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CLOSURE PLAN INFORMATION AND DATA FOR THE DRUMMED HF RESIDUE/ASSOCIATED STORAGE AREAS INSIDE PLAN 4 SEPTEMBER 1992

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CLOSURE PLAN INFORMATION AND DATA FOR THE DRUMMED HF RESIDUE/ASSOCIATED STORAGE AREAS INSIDE PLANT 4

Revision 0
September 1992

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

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B	GUIDELINES FOR THE PREPARATION OF FEMP PROJECT/TASK SPECIFIC HEALTH AND SAFETY PLAN, JUNE 1990.

CLOSURE PLAN INFORMATION AND DATA FOR THE DRUMMED HF RESIDUE/ASSOCIATED STORAGE AREAS INSIDE PLANT 4

U. S. Department of Energy, Fernald Office
Fernald Environmental Management Project
Fernald, Ohio

1.0 INTRODUCTION

1.1 Purpose

This Closure Plan Information and Data for the Drummed HF Residue/Associated Storage Areas Inside Plant 4 Hazardous Waste Management Unit (HWMU), referenced in this Closure Plan Information and Data hereinafter as HWMU No. 6 is being submitted to close the inactive unit under the Resource Conservation and Recovery Act (RCRA) as a partial facility closure of the Fernald Environmental Management Project (FEMP). Consistent with OAC 3745-66 (40 CFR 265 Subpart G) and the State of Ohio Proposed Amended Consent Decree, CIVIL NO. 81-86-0217 (PACD), this document describes the activities that will be conducted to complete RCRA closure of HWMU No. 6. It is the intention of FEMP management to implement this Closure Plan Information and Data to demonstrate RCRA clean closure of HWMU No. 6.

The FEMP management must ensure integration of all RCRA closure activities with required Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response actions at the FEMP. This Closure Plan Information and Data has been prepared to ensure RCRA closure actions, conducted pursuant to requirements imposed by the Ohio Environmental Protection Agency (OEPA), are consistent with the terms of the September 20, 1991 U.S. Department of Energy (DOE) and U.S. Environmental Protection Agency (USEPA) Amended Consent Agreement.

A copy of this Closure Plan Information and Data, along with any subsequent revisions, will be maintained at the site until final FEMP facility closure.

1.2 Background

The FEMP is a DOE owned facility located on 1,050 acres in a rural area approximately 18 miles northwest of Cincinnati, Ohio. The property is located in Ohio, primarily in Hamilton County with the northern section extending into Butler County. The villages of Fernald, New Baltimore, Ross, New Haven, and Shandon are all located within a 5 mile radius of the plant (Figure 1).

The FEMP was formerly operated as the Feed Materials Production Center (FMPC) for the purpose of producing metallic uranium fuel elements, target cores, and other uranium compounds in support of the U.S. defense program. The former production area was limited to an approximate 136 acre tract near the center of the site. The facility was in operation at this site from the early 1950s until production ceased in July 1989. In February 1991, the DOE formally notified the U. S. Congress that all production missions at the FEMP had ceased and the facility is being closed.

In 1986, the DOE initiated the ongoing Remedial Investigation/Feasibility Study (RI/FS) to evaluate and determine remediation requirements pursuant to CERCLA. In November 1989, the USEPA added the FEMP site to the National Priorities List (NPL) of hazardous waste sites. Consistent with the scope of NPL and the Amended Consent Agreement, RCRA closure activities and any resulting changes to facility schedules must be coordinated and integrated with the RI/FS and CERCLA removal and remedial response actions.

1.3 Regulatory Impacts and Exemptions

RCRA closure activities at the FEMP are impacted by other regulatory requirements and negotiated legal agreements between the DOE and other Federal and State agencies. The following sections discuss regulatory and legal constraints and exemptions applicable to the FEMP that may affect the conduct of RCRA closure activities.

1.3.1 Mixed Radioactive and RCRA Wastes

Most FEMP wastes that are listed or characteristic hazardous wastes are handled on-site as mixed radioactive and hazardous wastes. The radioactive portion of mixed (hazardous combined with radioactive) waste is not regulated under RCRA. Determination of the radionuclide component of most material on-site is based upon analysis to assay the uranium content of the material. For some materials, assay values are based on prior sampling of the same or similar materials, or upon process knowledge. In cases where assay values have not been established, the FEMP considers materials generated in the uranium processing area to be radioactively contaminated. This determination is based upon process knowledge, experience in uranium production operations, and the fact that de minimis concentrations or below-regulatory-concern (BRC) levels for radionuclides have not been established for the residues or wastes in question.

DOE will inform OEPA of the results of radiological sample analyses obtained during the closure of HWMU No. 6. Sampling and analysis to support closure activities will be performed in accordance with HWMU No. 6 RCRA Closure Sampling and Analysis Plan (SAP) provided in Attachment A, and with existing FEMP/FMPC Standard Operating Procedures for management of activities and materials involving radiation hazards.

Recognizing the dual nature of these wastes, the FEMP stores mixed wastes in accordance with RCRA regulations as well as DOE orders concerning low-level radioactive waste. DOE orders are requirements that govern the conduct of operations at DOE sites. DOE orders apply both to DOE personnel and contractors employed at DOE sites. Based on the current lack of national capacity for treatment and disposal, mixed wastes are being stored on site pending the availability of acceptable mixed waste treatment or disposal facilities.

1.3.2 Integration of RCRA Closures With CERCLA Response Actions

Since the FEMP has been added to the NPL on November 1989 for remediation under CERCLA, RCRA closures at the FEMP will be integrated with CERCLA response actions. In accordance with 40 CFR 300.400(g), CERCLA response actions must identify all other Applicable or Relevant and Appropriate Requirements (ARARs), unless justifiably waived, including OEPA and USEPA requirements for HWMU closures. 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 environment.
- Implement any necessary long-term monitoring and surveillance of the facility and surrounding environment.

Consistent with the terms of the Amended Consent Agreement, the FEMP RI/FS has divided the site into 5 Operable Units (OUs). The closure of HWMU No. 6 is included within the scope of Operable Unit 3 (OU 3) which covers FEMP production areas and production-associated facilities and equipment. Based on the RI/FS, a Proposed Plan (PP) will be recommended for the CERCLA Records of Decision (RODs) for each of the 5 OUs. The RODs for each Operable Unit will specify the required final remediation or removal of contaminated media, equipment and structures. Remedial Design/Remedial Action (RD/RA) plans will be prepared to implement the requirements of the RODs and accomplish final remediation for each of the Operable Units.

1.3.3 Financial and Liability Exemptions

The FEMP is a federally owned facility. According to OAC 3745-66-40 C (40 CFR 265.140(c)), the federal government is exempt from the financial requirements of OAC 3745-66-40 through OAC 3745-66-48 (40 CFR 265 Subpart H).

2.0 SUMMARY OF HWMU INFORMATION

2.1 Waste Management Unit Description

HWMU No. 6 is a container storage area located inside Plant 4 (see Figure 2). Plant 4 is bounded on the east by C street, on the west by B street, on the north by 2nd street, and on the south by Plant 7. Plant 4, also known as the Green Salt Plant, performed three principal operations in the overall process of producing uranium metal at the FEMP. The three operations that were performed in Plant 4 were the conversion of uranium trioxide (UO_3) to uranium tetrafluoride (UF_4, also known as "green salt"); the blending and packaging of depleted green salt for the Metals Production Plant; and the operation of the Tank Farm to supply production plants with bulk quantities of required liquid chemical compounds.

This HWMU previously stored nineteen (19), 55 gallon drums of anhydrous hydrofluoric acid (AHF) residues that were generated when the AHF storage tanks located in the Tank Farm were emptied and cleaned. These residues consisted of liquid AHF, lime and sludge remaining in the tank after draining. The sludge consisted of rust, scale, and off-specification pure chemical product AHF. Since AHF is a U listed waste once it becomes a solid waste, and the EPA designation for this waste is U134. During removal from the tank, lime was added to the residue both to absorb any free liquids and also to neutralize the remaining acid. All of the drums were then moved from the Tank Farm to Plant 4 and stored in the northwest quadrant of Plant 4 on the first level. This area was declared a HWMU since the AHF residues were stored in this area for more than 90 days.

This HWMU is a 4 ft. wide by 17 ft. long area of poured concrete floor (6 inches thick) located on the first floor (ground level) in the northwest quadrant of Plant 4 (See Figure 2). The area boundaries were defined to encompass the area where the drums had been stored in 1989. Figure 3 is a plan layout of the unit. The HWMU boundaries are shown in Figure 3 and have been delineated in the plant area by yellow plastic chain and warning signs. An electrical equipment control panel parallels this HWMU approximately three feet east of the unit.

HWMU No. 6 was inspected on July 16, 1992, and was found to be in good condition. No spills or releases from the waste containers in this unit have been reported.

