMCO, and OEPA on September 10, 1993.

1.5 UNIT DESCRIPTION

The Wheelabrator Dust Collector functioned as a part of the drum reconditioning operation by collecting shotblast residues generated by the Wheelabrator Shotblaster located in Building 66. The shotblaster removed paint from old, empty drums by abrasive blasting with steel shot. The Wheelabrator Dust Collector steel baghouse is 8'4" (H) x 9'6" (D) x 18' (W) and is supported by six angle steel legs, 9'10" tall. The entire unit stands 18'2" (Appendix 1-Photograph B and Figure 1-2). There are two access doors to the baghouse. A center wall equally divides the baghouse into two compartments and each door accesses only one side. Each access door has an attached platform and ladder. Directly beneath the baghouse are the two inverted pyramid-shaped dust hoppers with pneumatic rotary valves, permanently disconnected, at each dust hopper outlet (Appendix 1-Photograph C). Inside the baghouse are 240 dustubes (trade name for Wheelabrator dust filter bags) consisting of sateen weave cotton, napped cotton flannel, wool felt, and carbon spring steel snap rings secured in place with metal rivets. Each dustube measures 5" wide by 89" long. The dustubes are hung within the baghouse unit on steel hooks (Figure 1-3 and Appendix 1-Photograph D). A Hoffman Dust Collector (Appendix 1-Photograph F), a smaller unit that worked in conjunction with the Wheelabrator Dust Collector, was used for small clean-ups from other sources inside Building 66 and for fine particulate removal from the Wheelabrator Dust Collector. The Hoffman Dust Collector is a vertical and cylinder-like steel baghouse with a cone shaped bottom or dust hopper (Appendix 1-Photograph G). There are 18 dustubes hung within the Hoffman Dust Collector that are constructed of Canton Flannel and are 6" in diameter and 66" in length. The dustube hangers consist of bolts, snaps, screws, nuts, washers, brackets, and masonite disks. The unit is supported by four steel legs, 4'6" tall. The entire unit stands 13' (Figure 1-4).

The Wheelabrator Dust Collector HWMU does not include the duct work connected from Building 66 to the Wheelabrator or Hoffman, nor does it include the motor and controls because these mechanisms never stored or contacted hazardous waste. HWMU components that did not contact hazardous waste (i.e. support legs and access platforms) need not be decontaminated as part of this closure.

1.5.1 Wheelabrator Dust Collector HWMU Components

(See Appendix 1 for related photographs)

- Baghouse of the Wheelabrator Dust Collector (Photograph B)
- Two hoppers beneath the Wheelabrator Dust Collector Baghouse (Photograph C)
- 240 dustubes inside the Wheelabrator Baghouse and 18 additional dustubes in the Hoffman Baghouse (Photograph D)
- Metal shaker assembly and dustube hangers (Photograph D)
- Squirrel cage blower (Photograph E)
- Baghouse of the Hoffman Dust Collector (Photograph F)
- Hopper beneath the Hoffman Dust Collector Baghouse (Photograph G)
- Duct work between the Wheelabrator and Hoffman dust collectors - except for those lines that connect the HWMU to Building 66. (Photographs B, E, & F)

A new concrete surface (Plant 1 Pad) has recently been paved and sealed where the Wheelabrator Dust Collector HWMU is located. No releases have occurred on this new surface. In addition, all of the concrete pad is a part of the Plant 1 Pad HWMU and will be included in its closure. There are no porous surfaces involved in the closure of this HWMU.

1.5.2 Wastes Managed

Within the baghouses of both the Wheelabrator and Hoffman dust collectors are 258 dustubes (Appendix 1-Photograph D) which have remained in the unit since the FEMP's operation ended. A visual inspection confirmed that approximately 85 cubic feet of

shotblast residue remain in the Wheelabrator hoppers (Appendix 1-Photograph C) and the Hoffman hopper was empty (Appendix 1-Photograph G).

In March 1991, samples of the shotblast residues were taken. Analytical information revealed a TCLP lead content of 19.2 mg/L and 16.25 mg/L, which makes the residue characteristically hazardous for lead (D008). Results of a Toxicity Characteristic Leaching Procedure (TCLP) metals analyses and radiological data for the shotblast residues are in Appendix 2.

1.5.3 Soil Characterization

The Wheelabrator Dust Collector was identified as a HWMU strictly on the basis of exceeding the 90 day storage limit for hazardous waste (OAC 3766-51-04(e) 40 CFR 261.4(c)). No reported spills or releases occurred within the boundary of this HWMU. In addition, the Wheelabrator Dust Collector HWMU is located on the Plant 1 Pad, which is an active HWMU. Soil contamination located beneath the Plant 1 Pad is being addressed as part of the Removal Action No. 7 "Continuing Release of Plant 1 Pad" (as described in Section 1.1.2.2) and further remediated as a function of the ROD for Operable Unit 5.

1.6 OTHER ENVIRONMENTAL PERMITS

Liquid wastes (rinseates) generated during closure of the Wheelabrator Dust Collector HWMU that can be discharged to the Waste Water Treatment System (WWTS) will be evaluated against NPDES permit limitations before discharge.

1.7 ANTICIPATED WAIVERS OR EXEMPTIONS

No waivers or exemptions are anticipated for the Wheelabrator Dust Collector HWMU.

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0' 1/2' 1' 2' 3' 4' 5' 6'

N

S.R. 126

BUTLER CO.
HAMILTON CO.

PIT #5
PIT #6
PIT #4
PIT #3
PIT #2
PIT #1
ETF
CLEAR WELL
SURGE LAGOON
PADDY'S RUN RD.
C.&O. RR
PADDY'S RUN
PRODUCTION WELL #1
PRODUCTION WELL #2
PRODUCTION WELL #3
DECONTAMINATION PAD
COAL PILE
NORTH ACCESS RD.
STORM WATER RETENTION BASIN
STORM WATER RETENTION BASIN EXPANSION
S.W.R.B. OUTFALL E.P.A. NUMBER 002
ASH PILE
TRIBUTARIES FEEDING PADDY'S RUN
SOUTH ACCESS RD.
WILLEY RD.

FEMP HAZARDOUS WASTE MANAGEMENT UNIT (HWMU) LOCATIONS	DIMENSIONS
(1) FIRE TRAINING FACILITY	84'-8" x 68', 105' x 134'
(2) ~~PARTS CLEANER IN WELDING SHOP (BLDG. 12)~~	DELETED FROM HWMU LIST
(3) WASTE OIL STORAGE IN GARAGE	10' x 10'
(4) DRUM STORAGE AREA NEAR LOADINC DOCK (LAB BLDG.)	40' x 76'
(5) DRUM STORAGE AREA SOUTH OF W-26 (LAB BLDG.)	31'-8" x 41'
(6) DRUMMED HF RESIDUE & ASSOCIATED STORAGE AREAS INSIDE PLT. 4	4' x 17'
(7) DRUMMED HF RESIDUE & ASSOCIATED STORAGE AREAS NW OF PLT. 4	25' x 30'
(8) DRUMMED HF RESIDUE & ASSOCIATED STORAGE AREAS SOUTH OF COOLING TOWERS	10' x 32'
(9) NITRIC ACID RAIL CAR AND AREA	10' x 40' x 15'
(10) NAR SYSTEM COMPONENTS	13,262 SQ. FT.
(11) TANK FARM SUMP	165' X 135'
(12) WHEELABRATOR (BLDG. 66)	24' X 20'
(13) WHEELABRATOR DUST COLLECTOR (BLDG. 66)	30' X 17'
(14) BOX FURNACE	14' X 18'
(15) OXIDATION FURNACE #1	85 SQ. FT.
(16) PRIMARY CALCINER	13.5' DIA. x 40' HIGH
(17) PLANT 8 EAST DRUM STORAGE PAD	18,330 SQ. FT.
(18) PLANT 8 WEST DRUM STORAGE PAD	12,304 SQ. FT.
(19) CP STORAGE WAREHOUSE BLDG. 56 (BUTLER BLDG.) *	50' x 180'
(20) PLANT 1 PAD *	480,000 SQ. FT.
(21) HILCO OIL RECOVERY	272 SQ. FT.
(22) ABANDONED SUMP WEST OF PILOT PLANT	2' DIA. x 14' DEEP
(23) ~~WELL DRILLING STORAGE AREA~~	DELETED FROM HWMU LIST
(24) ~~EQUIPMENT STORAGE AREA~~	DELETED FROM HWMU LIST
(25) PLANT 1 STORAGE BLDG. (BLDG. 67)	165' x 190'
(26) DETREX STILL	32" x 76" x 7'-6"
(27) WASTE PIT NO. 4	170' x 320' x 400' x 320' (5)
(28) TRANE THERMAL LIQUID INCINERATOR	50' x 52'
(29) PLANT 8 WAREHOUSE (BLDG. 80) *	60' x 170'
(30) BARIUM CHLORIDE SALT TREATMENT FACILITY	50' x 75'
(31) TANK FOR BULK STORAGE OF SOLVENTS, T-5	10' DIA.
(32) TANK FOR BULK STORAGE OF SOLVENTS, T-6	10' DIA.
(33) PILOT PLANT WAREHOUSE STORAGE AREA (BLDG. 68) *	7' X 62'
(34) KC-2 WAREHOUSE (BLDG. 63) *	346'-2⅜" x 82'
(35) PLANT 9 WAREHOUSE (BLDG. 81) *	80' x 100'
(36) STORAGE PAD NORTH OF PLANT 6	8' x 40'
(37) PLANT 6 WAREHOUSE (BLDG. 79) *	10C x 170'
(38) HF TANK CAR	10' x 36' x 15'
(39) ~~CLEARWELL~~	DELETED FROM HWMU LIST
(40) BIO-SURGE LAGOON	160,000 SQ. FT.
(41) SLUDGE DRYING BEDS	79' X 92'
(42) WASTE PIT NO. 5	184,000 SQ.FT.
(43) ~~LIME SLUDGE PONDS~~	DELETED FROM HWMU LIST
(44) ~~COAL PILE RUNOFF BASIN~~	DELETED FROM HWMU LIST
(45) ~~UST #5~~	DELETED FROM HWMU LIST
(46) URANYL NITRATE TANKS (NFS STORAGE AREA)	61'-7" x 53'-9"
(47) URANYL NITRATE TANKS (NORTH OF PLANT 2)	63'-6" x 40'-6"
(48) URANYL NITRATE TANKS (SOUTHEAST OF PLANT 2)	54'-7" x 45'-4"
(49) URANYL NITRATE TANKS (DIGESTION AREA)	127' x 20'
(50) URANYL NITRATE TANKS (RAFFINATE BLDG.)	14' x 50', 15' x 30'
(51) EXPERIMENTAL TREATMENT FACILITY (ETF)	20' x 48'
(52) NORTH & SOUTH SOLVENT TANKS (PILOT PLANT)	6'-6" DIA.
(53) SAFE GEOMETRY DIGESTION SUMP	8" DIA. x 12" DEEP

*-HWMU'S THE FEMP IS SEEKING TO PERMIT

DO NOT SCALE REDUCED DRAWING

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
3	REVISED PER RES #2283	10/1/93	S.J.S.	GEP	
2	ADDED HWMU NO.53	2/10/92	S.J.S.	GEP	
1	REVISED PER RES #1841	1/28/92	S.J.S.	GEP	

NOTE: FERMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± 1/32
ANGLES ± 0° - 30'
DECIMALS
.X ± 0.1
.XX ± 0.03
.XXX ± 0.005
.XXXX ± 0.0010
ORIG. RELEASE DATE

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER			O.A.	
INSTRUMENT			FIRE PROTECT.	
MECHANICAL			WASTE MANAGE	
			SECURITY	
			CRU	
CHECKED				
APPROVED				

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION
FERMCO Fernald
Environmental Management Project
U.S. DEPARTMENT OF ENERGY

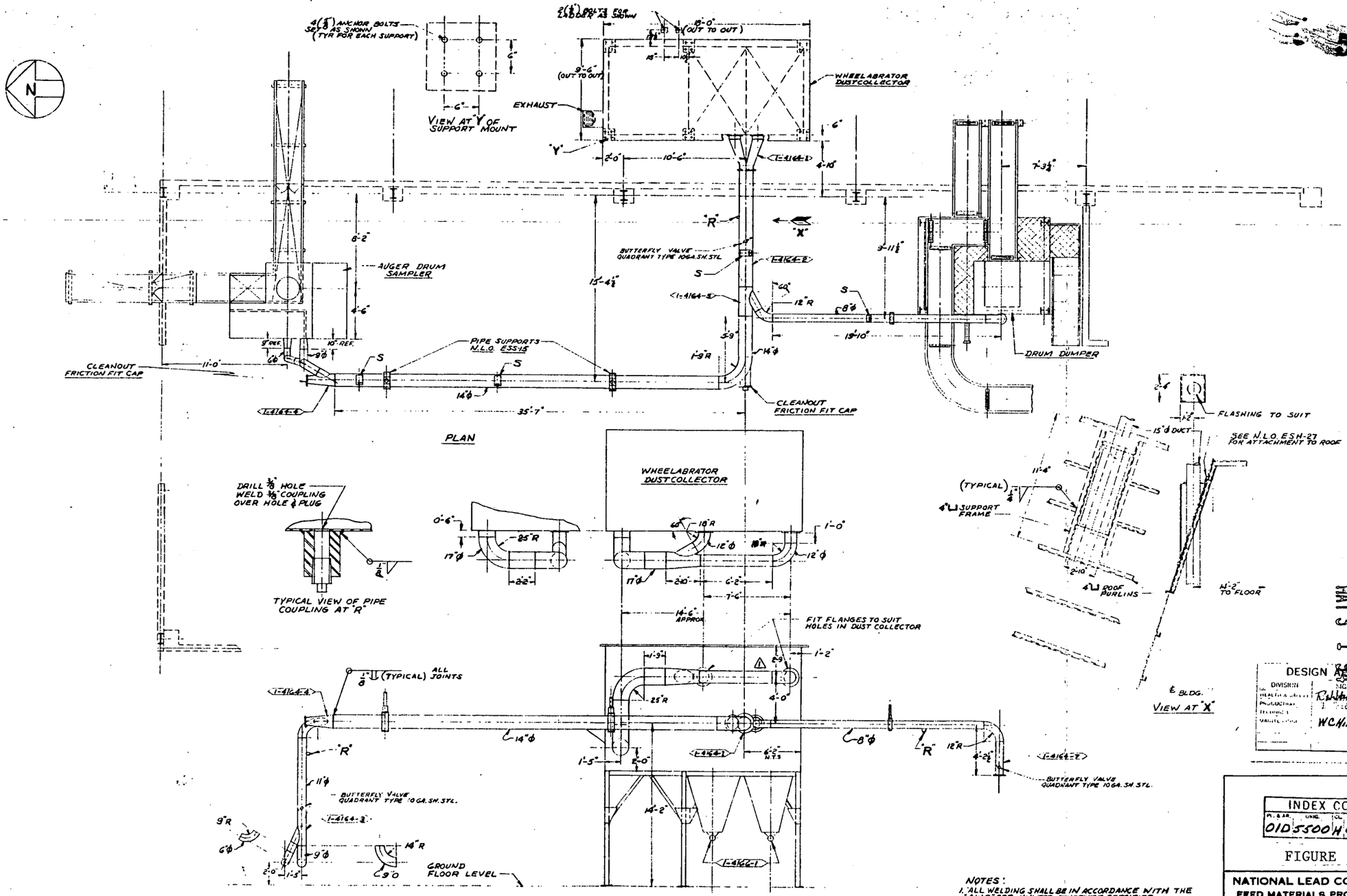
SITE PLAN — RCRA PART A
FIGURE 1-1
FACILITY LOCATION MAP
SCALE: 1" = 300'

RES #1626	75X-5500-X-00171 | 3
DATE 5-24-91	
DRAWN S.J.SMOCK	

FILE NAME: /91RCRA/75XX00171.DGN

1-4163

5771



NOTES:
1. ALL WELDING SHALL BE IN ACCORDANCE WITH THE A.W.S. STD. UNLESS OTHERWISE SPECIFIED.
2. DUCTWORK TO BE WELDED CONSTRUCTION.
3. POINTS AT "S" ARE HINGED TRAP DOORS - 1'LG. & WIDTH 1½ TIMES THE DIA. OF PIPE.
4. 16GA. BL. IRON TO BE USED FOR DUCTWORK.

