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**CLOSURE PLAN INFORMATION AND DATA FOR  
THE EQUIPMENT STORAGE AREA MARCH 1992**

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**CLOSURE PLAN INFORMATION AND DATA  
FOR THE  
EQUIPMENT STORAGE AREA**

SD-EES-C24-CPI-10008

REVISION 0

March 1992

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

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<u>Attachment</u>	<u>Title</u>
A	Equipment Storage Area Sampling and Analysis Plan
B	Guidelines for the Preparation of FEMP Project/Task Specific Health and Safety Plan, June 1990

# CLOSURE PLAN INFORMATION AND DATA FOR THE EQUIPMENT STORAGE AREA

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

2916

## 1.0 INTRODUCTION

### 1.1 Background and Purpose

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 (Figure 1). The FEMP was formerly known as the Feed Materials Production Center (FMPC), and was operated for the purpose of producing metallic uranium fuel elements, target cores, and other uranium compounds for use at other DOE facilities in support of the U.S. defense program. The facility was in operation at this site from the early 1950s until production ceased in July 1989. In November 1989, the U. S. Environmental Protection Agency (U.S. EPA) added the FEMP to the National Priorities List (NPL) of hazardous waste sites, subject to remediation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

This closure plan information and data is being submitted to close the Equipment Storage Area, an inactive hazardous waste management unit (HWMU) located in the northwest corner of the FEMP site (Figure 2). This area was used over the last two years by the RI/FS subcontractor to store miscellaneous drilling supplies and equipment. A revision to the RCRA Part A Permit Application, submitted to the Ohio Environmental Protection Agency (OEPA) in June 1991, identified the area as a newly identified HWMU, requiring the preparation and submittal of a plan to close the unit. The Equipment Storage Area will be closed in accordance with OAC 3745-66-10 to 3745-66-15 (40 CFR 265.110 to 265.115).

It is the intent of the FEMP management to ensure efficient integration of all RCRA closure activities into related CERCLA response actions. This closure plan information and data has been prepared to ensure RCRA closure actions are consistent with the CERCLA requirements, while adhering to the terms of the July

18, 1986 U.S. DOE/U.S. EPA Federal Facilities Compliance Agreement, as amended on June 29, 1990, and September 20, 1991 (hereinafter referred to as the Consent Agreement). Additional discussion of the impacts of the CERCLA program at the FEMP is provided in Section 1.2.2 of this plan.

A copy of this closure plan information and data, along with any subsequent revisions, will be kept at the site until the Equipment Storage Area is certified closed in accordance with OAC 3745-66-15 (40 CFR 265.115), or until final remediation of the site under CERCLA is completed.

## 1.2 Regulatory Impacts

### 1.2.1 Mixed Radioactive and RCRA Wastes

Most FEMP wastes with a hazardous component or characteristic, with certain exceptions, are handled on-site as mixed radioactive and hazardous wastes. The radioactive portion of mixed 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.

Recognizing the dual nature of these wastes, the FEMP stores mixed (hazardous combined with radioactive) wastes in accordance with RCRA regulations as well as DOE orders concerning low-level radioactive waste. These materials are stored pending the availability of acceptable treatment or disposal facilities for mixed waste. DOE orders are binding regulatory requirements promulgated by the DOE that govern the conduct of operations at DOE sites. DOE orders apply both to DOE personnel and contractors employed at DOE sites.

DOE will provide OEPA with the results of the radiological monitoring that will be conducted during the closure of the Equipment Storage Area. This monitoring will be performed in accordance with the Equipment Storage Area Sampling and Analysis Plan (Attachment A), and with existing FEMP Standard Operating Procedures.

### 1.2.2 RCRA Post-Closure and Integration with CERCLA

It is the intention of FEMP management to implement this closure plan information and data to demonstrate RCRA clean closure of the Equipment Storage Area. Therefore, it is not anticipated or expected that any post-closure activities at the unit will be required. If soil contamination or possible impacts on groundwater quality are suspected or indicated, or it is determined that clean closure cannot be achieved, revised closure plan information and data, along with a revised closure schedule, will be submitted to the agency. The revised closure plan information and data will describe how the RCRA closure activities, including any required post-closure activities, or Removal Actions required under CERCLA to mitigate any immediate threat to human health or the environment, will be coordinated with the CERCLA schedule and ongoing remedial activities at the site.