2.2 Waste Inventory

According to FEMP records, the only hazardous waste stored in this unit consisted of nineteen (19) drums of neutralized anhydrous hydrofluoric acid (AHF) residues mixed with lime. The wastes were generated when the AHF product storage tanks located in the Tank Farm north of Plant 4 were emptied and cleaned as discussed in Section 2.1. The drummed residues were then moved from the Tank Farm to Plant 4 and stored in the area designated as HWMU No. 6. The hazardous waste remained in this area from approximately February 1989 to October 1989.

Laboratory test results from January 19, 1990 indicated that AHF residues were not RCRA hazardous wastes due to corrosivity or Toxicity characteristics (TC) for the eight RCRA TC metals. However, on October 31, 1990 it was determined that the AHF residues were hazardous waste because they met the listing criteria for off-specification commercial chemical products under RCRA.

At the present time these nineteen (19), 55-gallon drums of hazardous waste are stored on the Plant 1 Pad at the FEMP.

2.3 Current Use

At the present time, no RCRA wastes are stored in HWMU No. 6. The HWMU is empty and is not being used for any other purpose. After clean closure has been obtained for this HWMU, the FEMP management intends to return this unit to service for storage of non-hazardous materials.

2.4 Security

As with all DOE facilities, security at the FEMP is strict. The entire FEMP processing area, including Plant 4, is surrounded by chain link fencing and monitored by on-site security personnel. All employees and visitors are required to enter through one of several guarded entrances into the facility. HWMU No. 6 has been marked off with stanchions, yellow plastic chain and warning signs to restrict unauthorized entry.

3.0 CLOSURE INFORMATION

3.1 Closure Objectives and Performance Standards

This Closure Plan Information and Data will be implemented to demonstrate RCRA clean closure of HWMU No. 6. Clean closure will be accomplished by washing the floor surface within the boundaries of the HWMU and analyzing samples of the decontamination rinseate. The HWMU will be declared clean if the rinseate sample analyses demonstrate that the residual contamination is below the Cleanup Action Levels (CALs) listed in Table 1.

Closure actions conducted for this unit will be in accordance with closure performance standards in OAC 3745-66-11 (40 CFR 265.111). Closure performance standards to be followed include:

- Minimizing the need for further maintenance by removing all hazardous wastes from the unit and conducting sampling and analyses of rinse waters from the floor surface to demonstrate that the residual contamination of the floor's surface is below the Cleanup Action Levels listed in Table 1.

- Controlling, minimizing or eliminating, to the extent necessary to protect human health and the environment, the escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the groundwater, surface waters, or to the atmosphere.

- Conducting and documenting closure activities in accordance with the approved RCRA Closure Plan Information and Data.

Operations at the FEMP must comply with all applicable DOE orders and Standard Operating Procedures to control radiation and chemical hazards and ensure that potential exposures meet ALARA (as low as reasonably achievable) requirements.

In addition, the FMPC Waste Minimization Plan requires minimizing waste generated during closure. This includes an evaluation of the types and volumes of wastes that may be generated during decontamination as compared to physical removal of pad materials and soils. The alternative selected will generate the lowest volume of mixed wastes that would require storage at the FEMP.

3.1.1 Cleanup Action Levels

HWMU No. 6 decontamination verification rinseate samples collected from the floor of the unit will be analyzed for pH using Method 9040 of the U.S. EPA "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," Third Edition (SW-846) and for the parameters listed in Table 1. The unit will be considered "clean" for RCRA closure if the analyses of decontamination verification rinseate samples demonstrate that the concentrations of the hazardous constituents and pH are less than the Cleanup Action Levels (CALs) for the parameters listed in Table 1. The CALs were based on the following criteria defined by the OEPA Closure Plan Review Guidance, dated May 1, 1991:

1) Cleanup Action Levels for rinseate samples used to verify decontamination of the floor of the unit are based on the following criteria:

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

   - Where an MCL is not available for a particular contaminant, then fifteen times the maximum contaminant level goal (MCLG) as promulgated in OAC 3745-81-50 (40 CFR 141.50) will be used as the clean standard; or

- When the product of fifteen times the MCL or MCLG exceeds 1 mg/l, or if neither an MCL nor an MCLG is available for a particular contaminant, 1 mg/l will be used as the Cleanup Action Level.

2) Lacking other guidance, the pH concentrations are greater than 2.0 and less than 12.5 were used for the CAL for corrosivity. This is based on the normal range for pH of soils in Ohio as discussed in the May 1, 1991 OEPA Closure Plan Review Guidance.

If the concentrations of these parameters for contamination cannot be reduced to below or within the CALs following procedures in this document, the FEMP management reserves the right to establish and substitute risk-based cleanup levels for final remediation and closure of the unit.

If it is determined that clean closure cannot be achieved, revised Closure Plan Information and Data will be submitted to the agency. The Closure Plan Information and Data will include a revised schedule of activities and describe how the subsequent RCRA closure activities, including any necessary corrective actions and post-closure activities, will be integrated with CERCLA response actions required to mitigate existing or potential threats to human health and the environment, and ongoing CERCLA remedial activities and requirements pursuant to the Amended Consent Agreement.

3.2 Closure Methodology

This section addresses the procedures that will be followed to accomplish "clean" closure of HWMU No. 6. Closure of the unit involves the following general activities:

- Decontamination of the unit's floor surface.

- Analysis of decontamination rinseate samples.

Sampling procedures are described in detail in the SAP (Attachment A) and Section 3.3 of this plan. The proposed closure schedule and activities are discussed in Section 5.0.

This Closure Plan Information and Data for HWMU No. 6 is not requiring any soil sampling in order to clean close this unit for the following reasons. First, upon an initial inspection of this unit on July 16, 1992 prior to writing the closure plan and upon subsequent inspections, the floor of this unit was found to be in good condition (no cracks). Second, the area displays no visible signs of chemical contamination that could be attributed to the residues that were stored in this unit. Third, the floor is poured concrete (6 inches thick), thus making it highly unlikely that any spill would have migrated to the underlying soils. No spills have been reported from these drums in this unit. Finally, since these residues were only stored in this unit for approximately eight (8) months it is highly unlikely any permanent contamination would have resulted to the underlying soils.

3.2.1 HWMU Decontamination/Cleaning

To accomplish closure and ensure the closure performance standards are met, the following specific RCRA closure activities will be implemented:

1) The FEMP will notify the OEPA and registered Professional Engineer (PE) at least five (5) working days prior to the initiation of closure activities for floor cleaning and rinseate sample collection as discussed in the Closure Schedule (Section 5.0).

2) The floor area of the unit will be cleared, and any loose debris vacuumed from the floor. The vacuum device will be fitted with a High Efficiency Particulate Air (HEPA) filter to control the release of particulates. All residue removed from the unit will be drummed and managed as hazardous waste pending waste characterization.

3) Prior to washing the floor, a through inspection of the floor will be conducted. Any cracks and expansion joints with loose sealing material, or greater than 1/8 inch wide in the floor of the unit will be filled with expanding Portland cement grout. Sealing of the joints and cracks will prevent any water and/or potential contamination from migrating through the floor and into the underlying soil. The grout will be allowed to set at least 96 hours to cure and harden prior to washing.

4) An impervious temporary dike will be constructed around the boundaries of the unit to control and collect wash water created during the cleaning of the floor. The temporary dikes will be faced with polyethylene or other suitable sheeting and secured with weighted blocks or sand bags.

5) The floor surface of the unit will be washed with a non-phosphate laboratory grade detergent and tap water solution. After the wash is completed, the floor surface will be rinsed with tap water as needed to remove visible wash residues. The washing and rinsing of the floor surface constitutes a single wash cycle.

6) The waste waters generated during washing the floor's surface will be collected inside the diked area (north or south portion) and then pumped into properly labeled 55-gallon drums. The volume of wash water that is expected to be generated is approximately 120 gallons per cycle.

7) Following each wash cycle, the Project Engineer will decide whether to attempt another wash cycle or collect a decontamination rinse sample from the floor's surface. The decontamination verification rinse will be conducted after waste waters have been removed from the floor's surface. Approved sampling equipment will be used to collect a sample of the verification rinse water from inside the temporary containment (diked) area in accordance with the SAP (Attachment A). The sampling equipment used to collect the verification rinse water sample shall be clean. The sample shall be field tested for pH. If the pH is greater than 2.0 and less than 12.5 the sample will be sent to the laboratory for analysis for the parameters listed in Table 1.

8) Decontamination of the floor surface will be determined in accordance with Section 3.1.1. If satisfactory decontamination has not been achieved, the wash cycle followed by a verification rinse will be repeated (up to 3 cycles).

9) All reusable equipment used during the sampling effort will be properly decontaminated, to prevent cross-contamination. Sample equipment decontamination procedures are described in Section 3.2.2 and the SAP (Attachment A).

All wastes generated during closure of the unit will be containerized and managed in an approved RCRA hazardous waste storage location pending waste characterization and determinations in accordance with the approved FMPC Waste Analysis and Waste Determination Plans.