REF. DWG. NO.	REF. DWG. TITLE
1-4061	DWG LIST
1-4166	VACUUM CLEAN. SYSTEM (P. PING & DETAILS)
1-4083	EQUIPMENT LAYOUT
1-4164	HOOD & DUCT DETAILS

NO.	REVISIONS	DATE	BY
2	DUCTWORK TO BE AS Removed	7/1/6	W.D.S.
1	DUCTWORK REVISED ON DUSTCOLLECTOR	3/26/56	WDS

DESIGN APPROVAL

DIVISION	SIGNATURE	DATE
PRODUCTION	R.L. Hastings	7/26/56
ENGINEERING	W.C. Hill	7/26/56

MAY 31 1956

INDEX CODE

PL. & AR.	UNIT	CL.	SER. NO.
01D	5500	H	00801

FIGURE 1-2

NATIONAL LEAD COMPANY OF OHIO
FEED MATERIALS PRODUCTION CENTER
FERNALD, OHIO

U.S. ATOMIC ENERGY COMMISSION

PLANT I — DRUM RECONDITIONING BLDG.

LAYOUT OF DUCTWORK FROM WHEELABRATOR DUST COLLECTOR TO AUGER SAMPLER, DRUM DUMPER, & SCRAP METAL BALER

DEPARTMENT PRODUCTION

PROJECT NO. 1-27 — CP-F-55-128

DRAWN & TRACED — CHECKED & APPROVED — REV. 2

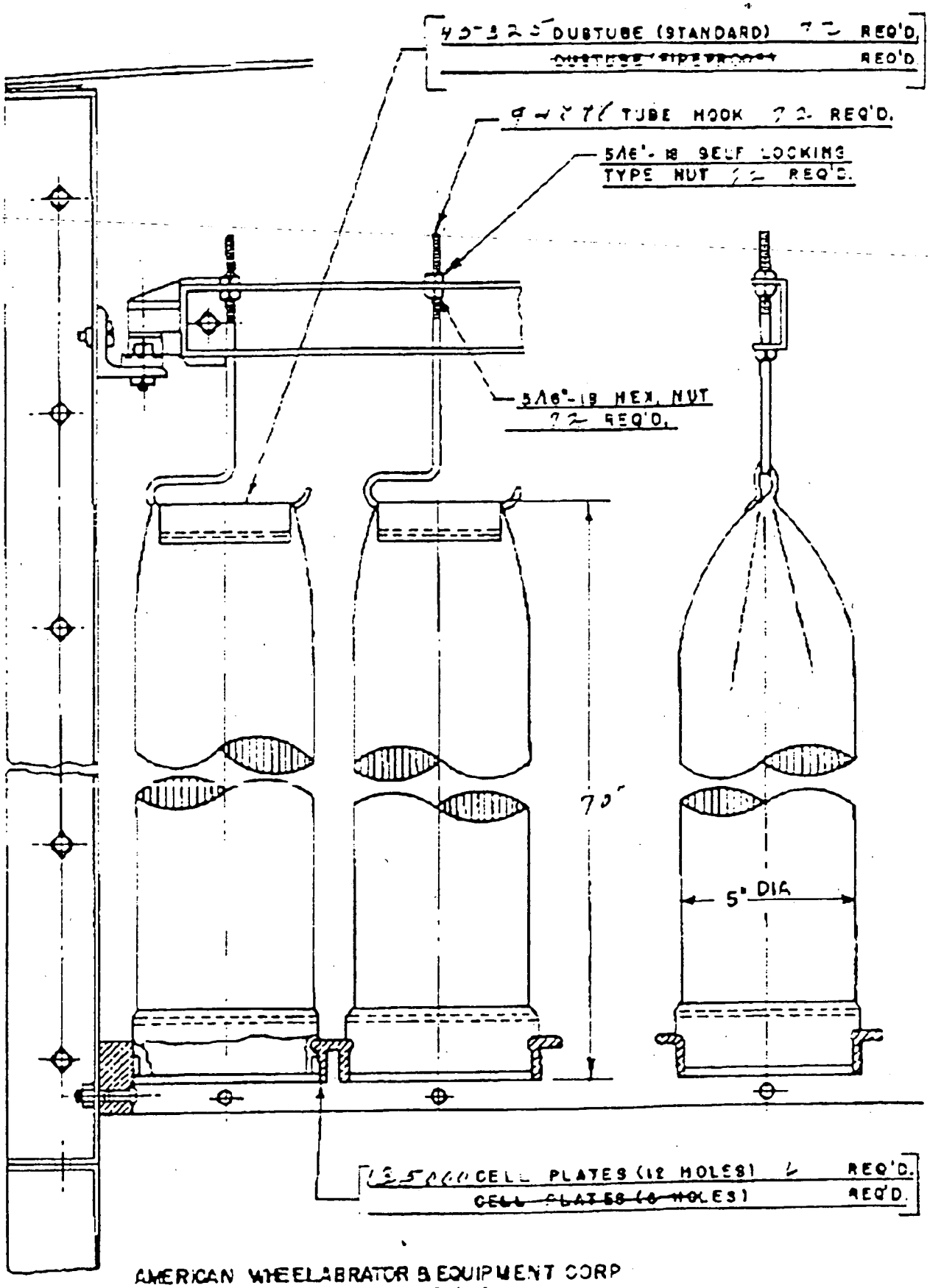
DATE 1-20-56 — DWG. NO. 1-4163

SCALE ¼" = 1'-0"

000020

ASSEMBLY DUSTUBE DETAIL

5771

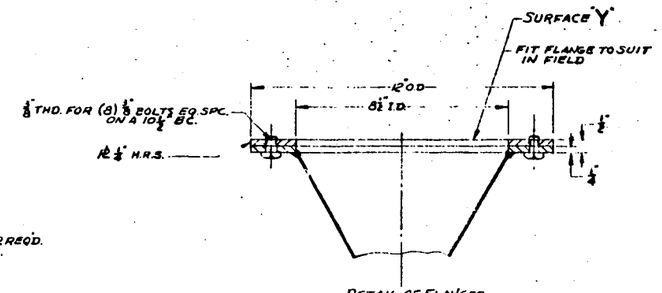


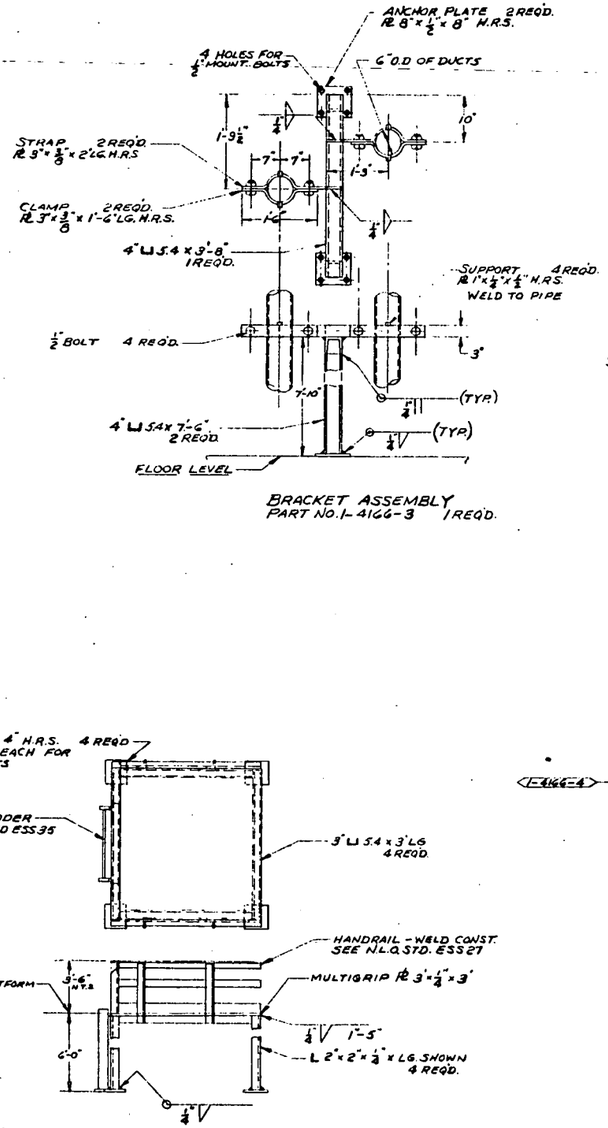
AMERICAN WHEELABRATOR & EQUIPMENT CORP
MISHAWAKA, INDIANA.
DWG. SD 2132

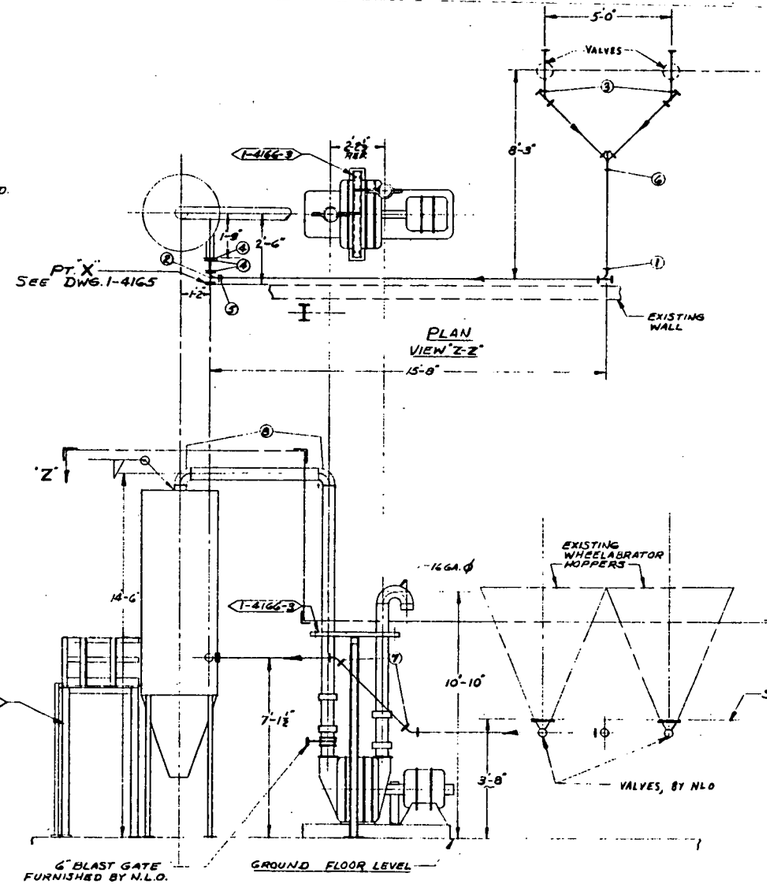
FIGURE 1-3

2916-1

5771







INDEX CODE			
FL. & NO.	DEPT.	CL.	SER. NO.
010	5500	P	00004

INDEX FOR FITTINGS

1. Y BRANCH-90° 2"	CRANE NO. 1022	1 REQ'D.	
2. TEE-REDUCING 4"x3"x2"	CRANE NO. 1076	1	"
3. Y BRANCH-45° - 2"	CRANE NO. 1028	2	"
4. FLANGE-SCREWED-4"	CRANE NO. 353	2	"
5. FLANGE-SCRAWED-2"	" "	1	"
6. DOUBLE Y BRANCH-2"	" " 1030	1	"
7. ELBOW 45°-2"	" " 1004	2	"
8. ELBOW 90°-6"		2	"

NOTE:
ALL WELDING SHALL BE IN ACCORDANCE WITH THE "A.W.S." STD. UNLESS OTHERWISE SPECIFIED.

MAY 3

DESIGN APPROVAL

DIVISION	SIGNATURE	DATE
860	[illegible]	4/12
	W.C. Hill	

FIGURE 1-4

NATIONAL LEAD COMPANY OF OHIO
FEED MATERIALS PRODUCTION CENTER
FERNALD, OHIO

U.S. ATOMIC ENERGY COMMISSION

PLANT 1 DRUM RECONDITIONING BLDG.
VACUUM CLEANING SYSTEM
PIPING & DETAILS

REF. DWG. NO.	REF. DWG. TITLE
1-4081	DWG LIST
1-4083	EQUIPMENT LAYOUT
1-4165	VACUUM CLEAN SYSTEM LAYOUT

NO.	REVISIONS	DATE	BY
2	REMOVED DUST COLLECTOR OUTLET VALVES	9-8-56	C.F.S.
1	WELDING SYMBOL ADDED	3/21/56	

DEPARTMENT PRODUCTION
PROJECT NO. 1-27 CP-F-55-128
DRAWN [illegible] CHECKED [illegible]
TRACED APPROVED [illegible]
DATE 2-6-55 DWG. NO. 1-4166 REV. NO. 2
SCALE ½" = 1'-0"

000022

2.0 CLOSURE PROCEDURES

The FEMP objective is to close the Wheelabrator Dust Collector HWMU in accordance with the "Closure Plan Review Guidance for RCRA Facilities, September 1993" and regulations by providing a CPID for this unit. The RCRA closure will be managed and implemented in conjunction with existing CERCLA removal and response actions. These CERCLA actions are required by the Amended Consent Agreement. The specific CERCLA actions, as summarized in Section 1.1.4, are:

- Removal Action No. 7, "Continuing Release of the Plant 1 Pad"
- Removal Action No. 9, "Removal of Waste Inventories"
- Removal Action No. 12, "Safe Shutdown"
- OU3 Interim ROD

The Wheelabrator Dust Collector HWMU closure actions will accomplish the clean closure performance standards prescribed by OAC 3745-66-11 (40 CFR § 265.111) by identifying, isolating, and removing any hazardous wastes present in the Wheelabrator Dust Collector HWMU that might pose risks to human health or the environment. The HWMU will be decontaminated but not dismantled during closure. Therefore, the closure will accomplish the specific objectives described below.