RCRA closure actions at HWMUs at the FEMP will be impacted by the ongoing activities required by the U.S. DOE/U.S. EPA Consent Agreement. This Consent Agreement, which was entered into pursuant to Sections 106 and 120 of CERCLA, requires the U. S. DOE to complete a Remedial Investigation/Feasibility Study (RI/FS), and identify removal and remedial actions at the FEMP as part of final site remediation. In accordance with these requirements, a RI/FS has been initiated to investigate extent of contamination, and identify appropriate remedial actions for clean-up of contamination at the FEMP. Through the RI/FS process and the terms of the Consent Agreement, the FEMP will:

- establish site cleanup levels,
- select and conduct necessary response actions, either removal or remedial, and

- implement any necessary long-term monitoring and surveillance of the facility and surrounding environment.

Consistent with the terms of the June 29, 1990 amendment to the Consent Agreement, the FEMP has divided the scope of the RI/FS into five (5) Operable Units (OUs). The Equipment Storage Area is included within the scope of Operable Unit 5 (OU5), which addresses site media receptors, including surface water, soils, and groundwater. Any response or remedial actions undertaken at the FEMP for removal or remediation of soil, groundwater, or other media must be conducted in accordance with CERCLA requirements and consistent with all other applicable or relevant and appropriate requirements (ARARs), including RCRA closure and post-closure regulations, rules, standards, and guidelines.

Since final site remediation will be conducted under the CERCLA program, remediation of any residual contamination determined to be present during closure of the Equipment Storage Area will be integrated into the RI/FS activities, and will be subject to the remedial methodology selected through the Record of Decision (ROD). Since all remedial activities must be incorporated into the CERCLA schedule for activities planned for OU5, a revised closure schedule may be submitted.

### 1.2.3 Financial and Liability Exemptions

The FEMP is a federally owned facility. According to OAC 3745-66-40 (C) (40 CFR 265.140), the Federal Government is exempt from the financial requirements of OAC 3745-66-40 through OAC 3745-66-48 (40 CFR 265.140 through 265.148).

## 2.0 FACILITY DESCRIPTION

### 2.1 Waste Management Unit Description

The Equipment Storage Area HWMU is a 25 feet by 145 feet grassy area located in an area northwest of OUI and west of the west berm of Waste Pit 5 (Figure 2). This area was used by the RI/FS subcontractor to store drilling equipment and supplies for use during subsurface investigatory studies at the FEMP. The area is level, and is bounded on the north, west, and south sides by a gravel access road, and on the east side by an embankment approximately six feet high (Figure 3). There is no knowledge or evidence that hazardous wastes were intentionally managed in the unit. Visual inspection of the area does not indicate the presence of disturbed soils, stressed vegetation, or evidence of waste burial, spillage, or other waste disposal at the unit.

In accordance with FEMP standard operating procedures, routine housekeeping inspections were conducted of the Equipment Storage Area. During one inspection in December 1990, it was noted that lead acid batteries were stored on wooden pallets in the extreme south end of the area. Lack of records regarding the proper management of the batteries at this location has consequently required that the area be designated a HWMU. Records are not available to indicate whether any releases from the batteries ever occurred in the area. The batteries were removed from the unit.

### 2.2 Waste Inventory

Since the storage of hazardous waste in the Equipment Storage Area was not intentional, waste management records are not available for the unit. Verbal communication with FEMP personnel present during the December 1990 inspection indicates that approximately ten (10) individual lead acid vehicle batteries were stored on pallets in the unit. This is considered the maximum inventory of waste stored in the unit. It is believed that no waste remains in the unit.

### 2.3 Current Use

Miscellaneous drilling equipment and materials, including drill stem, augers, bits, drill casing, and construction materials, are currently being stored in the

unit for future use. None of this equipment or materials is believed to be hazardous waste.

#### 2.4 Security

As with all Department of Energy (DOE) facilities, security at the FEMP is strict. The Equipment Storage Area is monitored by on-site security personnel. The unit is cordoned off, and both "DANGER - Authorized Personnel Only" and "DANGER - No Smoking, Matches, or Open Flame" signs are posted every 25 feet along the unit boundary. Since the unit was used to store only materials and supplies, and since the lead acid batteries have been removed from the unit, constant 24 hour surveillance is not provided at the unit.