3.2.2 Decontamination of Equipment Used During Closure

Only clean or decontaminated equipment will be used during closure of HWMU No. 6. Decontamination of sampling equipment is addressed in the SAP (Attachment A). Equipment used for the cleaning of the floor will be decontaminated in designated decontamination areas after the activity is completed, in accordance with the following procedures:

1) All reusable equipment used during the HWMU cleaning effort will be properly decontaminated to remove possible contamination. Two decontamination stations will be established on clean plastic sheeting near the unit (to prevent the spread of contamination). The stations shall consist of two stages: a dirty stage and a clean side stage spaced approximately 3 feet apart.

2) As necessary, use brushes and scrapers to remove visible contamination and stains. Rinse with potable water to remove loose contamination, wash with non-phosphate laboratory grade detergent, then rinse again with potable water. Steam cleaning or high pressure potable water may be used as alternate decontamination methods.

3) Double rinse with deionized water. All wash water and rinseate will be collected and managed in accordance with approved procedures.

4) At least once per day, collect a quality control sample of the final equipment rinse.

5) After the 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 protect from contamination.

6) Wash/rinse water wastes from equipment decontamination will be placed into the appropriate containers and managed as described in Section 3.4.

3.3 Sampling and Analysis

All sampling and analyses for the parameters listed in Table 1 will be conducted in accordance with the SAP (Attachment A).

In order to demonstrate clean closure, the following samples will be collected within the boundaries of the unit:

- One (1) sample of each cleanup verification rinse to evaluate effectiveness of cleaning being conducted to close the unit as discussed in Section 3.2 of this plan.

- Equipment decontamination rinseate samples as specified in Section 3.2.2 of this plan and the SAP (Attachment A).

- Quality Control and Quality Assurance (QA/QC) samples as specified in the SAP (Attachment A).

3.3.1 Quality Assurance/Quality Control

Duplicate samples will be taken from the unit to confirm the laboratory's QA/QC program and document analytical precision. One duplicate sample will be taken for every twenty (20) samples (or fraction thereof) collected.

To reduce laboratory bias, the duplicate sample will be labeled and numbered in such a way that will not indicate that the sample is a duplicate. This analysis shall follow SW-846 methods and the SAP (Attachment A).

The analytical laboratory's quality assurance and quality control (QA/QC) procedures will be consistent with the FEMP Sitewide Quality Assurance Project Plan.

3.4 Management of Wastes Generated During Closure

All wastes generated during closure of the unit will be evaluated in accordance with the approved FMPC Waste Analysis and Waste Determination Plans. Wastes generated during closure will be placed in appropriate containers, properly labeled, and managed as follows:

- Wastes that are awaiting characterization, or are determined to be RCRA hazardous wastes will be stored on-site in an approved RCRA storage location until an acceptable treatment or disposal option is identified.

- Radioactive non-hazardous wastes will be managed in accordance with applicable DOE orders.

- Consistent with requirements for low-level radioactive waste management waste waters from decontamination of the unit that are determined to have concentrations of constituents listed in Table 1 less than the listed CALs, the rinseates will be declared exempt from hazardous waste regulation consistent with the guidance from page 27 of the May, 1991 OEPA Closure Plan Review Guidance and will be discharged in the FEMP waste water treatment system.

3.5 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 decontamination procedures. Guidelines for the Preparation of FMPC Project/Task Specific Health and Safety Plan are included in Attachment B.

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 analysis will be in accordance with approved FEMP/FMPC procedures.

4.0 CLOSURE CERTIFICATION

The samples collected within the unit boundary (see Section 3.3) will be used to demonstrate clean closure of HWMU No. 6. If the concentrations of hazardous waste constituent contamination in these samples cannot be reduced below the Cleanup Action Levels listed in Table 1, revised Closure Plan Information and Data will be submitted. The revision will specify what actions are required to complete RCRA closure of the unit and define the relationship between additional closure activities, CERCLA response activities to mitigate threats to human health and the environment, and the final remediation pursuant to the CERCLA ROD for Operable Unit 3 and Operable Unit 5 (if remediation of soils is required).

4.1 Certification Inspections and Documentation

The certifying Professional Engineer or his/her designated representative will be required to be present to inspect all significant closure activities, including washing and rinsing of the floor, sampling of rinseates, and other QA/QC sampling activities to support verification of cleanup. The purpose of the inspections is to ensure that the closure actions and procedures are conducted in accordance with the approved Closure Plan Information and Data.

All RCRA closure certification documentation will be compiled and retained at the FEMP for access and inspection by OEPA. RCRA closure certification documentation shall include a daily log of activities, field notes recorded by the owner and the owner's representatives during closure activities, reports of laboratory analyses, copies of any hazardous waste manifests, chain-of-custody records for sample handling and tracking, and certification statements by both the owner and the registered Professional Engineer.

4.2 Statement of Certification

The DOE and an independent, qualified, registered, Professional Engineer, will submit certification of closure within 60 days after completing the actions specified in the approved Closure Plan Information and Data for this unit. 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

5.0 CLOSURE SCHEDULE

Prior to initiating a project at the FEMP, documentation required for compliance with the National Environmental Policy Act (NEPA) must be completed and approved. In addition, to comply with DOE orders, several internal FEMP procedures must be prepared, reviewed, approved, and implemented. Examples of the DOE project-specific requirements are:

- Operational Readiness Reviews
- Site Work Plans
- Radiological and Chemical Health and Safety Risk Assessments
- Health and Safety Plans
- Worker Training Plans and Instruction

Internal FEMP NEPA and DOE compliance activities require up to 180 days to complete and are initiated concurrently with the submittal of the Closure Plan Information and Data. However, before NEPA and DOE compliance requirements can be completed, the final requirements and specifications of the OEPA approved Closure Plan Information and Data must be defined and incorporated.

Upon receipt of approval of the Closure Plan Information and Data for HWMU No. 6, the FEMP will complete the remaining NEPA and DOE compliance requirements. Assuming no modifications to the plan are required, closure activities will be completed within 240 days from the start of closure activities. The FEMP will notify the OEPA at least 45 days prior to the date on which closure activities will begin. It is anticipated that the 45 day notice can be provided when OEPA approval is received. If more time is required to complete NEPA and DOE compliance documentation and activities, a revised schedule will be submitted to the OEPA. Figure 4 shows the anticipated schedule for closure of HWMU No. 6.

The OEPA and the registered PE will be notified at least five (5) business days in advance of significant activities conducted pursuant to closure of the unit. Significant activities include cleaning of the floor, decontamination of the sampling and cleaning equipment, and sampling of the floor decontamination verification rinseates.