- The clean closure will eliminate the need for post-closure maintenance associated with the Wheelabrator Dust Collector HWMU by removing internal contamination.

- Closure activities specified in the CPID will control, minimize, or eliminate the escape of hazardous waste, hazardous waste constituents, contaminated rainfall, or waste decomposition products to the ground, to surface waters, or to the atmosphere. To accomplish this objective, material and equipment that cannot be decontaminated to satisfy the clean-up levels specified in Section 4.1 will be containerized and managed as described in Table 2-1 and Section 2.2.3.2.

- Conduct closure actions as required by the approved CPID.

Table 2-1. Wastes Anticipated from Wheelabrator

Waste	Preliminary Classification	Minimization Technique	Management Alternatives[1,2]
Shotblast Residue	Mixed	Segregate	Store/TSD
Dustubes	Low Level[3]	Segregate	Landfill
Cloth Rags	Low Level[3]	Segregate	Landfill
Decon Rinse	Clean[3]	Segregate	WWTS
Duct Work & Squirrel Cage Blower	Scrap Metal	Recycle	Store/TSD
Personnel protective equipment	Low Level	Segregate	Landfill
Decontamination containment materials	Low Level	Recycle	Landfill
Decontaminated sampling equipment	Clean	Reuse	Scrap/Landfill

1/ All RCRA hazardous wastes are subject to Land Disposal Restriction treatment standards prior to disposal.

2/ Currently available management alternatives for Wheelabrator Dust Collector HWMU wastes are as follows: Clean/low level materials will be stored as scrap or shipped to an appropriate landfill. Mixed wastes will be stored or recycled on-site pending development of treatment and/or disposal alternatives.

3/ Pending waste characterization.

2.1 MAXIMUM QUANTITY OF INVENTORY TO BE REMOVED

The interior components of the Wheelabrator Dust Collector HWMU may be contaminated with lead shotblast residues. There are no pumpable wastes or contaminated liquids in this unit. Based on the physical dimensions of the Wheelabrator Dust Collector hoppers and a recent visual inspection, the shotblast residue within the Wheelabrator Dust Collector was conservatively estimated at 85 cubic feet total or 42.5 cubic feet in each hopper. The 258 dustubes and the shotblast residues will be transferred into a storage container. The Hoffman Dust Collector's hopper was visually inspected and was found to be empty (Appendix 1-Photograph G).

2.2 PROCEDURES FOR WASTE MANAGEMENT

Closing the HWMU will generate both clean and contaminated materials. Sampling, analysis, and characterization efforts, described in Appendix 4, will classify these materials as clean (i.e., free of significant radioactive and hazardous contamination), hazardous, radioactive, or mixed wastes. Table 2-1 lists specific waste streams along with a preliminary classification, primary minimization technique, and management alternative for each. The information in Table 2-1 is preliminary, based on process knowledge, and anticipates results of decontamination efforts as discussed in Section 2.3.

2.2.1 Waste Characterization

The Sampling and Analysis Plan (SAP), included as Appendix 4, describes sampling procedures that, will provide representative samples for each waste stream anticipated as a result of actions initiated during closure of the Wheelabrator Dust Collector. Depending on which criteria a given waste stream satisfies, it will be characterized as clean (or decontaminated), hazardous, radioactive, or mixed waste. Prior to characterization, these wastes will be managed as described in table 2-1.

2.2.2 Waste Minimization

The FEMP waste minimization program goal is to avoid generating any unnecessary, additional contaminated materials or wastes. The FEMP considers it essential to minimize the volume of any contaminated wastes. Specific actions designed to minimize additional wastes include: isolating or removing non-contaminated equipment or materials; limiting additional liquids or other materials introduced during decontamination and demolition; and covering non-contaminated or decontaminated equipment or facilities to prevent spread of contamination through spills or releases.

Each FEMP employee is responsible for waste minimization. Closure Site Supervisors and Health and Safety Officers have the principal responsibility of implementing and enforcing waste minimization associated with closing the Wheelabrator Dust Collector. In addition, the Site Supervisors will be responsible for training site personnel in project-specific waste minimization practices.

2.2.2.1 Clean Materials

Decontaminated or clean materials will be managed in accordance with the OU3 Interim Record of Decision activities.

2.2.2.2 Contaminated Materials

The shotblast residue will be placed in a storage/disposal container and managed as mixed waste. The dustubes will be placed into containers and moved to storage in a FEMP RCRA storage area or 90-day accumulation area, to await characterization based on analytical results.

2.2.2.3 Decontamination Wastes

Liquids - The amount of liquid waste generated by rinsing the Wheelabrator dust collector hoppers and the Hoffman dust collector will depend, primarily, on the number of wash cycles required to achieve clean surfaces (approximately 100 gallons is anticipated).

Cloth Solids - The amount of solid decontamination wastes generated by cleaning the Wheelabrator baghouse will depend upon the effectiveness of vacuuming. Effort will be made to maximize removal of dust during vacuuming to minimize the volume of solid decontamination wastes generated.

Sampling Wastes - Sampling wastes will be minimized by two methods: proper sampling techniques, and sample waste screening and segregation. Sample procedures, as described in the SAP (Appendix 4), will minimize the number of samples required, as well as the potential for resampling. Residual sample materials will be returned to the originally sampled container.

Protective Clothing - Use, handling, storage, and disposal of contaminated protective clothing are routine functions at the FEMP and are addressed in existing SOPs (FMPC-0516, FMPC-2128, RM-0009I, FMPC-2151). Protective clothing will be divided into two categories: disposable and reusable. Paper coveralls and surgeon's gloves are examples of disposable protective clothing. Boots and respirators are

examples of clothing that can be decontaminated and reused. Methods that will be used to reduce this volume include: identifying zones of increasing levels of protective clothing, covering and sealing contaminated equipment and facilities that could spread contamination to surrounding areas, employing dust reduction methods when excavating to reduce the level of respiratory protection, and minimizing personnel entry into contaminated areas.

2.2.3 On-site Waste Management/Storage

Wastes will be containerized during the closure action, to segregate and prevent cross contamination. These wastes will be sampled according to procedures included in Appendix 4. Where appropriate, wastes will be transferred from the vicinity of the Wheelabrator Dust Collector into storage areas, where containers will be held pending analytical results and characterization.

Recognizing the dual nature of mixed wastes, the FEMP stores mixed wastes according to RCRA and AEA regulations and meets DOT container and labeling requirements, through DOE orders concerning low-level radioactive waste. Mixed wastes generated in conjunction with closing the Wheelabrator Dust Collector will be stored on-site pending the availability of acceptable treatment and/or disposal facilities for mixed waste.

2.2.3.1 Low Level or Decontaminated Materials

Low level or decontaminated equipment (e.g., motor, pneumatic controls) will be isolated from recontamination and transported to a clean, excess material laydown area to await final disposition as scrap. Materials that cannot be recycled as scrap will be packaged and shipped to an appropriate management facility.

2.2.3.2 Contaminated Materials

Wastes containing a mixture of hazardous and radioactive constituents will be classified as mixed wastes. Currently, there are no off-site storage or treatment facilities available to accept mixed waste from the FEMP. Therefore, these wastes will be packaged, labeled, and stored on-site pending development and implementation of on-site treatment technology. Anticipated mixed wastes are identified in Table 2-1.

2.2.3.3 Liquid Decontamination Wastes

The rinsing associated with decontaminating the Wheelabrator Dust Collector HWMU is conservatively expected to generate approximately 100 gallons of aqueous liquid wastes. Although, it is anticipated that these aqueous wastes will meet the requirements for discharge through the FEMP WWTS, the wastes will be stored pending characterization. The liquid wastes will be sampled as described in Appendix 4, accumulated in drums and, moved to storage in a FEMP RCRA storage area or 90-day accumulation area, to await characterization based on analytical results.

2.2.3.4 Solid Decontamination Wastes

Secondary solid wastes generated during the decontamination operations include soiled protective clothing and materials used for temporary containment. The disposal of contaminated protective clothing is a routine function of FEMP addressed in the existing SOPs (FMPC-0515, FMPC-2128, RM-00091, FMPC-2152). All re-usable protective clothing used in the identified radiologically controlled area are considered radioactively contaminated until cleaned and surveyed for re-use.

2.3 PROCEDURES FOR DECONTAMINATION/DISPOSAL

The Wheelabrator Dust Collector HWMU components (Table 2-2) will be decontaminated and disposed in accordance with this section. Prior to beginning field activities, personnel will disconnect and blank-off the equipment from existing duct work and electrical connections. If appropriate, the resulting openings will be sealed. Standard industry procedures will be applied to disconnect the electrical and mechanical devices.

The interconnecting duct work from the Wheelabrator dust collector to the Hoffman dust collector will be disconnected and rinsed to remove shotblast residues. In addition, the squirrel cage blower will be disconnected from the unit and rinsed to remove shotblast residues. The rinseates will be analyzed to verify decontamination (i.e., total lead $\leq$0.60 mg/L) and the rinseate will be managed (Table 2-2).

The shotblast residues and the dustubes remaining in the Wheelabrator and Hoffman dust collectors will be removed, characterized, and managed as described in Section 2.2. Dustubes will be disconnected from the top hangers and the bottom dustube connections. As each dustube is removed they will be placed in plastic bags for collection and taken from the baghouse to an approved storage container within the project boundaries. The accumulated shotblast residues within the Wheelabrator Dust Collector hoppers will be vacuumed out from the bottom valves or from the top openings from within the baghouse and placed in approved storage containers.

Because the Wheelabrator Dust Collector baghouse cannot adequately contain the rinseates, it is impractical to rinse inside surfaces. Therefore, the interior of the entire Wheelabrator Dust Collector (non-porous surfaces) will be vacuumed with a high efficiency particulate air (HEPA) filter vacuum to remove all loose contamination and shotblast residues. The baghouse will then be wiped with damp cloth rags or comparable material (e.g., sponges, muslin). Decontamination will be verified by conducting wipe sampling and analyses (further discussion on wipe sampling in Appendix 4-SAP).

The Wheelabrator hoppers were used to collect and store shotblast residue (hazardous waste) and because they have a pyramid shape, good accessibility, and a monolithic construction, rinsing as a decontamination method will be effective and practical. During the rinse, pressurized water will be directed to all internal surfaces of the hopper. Decontamination will be verified through sampling and analyses of the rinse water (Appendix 4).

The Hoffman Dust Collector baghouse and hopper will be decontaminated through vacuuming out any visible contamination remaining and then further decontaminating by rinsing. The entire Hoffman unit will be rinsed by spraying from the top access point. Decontamination will be verified through sampling and analyses of the rinse water (Appendix 4).

Spill prevention and control measures will be followed during all decontamination operations, in accordance with the FEMP SOPs. Work areas will be prepared by placing impermeable liners and/or diking to contain spills. The primary rinseate container below the hoppers will be a trough or other compatible container.

The decontaminated Wheelabrator Dust Collector HWMU will be dismantled during implementation of the Interim Record of Decision for OU3.

Table 2-2. Sequence of Actions Required for Closure of HWMU No.13.

Equipment Item	Actions
Duct Work	• Disassemble and remove • Decontaminate (rinse) • Sample rinseate for decontamination verification and manage wastes • Compact and manage scrap metal
Dustubes	• Dismantle and remove • Manage contaminated materials
Squirrel Cage Blower	• Disassemble and remove • Decontaminate (rinse) • Sample rinseate for decontamination verification and manage wastes • Compact and manage scrap metal
Motor, Steel Support Legs	• Removal will take place as a function of implementing IROD
Metal Shaker Assembly	• Decontaminate (vacuum and/or wipe as appropriate) • Manage decontamination wastes • Removal will take place as a function of implementing of IROD
Wheelabrator Baghouse	• Decontaminate (vacuum and wipe) • Sample cloth rags used for wiping for waste characterization • Take wipe samples for decontamination verification (see Appendix 4-SAP) • Manage decontamination wastes • Removal will take place as a function of implementing of IROD

Table 2-2. Sequence of Actions Required for Closure of HWMU No.13.

Equipment Item	Actions
Wheelabrator Hoppers & Hoffman Dust Collector (baghouse and hopper)	• Decontaminate (vacuum and rinse) • Sample rinse water for decontamination verification • Manage decontamination wastes • Removal will take place as a function of implementing of IROD

2.4 DESCRIPTION OF SECURITY SYSTEMS

The boundary of the Wheelabrator Dust Collector has been marked and identification signs have been posted. Access to the HWMU is restricted by chains.

As with all DOE facilities, plant security at the FEMP is strict. The entire FEMP processing area, which includes Building 66 and the Wheelabrator Dust Collector HWMU, is surrounded by chain link fencing and monitored 24 hours a day by on-site security personnel. All employees and visitors enter through one of several guarded entrances into the facility.

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3.0 CLOSURE SCHEDULE

3.1 EXPECTED YEAR OF CLOSURE

Closure of the Wheelabrator Dust Collector HWMU will be performed in accordance with the appropriate closure requirements and in conjunction with the CERCLA actions described in Section 2.0. Clean closure of the Wheelabrator Dust Collector HWMU is anticipated to be complete in calendar year 1995.

3.2 FREQUENCY OF PARTIAL CLOSURE

This CPID, for the Wheelabrator Dust Collector HWMU, demonstrates compliance with requirements for RCRA closure. This CPID is to be submitted on or before July 18, 1994, based upon DOE's April 15, 1994, letter to OEPA regarding "Hazardous Waste Management Unit Information and Request For Extension". This CPID is for closure of the Wheelabrator Dust Collector HWMU and constitutes only a partial closure of the FEMP facility.

3.3 MILESTONE CHART

The FEMP will identify specific closure action personnel, prepare FEMP site work package documentation (e.g., Health and Safety, Radiation Work Permit (RWP)), and conduct training in accordance with the work package documentation. Activities that will occur include conducting decontamination vacuuming, wiping, rinsing and sampling. A 180 day period has been identified from the time of OEPA approval of the CPID for the FEMP to complete closure. Consistent with the requirements of OAC 3745-66-15 and 40 CFR § 265.115, a 60-day time period is scheduled following completion of closure activities for preparation of the certification documents as described in Section 4.3. Table 3-1 summarizes the Wheelabrator Dust Collector HWMU closure schedule.