### 3.0 CLOSURE INFORMATION

#### 3.1 Closure Objectives and Performance Standard

This closure plan information and data for the Equipment Storage Area is in accordance with the closure performance standards in OAC 3745-66-11 (40 CFR 265.111). These standards include the following:

- Minimizing the need for further maintenance by removing all stored materials, and by sampling residual waste materials and soils to determine that all hazardous waste has been removed from the unit. Post-closure maintenance is not required for the unit if no hazardous wastes or unacceptable levels of contamination remain in the unit or unit soils after closure (i.e., clean closed).
- Controlling, minimizing or eliminating, to the extent necessary to protect human health and the environment, the escape of hazardous waste, hazardous waste constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the groundwater, surface waters, or to the atmosphere.
- Conducting closure actions in accordance with the approved RCRA closure plan information and data.

##### 3.1.1 Decontamination Action Level

It is the intention of FEMP management to demonstrate RCRA clean closure of the Equipment Storage Area. This determination will be based on directed samples of soils. Directed samples will be taken from the area where the batteries were stored. The hazardous waste characteristics of corrosivity (based on pH, with the EPA designation of D002) and the Toxicity Characteristic (TC) for lead (D008) are the only hazardous waste constituents believed to have been associated with the unit. The parameters of lead and pH will therefore be used in the analyses of the soil samples. The FEMP will consider the unit soils to be clean for RCRA closure if the soil samples contain total concentrations of lead and pH levels below or

within the following decontamination action levels:

- 1) The decontamination action level for lead will be the concentration of lead, less than or equivalent to the mean background concentration plus two standard deviations. Soils in the unit will be considered clean if concentrations of total lead in soil samples taken from the unit are below this level. (Background sampling is discussed in Section 3.3.1).
- 2) The decontamination action level for pH will be a soil pH less than or equal to 2, or greater than or equal to 12.5 standard pH units. Soils in the unit will be considered clean if soil pH values are determined to be within this range.

### 3.2 Closure Methodology

This section addresses the procedures that will be followed to accomplish clean closure of the Equipment Storage Area. Since this plan is written only for the closure of this HWMU, closure of the Equipment Storage Area constitutes only a partial closure of the entire FEMP facility.

In accordance with this closure plan information and data, the following closure actions will be taken:

- 1) The FEMP will notify the OEPA at least five (5) working days prior to the initiation of closure.
- 2) The equipment and materials currently stored in the unit will be inspected to determine if any hazardous wastes are present. All equipment and materials not associated with suspected waste will be removed from the unit. If any hazardous waste is suspected as a result of the inspection, samples of the waste material will be taken in order to conduct a waste characterization in accordance with approved FEMP Waste Analysis and Waste Determination Plans. If the waste material is determined to be hazardous,

the location of the waste in the unit will be marked, and directed soil sampling will be conducted in that location for those hazardous waste constituents associated with that waste. If hazardous waste is discovered in the unit, the closure plan information and data will be modified to include additional sampling for those hazardous waste constituents associated with the waste, and will be resubmitted to the OEPA to accommodate the expanded scope of the closure.

- 3) The soils within the unit will be sampled and analyzed to determine if lead or corrosive liquids have been released in the area of the previously stored batteries. Soil samples will be analyzed for lead and pH levels. Soil sampling procedures are presented in Section 3.3.2.
- 4) After soil sampling and equipment decontamination is completed, the sampling equipment decontamination rinse water and any other waste generated during RCRA closure activities will be characterized and managed in accordance with the Equipment Storage Area Sampling and Analysis Plan (Attachment A). Any suspected hazardous waste, or soil borings removed from the unit and awaiting analytical characterization, will be managed in a manner consistent with DOE orders and RCRA regulations. Any waste, residues, or soil determined to contain hazardous waste constituents in excess of the decontamination action levels established by the RCRA/CERCLA Background Soil Sampling Plan at the FEMP (Section 3.1.1) will be containerized, stored, and managed as mixed waste in an approved RCRA storage area (identified in the October 1991 Part B Permit Application, or subsequent revision) pending the availability of off-site treatment or disposal facilities.
- 5) If soil contamination in excess of the decontamination action levels presented in Section 3.1.1 is identified, revised closure plan information and data will be submitted.

### 3.3 Sampling and Analysis

#### 3.3.1 Background Soil Samples

In order to determine whether clean closure of the Equipment Storage Area can be conducted, off-site background soil samples will be collected in accordance with the RCRA/CERCLA Background Soil Sampling Plan at the FEMP, and analyzed for lead and pH levels. The mean and variance of background lead and pH levels, determined from the laboratory analyses of these samples, will be compared to any lead and pH levels determined through soil sampling during closure of the Equipment Storage Area. The RCRA/CERCLA Background Soil Sampling Plan at the FEMP has been prepared and submitted to the OEPA and U. S. EPA as an addendum to the RI/FS Workplan pursuant to the Consent Agreement, and is pending final review and approval by the agencies.