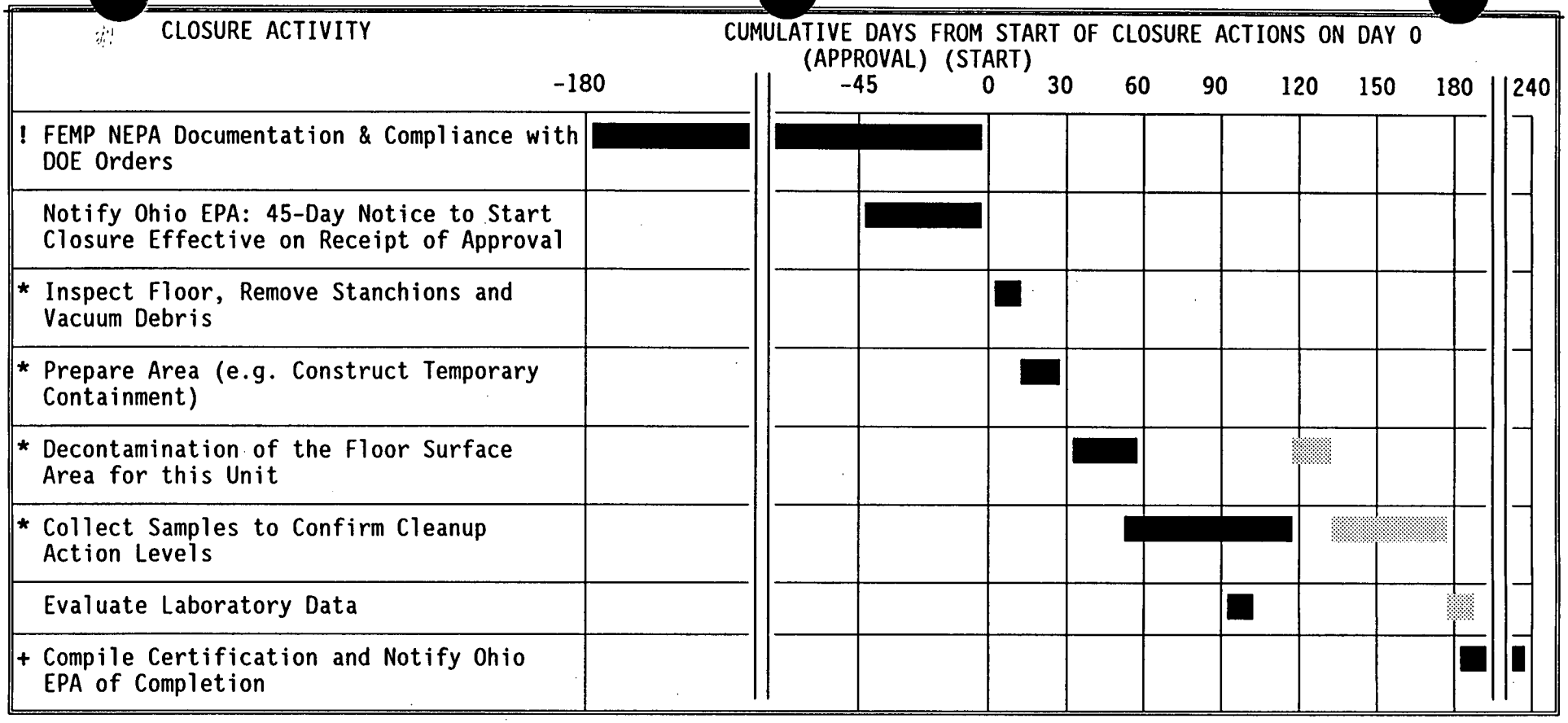
TABLE 1: CLEANUP ACTION LEVELS

Targeted Hazardous Waste Constituents	CAS No.	Cleanup Action Levels [1] Rinse Samples (mg/l)
Total Fluorides	NA	60.0

Targeted RCRA Characteristic	Cleanup Action Levels
Corrosivity	pH greater than 2.0 and pH less than 12.5

[1] Values listed are 15 times the Maximum Contamination Levels or Maximum Contaminant Level Goals as listed in 40 CFR 141.11 and OAC 3745-81-11. Where no MCL or MCLG has been established for the constituent or 15 times the MCL or MCLG exceed 1 mg/l, 1 mg/l is used as the decontamination action level (see discussions in Section 3.1.1 of this Closure Plan Information and Data).

FEMP Management reserves the right to establish and substitute risk-based cleanup levels if the listed Cleanup Action Levels cannot be met following the procedures set forth in this Closure Plan Information and Data.



! - Requirements set by NEPA and DOE Orders must be met before closure field activities can begin. These activities were initiated concurrent with preparation of this Closure Plan Information and Data. The time required to complete this activity will be dependent upon the changes that may be required to address modifications made by Ohio EPA.

* - Indicates critical field activities requiring 5-day advanced notice to the Ohio EPA and inspection/review by the independent, qualified, registered, Professional Engineer or his/her representative. Includes all sampling conducted to confirm cleanup.

+ - Requests for an extension of the time required for completion of closure, if necessary, will be submitted to the agency in accordance with OAC 3745-66-13(A) and OAC 3745-66-13(B), [40 CFR 265.113(a) and 40 CFR 265.113(b)].

▒ - Indicates conditional activities that are dependent on an evaluation of previous analytical results.

FIGURE 4: RCRA CLOSURE SCHEDULE FOR DRUMMED HF RESIDUE/ASSOCIATED STORAGE AREAS INSIDE PLANT 4

ATTACHMENT A

SAMPLING AND ANALYSIS PLAN
FOR THE
DRUMMED HF RESIDUE/ASSOCIATED STORAGE AREAS INSIDE PLANT 4

Revision 0
September 1992

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

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SAMPLING AND ANALYSIS PLAN
FOR THE
DRUMMED HF RESIDUE/ASSOCIATED STORAGE AREAS INSIDE PLANT 4

1.0 INTRODUCTION

This Sampling and Analysis Plan (SAP) for the Drummed HF Residue/Associated Storage Areas Inside Plant 4, hereinafter referenced in this SAP as HWMU No. 6, describes the sample collection and handling procedures, identifies the analyses to be conduced and specifies the sample quality assurance/quality control procedures for closure of HWMU No. 6. All sampling and analyses will follow approved procedures discussed in this SAP. This SAP is prepared to be consistent with the current revision of the FEMP Site-Wide CERCLA Quality Assurance Project Plan (SCQ).

This RCRA closure plan information and data specifies sampling and analysis to determine if the hazardous waste management unit (HWMU) is contaminated from previous HWMU activities. The sample types and the number of samples to be collected during closure of the unit are specified in the plan. The closure analytical results will be used to evaluate closure performance.

1.1 Sampling Objectives

Sampling in support of RCRA closure actions will be performed to:

1) Confirm decontamination of the unit.

2) Determine the presence of contamination resulting from waste management practices associated with the HWMU being closed.

3) Screen for radiological parameters in the samples.

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4) Characterize waste materials generated during RCRA closures. (Waste characterizations and determinations referenced in this SAP will be conducted according to the Feed Materials Production Center (FMPC) Waste Analysis and Waste Determination Plans, as approved by the Ohio Environmental Protection Agency (OEPA).)

All wastes and materials being held for RCRA determinations will be managed in a manner consistent with hazardous waste management practices. Wastes determined to be RCRA hazardous will be managed and disposed of according to applicable hazardous waste rules and regulations.

1.2 Sample Analysis

To evaluate HWMU closure performance, samples collected during RCRA closures will be analyzed for pH and the suspected contaminant listed in Table 1 of this SAP. The analysis will be conducted using applicable SW-846 analytical methods.

Radiological analysis, using analytical methods specified in the FEMP Laboratory Analytical Methods, Volumes II, IV, and V of the FEMP SCQ will be conducted to determine gross alpha and gross beta levels on samples that will be collected during closure.

2.0 SAMPLE COLLECTION

The following sections discuss the procedures that will be used for sampling in support of this RCRA closure as specified in the closure plan information and data.

2.1 Sampling Equipment

The following equipment may be used in the process of collecting samples during closure of HWMU No. 6:

- Bowls or buckets (stainless steel or other suitable material)
- Spoons, scoops or trowels (stainless steel or other suitable material)
- Spatulas (stainless steel or other suitable material)
- Sample bottles
- Thermal coolers and freezer packs
- Sample labels
- Waterproof marking pen
- Field sampling logbook and field data forms
- Chemical resistant gloves
- Polyethylene or other approved impervious sheeting
- Teflon Coliwasa samplers

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

2.2 Decontamination Verification Rinseate Sampling Procedures

A surface rinse will be conducted of the floor in HWMU No. 6. The rinse water will be directed toward one end of the temporary diked area for this HWMU and collected in a clean designated sample location drum. Samples of the rinse waters will be collected from the drum using a Coliwasa sampler or an appropriate sampling pump and tubing. Samples will be analyzed for the presence of the hazardous constituents or hazardous waste characteristics listed in Table 1.

2.2.1 Rinseate Sample Collection Procedures

The rinseate to be sampled will be pumped into the designated sample collection drum using a clean peristaltic sample collection pump (or other appropriate sampling pump). Rinseate samples will be collected from the dedicated sample collection drum using the following procedures:

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1) Slowly lower a clean sampler (Coliwasa or tube) to the desired depth in the rinseate that has been collected in the rinseate collection container. Do not handle parts of the sampler that will be in contact with the liquids.

2) Slowly withdraw the sampler from the liquid and put the sample into the sample container.

3) Collect one (1) grab sample from the final rinse of the area or equipment being decontaminated.

4) Upon completion of sampling at a location, decontaminate the sampling equipment that was used, in accordance with SAP Section 2.4. Equipment that cannot be decontaminated will be managed in a manner consistent with approved FEMP hazardous waste management practices pending RCRA hazardous waste evaluations in accordance with the approved FMPC Waste Analysis and Waste Determination Plans. Analysis of the samples for parameters listed in Table 1 will be used for waste characterization and determinations.

5) Seal sample coolers and transfer them to the FEMP Sample Processing Lab. Follow the sample container management procedures listed in Section 2.3.

2.3 Sample Handling And Management Of Sample Containers

Once a sample has been placed inside a sample container it should be managed as follows:

1) For all samples: Tightly close the lid, and attach appropriate label that has been filled out using indelible ink.

2) Document and record sample label and container information in the field sampling logbook, and on a Sample Analysis Request/Custody Record form.

3) Immediately place sample containers into a sample cooler that will maintain samples at approximately 4 °C.

4) Record all transfers of sample custody on the Sample Analysis Request/Custody Record form.

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

- have constant direct control,
- use a locked limited access area under his/her control, or
- affix signed container custody seals on samples or sample coolers.

When the planned sampling activity has been completed, secure the lid of the sample holder and transfer the samples 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 analysis.

2.4 Equipment Decontamination

All unit decontamination and sampling equipment to be used during closure must be clean or decontaminated. Before beginning any decontamination procedure, all personnel shall inspect their clothing to ensure that clean clothing or clean disposable outer coveralls are used. Clean chemically resistant gloves will be used during the decontamination process, and when handling any clean equipment. Equipment decontamination procedures are discussed in the following sections.