TABLE 3-1 Milestones for the Closure Action Schedule

Milestone	Activity Duration (days)	Cumulative Duration (days)[1/]
Receive OEPA Approval	0	0
Complete closure actions: Vacuum the baghouses, vacuum and rinse the hoppers, remove the duct work and squirrel cage blower, and collect samples.	180	180
Submit Certification of Closure	60	240

[1/] Number of days from approval of the CPID.

During the closure performance schedule, personnel will continue to inspect equipment and facilities at the Wheelabrator Dust Collector and conduct activities prescribed by the existing FEMP Spill Prevention, Control, and Countermeasures Plan (SPCC). Standard procedures for RCRA closures require that the FEMP management contact the OEPA at least 5 business days prior to any significant activity.

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4.0 CLEANUP LEVEL DETERMINATION/CLOSURE CERTIFICATION

The following sections describes analyses to be performed, criteria for evaluating adequacy, schedule of inspections, and types of documentation needed to clean close the Wheelabrator Dust Collector HWMU.

4.1 RCRA CLOSURE STANDARDS

To achieve clean closure of a HWMU, the "Closure Plan Review Guidance for RCRA Facilities, September 1993" specifies that hazardous waste residues should be removed to the maximum extent practicable and the following rinseate standards must be met:

(1) Fifteen times the public drinking water maximum contaminant level (MCL) for hazardous constituents as promulgated in 40 CFR 141.11 and OAC 3745-81-11 for inorganics and 40 CFR 141.12 and OAC 3745-81-12 for organics;

(2) If an MCL is not available for a particular contaminant, then fifteen times the maximum contaminant level goal (MCLG) as promulgated in 40 CFR 141.50 shall be used as the clean standard. If the MCLG is zero, use fifteen times the contaminants practical quantitation limit (PQL) in ground water; or,

(3) If the product of fifteen times the MCL or MCLG exceeds 1 mg/l or if neither an MCL or MCLG is available for a particular contaminant, 1 mg/l shall be used as the clean standard.

Lead is the constituent of concern and is used to indicate the presence of hazardous waste residues. In accordance with OAC (1993-2 edition) 3745-81-11, the MCL for lead was removed from the inorganic chemical list effective September 13, 1993. In addition, the MCLG for lead is zero (40 CFR §141.51). Therefore, the clean up action level for the rinseates is the product of 15 times the PQL (i.e., 0.04 mg/L) of lead in groundwater which equals 0.60 mg/L. The PQL for lead in groundwater is taken from 40 CFR §264, Appendix IX, Method 6010, "Inductively Coupled Plasma [ICP] Atomic Emission Spectroscopy." Method 6010 is the most commonly utilized method because it is applicable to a large number of metals and wastes.

As discussed earlier in section 2.3, it is impractical to immerse the entire surface of the Wheelabrator baghouse with water to collect a rinseate sample. Therefore, a wipe sample will be collected from each side of the center dividing wall of the Wheelabrator Baghouse to verify decontamination. Since no clean standard for a wipe sample is established by the Interim Final Closure Plan Review Guidance for RCRA Facilities (September 1993), a threshold for lead in dust established by the Department of Housing and Urban Development, (Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing), will be used to verify the area is clean. The interim federal standard for clearance criteria for lead dust levels on window wells is 800 μg/sq.ft. Since laboratory results are reported in weight per volume and the clean criteria is reported in weight per area, the following conversion formula must be used.

$$Q = \frac{[C(S) * V(S) - C(B) * V(B)]}{A}$$

Q = weight of lead in the sample per square area of the sample (μg/sq.ft.)
C(S) = estimated lead concentration of the sample (μg/mL)
V(S) = volume of sample solution (mL)
C(B) = estimated lead concentration of the blank associated with the sample (μg/mL)
A = area of the wiping (sq.ft.)

> Note: the reported concentrations may already be corrected for the blank, in which case the second term in the numerator would not be needed. The value of Q will be compared with the clearance criteria given above for the appropriate wiping surface to determine whether clean closure has been achieved.

Decontamination of the Wheelabrator Dust Collector HWMU will be confirmed, and clean closure achieved, if analyses of the final rinseate samples from the hoppers, interconnecting duct work and squirrel cage blower do not exceed 0.60 mg/L and the analyses of the Wheelabrator baghouse wipe samples do not exceed 800 μg/sq.ft.

If the final rinseate and wipe sample from the Wheelabrator Dust Collector HWMU contain lead at a level greater than the specified standards, then additional rinsing,

vacuuming and or wiping will take place and, if required, the FEMP will submit a modified plan. Until clean closure is achieved, the Wheelabrator Dust Collector and its components will continue to be managed as a HWMU.

4.2 CERTIFICATION INSPECTIONS

Certification inspections will be conducted by a qualified, independent, registered professional engineer licensed in Ohio, or his/her designated representatives to ensure that the actions performed to achieve closure are conducted consistent with this CPID. Representatives of DOE and Fernald Environmental Restoration Management Corporation (FERMCO) will also conduct inspections during the performance of response actions. The major emphasis of the closure inspection will be:

- To ensure that the components of the Wheelabrator Dust Collector HWMU, including the items referenced in Table 2-1, are cleaned and decontaminated in accordance with this CPID.

- To ensure that all wastes resulting from this closure action are properly stored, labeled and characterized.

4.3 CERTIFICATION DOCUMENTS

Actions taken in accordance with this CPID for HWMUs must be certified by both the owner or operator and a qualified, independent, registered professional engineer licensed in Ohio. The certification provided by the FEMP will include the following:

- Certification Statement (see Section 4.4)

- Approved plan or reference to the approved plan

- Volume and type of waste removed

- Correspondence regarding closure activity after OEPA approval

- Details of sampling and analysis methods (including copies of shipping records, and chain-of-custody forms used for sample handling and tracking)

- Copies of laboratory analyses reports

- Narrative describing all activities during closure (this narrative may be presented in the form of a daily log of activities or field notes recorded by the owner or operator)

- Signatures of the professional engineer and the owner or operator.

4.4 STATEMENT OF CERTIFICATION

The DOE and a qualified, independent, registered, professional engineer, will submit certification of closure within 60 days after completing the actions specified in this approved CPID for the Wheelabrator Dust Collector. The certification will meet the requirements of OAC 3745-50-42(d) and OAC 3745-66-15 and 40 CFR 270.11(D) and 40 CFR 265.115, respectively. The certification statements will be worded as follows:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

_____
U.S. Department of Energy

"I hereby certify that the hazardous waste management unit has been closed in accordance with the specifications in the approved closure plan."

_____
Ohio Registered Professional Engineer

4.5 POST-CLOSURE PLAN

No post-closure care for this unit is expected because clean closure is anticipated.

4.6 NOTICE IN DEED

A notation in the property deed is required under OAC 3745-66-19(b)(1) (40 CFR § 265.119) for areas that require post-closure care. The Wheelabrator Dust Collector HWMU will not require unit-specific, post-closure care.

5.0 SAMPLING PLAN AND ANALYTICAL PROCEDURES

Closing the Wheelabrator Dust Collector HWMU will involve sampling of the final rinse. Sampling and analyses will be conducted as described in the SAP, Appendix 4. All sampling and analyses for radioactive contamination and hazardous constituents will be conducted in accordance with existing FEMP SOPs as described in the Sitewide CERCLA Quality Assurance Project Plan (SCQ). As they are generated and collected, materials will be containerized and kept within the project exclusion zones until sampled. After sampling, the containerized materials will be transported to appropriate FEMP material storage areas or 90-day RCRA accumulation areas to await analytical results, characterization, and final disposition per existing site procedures. Analytical procedures will be performed in accordance with methods specified in SW-846.

5.1 NATURE, RATE, AND EXTENT OF CONTAMINATION

The Wheelabrator Dust Collector HWMU is located on the Plant 1 Pad, which is an active HWMU. Soil contamination located beneath the Plant 1 Pad is being addressed as part of the Removal Action No. 7, "Continuing Release of Plant 1 Pad" (described in Section 1.1.2.2) and further remediated as a function of the ROD for Operable Unit 5.

The Wheelabrator Dust Collector HWMU will be dismantled in accordance with the IROD after completion of clean closure. The information and data obtained from the RI/FS and implementation of the Interim ROD will be used to determine the final remediation requirements under the Final ROD for OU3.

5.2 EQUIPMENT, CALIBRATION, AND EXPERIENCE OF OPERATORS

The following equipment will be used to samples:

- 500 ml amber glass widemouth bottle with teflon-lined closure
- Thermal coolers and freezer packs
- Sample labels
- Waterproof marking pen
- Field sampling logbook and field data forms
- Acid resistant gloves

- Polyethylene or other approved impervious sheeting
- Dedicated, clean rinseate sample collection drums
- Coliwasa sampler
- Peristaltic sampling pump(s)
- Tygon tubing
- Scissors
- Commercial wet wipes (with non-alcoholic wetting agent)
- 50 ml polypropylene tube with screw-type lid
- Plastic template (12" x 12")
- Measuring tape

The list can be modified, as appropriate, by a trained, qualified sampling supervisor or manager. Any change to the sampling equipment will be noted in the field sampling logbook or in the field sampling plan. All sampling activities will be performed by personnel trained in accordance with the SCQ.

5.3 PROCEDURES FOR GROUNDWATER MONITORING ANALYSIS

Groundwater monitoring analyses is not required for the Wheelabrator Dust Collector HWMU.

5.4 NUMBER, LOCATION, AND FREQUENCY OF SAMPLES

The number, location, and frequency of samples are detailed in the SAP contained in Appendix 4. In the event that additional samples are required, they will be determined by a trained, qualified site sampling supervisor or manager.

6.0 AIR AND WASTEWATER MANAGEMENT PLANS

6.1 CONTROL OF AIRBORNE PARTICULATES

Closure of the Wheelabrator Dust Collector HWMU will use FEMP Standard Operating Procedures (SOP) designed to minimize the generation of airborne particulates. These procedures require use of a HEPA vacuum to collect and control airborne particulate during dust generating activities and have been established to prevent release of radioactivity to the air. These procedures also effectively control airborne release of contaminated metal particulates.

6.2 CONTROL OF RUNOFF TO SURFACE WATER

The Wheelabrator Dust Collector HWMU will be equipped with temporary secondary containment during decontamination and, as such, prevent runoff to surface water. Water accumulated in the secondary containment during closure operations will be tested and treated, as necessary, prior to discharge from the FEMP WWTS.

6.3 CONTROL OF RINSEATE RUNOFF

Spill prevention and control measures will be employed during all closure operations, in accordance with FEMP SOPs and the SPCC.

6.4 CONTROL OF HAZARDOUS CONSTITUENTS FROM ENTERING GROUNDWATER

The Wheelabrator Dust Collector HWMU will be equipped with temporary secondary containment during decontamination and, as such, prevent runoff to groundwater. Water accumulated in the secondary containment during closure operations will be tested and treated, as necessary, prior to discharge from the FEMP WWTS.

6.5 WASTEWATER TREATMENT

Liquid decontamination wastes will be collected, labeled, and stored in designated storage areas or 90-day accumulation areas until characterization is complete. Upon completion of characterization, the decontamination wastes are anticipated to be processed through the FEMP WWTS. Decontamination wastes will be managed in accordance with Section 2.2 of this CPID. If the liquid wastes do not meet the requirements for processing through the WWTS, the waste will be stored in a storage area on-site until a treatment or disposal option can be established.

7.0 PERSONNEL SAFETY AND FIRE PREVENTION

The Wheelabrator Dust Collector closure operations will be conducted in accordance with the approved Health and Safety Plan. Before initiating field operations, a health and safety briefing will be provided for all closure personnel. This briefing will address issues such as personal protective equipment (PPE), fire prevention, and other pertinent information.

To minimize the potential for fires, proper fire prevention and protection procedures are necessary. The following fire prevention rules will be implemented during closure:

- No smoking allowed in the FEMP process area, which houses the Wheelabrator Dust Collector.

- All sources of ignition are prohibited within a 50-foot radius of substances or operations which constitute a fire hazard. These operations or areas shall be posted with signs marked "NO SMOKING OR OPEN FLAMES".

- All tanks, containers, and pumping equipment, whether portable or stationary, will be Underwriters Laboratory (UL) or Factory Mutual (FM) approved if they are being used for the storage or transfer of flammable and/or combustible liquids. These storage containers will also meet all applicable Occupational Safety and Health Administration (OSHA) regulations.

- Equipment requiring flammable liquid fuel will be shut down during refueling, servicing, or maintenance. This requirement can be waived for diesel-powered machinery serviced by a closed system provided that there are attachments to prevent spillage.

Additional fire prevention rules will be implemented, if deemed necessary, by the Health and Safety manager.

7.1 GUIDELINES FOR PREPARATION OF HEALTH AND SAFETY PLANS

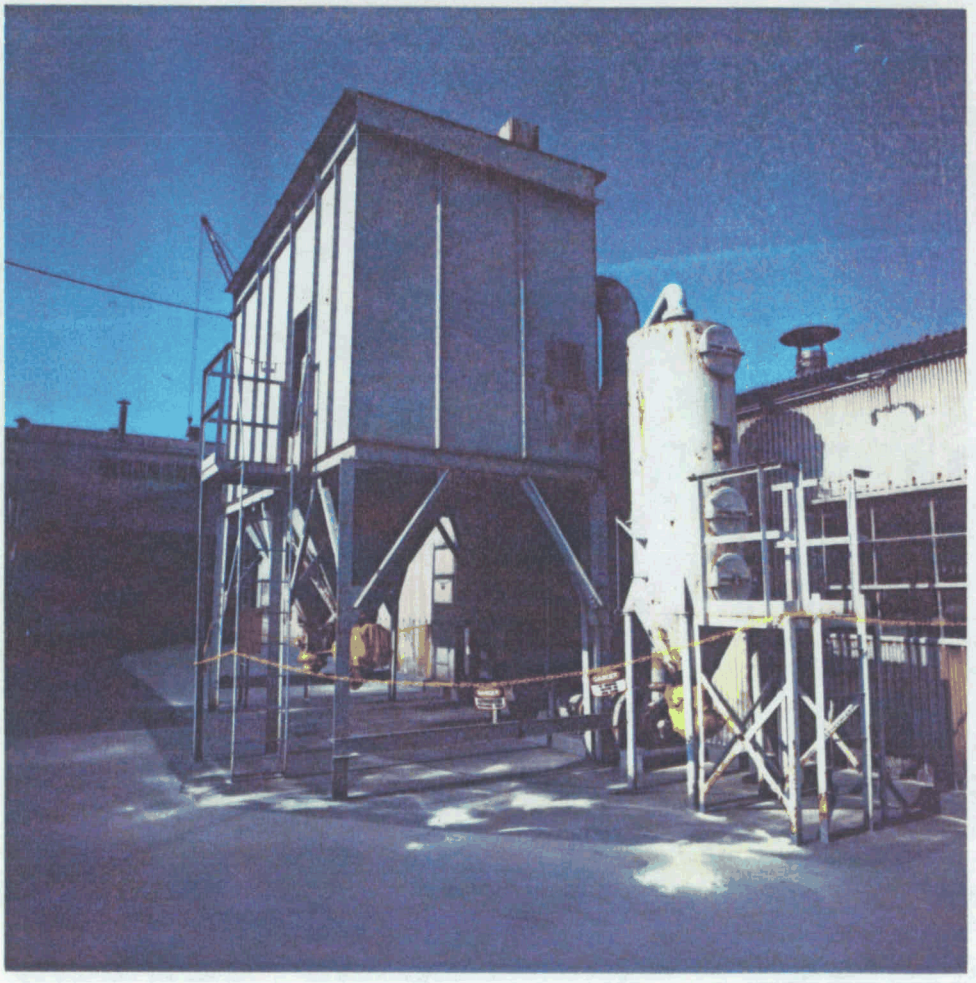
A Task/Project specific Health and Safety Plan, pursuant to requirements in the current FEMP Comprehensive Environmental Safety and Health Plan and Safe Shutdown Health and Safety Plan, will be required before RCRA closure activities are initiated. The specific procedures, including personnel and equipment decontamination procedures, will be based on the required health and safety hazard analysis that will characterize hazards and conditions applicable at the time. Appendix 5 includes a copy of the guidelines for the preparation of the Task/Project Specific Health and Safety Plan.