#### 3.3.2 Equipment Storage Area Soil Samples

Directed soil samples will be taken from the area where the batteries were stored in the Equipment Storage Area (Figure 4). The batteries were stored in the south end of the unit approximately 3 feet north of the gravel access road, and 5 feet west of the toe of the embankment bounding the unit on the east. Directed samples will be collected at two discrete depths in two locations (for a total of four samples). Two composite soil samples will be taken at each location, from the 0-6 inch and 6-18 inch depth horizons. A stainless steel bucket auger or coring device will be used to advance the hole and collect the sample material. The soil samples will be analyzed for total lead and pH. Soil sampling and analysis will be conducted in accordance with the Equipment Storage Area Sampling and Analysis Plan (Attachment A). Results of the analyses will be compared to decontamination action levels (Section 3.1.1) established by the RCRA/CERCLA Background Soil Sampling Plan to demonstrate clean closure of the unit. Additional samples may be collected if data from the previous sample(s) cannot be properly validated.

#### 3.3.3 Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) procedures will be utilized during closure of the Equipment Storage Area to ensure that accurate and reliable data are obtained. The quality assurance/quality control procedures to be followed are

contained in Attachment A. These include both lab and field procedures. In addition to the required blanks, at least one duplicate sample will be taken for every twenty (20) samples collected within the RCRA unit.

To reduce laboratory bias, the duplicate sample will be labeled and numbered in a way that will not indicate that the sample is a duplicate. This information will be noted in the field sampling logbook for later use. Laboratory analyses shall follow the methods in U.S. EPA Test Methods for Evaluating Solid Wastes (SW-846, latest edition) referenced in the draft Site-Wide Quality Assurance Project Plan (QAPjP), as revised or approved. The laboratory utilized by the FEMP to analyze RCRA samples shall confirm it has a quality assurance/quality control plan for each parameter of interest.

#### 3.4 Equipment Decontamination and Disposal

Prior to any sampling activities, all equipment to be used during sampling activities will be properly cleaned or decontaminated. All equipment used during sampling that may have contacted hazardous waste or constituents will be decontaminated between each sample point using the methods outlined in Attachment A. The methods and setup for equipment decontamination will be designed to contain and minimize the waste generated, and minimize the potential for release of hazardous waste or waste constituents to the environment. Decontamination of the sampling equipment will be conducted over an impervious layer of synthetic sheeting adjacent to the Equipment Storage Area. Decontamination will not be attempted during adverse weather conditions (rain, snow, etc.). Runoff of liquids during decontamination will be prevented from reaching the environment by temporary dikes placed on the impervious sheeting. All liquids and other residues resulting from decontamination will be containerized and evaluated to determine if they are hazardous wastes. The final decontamination rinseate will be sampled and analyzed for the hazardous waste constituents listed in Section 3.1.1, in accordance with Attachment A, to determine whether the equipment has been successfully decontaminated. Any disposable clothing or contaminated equipment that cannot be decontaminated (e.g. plastic sheeting, etc.) shall be containerized, labeled and stored at an approved RCRA storage area pending

disposal in accordance with all applicable regulations.

### 3.5 Health and Safety

Selection of the protective equipment for closure activities will be guided by information supplied by FEMP site evaluation and risk assessment activities prior to closure. In addition, radioactivity screening will be done over the area to determine radiation protection requirements, and to determine whether the soil samples can be analyzed by the contract laboratory. Additional screening, including laboratory analyses for radionuclides, may be required to further categorize the samples for level of radiation hazard before the samples can be shipped to an off-site laboratory. Radiation survey procedures and requirements for samples shipped off-site for analysis will be in accordance with FEMP procedures. Analytical procedures and methods for radiological constituents are presented in Attachment A.

A Project/Task Specific Health and Safety Plan, pursuant to requirements in the current FEMP Site Health and Safety Plan, will be required before RCRA closure activities at the Equipment Storage Area are initiated. The specific procedures in the plan, including personnel decontamination procedures, will be based on the required health and safety hazard analysis which will characterize hazards and conditions at the unit at the time of closure. A copy of the Guidelines for the Preparation of FEMP Project/Task Specific Health and Safety Plan is included in Attachment B.

#### 4.0 CLOSURE CERTIFICATION

If soil sampling indicates the unit has been contaminated (i.e, cannot be clean closed due to the presence of hazardous waste constituents above the decontamination action levels listed in Section 3.1.1), revised closure plan information and data will be submitted. If response actions under CERCLA are necessary to address contamination of soils, groundwater, or other media by RCRA hazardous waste at the unit, these will be determined pursuant to the requirements of the Consent Agreement, as amended. Any actions taken under CERCLA shall be consistent with RCRA regulations and all other ARARs and identified guidance.