3793 All reusable sampling equipment that has been used to collect a sample must be decontaminated before it is used to collect additional samples.

2.4.1 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:

- Laboratory grade non-phosphate detergent solution
- Long-handled scrappers (stainless steel, glass)
- Long-handled, soft bristled brushes
- Portable low-pressure water sprayer
- Potable water
- Deionized water (organic free)
- 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 Decontamination Procedures

All reusable equipment will be decontaminated after each use. If decontamination is not practical, the equipment will be managed in manner consistent with FEMP hazardous waste management practices pending RCRA hazardous waste determination. The following procedures will be used to decontaminate 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. As appropriate, construct containment dikes for control of run-off.

2) Provide appropriate containers for containment, handling, and collection of wastes and rinse water. Non-liquid wastes shall be collected in a 55-gallon drum or other approved container. Liquid wastes will be collected in buckets and/or placed into 55-gallon drums or other approved liquid storage containers.

3) Remove visible residues and stains from the equipment by brushing, scrapping, or scrubbing.

4) Rinse with potable water.

5) Wash with a non-phosphate, laboratory grade, detergent and potable water solution.

6) Rinse with potable water.

7) Triple rinse with deionized, organic-free water.

8) Air dry in a dust-free environment. Cover with plastic or aluminum foil.

An equipment decontamination rinseate sample will be collected each day sampling is conducted. The sample will be collected using the procedures described in Section 4.1.

2.5 Wastes Generated During Closure

Non-liquid wastes and waste waters collected during closure of HWMU No. 6 including the wastes generated from the decontamination of sampling equipment, and miscellaneous wastes (e.g., plastic sheeting, brushes, and disposable protective clothing), will be managed in a manner consistent with FEMP hazardous waste practices pending RCRA determinations. Waste determinations shall be conducted on the materials in accordance with the FMPC Waste Analysis and Waste Determination Plans, as approved by the OEPA. Wastes shall be managed and disposed of according to all applicable hazardous and solid waste rules and regulations.

3.0 FIELD DOCUMENTATION AND SAMPLE HANDLING

Sample handling and documentation procedures shall conform to approved FEMP procedures applicable at the time closure activities are conducted. The information in the following sections presents the procedures to follow 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. The logbook will be bound, with consecutively numbered pages. 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.)
- 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 shall be stored and maintained according to FEMP documentation control procedures.

3.2 On-Site Handling/Processing Procedures

Sample coolers, along with the signed and completed sample Analysis Request/Custody Record form, shall be taken to the designated FEMP sample receiving/shipping area. Each person who takes possession of the samples or sample coolers shall 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 for analysis.

4.0 QUALITY ASSURANCE AND QUALITY CONTROL

Quality Assurance/Quality Control (QA/QC) procedures are required to identify, evaluate, and control conditions and activities that can affect the quality and validity of the analytical data obtained from sampling and analysis. Validation of the data requires accurate records to document procedures and conditions during the sampling and analysis. At a minimum these records will include:

- an updated field sampling logbook
- properly completed sample labels
- field and laboratory QA/QC samples
- completed sample Analysis Request/Custody Record forms

Quality assurance procedures include:

1) Only clean sample containers shall be used.

2) Clean chemically resistant gloves shall be used whenever contact is made with the sampling equipment.

3) Sampling containers and collection equipment shall be handled, stored, and maintained in a manner that prevents cross-contamination.

4) Any field conditions, events, or activities that may affect analytical results shall be documented in the field sampling logbook (see Section 3.1 of this SAP).

Sampling activities conducted during RCRA closures shall be consistent with the FEMP Site-Wide CERCLA Quality Assurance Project Plan (SCQ) and applicable QA/QC procedures. The following sections discuss field QA/QC, laboratory QA/QC, and sample Analysis Request/Custody Records forms.

4.1 Field QA/QC Procedures

To prevent cross-contamination between samples and locations, only clean or decontaminated sampling equipment shall be used. When sampling equipment is decontaminated following collection of a sample, a sample of the final rinseate shall be collected and analyzed for pH and the hazardous constituent listed in Table 1. Analysis of these samples will be used to confirm that decontamination was effective. One (1) sample of the final rinseate from sampling equipment decontamination shall be collected each day sampling is conducted using the following procedure:

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

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

3) Follow container management procedures in Section 2.5.

Blanks will be collected and analyzed as part of normal QC procedures. At a minimum, the following samples shall be collected for each sampling event:

- one (1) container blank, a sample of clean deionized water prepared in a non-contaminated area and taken into the field during each sampling event,

- one (1) field blank, a grab sample of the deionized rinse water supply, collected in the field.

To evaluate the impact of field sampling activities on analytical precision (i.e., repeatability of results), field duplicate samples shall be collected. One (1) duplicate sample of the decontamination verification rinseate shall be collected for each sampling event. If requested, additional duplicate samples shall be collected for QC conformation by an independent laboratory.

4.2 Laboratory QA/QC Procedures

The FEMP analytical laboratory should use the approved 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 analysis. Laboratory samples for quality control (QC) may include:

- laboratory equipment 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).

All pertinent information concerning problems and concerns 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 includes:

- 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
- Signature of the laboratory supervisor

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

- discrepancies between 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 reduce any laboratory bias, field duplicate samples shall be submitted that will not be identifiable from the sample labels or sample identification number. 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 shall be labeled with the sample number and identification that is consistent with the Sample Analysis Request/Custody Record form. Prior to relinquishing possession of a sample, the person that collected the sample shall complete and sign a Sample Analysis Request/Custody Record. A complete record of custody transfer shall be maintained on the Sample Analysis Request/Custody Record form.

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

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 analysis by the laboratory. Records of any custody seals used on sample containers shall be maintained. The laboratory shall document the condition of any custody seals on containers that they receive. Laboratories conducting analysis are required to provide the FEMP a copy of all completed laboratory custody records.

The completed Sample Analysis Request/Custody Record, Off-Site Analysis Request/Custody Transfer Record, and laboratory custody forms will be signed and returned with the analytical report for the samples. These documents will be filed in the FEMP RCRA HWMU closure files for review by the OEPA and USEPA.

5.0 HEALTH AND SAFETY

As discussed in Section 3.5 in the closure plan information and data, a Project/Task Specific Health and Safety Plan will be prepared to reflect site and area conditions, and health and safety requirements prior to conducting sampling. Attachment B is a copy of the guidelines for preparing the Project/Task Specific Health and Safety Plan. All sampling activities shall be conducted in accordance with approved FEMP/FMPC procedures.

TABLE 1: CLEANUP ACTION LEVELS

Targeted Hazardous Waste Constituents	CAS No.	Cleanup Action Levels [1] Rinse Samples (mg/l)
Total Fluorides	NA	60.0

Targeted RCRA Characteristic		Cleanup Action Levels
Corrosivity	NA	pH greater than 2.0 and pH less than 12.5

[1] Values listed are 15 times the Maximum Contamination Levels or Maximum Contaminant Level Goals as listed in 40 CFR 141.11 and OAC 3745-81-11. Where no MCL or MCLG has been established for the constituent or 15 times the MCL or MCLG exceed 1 mg/l, 1 mg/l is used as the decontamination action level (see discussions in Section 3.1.1 of this Closure Plan Information and Data).

FEMP Management reserves the right to establish and substitute risk-based cleanup levels if the listed Cleanup Action Levels cannot be met following the procedures set forth in this Closure Plan Information and Data.

ATTACHMENT B

TO

CLOSURE PLAN INFORMATION AND DATA

DRUMMED HF RESIDUE/ASSOCIATED STORAGE AREAS INSIDE PLANT 4

Revision #0

SEPTEMBER 1992

GUIDELINES FOR THE PREPARATION OF FMPC

PROJECT/TASK SPECIFIC HEALTH AND SAFETY PLANS

(APPENDIX II OF THE FMPC SITE HEALTH AND SAFETY PLAN, JUNE 1990)

PROJECT/TASK TITLE: _____

PREPARED BY: _____

DATE: _____

REVIEWED BY:

Centralized training: _____

Radiological Safety: _____

Industrial Hygiene and Safety: _____

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

INTRODUCTION

A project/task specific health and safety plan is a complementary program element that aids in the elimination or effective control of anticipated safety and health hazards. The project/task health and safety plan shall include all basic requirements of the overall health and safety plan, but with close attention given to those characteristics unique to the particular project, task or job. For example, the project/task plan may outline the method of doing work in a confined space area, hazardous waste area, area containing hazardous materials or any area where there is the potential for exposure to employees.

Much of the information required to complete the plan may be provided on FEMP Work Permit Form No. 2939. However, the plan will allow for a complete job evaluation, health evaluation of the employee(s) performing the work and assure that personnel health and safety concerns are addressed prior to the start of the job/task.