APPENDIX 1

PHOTOGRAPHS
THE WHEELABRATOR DUST COLLECTOR HWMU
AND COMPONENTS

July 1994

Fernald Office
U. S. Department of Energy
Fernald Environmental Management Project
7400 Willey Road
Fernald, Ohio 45030



PHOTOGRAPH A: THE WHEELABRATOR DUST COLLECTOR HWMU

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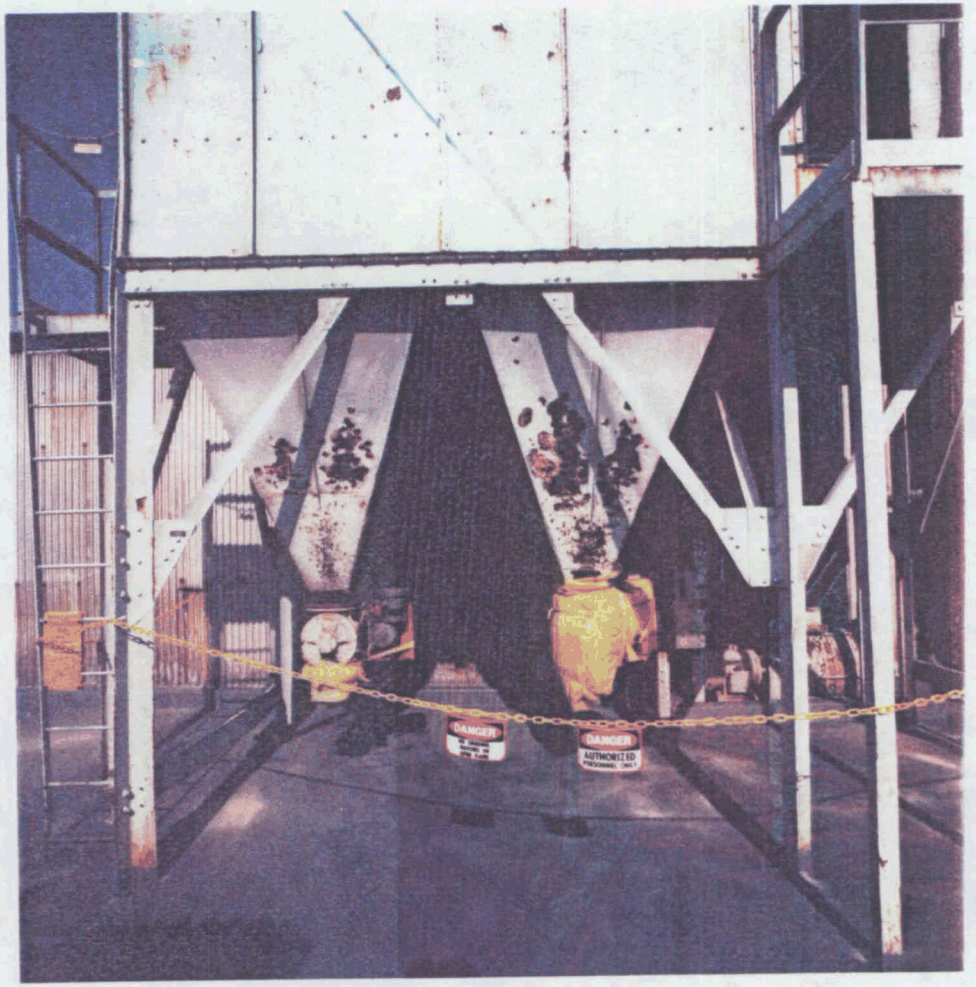
PHOTOGRAPH B:
WHEELABRATOR DUST COLLECTOR



PHOTOGRAPH C:
HOPPERS BENEATH WHEELABRATOR DUST COLLECTOR BAGHOUSE

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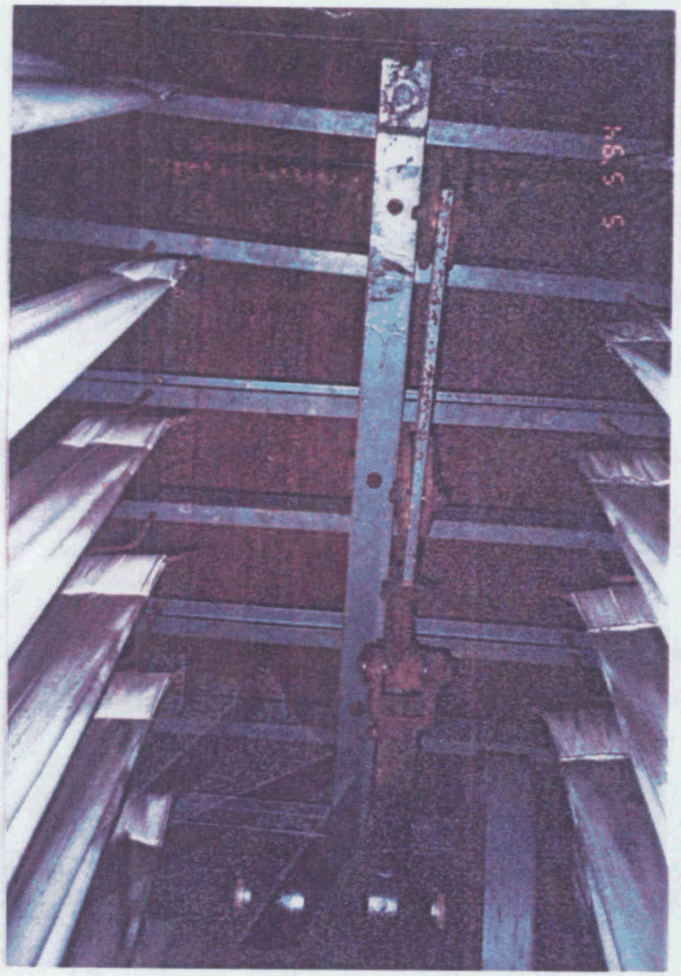
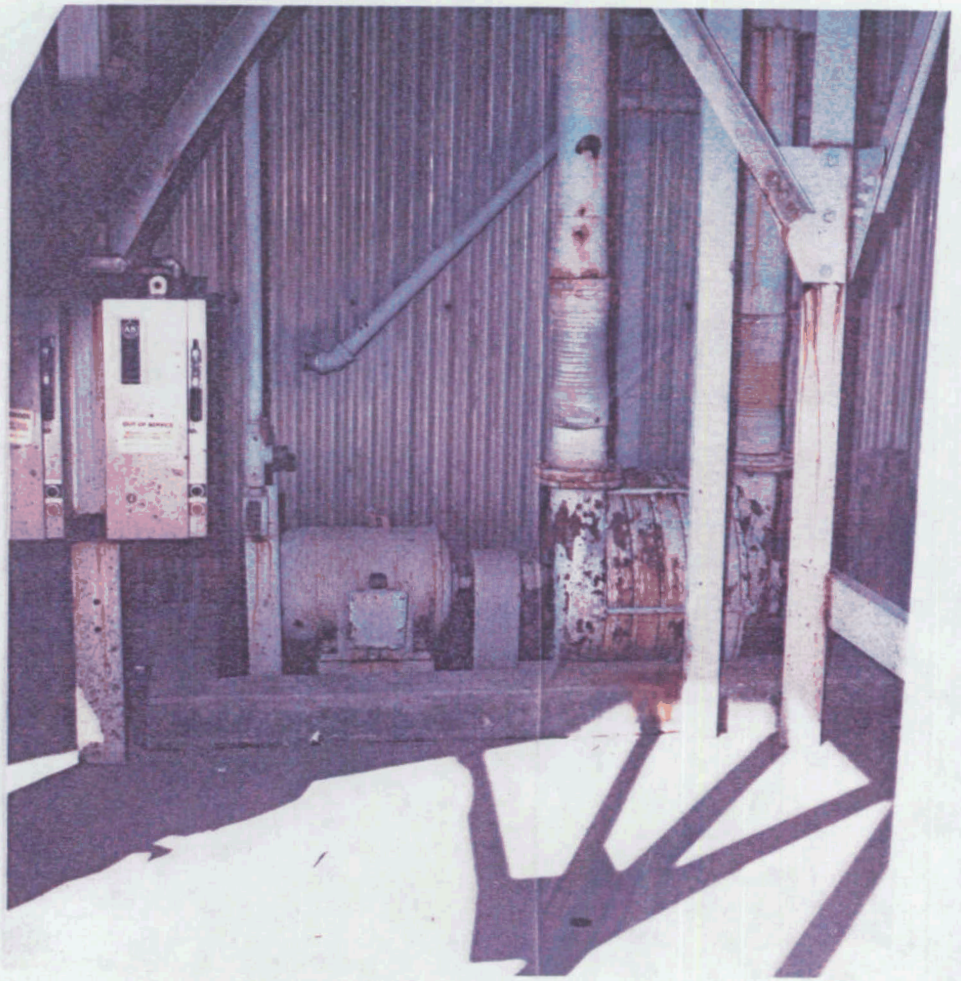
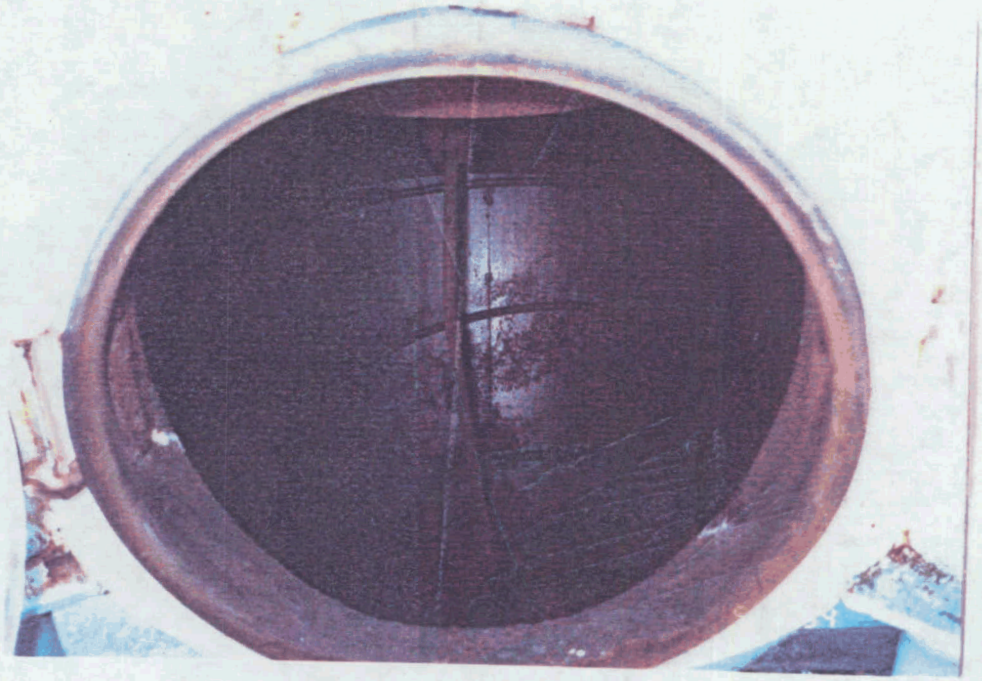


PHOTOGRAPH D:
METAL SHAKER ASSEMBLY AND DUSTUBE HANGERS



PHOTOGRAPH E:
SQUIRREL CAGE BLOWER

PHOTOGRAPH F:
HOFFMAN DUST COLLECTOR



PHOTOGRAPH G:
HOPPER BENEATH HOFFMAN DUST COLLECTOR BAGHOUSE

APPENDIX 2

SHOTBLAST RESIDUE ANALYTICAL DATA FROM THE THE WHEELABRATOR DUST COLLECTOR HWMU

July 1994

Fernald Office
U. S. Department of Energy
Fernald Environmental Management Project
7400 Willey Road
Fernald, Ohio 45030

5771

WESTINGHOUSE TCLP ANALYSIS
3555-00063

TCT SAMPLE NUMBER - 91001011
WMCO SITE ID - 910307-045
DATE RECEIVED - 03/09/91

REPORT DATE - 04/05/91
MATRIX - Leachate
RELEASE NUMBER - 368

TCLP METALS

DATE TCLP EXTRACTED - 03/12/91

METHODS	PARAMETER	DETECTION LIMIT	CONC. (UG/L)	DATE ANALYZED	REGULATORY LEVEL (UG/L)
6010	ARSENIC	200	ND	03/28/91	5000
6010	BARIUM	200	ND	03/28/91	100000
6010	CADMIUM	100	ND	03/28/91	1000
6010	CHROMIUM	500	ND	03/28/91	5000
6010	LEAD	200	19200	03/28/91	5000
6010	SELENIUM	328	ND	03/28/91	1000
6010	SILVER	50	ND	03/28/91	5000
7470	MERCURY	0.20	ND	03/26/91	200

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WESTINGHOUSE TCLP ANALYSIS
3555-00063

TCT SAMPLE NUMBER -	91001012	REPORT DATE -	04/05/91
WMCO SITE ID -	910307-046	MATRIX -	Leachate
DATE RECEIVED -	03/09/91	RELEASE NUMBER -	368

TCLP METALS

DATE TCLP EXTRACTED - 03/12/91

METHODS	PARAMETER	DETECTION LIMIT	CONC. (UG/L)	DATE ANALYZED	REGULATORY LEVEL (UG/L)
6010	ARSENIC	200	ND	03/28/91	5000
6010	BARIUM	200	ND	03/28/91	100000
6010	CADMIUM	100	ND	03/28/91	1000
6010	CHROMIUM	500	ND	03/28/91	5000
6010	LEAD	200	16250	03/28/91	5000
6010	SELENIUM	328	ND	03/28/91	1000
6010	SILVER	50	ND	03/28/91	5000
7470	MERCURY	0.20	ND	03/26/91	200