The project/task health and safety plan must identify the hazards of each phase of the specific project/task/job and must be kept at the work site. All required permits shall be posted in the immediate work area. A job briefing shall be conducted prior to job start up and at any other time as deemed necessary to ensure that employees are aware of the project/task/job health and safety plan and its implementation. The supervisor in charge and Industrial, Radiological Safety and Training representatives shall perform periodic inspections of the job area to ensure that all known deficiencies are corrected prior to work start and during work performance.

NOTE: Examples are provided after each section, they are not meant to be realistic.

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SECTION NO.	TITLE
1	History & Description of Building, Equipment, Area
2	Work Area Organization and Site Access Control
3	Task Activities/Work Plan
4	Hazard Assessments
5	Standard Operating Procedures (SOPs)
6	Education and Training
7	Medical Surveillance
8	Monitoring
9	Personnel Protective Equipment Requirements
10	Safety Equipment List
11	Decontamination Procedures
12	Emergency Plans
13	Amendments

000 51

TASK SPECIFIC HEALTH & SAFETY QUESTIONNAIRE

SECTION NO. 1 History and Description of Building, Equipment, Area

This Section in its entirety address all known facts about the area where work will be performed. When completed, this section combined with job activities/work plan, should create an understanding of potential health and safety issues to be addressed at the work area.

A. Description of Building, Equipment, Area

Pertinent information about the building, equipment or area such as current disposition, name, manufacturers, location of work area, building construction, etc.

EXAMPLE: This is a 1000 gallon fiberglass tank buried approximately three (3) feet beneath the blacktop east of Building 46. The tank currently contains an unknown amount of methyl ethyl something. The tank was constructed in 1978 by Round Up Manufacturers and installed at the FEMP in January 1979. It has been in continuous use since that time and will be taken out of service 10 days before this project starts.

B. Process Performed or Activities Conducted in the Area

Describe activities performed in the building, use of the equipment, types of material processed, etc.

EXAMPLE: Building 46 is a vehicle and maintenance supply storage facility. The north bay of this three bay building houses emergency vehicles. No radioactive or hazardous substances have been processed in this building or area.

C. Unusual Features

Include information pertaining to conditions which may present a hazard to personnel such as powerlines, material storage, equipment location, buried lines/pipes, etc.

EXAMPLE: There is a drainage ditch approximately 50 feet east of the proposed work site. The flow in the drainage ditch is not controlled.

An underground high voltage line is believed to be located in this area connecting the electric substation with Building 46.

TASK SPECIFIC HEALTH & SAFETY QUESTIONNAIRE (cont.)

SECTION NO. 2 Work Area Organization and Site Access Control

This section clearly identifies the designated work area, control zones or restricted areas where work will be performed; name(s) of supervisor personnel; name(s) of personnel performing work/activities; names of support personnel required to complete task. Site entry and exiting protocol should also be identified.

EXAMPLE: An exclusion zone will be established around the proposed tank excavation area. This area measures approximately 25' X 25'. The exclusion zone shall be marked with barrier tape.

Jo Smyth, Badge No. 0000, will be the supervisor in charge of this project. Tiny Tim, Badge No. 0000, Chicken Little, Badge 000, and Hairy Wolf, Badge No. 0000, will perform the tank sampling, excavation and removal activities.

Entry into the exclusion zone will be limited to the above listed individuals, Industrial Hygiene and Radiological Safety Technicians, Safety and Fire Inspectors and Utility Engineers. Anyone else desiring entry must first be approved by the supervisor in charge.

Personnel exiting the area must be monitored to assure they are free of contaminates.

SECTION NO. 3 Task Activities/Work Plan

State task activity that will be performed and anticipated work plan.

EXAMPLE: The contents of the tank must be sampled, the blacktop and aggregate fill on top and around the tank will be removed and boxed for shipment, all piping will be disconnected and removed, the tank will be removed and the excavation filled with new aggregate materials.

SECTION NO. 4 Hazard Assessments

General categories of hazards that may be present at the work site should be listed. MSDSs must be included for any identified hazardous substance. It is prudent to assume that any identified hazard is present until a characterization has proven otherwise. Provisions should be made to properly protect all individuals that have the potential for exposure from the suspected or identified hazardous substances. Specific WEMCO work permits may be required and should be prepared in accordance with Site Procedure 516.

DISCUSSION: List each suspected or identified hazardous substance, condition or waste. Attach copy of the applicable MSDS to the Health and Safety Plan. When identified, the appropriate permit should be completed and a copy attached to the Project/Task Specific Health and Safety Plan.

SECTION NO. 5 Standard Operating Procedures (SOPs)

Some project/tasks will require that special SOPs be prepared or existing procedures be referenced to conduct the work according to specified guidelines.

DISCUSSION: If no procedure exists to cover the proposed work, prepare one to address the project/task. If procedures exist, list the applicable document number and full title.

SECTION NO.6 Education and Training

Employees shall not engage in field activities until they have been trained to a level commensurate with their job function, responsibilities and with the degree of anticipated hazards. The amount of training is based on worker categories.

A. Worker Category

1. General Site Worker - 40 hours of SARA/OSHA instruction plus 24 hours of field experience.

2. Occasional Site Worker - 24 hours of SARA/OSHA instruction plus 8 hours of filed experience.

3. Workers Regularly on Site But Not in Danger of Exposure - 24 hours of SARA/OSHA instruction plus 8 hours of field experience.

4. Management or Supervisor - Same as 1, 2, or 3 depending on category of work being supervised plus 8 hours of specialized training.

5. Visitors -Are not permitted within exclusion zones unless they have completed the training requirements specified in No. 1 through 4.

B. A safety meeting for all employees involved in hazardous material/waste operations. These meetings shall be held prior to task start, daily during work periods, when there is a change in work activities or implementation of safety plan amendments. Meetings shall be documented and will become a permanent element of this task specific health and safety plan. Subjects to be covered shall include:

- Work operations
- Personnel protective equipment
- air monitoring data
- hazard communication
- hearing conservation
- monitoring results
- decontamination procedures
- task organization
- physical stress
- emergency procedures
- communications
- general safety
- housekeeping

A detailed listing of subjects can be found in the site Health and Safety Plan Appendix II.

SECTION NO. 7 **Medical Surveillance (To be completed by Medical Services)**

Worker selection is based on an evaluation by a qualified licensed physician having knowledge of the specific tasks to be performed and the exposure potential as it relates to the worker. FEMP form HR 3162 is used for the purpose.

SECTION NO. 8 **Monitoring (To be completed by IRS&T)**

A. State the monitoring protocol and action levels for the contaminants involved in each work activity.

B. State each type of instrument to be utilized and coordinate with the type of contaminate to be monitored.

SECTION NO. 9 Personnel Protective Equipment Requirements

State the required level of protection for each activity, task or hazardous substance as identified in the hazard assessment.

SECTION NO. 10 Safety Equipment List

State each piece of safety equipment and the protocol for utilization. This section should create the "shopping list" of safety supplies or equipment available for use by workers.

EXAMPLES: Personnel Protective Equipment (PPE), Fire Extinguishment, Decontaminating Materials, Communication Devices, Barrier Tape, Etc.

SECTION NO. 11 Decontamination Procedures

Address decontamination of personnel and each piece of equipment as a step by step procedure for both chemical and radiological contaminants.

Include level of protection to be utilized during decontamination process, solutions, stations and dispensation of fluids, disposable and other waste.

SECTION NO. 12 Emergency Plans

Emergency plans shall include methods of reporting emergencies or abnormal conditions; evacuation procedures; accountability; types of alarms, etc.

SECTION NO. 13 Amendments

Statements shall be made as follows:

A. This Project/Task Specific Health and Safety Plan is based on information available at the time of preparation. Unexpected conditions may arise which require reassessment of safety procedures. It is important that personnel protective measures be thoroughly assessed by the supervisor in charge and IRS&T representative prior to and during the planned task activities. Unplanned activities and/or changes in the hazard status require a review of and may require changes in this plan.

TASK SPECIFIC HEALTH & SAFETY QUESTIONNAIRE (cont.)

B. Changes in the anticipated hazard status or unplanned activities are to be submitted as an amendment to this Project/Task Specific Health and Safety Plan.