Westinghouse Materials Co of Ohio
Analytical Chemistry Department
Results of Analyses

AnaLIS ID: 910307-045 Project: 1300 0009 Customer Sample ID: EM-2392
Customer: ENV. CHAR & SURV. Requisition Number:
Date Sampled: 7-MAR-1991 Date Sample Received: 7-MAR-1991
Sampled By: A RUSSELL Date Sample Completed:
Material Description: RESIDUE, PT 2-1, DRUM RECON PROJ Charge Number: FBJ01

Activ. Number	Procedure No.	Analysis	Result	Units	Data Entered By	QA File Number	Date Completed
300205	3002	U - BrPADAP Anl	157	ppm	EJ WILLHITE	1	13-JUN-1991
305905	3059	Total Th - Color. Anl	<45	ppm	MJ HARPER	357	11-JUL-1991
330044	330044	U Activity Calc - ISO RAD	84	pCi/g	HR CHILES	4018-91-M061	28-JUN-1991
	330044	U-234 - ISO TMS	28	pCi/g	HR CHILES	4018-91-M061	28-JUN-1991
	330044	U-235 - ISO TMS	2.1	pCi/g	HR CHILES	4018-91-M061	28-JUN-1991
	330044	U-236 - ISO TMS	1.7	pCi/g	HR CHILES	4018-91-M061	28-JUN-1991
	330044	U-238 - ISO TMS	52	pCi/g	HR CHILES	4018-91-M061	28-JUN-1991
400205	4002	Ra-226 - ISO RAD	1.2	pCi/g	EL ADKINS	4002-91-014	6-JUN-1991
	4002	Ra-228 - ISO RAD	0.75	pCi/g	EL ADKINS	4002-91-014	24-MAY-1991
401305	4013	Alpha Activity - ISO RAD	<170	pCi/g	EL ADKINS	4013-91-036	11-MAR-1991
	4008	Beta Activity - ISO RAD	<310	pCi/g	EL ADKINS	4013-91-036	11-MAR-1991
401905	4019	Pu-238 - ISO RAD	<0.27	pCi/g	DJ FALCONI	4019-91-003	4-APR-1991
	4019	Pu-239 - ISO RAD	0.33	pCi/g	DJ FALCONI	4019-91-003	4-APR-1991
402405	4024	Th Activity Calc - ISO RAD	10.0	pCi/g	PJ STOY	4024-91-026	10-JUN-1991
	4024	Th-228 - ISO RAD	3.6	pCi/g	PJ STOY	4024-91-026	10-JUN-1991
	4024	Th-230 - ISO RAD	5.0	pCi/g	PJ STOY	4024-91-026	10-JUN-1991
	4024	Th-232 - ISO RAD	1.3	pCi/g	PJ STOY	4024-91-026	10-JUN-1991

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Westinghouse Materials Co of Ohio
Analytical Chemistry Department
Results of Analyses

AnaLIS ID: 910307-046 Project: 1300 0010 Customer Sample ID: EM-2393
Customer: ENV. CHAR & SURV. Requisition Number:
Date Sampled: 7-MAR-1991 Date Sample Received: 7-MAR-1991
Sampled By: A RUSSELL Date Sample Completed:
Material Description: RESIDUE, PT 2-2, DRUM RECON PROJ Charge Number: FBJ01

Activ. Number	Procedure No.	Analysis	Result	Units	Data Entered By	QA File Number	Date Completed
300205	3002	U - BrPADAP AnL	7244	ppm	EJ WILLHITE	1	6-MAY-1991
305905	3059	Total Th - Color. AnL	<45	ppm	JJ STOECKEL	1	30-JUL-1991
330044	330044	U Activity Calc - ISO RAD	3500	pCi/g	HR CHILES	4018-91-M025	13-JUN-1991
	330044	U-234 - ISO TMS	900	pCi/g	HR CHILES	4018-91-M025	13-JUN-1991
	330044	U-235 - ISO TMS	93	pCi/g	HR CHILES	4018-91-M025	13-JUN-1991
	330044	U-236 - ISO TMS	57	pCi/g	HR CHILES	4018-91-M025	13-JUN-1991
	330044	U-238 - ISO TMS	2400	pCi/g	HR CHILES	4018-91-M025	13-JUN-1991
	4002	Ra-226 - ISO RAD	0.62	pCi/g	EL ADKINS	4002-91-014	6-JUN-1991
	4002	Ra-228 - ISO RAD	0.89	pCi/g	EL ADKINS	4002-91-014	24-MAY-1991
401305	4013	Alpha Activity - ISO RAD	<190	pCi/g	EL ADKINS	4013-90-036	11-MAR-1991
	4008	Beta Activity - ISO RAD	<340	pCi/g	EL ADKINS	4013-91-036	11-MAR-1991
401905	4019	Pu-238 - ISO RAD	<0.26	pCi/g	DJ FALCONI	4019-91-003	4-APR-1991
	4019	Pu-239 - ISO RAD	0.35	pCi/g	DJ FALCONI	4019-91-003	4-APR-1991
402405	4024	Th Activity Calc - ISO RAD	8.8	pCi/g	PJ STOY	4024-91-026	10-JUN-1991
	4024	Th-228 - ISO RAD	3.2	pCi/g	PJ STOY	4024-91-026	10-JUN-1991
	4024	Th-230 - ISO RAD	4.3	pCi/g	PJ STOY	4024-91-026	10-JUN-1991
	4024	Th-232 - ISO RAD	1.2	pCi/g	PJ STOY	4024-91-026	10-JUN-1991

U by J.Roberts

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APPENDIX 3

WHEELABRATOR DUST COLLECTOR HWMU
CADMIUM DISCUSSION WITH ANALYTICAL DATA

July 1994

Fernald Office
U. S. Department of Energy
Fernald Environmental Management Project
7400 Willey Road

Wheelabrator Dust Collector Cadmium Discussion

The sampling data for the Building 66 Wheelabrator Dust Collector was transmitted to the FEMP in April 1991. Review of the analytical results for the waste material identified the waste as a hazardous waste for lead (D008) (sample identification numbers 910307-045 and -046 from release 368). The analytical results for the waste material do not identify the waste material for containing cadmium excess of the Toxicity Characteristic Leaching Procedure (TCLP) level of 1 mg/l.

The October 1991 submittal of the RCRA Part B Permit, Section J, identified the waste material as exhibiting hazardous waste characteristics for both lead and cadmium.

In preparation of the Wheelabrator Dust Collector CPID, the inconsistency between the analytical results and the Part B submittal was evaluated. During the evaluation two explanations for the inconsistency emerged. First, it was noted that attached to the analytical results was the Quality Control (QC) data for sample 910307-023 from release 368 as well. The QC Data Sample reported results, in ppm TCLP of 22.2 for cadmium and 32.7 for lead. The analytical results for the QC may have been mistaken for the waste material when the October 1991 submittal was being prepared. Second, the listing of cadmium with the lead may have been based on 'process knowledge' that was not supported by the analytical results.

No analytical information has been found identifying waste material generated for the Wheelabrator Dust Collector as exhibiting the TCLP characteristic for cadmium.

The Building 66 Wheelabrator Dust Collector waste material is identified as exhibiting the TCLP characteristic for lead.

TCT - St. Louis
formerly Envirodyne Engineers, Inc.
Consulting Engineers, Scientists and Analytical Services

1908 Innerbelt Business Center Drive
St. Louis, Missouri 63114-5700
Phone (314) 426-0880
Fax (314) 426-4212

5771

April 8, 1991
3555-00063

Ms. Donna Fisher
Westinghouse Materials Company of Ohio
7400 Wiley Road
Fernald, Ohio 45030

Re: Summary Report of Analysis, Release No. 368

Dear Ms. Fisher:

On March 9, 1991, TCT-St. Louis (TCTSL) received the following three soil samples and one water sample for analysis:

TCTSL ID	WMCO ID	Collected	Matrix	TCLP/Total
91001011	910307-045	3/7/91	Soil	TCLP
91001012	910307-046	3/7/91	Soil	TCLP
91001013	910307-023	3/7/91	Soil	TCLP
91001014	910308-008	3/8/91	Water	Total

Here is the summary report for Release No. 368, Project Number 3555-00063. The samples were analyzed in accordance with accepted USEPA protocols and the data are of known and documented quality. SW846 Method 1311 was followed for all TCLP extractions performed.

The required holding time was met for each sample.

Volatile Organic Acids (Method 8240)

These samples are contained in QC Lot Number VOA00N1.

Semi-Volatile (Method 8270)

These samples are contained in QC Lot Number BNA0008.

Target compounds, m & P - cresol, co-elute on the DB-5 capillary column used for Method 8270 analysis.

Pesticides (Method 8080) and Herbicides (Method 8150)

The herbicide samples are contained in QC Lot Number HER0008. QC data will be included in a future release.

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The pesticide samples are contained in QC Lot Number PST0008. QC data will be included in a future release.

Metals (Method 6010 for ICP/Method 7470 for Mercury)

The ICP metals are contained in QC Lot Number ICP0020 and the mercury samples are contained in QC Lot Number HG0020.

The TCLP extraction blanks and prep blanks were acceptable for all metals analyses.

The matrix spike for barium in sample 910307-023 had only 1.6% recovery. As per USEPA protocol, this sample was re-analyzed by the method of standard additions for barium.

The instrument detection limit (IDL) for selenium has been raised to 328 ug/L based on the quarterly IDL analyses. The value is greater than the 200 ug/L CRDL specified in the project specific QA Plan.

TCT-St. Louis is please to be of service to you. If you have any questions, please call me at (314) 426-0880.

Sincerely,

Fred Grabau

Fred Grabau
Project Manager

FG/kld/FG005/1

QC Data for Sample 910307-023
Release #: 368
AQ203

Analyte	Expected Result mg/L	Reported Result mg/L	% Recovery
Cadmium	22.4	22.2	99.1
Lead	14.8	32.7	221.0

QC Data for Sample 910308-008
Release #: 368
N7-91-0004

Analyte	Expected Result ug/L	Reported Result ug/L	% Recovery	EPA Acceptable Limits %
1,1,1-Trichloroethane	1000.0	843	84.3	52 - 162
Trichloroethylene	300.0	283	94.3	71 - 157
Benzene	400.0	392	98.0	37 - 151
Trichlorofluoromethane	20000.0	12500	62.5	17 - 181
Toluene	3600.0	3320	92.2	47 - 150

WESTINGHOUSE TCLP ANALYSIS
3555-00063

TCT SAMPLE NUMBER - 91001013
WMCO SITE ID - 910307-023
DATE RECEIVED - 03/09/91

REPORT DATE - 04/05/91
MATRIX - Leachate
RELEASE NUMBER - 368

TCLP METALS

DATE TCLP EXTRACTED - 03/12/91

METHODS	PARAMETER	DETECTION LIMIT	CONC. (UG/L)	DATE ANALYZED	REGULATORY LEVEL (UG/L)
6010	ARSENIC	200	ND	03/28/91	5000
6010	BARIUM	200	212	04/01/91	100000
6010	CADMIUM	100	22200	03/28/91	1000
6010	CHROMIUM	500	ND	03/28/91	5000
6010	LEAD	200	32700	03/28/91	5000
6010	SELENIUM	328	361	03/28/91	1000
6010	SILVER	50	ND	03/28/91	5000
7470	MERCURY	0.20	ND	03/26/91	200

WESTINGHOUSE TCLP ANALYSIS
QUALITY CONTROL

TCT SAMPLE NUMBER - 91001013 REPORT DATE - 04/05/91
WMCO SITE ID - 910307-023 QC SAMPLE - DUPLICATE

TCLP METALS

DATE TCLP EXTRACTED - 03/12/91

METHODS	PARAMETER	DETECTION LIMIT	CONC (UG/L)	DATE ANALYZED
6010	ARSENIC	200	ND	03/28/91
6010	BARIUM	200	ND	03/28/91
6010	CADMIUM	100	24050	03/28/91
6010	CHROMIUM	500	ND	03/28/91
6010	LEAD	200	36900	03/28/91
6010	SELENIUM	328	ND	03/28/91
6010	SILVER	50	ND	03/28/91
7470	MERCURY	0.20	ND	03/26/91

WESTINGHOUSE TCLP ANALYSIS
QUALITY CONTROL

TCT SAMPLE NUMBER - 91001013
WMCO SITE ID - 910307-023
REPORT DATE - 04/05/91
QC SAMPLE - MATRIX SPIKE

TCLP METALS

DATE EXTRACTED - 03/12/91

METHODS	PARAMETER	PERCENT RECOVERY	DATE ANALYZED
6010	ARSENIC	109	03/28/91
6010	BARIUM	SEE NARRATIVE	03/28/91
6010	CADMIUM	*	03/28/91
6010	CHROMIUM	80	03/28/91
6010	LEAD	*	03/28/91
6010	SELENIUM	94	03/28/91
6010	SILVER	94	03/28/91
7470	MERCURY	142	03/26/91

* The sample was greater than four times the spike level.

QC Lot ICP0020 for WMCO TCLP ICP Metals			
Sample No.	Date Received	Duplicate	Matrix Spike
91000856	02/28/91		
91000857	02/28/91		
91000858	02/28/91		
91000859	02/28/91		
91000860	02/28/91		
91000907	03/06/91		
91000908	03/06/91		
91000909	03/06/91		
91000911	03/06/91		
91000912	03/06/91		
91000916	03/07/91		
91000917	03/07/91		
91000918	03/07/91		
91000919	03/07/91	YES	YES
91000920	03/07/91		
91000921	03/07/91		
91000922	03/07/91		
91001011	03/09/91		
91001012	03/09/91		
91001013	03/09/91	YES	YES

TCT

QC Data for Sample 9103C7-023
Release #: 36E
AQ203

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Analyte	Expected Result mg/L	Reported Result mg/L	% Recovery
Cadmium	22.4	22.2	99
Lead	14.8	32.7	221

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APPENDIX 4

SAMPLING AND ANALYSIS PLAN
WHEELABRATOR DUST COLLECTOR HWMU

Revision 0
July 1994

Fernald Office
U. S. Department of Energy
Fernald Environmental Management Project
7400 Willey Road
Fernald, Ohio 45030

5771

TABLE OF CONTENTS

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LIST OF TABLES

1.0 INTRODUCTION

This Sampling and Analysis Plan (SAP) was prepared to support the Closure Plan Information Data (CPID) for the Wheelabrator Dust Collector HWMU. The Wheelabrator Dust Collector HWMU includes the following:

1. The Wheelabrator dust collector baghouse (Wheelabrator) and two hoppers
2. The Hoffman dust collector baghouse (Hoffman) and hopper
3. The 240 dustubes from the Wheelabrator and 18 dustubes from the Hoffman
4. The metal shaker assembly and dustube hangers
5. Steel support legs and access platform
6. Duct work between the Wheelabrator and the Hoffman
7. Squirrel Cage Blower

The purpose of this SAP is to describe the sample collection and handling procedures, analyses to be conducted and specify the quality assurance/quality control (QA/QC) procedures to characterize and verify decontamination of the Wheelabrator Dust Collector HWMU. Sampling that may be required for waste characterizations will be conducted in accordance with requirements of the FEMP Waste Characterization Plan. Sampling and monitoring conducted for worker safety and health will be conducted in accordance with the requirements of the FEMP Comprehensive Environmental Safety and Health Plan.