C. Amendments must be approved by the plan author and IRS&T prior to implementation of the amendment.

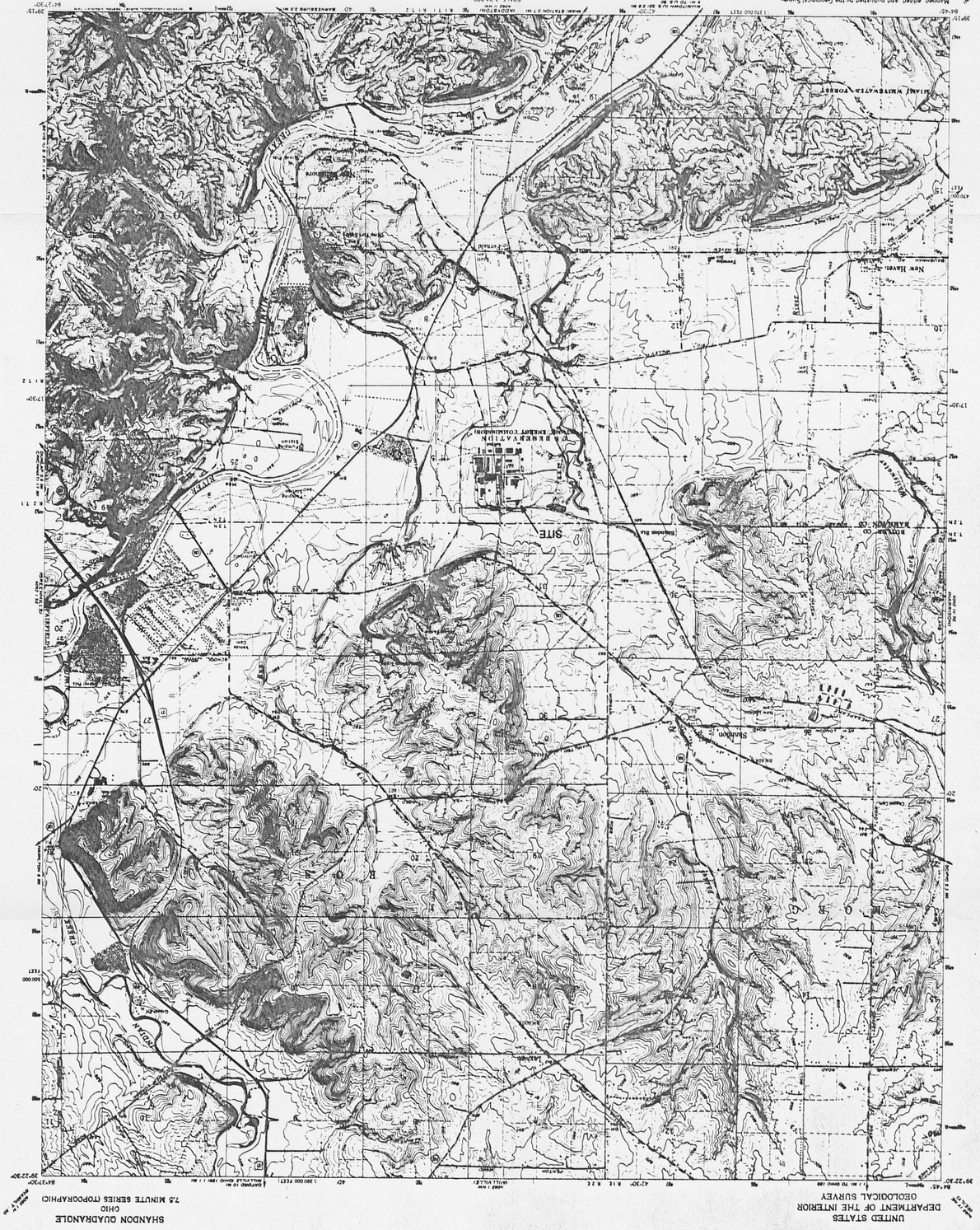

FIGURE 1

SITE LOCATION MAP
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

MO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.	REF. DWG. TITLE

APPROVALS			
CHEMICAL		E.S.&H.	
CHEM. ANALYS.		MAINTENANCE	
ELECTRICAL		NU SAFETY	
ENGINEER		Q.A.	
INSTRUMENT		PRODUCTION	
MECHANICAL		PROD TECH	
CHECKED		WASTE MANAGE	
APPROVED			

WESTINGHOUSE MAT'LS. CO. OF OHIO
FERNALD, OHIO
FEED MATERIALS PRODUCTION CENTER
U.S. DEPARTMENT OF ENERGY

PROJ. NO.
DATE
DRAWN

SEP 15 '92

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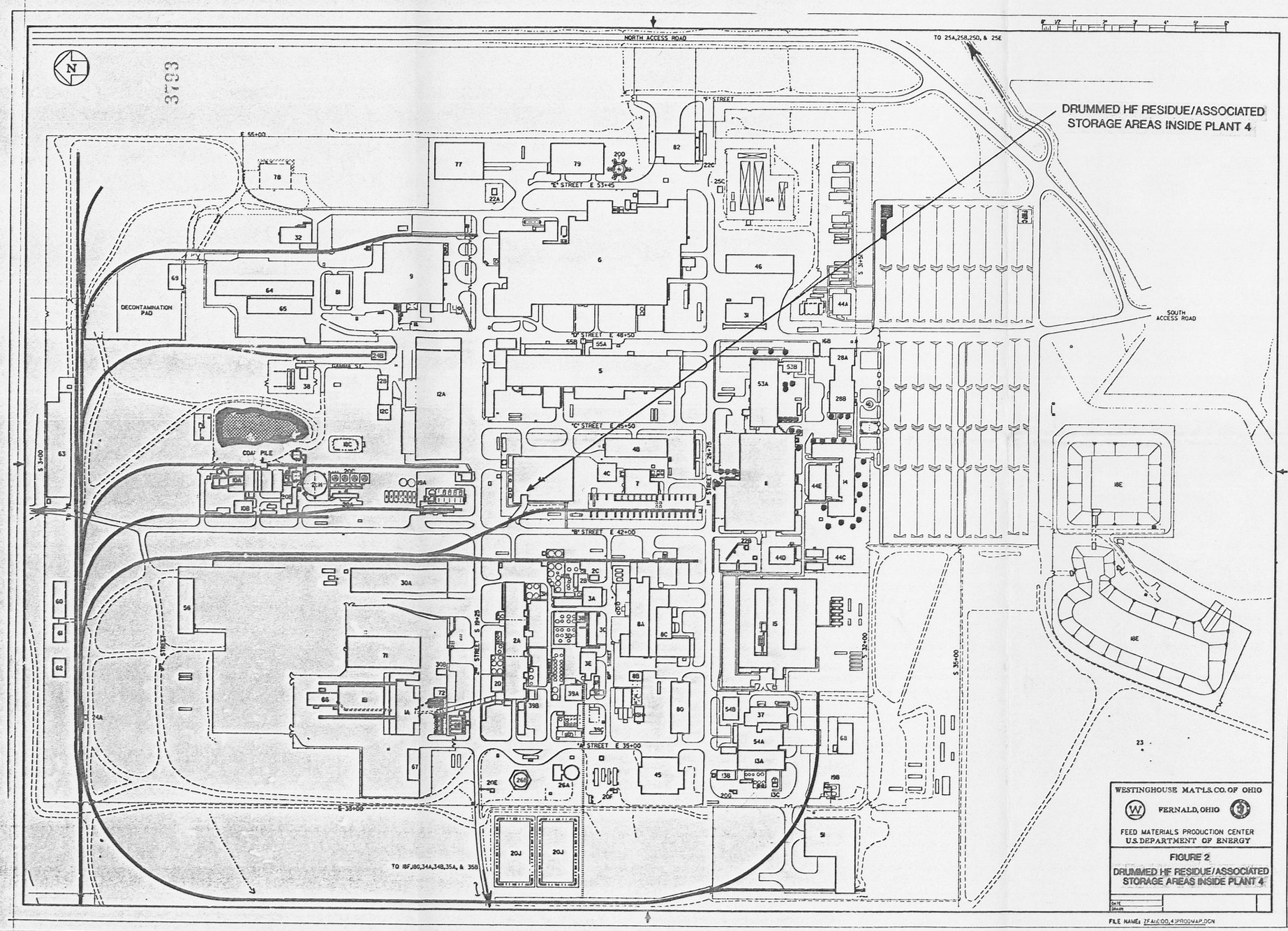

FMPC BUILDING IDENTIFICATION

00	GENERAL
1A	PREPARATION PLANT
1B	PLANT 1 STORAGE BLDG.
2A	ORE REFINERY PLANT
2B	LIME [illegible] BLDG.
2C	BULK LIME HANDLING BLDG.
2D	METAL DISSOLVER BLDG.
2E	NFS STORAGE AND PUMP HOUSE
3A	MAINTENANCE BLDG.
3B	OZONE BLDG.
3C	CONTROL HOUSE
3D	NAR TOWERS
3E	HOT RAFFINATE BLDG.
3F	DIGESTION FUME RECOVERY
3G	REFRIGERATION BLDG.
3H	REFINERY SUMP
4A	GREEN SALT PLANT
4B	PLANT 4 WHSE.
4C	PLANT 4 MAINTENANCE BLDG.
5	METALS PRODUCTION PLANT
6	METALS FABRICATION PLANT
7	PLANT 7
8A	RECOVERY PLANT
8B	MAINTENANCE BLDG.
8C	ROTARY KILN/DRUM RECONDITIONING BLDG.
9	SPECIAL PRODUCTS PLANT
10A	BOILER PLANT
10B	BOILER PLANT MAINTENANCE BLDG.
11	SERVICE BLDG.
12A	MAIN MAINTENANCE BLDG.
12B	CYLINDER STORAGE BLDG.
12C	LUMBER STORAGE BLDG.
13A	PILOT PLANT WET SIDE
13B	PILOT PLANT MAINTENANCE BLDG.
13C	SUMP PUMP HOUSE
14	ADMINISTRATION BLDG.
15	LABORATORIES
16A	MAIN ELECTRICAL STATION
16B	ELECTRICAL SUBSTATION
18A	SURGE LAGOON
18B	GENERAL SUMP
18C	COAL PILE RUNOFF BASIN
18D	BIODENITRIFICATION TOWERS
18E	STORM WATER RETENTION BASIN
18F	PIT 5 SLUICE GATE
18G	CLEARWELL PUMP HOUSE
18H	BDN EFFLUENT TREATMENT FACILITY
19A	MAIN METAL TANK FARM
19B	PILOT PLANT AMMONIA TANK FARM
20A	VALVE/CONTROL BLDG.
20B	FILTER/CHEMICAL BLDG.
20C	COOLING TOWERS
20D	ELEVATED POTABLE STORAGE TANK
20E	WELL HOUSE #1
20F	WELL HOUSE #2
20G	WELL HOUSE #3
20H	PROCESS WATER STORAGE TANK
20J	LIME SLURRY PITS
22A	GAS METER BLDG.
22B	SEWER LIFT STATION
22C	TRUCK SCALE
23	METEOROLOGICAL TOWER
24A	RAILROAD SCALE HOUSE
24B	RAILROAD ENGINE HOUSE
25A	CHLORINATION BLDG.
25B	MH #175
25C	SEWAGE LIFT STATION BLDG.
25D	U.V. DISINFECTION BLDG.
25E	DIGESTER CONTROL BLDG.
26A	PUMP HOUSE-HP FIRE PROTECTION
26B	ELEVATED WATER STORAGE TANK
28A	SECURITY BLDG.
28B	HUMAN RESOURCES BLDG.
30A	CHEMICAL WHSE.
30B	DRUM STORAGE WHSE.
31	ENGINE HOUSE/GARAGE
32	MAGNESIUM STORAGE BLDG.
34A	K-65 STORAGE TANK (NORTH)
34B	K-65 STORAGE TANK (SOUTH)
35A	METAL OXIDE STORAGE TANK (NORTH)
35B	METAL OXIDE STORAGE TANK (SOUTH)
37	PILOT PLANT ANNEX
38	PROPANE STORAGE
39A	INCINERATOR BLDG.
39B	SHELTER STORAGE BLDG.
39C	INCINERATOR BLDG. SPRINKLER RISER HOUSE
44A	TRAILER COMPLEX (6-PLEX)
44B	
44C	TRAILER COMPLEX (7 PLEX S)
44D	TRAILER COMPLEX (7 PLEX N)
44E	TRAILER COMPLEX (10 PLEX)
45	RUST ENG. BLDG.
46	HEAVY EQUIPMENT BLDG.
51	6 to 4 REDUCTION FACILITY #2
53A	O.S. & H. BLDG.
53B	IN-VIVO BLDG.
54A	6 to 4 REDUCTION FACILITY #1
54B	PILOT PLANT WHSE.
55A	SLAG RECYCLING BLDG.
55B	SLAG RECYCLING PIT/ELEVATOR
56	CP STORAGE WHSE.
60	QUONSET HUT #1
61	QUONSET HUT #2
62	QUONSET HUT #3
63	KC-2 WHSE.
64	THORIUM WHSE.
65	(OLD) PLANT 5 WHSE.
66	DRUM RECONDITIONING BLDG.
67	PLANT 1 THORIUM WHSE.
68	PILOT PLANT WHSE.
69	DECONTAMINATION BLDG.
71	GENERAL IN-PROCESS STORAGE WHSE.
72	DRUM STORAGE BLDG.
73	FIRE BRIGADE TRAINING CENTER BLDG.
77	FINISHED PRODUCT WHSE.
78	D & D BLDG. (NOT CONSTR.)
79	PLANT 6 WHSE.
80	PLANT 8 WHSE.
81	PLANT 9 WHSE.
82	RECEIVING/INCOMING MAT'LS. INSPECTION BLDG.

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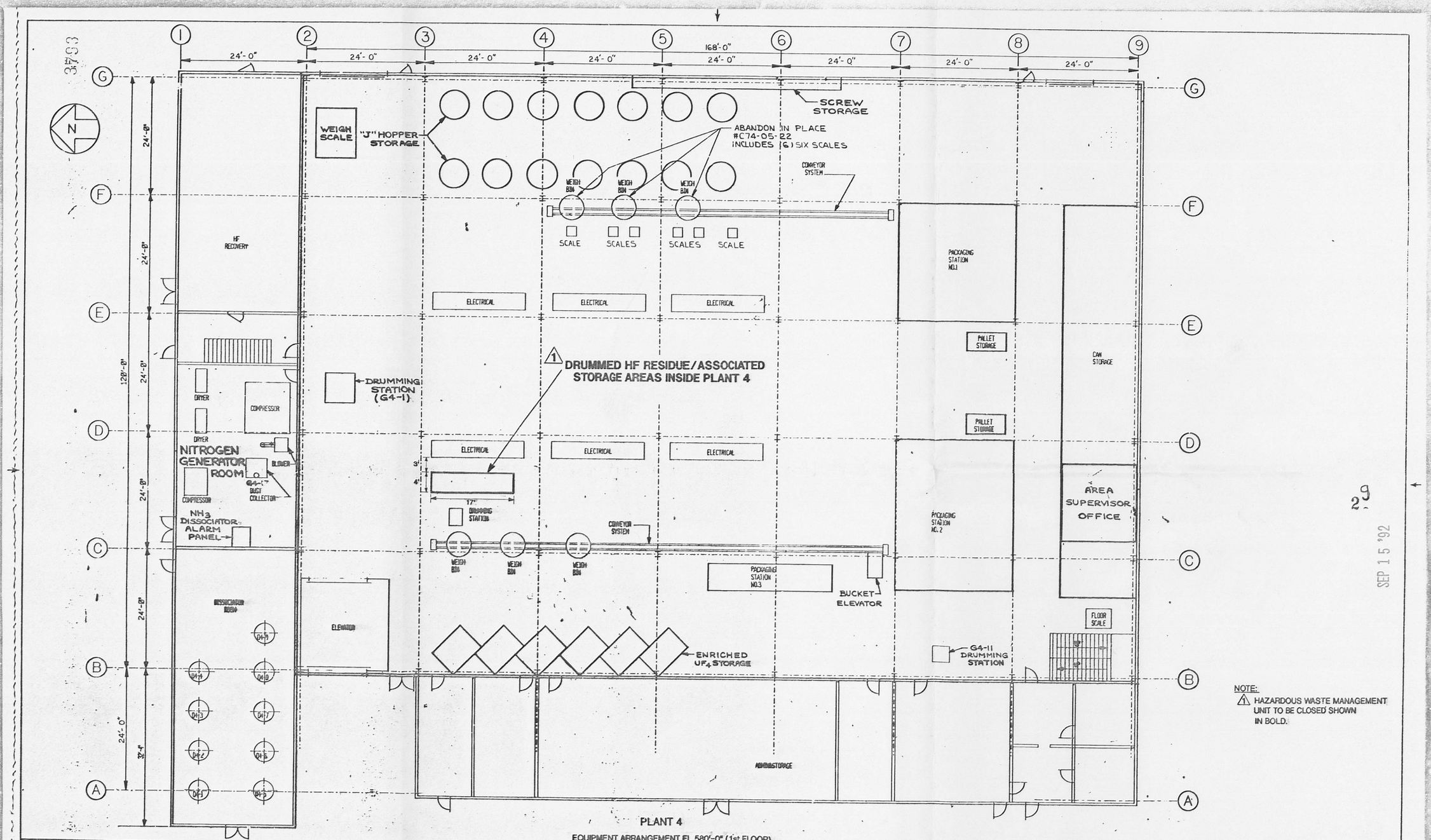
SEP 1 5 '92



NOTE:
1 HAZARDOUS WASTE MANAGEMENT UNIT TO BE CLOSED SHOWN IN BOLD.

PLANT 4

EQUIPMENT ARRANGEMENT EL 580'-0" (1st FLOOR)

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

NO.	REVISIONS	DATE	DWN. BY	APPD.
1	UPDATED	5-26-91	W.F.H.	
0	IDENTIFIED A.I.P. PER RES 558	11-16-87	LAM	

REF. DWG. NO.	REF. DWG. TITLE

APPROVALS

WESTINGHOUSE MAT'LS. CO. OF OHIO
FERNALD, OHIO
FEED MATERIALS PRODUCTION CENTER
U.S. DEPARTMENT OF ENERGY

FIGURE 3
DRUMMED HF RESIDUE/ASSOCIATED STORAGE AREAS INSIDE PLANT 4

PROJ. NO.
DATE 11-16-87
DRAWN L. MAINS

SK-12-P-3