Sampling and analyses of rinse waters will follow the procedures discussed in this SAP and will be conducted consistent with the FEMP Site-Wide CERCLA Quality Assurance Project Plan (SCQ).

1.1 Sampling Objectives

Sampling and analyses conducted for this CPID will support the following data needs:

1. Verify the results of decontamination efforts, as discussed in Section 2 of the CPID for the Wheelabrator Dust Collector HWMU.

2. Characterize the solid and liquid decontamination materials and evaluate the proper disposal, treatment, or storage options.

3. Characterize the dustube filter bags and evaluate the proper disposal, treatment, or storage options.

4. Determine the appropriate level of health and safety requirements for protection of site workers during waste disposal, treatment, or storage.

1.2 Sampling Approach

All sampling and analyses activities must be conducted and documented in a manner ensuring that sufficient data of known quality are collected to support the end use of the data. The data quality objectives (DQOs) specified for each data collection activity are qualitative and quantitative statements specifying the quality of the data required to support decisions during remedial response activities. DQOs developed for data collection for the various response actions are maintained by FERMCO for reference and/or use to address similar data collection needs as the CERCLA removal and response action work plans are developed.

The FEMP SCQ defines analytical support levels (ASL) A, B, C, D, or E as major components of DQOs. The ASL levels are described in Section 6 of this SAP and referenced below. Samples collected for this closure will be analyzed at ASL B.

1.3 Sample Analyses

Final rinseate samples collected from the Wheelabrator hopper and Hoffman Dust Collector will be analyzed for total lead. The rinse water will be analyzed for the list of analytes in Table A-1 to ensure that rinse waters meet the discharge limits imposed by the FEMP NPDES permit and local water quality standards. The test for lead will verify decontamination of the Wheelabrator hopper and the Hoffman dust collector.

Dustube samples and rags from decontamination of the Wheelabrator baghouse will be collected to characterize them as hazardous, low level radioactive waste, or mixed waste. The rag samples will be analyzed for TCLP (Toxicity Characteristic Leaching Procedures) metals and total uranium.

Wipe samples will be collected from the Wheelabrator Baghouse and analyzed for lead. The test for lead will verify decontamination of the Wheelabrator baghouse. Analysis for lead will be conducted using the methods recommended Table A-5.2 "Recommended Lead Analysis Methods for Dust on Wipes" specified in the Department of Housing and Urban Development's "Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing" (55 Fed. Reg. 14680, April 18, 1990).

Samples will be collected from the final verification rinse consistent with the current requirements of the FEMP SCQ, and the baghouse verification sample consistent with the Department of Housing and Urban Development's "Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing" (55 Fed. Reg. 14687, April 18, 1990) as discussed in Section 4.0 of this SAP.

TABLE A-1: NPDES Discharge Parameters for Rinse Waters

NPDES Parameters
Antinomy
Arsenic
Beryllium
Cadmium
Chromium
Copper
Lead
Nickel
Mercury
Selenium
Silver
Zinc
Radiological:
Uranium

2.0 SAMPLE COLLECTION

The following sections discuss the procedures to be used in collecting rinse water samples from the hoppers, wipe samples from the Wheelabrator baghouse, dustube samples from the baghouses, sample handling, equipment decontamination, and waste management. Outdoor sampling or decontamination activities will not be conducted during adverse weather (e.g., rain, snow).

2.1 Sampling Equipment

The following equipment may be used to take rinse water and wipe samples:

- 500 mL amber glass widemouth bottle with teflon-lined closure
- Thermal coolers and freezer packs
- Sample labels
- Waterproof marking pen
- Field sampling logbook and field data forms
- Acid resistant gloves
- Polyethylene or other approved impervious sheeting
- Dedicated, clean rinseate sample collection drums
- Coliwasa sampler
- Peristaltic sampling pump(s)
- Tygon tubing
- Scissors
- Commercial wet wipes (with non-alcoholic wetting agent)
- 50 ml polypropylene tube with screw-type lid
- Plastic template (12" x 12")
- Measuring tape

This list may be modified, as appropriate, by a trained, qualified sampling supervisor or manager. Any change to this list will be noted in the field sampling logbook.

2.2.1 Rinse Water Sampling

The following procedures will be followed to collect rinse water samples from the Wheelabrator hoppers and the Hoffman dust collector:

1. A portion of the rinse water will be extracted, pumped, or drained directly into the sample containers or, if necessary, into dedicated sampling containers.

2. The rinse water samples will be lab analyzed for total lead. For discharge from the WWTS, the rinse water will be analyzed for the NPDES parameters listed in Table A-1.

3. Sample containers for the final verification rinseate to be used for decontamination verification will be managed as discussed in Section 2.3.

2.2.2 Wipe Sampling

The following procedures will be followed to collect wipe samples from the interior of the Wheelabrator baghouse:

1. The first wipe will be discarded. The second wipe will be placed directly into dedicated sample container to be used as a field blank.

2. The third wipe will be used to wipe off a 12" x 12" surface area in an "S" pattern covering the entire surface area. The wipe will be folded in half with the dirty side into the wipe and the surface rubbed in an "S" pattern a second time at ninety degrees to the first "S" pattern. The wipe will then be folded and place into a dedicated sample tube.

3. Gloves will be changed after each sample. The procedure will be repeated for the opposite side of the center dividing wall within the baghouse.

4. Samples will be analyzed for lead by the methodology described in Section 1.3 of this SAP.

2.2.3 Dustube Sampling

The following procedure will be followed to collect a portion of the dustube for analysis:

1. A 6" by 6" square of material will be cut from ten selected dustubes within the dust collector. After collection of these samples, the weight of the samples will be measured to assure that more than 500 grams (g) of material has been collected. Samples will be cut from additional dustubes, if necessary, to assure 500 g of material is present for analysis.

2. Dustube samples will be analyzed in duplicate for TCLP metals and total uranium.

2.2.4 Rag Sampling

The following procedure will be followed to collect a portion of rags for analysis:

500 grams (g) of used rag material has been collected.

2. Rag samples will be analyzed in duplicate for TCLP metals and total uranium.

2.3 Sample Handling and Management of Sample Containers

Once a sample has been containerized it will be managed as follows:

1. For liquid samples, tightly close the lid, seal the lid with custody tape, and attach appropriate label written in indelible ink.

2. Dustube samples may be placed in a large plastic bag or one gallon plastic bottles, provided the sample weight requirement is met. Tightly close the container, seal with custody tape, and attach appropriate label written in indelible ink.

3. Record the sample label and container information in the field sampling logbook and on a Sitewide Sample Analysis Request/ Custody Record (SWSAR/CR) form.

4. Water samples will immediately be placed into a sample cooler that will maintain samples at approximately 4°C. Dustube samples do not require cooling.

5. Record all transfers of sample custody on the SWSAR/CR form.

6. To maintain chain-of-custody, ensure that access to all samples is controlled. This requires the sample collector or designated sample custodian to:

   6.1. Have constant direct physical control,
   6.2. Use a locked, limited access area under his/her control,
   6.3 Affix signed container custody seals on samples or sample coolers.

When the planned sampling activity has been completed, secure the lid of the sample cooler and transfer the samples, with the appropriate SWSAR/CR form, to the FEMP Sample Processing Laboratory. The FEMP Sample Processing Laboratory will be

responsible for ensuring custody records are maintained during shipment to the laboratory selected to conduct the analyses.

2.4 Equipment Decontamination

Personnel protective equipment (PPE) will be free of contamination prior to beginning the decontamination process and when handling any clean equipment. Equipment decontamination procedures are discussed in the following sections.

All sampling equipment must be clean or decontaminated prior to use. All reusable sampling equipment that has been used to collect a sample must be decontaminated before it is used to collect additional samples. After decontamination, all equipment must be tagged and bagged as "clean".

2.4.1 Sampling Equipment Decontamination Supplies

Supplies used in decontamination may vary based on the media being sampled and the type of contamination encountered. The following basic list of supplies may be modified, as necessary, by a trained, qualified supervisor or manager:

- Non-phosphate detergent solution (e.g., alconox)
- Long-handled, soft bristled brushes
- Portable low-pressure water sprayer
- Deionized water (organic free)
- Methanol
- Polyethylene or other approved impervious sheeting
- Heavy duty plastic bags
- Absorbent materials, socks, and pads
- Wash/rinse tubs, buckets, or other approved containers

2.4.2 Sampling Equipment Decontamination Procedures

All reusable sampling equipment will be decontaminated after each use in accordance with Appendix K of the SCQ. If decontamination is not practical, the sampling equipment will be managed in a manner consistent with FEMP hazardous waste management practices pending RCRA waste determinations. The following procedures will be used to decontaminate sampling equipment:

1. Establish a decontamination area in a location that is protected from potential contamination. Use a double thickness of 6-mil polyethylene, or other approved impervious sheeting, to line the decontamination area, including containment dikes or berms for run on/run off control.

2. Provide appropriate containers for containment, handling, and collection of wastes. Non-liquid wastes shall be collected in a heavy

duty plastic bag, 55-gallon drum, or other suitable container. Liquid wastes will be transferred into 55-gallon drums, dumpsters or other suitable liquid storage containers and transferred to the FEMP wastewater treatment system (WWTS). Solid wastes (e.g., PPE, debris) will be stored at the FEMP in an approved RCRA storage area pending RCRA waste characterizations and determinations.

3. Establish sample equipment decontamination line including:

   3.1. Rinse with water, wash with non-phosphate detergent, and rinse with water. As necessary, use brushes and to remove visible contamination and stains. If visible contamination or staining remains, use level III decontamination method as specified in the Section K of the SCQ.

   3.2. At least once per day, for each media being sampled and each decontamination line, collect a QC rinse sample of the final verification rinse. The sample will be collected using the procedures in section 4.1 of this SAP.

   3.3. After the sampling equipment has been properly decontaminated, place it on a clean sheet of plastic or other suitable material to air dry. While air drying, loosely cover the equipment with another clean piece of sheeting to minimize the potential for contamination.

   3.4. Upon completion of decontamination of sampling equipment, the buckets and other containers used for temporary storage of the decontamination wash and rinse wastes will be washed with clean detergent solution and rinsed twice with deionized water.

2.5 Wastes Generated During Sampling and Decontamination

Wastes and materials generated during sampling and analyses will be managed in a manner consistent with approved Management of Investigation-Derived Waste practices. Wastes and materials generated during sampling and analyses will be managed in a manner consistent with approved FEMP hazardous waste management practices. Equipment decontamination wash and rinseate wastewater will be transferred to the FEMP WWTS and analyzed for the NPDES discharge constituents listed in Table A-1. Other solid wastes (e.g., personnel protective equipment, plastic sheeting) will be characterized and placed as appropriate into containers, and stored in a RCRA Storage area pending characterization following Waste Determination Plans. Based on waste characterization, wastes will be managed and disposed according to all applicable hazardous and solid waste rules and regulations.

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3.0 FIELD DOCUMENTATION AND SAMPLE HANDLING

Sample handling and documentation procedures will conform to approved FEMP procedures applicable at the time closure activities are conducted. The information in the following sections present the procedures to follow during and after the samples have been collected.

3.1 Field Sampling Logbook

A field sampling logbook will be kept and updated to document information pertinent to the RCRA closure sampling activities. At a minimum, the entries in the logbook will include the following:

- Name of supervisor(s) responsible for HWMU management
- Name of FEMP closure project manager
- Maps, drawings, or photographs of the sampling site
- Purpose of sampling (e.g., verification of decontamination)
- Description and location of sampling points
- Description of sampling methods and field sampling activities (e.g., containers, types of samples, etc.)
- Task review meetings
- Documentation of any deviations from this SAP
- Weather conditions at the time samples are collected
- Number, type, and volume of samples taken
- Date and time of collection
- Field sample identification number(s)
- Names of sampling personnel
- Date and time of transfer to sample receiving/shipping area
- Field observations (e.g., spills or other activities nearby)
- Data from field measurements (e.g., pH, specific conductance)
- Signatures of persons responsible for maintaining the logbook

The logbook will record information sufficient to reconstruct the sampling event without reliance on the collector's memory. The logbook will be stored and maintained according to FEMP document control procedures.

3.2 On-Site Handling/Processing Procedures

Sample coolers, along with the signed and completed SWSAR/CR form, will be taken to the FEMP Sample Processing Laboratory. Each person who relinquishes or takes possession of the samples or sample coolers will sign the Custody Record and record the date and time of transfer.

The FEMP will characterize radiation levels associated with the samples to determine disposition of the samples.

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4.0 QUALITY ASSURANCE AND QUALITY CONTROL

QA/QC procedures are required to identify, evaluate, and control conditions that can affect the quality and validity of the analytical data. Validation of data requires accurate records to document procedures and conditions during the sampling and analyses. At a minimum, these records will include:

- An updated field sampling logbook,
- Properly completed sample labels,
- Field and laboratory QA/QC samples, and
- Completed SWSAR/CR forms.

Quality assurance procedures will include:

- Only clean sample containers will be used.
- Clean PPE will be used whenever contact is made with the sampling equipment.
- Sampling containers and collection equipment will be handled, stored, and maintained in a manner that prevents cross-contamination.
- Any field conditions, events, or activities that may affect analytical results will be documented in the field sampling logbook (see Section 3.1 of this SAP).

Sampling activities will be conducted consistent with applicable FEMP QA/QC [illegible] as defined in the current revision of the SCQ.

4.1 Field QA/QC Procedures

Since no volatile or semi-volatile compounds are included in the parameters of concern, no trip blanks will need to be taken. However, to minimize the potential for field contamination of samples, field and equipment blanks will be taken. Only clean or decontaminated sampling equipment will be used. As a routine practice, it is presumed that the decontamination procedures are adequate for reuse of decontaminated equipment, even though QA/QC analyses are not complete. The following procedures will be used to collect sampling equipment decontamination rinse samples:

1. Pour deionized water over and through the cleaned surfaces of the decontaminated sampling equipment.

2. Collect the deionized water rinseate using an appropriate sample container.

3. Follow sample container management procedures in Section 2.3 of the SAP.

Field and equipment blanks will be collected and analyzed as part of normal QC procedures. At a minimum, the following samples will be collected during each sampling event:

- One field blank consisting of a grab sample of the deionized rinse water supply (used for sampling equipment rinse), taken into the field and exposed to the airborne contamination that may impact sample data.

- Duplicate samples will be taken to evaluate the impact of field sampling activities on analytical precision (i.e., repeatability of results). A duplicate sample will be taken during each sampling event or every twenty samples, whichever is greater.

4.2 Laboratory QA/QC Procedures

The analytical laboratory will use the approved SW-846 Methods as specified in the SCQ for the constituents of concern. The laboratory will document the use and results of laboratory quality control samples and analyses. Laboratory samples for QC may include:

- Sample preparation blanks to detect residual contamination of analytical equipment that may affect analytical results,

- Duplicate samples prepared in the laboratory to evaluate the precision (i.e., the ability to reproduce analytical results) achieved by the methods used,

- Laboratory control and calibration verification samples (to verify calibration of the equipment), and

- Matrix-spike samples to evaluate analytical recovery rates.

All pertinent information concerning problems and conditions that may affect the validity of the analytical data must be clearly identified. In addition to laboratory QC and analytical data, information to be provided by the laboratory will include:

- Name of person receiving the sample,

- Date and time of sample receipt,

- Laboratory sample number (if different from field ID),

- Date and time of sample analysis, and

- Signature of the laboratory supervisor.

Conditions outside the control of the laboratory that could affect sample quality and validity of analytical results will also be documented by the laboratory. These conditions include items such as:

- Discrepancies between sample shipping records, sample analytical requests, custody records and the sample shipments as received by the laboratory.

- Sample containers and packaging problems, such as broken containers, loose lids, and broken custody seals.

To prevent any laboratory bias, field duplicate samples submitted will not be identifiable as duplicates in any of the information provided to identify samples or any special conditions/qualifying statements to support the request for analysis. Field duplicate samples will be noted in the field sampling logbook for use in FEMP QA/QC review of analytical reports.

4.3 Sample Analysis Request/Chain-of-Custody Procedures

Each sample container will be labeled with the sample number and identification that is consistent with the SWSAR/CR form. Prior to relinquishing possession of a sample, the person that collected the sample will complete and sign a SWSAR/CR. Each person that accepts custody will also sign and date the custody record. A complete record of custody transfers will be maintained on the SWSAR/CR form.

All samples taken to the FEMP Sample Processing Laboratory must be accompanied by the completed SWSAR/CR form. An Off-Site Sample Analysis Request/Custody Transfer Record will be prepared and accompany samples to be sent off-site for laboratory analyses.

The laboratory conducting the analyses will be responsible for maintaining sample custody logs until samples are returned to the FEMP or disposed after obtaining FEMP approval. The Custody Records will document sample possession from the time of collection through analyses by the laboratory. Records of any custody seals used on sample containers will be maintained. The laboratory will document the condition of any custody seals on containers that they receive. Laboratories conducting analyses are required to provide the FEMP a copy of all completed laboratory custody records.
The completed SWSAR/CR, Off-Site Analysis Request/Custody Transfer Record, and laboratory custody forms will be signed and returned with the analytical report for the samples identified on the form(s). These documents will be filed in the FEMP RCRA HWMU Closure files.

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5.0 HEALTH AND SAFETY

Prior to conducting any field activities at the FEMP, a health and safety assessment must be conducted to characterize existing hazards and conditions. Based on the findings of the health and safety assessment, the Project/Task Specific Health and Safety Plan will specify required health and safety procedures, including personnel protection equipment, entry and exit requirements, and personnel/PPE decontamination procedures. Guidelines for the preparation of FEMP CRU-Specific Health and Safety Plan are included in Appendix 5 of the CPID.

As part of the safety assessment, radioactivity screening will be done over the area to determine radiation protection requirements. Additional screening, including on-site laboratory analyses for radionuclides, may be required to further categorize radiation levels and hazards before the samples can be shipped to an off-site laboratory. Radiation survey procedures and requirements for shipping samples to off-site laboratories for analyses will be in accordance with approved FEMP/FMPC procedures.

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6.0 ANALYTICAL SUPPORT LEVELS

The intended use of data is to assess the nature of the site. The data shows the extent of problems resulting from past activities and the potential hazards to human health and the environment. Data is also used to evaluate, choose, implement, and then monitor the effectiveness of remedial actions and to monitor the migration of contaminants.

Data Quality Objectives (DQOs) are qualitative and quantitative statements specifying the quality of data required to support decision making. Because they are based on end use of the data to be collected, different uses require different levels of data quality. There are five Fernald Environmental Management Project (FEMP)-defined analytical levels that will be assigned depending on intended use of the data and the QA/QC methods required to achieve the desired level of quality. These levels are based on the 1987 EPA-defined DQO levels 1 through 5 (U.S. Environmental Protection Agency [EPA] 1987). However, because radionuclides comprise a large proportion of the analyses supporting FEMP programs and projects and because these radionuclide analyses have been used and verified by DOE and DOE contractors for many years, it is appropriate to address these measurements as standard. Therefore, in order to maintain consistency in definition of DQO levels and to avoid confusion between EPA and DOE/EPA programs, DQO levels at FEMP will be referred to as analytical support levels (ASL) A through E.

6.1 ASL A (Qualitative Field Aanlysis)

Provides the most rapid (real or short time) results. ASL A is often used for health and safety monitoring at the site, preliminary comparison to Applicable or Relevant and Appropriate Requirements (ARARs), initial site characterization to locate areas for subsequent and more accurate analyses, field screening of samples to select those for fixed laboratory analysis, and engineering screening of alternatives (bench-scale tests). These types of data include those generated on site through the use of Photo- or Flame-Ionization Detectors (PID or FID), pH, conductivity, alpha and beta-gamma friskers, or radiological wipe samples. ASL A is analogous to EPA DQO Level 1.

Example: Field screening for alpha, beta, and gamma radiation conducted with portable field equipment provides real time qualitative analysis for the presence or absence of radioactive isotopes.

Example: Field screening for chemical gases in the well bore of groundwater monitoring wells using Photo-Ionization Detectors provides real time qualitative analyses for presence of volatile compounds (e.g., benzene, toluene).

6.2 ASL B (Semi-Qualitative/Quantitative and Qualitative Analyses)

Provides more quality control checks than ASL A and results may be qualitative, semi-quantitative, or quantitative. ASL B can be assigned when rapid turnaround results are needed. FEMP-specified analytical protocols will be used. There are two sublevels available for specifying QA/QC, data reporting, and data validation requirements.

Sublevel 1 specifies QA/QC, data reporting, and data validation requirements for FEMP-specified analytical protocols, which are similar to those used for ASLs C and D, but with different QA/QC sample type and frequency, quality control criteria for acceptance ranges, and requirements for data packages.

Sublevel 2 specifies user-defined and special requirements. The data user will specify QA/QC, data reporting, and data validation requirements based on intended data use and regulatory requirements. Specific requirements will be defined in project specific plans (PSPs).

Methods may range from more sophisticated screening techniques to fully defined methods similar to ASL C or D for radiological and non-radiological parameters, but with reduced QA/QC frequency and data reporting requirements for more rapid turnaround times. Also included in ASL B are standard methods (e.g., EPA 500-series drinking water methods with QA/QC requirements different than those specified for ASLs C and D) and conventional parameter analysis in support of regulatory requirements such as NPDES permit monitoring.

Example: Measurement of gross alpha and beta radioactivity in water in compliance with the Safe Drinking Water Act to provide information on drinking water quality.

Example: Determination of volatile halogenated organic compounds (e.g., chloroform) in water by purge and trap gas chromatography without second column confirmation, with a limited suite of field and laboratory QC samples, and a minimal data package.

6.3 ASL C (Quantitative with Fully Defined QA/QC)

Provides data generated with full QA/QC checks of types and frequencies specified for ASL D according to FEMP-specified analytical protocols for radiological and non-radiological parameters. The analytical methods are identical to ASL D for QA/QC sample analysis and method performance criteria. However, the data package does not typically contain raw instrument output but does include summaries of QA/QC sample results. ASL C may be used when analyses require a rigid, well-defined protocol, but where other information is available, so that a complete raw data package validation effort is not required. Laboratories will be required to retain, in the project file, raw instrument data required to upgrade ASL C reports to ASL D.

Example: Analysis of total uranium by the fluorimetric method with a full set of QA/QC samples as specified for ASL D. A summary data package is provided including QA/QC sample performance without raw instrument output. A limited level of data validation is required because only the summary forms need review.

Example: Determination of volatile organic compounds in soil by purge and trap gas chromatography/mass spectrometry with a full complement of QA/QC samples as specified for ASL D. A summary data package is provided including QA/QC sample performance without raw instrument output. A limited level of data validation is required because only the summary forms need review.

6.4 ASL D (Conformational with Complete QA/QC and Reporting)

...des data generated with a full complement of QA/QC checks of specified types ...les according to FEMP-specified analytical protocols for radiological and ... parameters. The data package includes raw instrument output for validation of ASL D data. It may be used to confirm data gathered at ASLs B and C and when full validation of raw data is required.

Example: Analysis of total uranium by the fluorimetric method, with a full set of QA/QC samples per analytical batch with analytical results and the full raw data package reported from the laboratory.

Example: Determination of volatile organic compounds in soil or water by purge and trap gas chromatography/mass spectrometry with a full complement of field and laboratory QA/QC samples. A complete raw data package is provided and validated for the analyses.

6.5 ASL E (Non-Standard)

Analyses by non-standard protocols that often require method development or validation (e.g., when exacting detection limits or analysis of an unusual chemical compound are required). ASL E methods may be significantly different from those specified for ASLs B, C, or D data. New methods may be developed for ASL E data to allow for parameters or matrices that cannot be analyzed using existing standard methods. This could be caused by interferences, analyses performed outside of accepted requirements for existing methods, or new methods developed to meet site requirements or project-specific requirements that cannot be met by existing analytical methods.

Exa... ...nalysis or evaluation of a geotextile material for suitability to use as a ... ...t of a remedial action at the site. Existing evaluation methods may not be ...te to evaluate site-specific needs so development of a new method is required.

Example: Determination of organic compounds (e.g., benzo(a)anthracene) in drinking water at sub-part per billion levels by special method on-column injection gas chromatography/mass spectrometry with selective ion monitoring detection and a full suite of field and laboratory QA/QC samples as required for ASLs C and D data. A complete raw data package may be required for validation.

APPENDIX 5

GUIDELINES FOR PREPARATION OF HEALTH AND SAFETY PLANS

July 1994

Fernald Office
U. S. Department of Energy
Fernald Environmental Management Project
7400 Willey Road
Fernald, Ohio 45030

NOTE: This plan and associated permits shall be reviewed with each worker and be posted at the work site at all times. Review of the listed sections is required prior to work start.

CRU3 S&H PLAN GUIDELINE

1.0 CRU3 Description and History
- 1.1 FEMP Site History
- 1.2 Characterization
- 1.3 Define Scope or Goal of the Work
  - 1.3.1 Short Term
  - 1.3.2 Long Term
- 1.4 Goal of this Project

2.0 Work Area (for this project) and Management
- 2.1 Define Work Area within FEMP
- 2.2 Define Management Chain of Command
  - 2.2.1 Program Manager
  - 2.2.2 Project Manager
  - 2.2.3 S&H Officer

3.0 General Safety Requirements
- 3.1 Permits and Postings
- 3.2 Safety Equipment List
- 3.3 Heat Stress
- 3.4 Cold Stress
- 3.5 Material Safety Data Sheets (MSDS) Locations
- 3.6 Illumination
- 3.7 Sanitation at Temporary Worksites
- 3.8 Standard Operating Procedure and Other Requirements

4.0 Site Control

- 4.1 FEMP Requirements
- 4.2 Work Site Requirements for Entry
- 4.3 How Work Site will be defined (Safety Fence - CHAWLWK Fence)
- 4.4 Exclusion Zones

5.0 Training and Education
- 5.1 Required Training for Entry to Site
- 5.2 Required Training to Perform Work in the Defined Work Zones
- 5.3 Operation Training of Construction Type Equipment
- 5.4 Required Safety Meetings
- 5.5 Safety Meetings and Daily Work Plans
- 5.6 Records of Training

6.0 Medical Monitoring and Surveillance
- 6.1 Required Medical Monitoring
- 6.2 Required Medical Records

7.0 Personal Protection Equipment Requirements/Engineering Controls

8.0 Required Monitoring and Action Limits
- 8.1 Air Monitoring
  - 8.1.1 Ambient Air Monitoring
  - 8.1.2 Employee Breathing Zone
  - 8.1.3 Perimeter Air Monitoring
- 8.2 Rad Monitoring

9.0 Handling Drums & Containers
- 9.1 Inspection
- 9.2 Storage
- 9.3 Transportation
- 9.4 Monitoring

10.0 Decontamination
- 10.1 Site Decontamination Requirement

11.0 Hazard (Risk) Assessment and Accident Prevention
- 11.1 Industrial Hygiene Issues (Identify the Physical, Chemical, and Health Hazards)
  - 11.1.1 Explosive Chemical Contaminants
  - 11.1.2 Heavy Metals
  - 11.1.3 Organic

11.2 Radiological Safety Issues (Identify the Physical, Chemical, and Health Hazards)
11.3 Industrial Safety Issues (Identify the Physical, Chemical, and Health Hazards)
11.4 Fire Protection Issues (Identify the Physical, Chemical, and Health Hazards)
11.5 Nuclear Safety Issues (Identify the Physical, Chemical, and Health Hazards)
11.6 Natural Occurrence Issues (Weather) (Identify the Physical, Chemical, and Health Hazards)
11.7 (Identify and State Action to Correct Each Noted Hazard)

12.0 Emergency/Contingency Plans
- 12.1 Reporting
  - 12.1.1 Numbers
    - 12.1.1.1 Emergency Phone Number
    - 12.1.1.2 Emergency Radio Number
  - 12.1.2 Site Notification Procedure
  - 12.1.3 What/How to Report
- 12.2 Evacuation Routes/Accountability
  - 12.2.1 Rally Point Accountability
  - 12.2.2 Plant Wide Accountability
  - 12.2.3 In Place Accountability
- 12.3 Available Emergency Equipment
  - 12.3.1 Site Equipment
  - 12.3.2 Plant Equipment
  - 12.3.3 Offsite Equipment
- 12.4 Emergency Response
  - 12.4.1 Medical Emergencies
  - 12.4.2 Fire Emergencies
  - 12.4.3 Explosion Emergency
  - 12.4.4 Chemical Emergency
    - 12.4.4.1 Splashes
    - 12.4.4.2 Employee Contamination
  - 12.4.5 Radiological Emergencies
    - 12.4.5.1 Releases
    - 12.4.5.2 Employee Contamination

12.4.6 Weather Limitations/Adverse Condition

12.4.7 Accident Investigation

13.0 Changes/Amendments to Safety and Health Plan