#### 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, such as soil sampling. The purpose of the inspections is to ensure that the closure process follows the procedures in the closure plan information and data, and that proper sampling and equipment decontamination is conducted.

RCRA closure certification documentation shall include a daily log of activities, field notes recorded by the owner and or the owner's representative during closure activities, copies of the laboratory analysis reports, copies of the hazardous waste manifests (if utilized), chain of custody forms used for sample handling and tracking, and certification statements by both the owner and Professional Engineer. All RCRA closure certification documentation shall be compiled and retained at the FEMP for access and inspection by the OEPA.

#### 4.2 Statement of Certification

Upon completion of the closure of the unit, the FEMP shall submit to OEPA, within 60 days, a certification from both the owner and a qualified, independent, registered Professional Engineer that the Equipment Storage Area hazardous waste management unit has been closed in accordance with the approved closure plan information and data. The certification will meet the requirements of OAC 3745-50-42(D) and OAC 3745-66-15 (40 CFR 270.11(d) and 40 CFR 265.115) and 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."

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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.

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Ohio Registered Professional Engineer

### 5.0 CLOSURE SCHEDULE

To comply with internal DOE Orders and other regulatory requirements, several activities must be undertaken before physical closure of a HWMU can begin at the FEMP. These activities may include preparation of NEPA documentation, assessment surveys, preparation of a project/task specific health and safety plan to meet OSHA requirements, preparation of internal work plans, Operational Readiness Review (ORR) and approval, and training of personnel involved in closure activities. Finalization of these activities must occur following closure plan approval, in order to incorporate any revisions to the plan required by the OEPA. These activities are indicated in the Schedule for Closure of the Equipment Storage Area (Table 1) as internal activities to prepare for closure, and may be initiated prior to closure plan approval. It is expected that these activities, conducted concurrently, will require a minimum of 175 days to complete.

The OEPA will be notified at least 45 days prior to beginning closure of the Equipment Storage Area. Assuming no modifications to the plan are required or unexpected events are encountered, it is expected that physical closure activities can be completed within 210 days from the date closure begins. The schedule for closure is provided in Table 1. Meeting this schedule is contingent upon completion of background soil sampling activities and the acquisition of acceptable background and unit soils data. The schedule also assumes no additional hazardous waste will be discovered in the unit and that funding is available to complete all closure activities. The schedule does not anticipate unexpected events, such as adverse weather conditions, samples lost or damaged in shipment, or invalidated data due to laboratory exceedance of sample holding times. Any request for an extension of the time required for completion of closure, if necessary, shall 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)].

The OEPA shall be notified at least five (5) business days in advance of significant activities conducted pursuant to closure of the unit. Significant activities include the inspection of equipment and materials remaining in the unit, and soil sampling at the site.

**TABLE 1  
SCHEDULE FOR CLOSURE OF THE EQUIPMENT STORAGE AREA**

CLOSURE ACTIVITY	CUMULATIVE DAYS FROM INITIATION OF CLOSURE ACTIONS ON DAY 0											
	-75	-45	0	30	60	90	120	150	180	210	270	
Internal Activities to Prepare for Closure (1)	█	█										
Notification to Ohio EPA		█										
Inspect Equipment and Material (2, 3)			█									
Removal of Equipment and Material (3)					█							
Collect Soil Samples (2, 3)							█					
Review Analytical Results (4)									█			
Submit Closure Certification (5)										█		

- 1 Estimate minimum of 25 weeks, to comply with internal DOE Orders and other regulatory requirements. Activities are described in the closure plan information and data, and may begin prior to closure plan approval.
- 2 The professional engineer, or designated representative, will be required to be present during these activities.
- 3 In the event that additional hazardous waste is suspected or discovered in the unit, a CERCLA Removal Site Evaluation (RSE) may be conducted. This activity may require an extension of time for completion of closure.
- 4 In the event that the soils are found to have been contaminated with hazardous waste constituents, in excess of the decontamination action levels (see Section 3.1.1 of this document), revised closure plan information and data will be prepared and submitted.
- 5 Assumes no contamination is found which will require additional removal or remedial measures. Any closure actions requiring response actions subject to the FEMP CERCLA requirements shall be completed under the FEMP CERCLA program (see Section 1.2.2 of this document).

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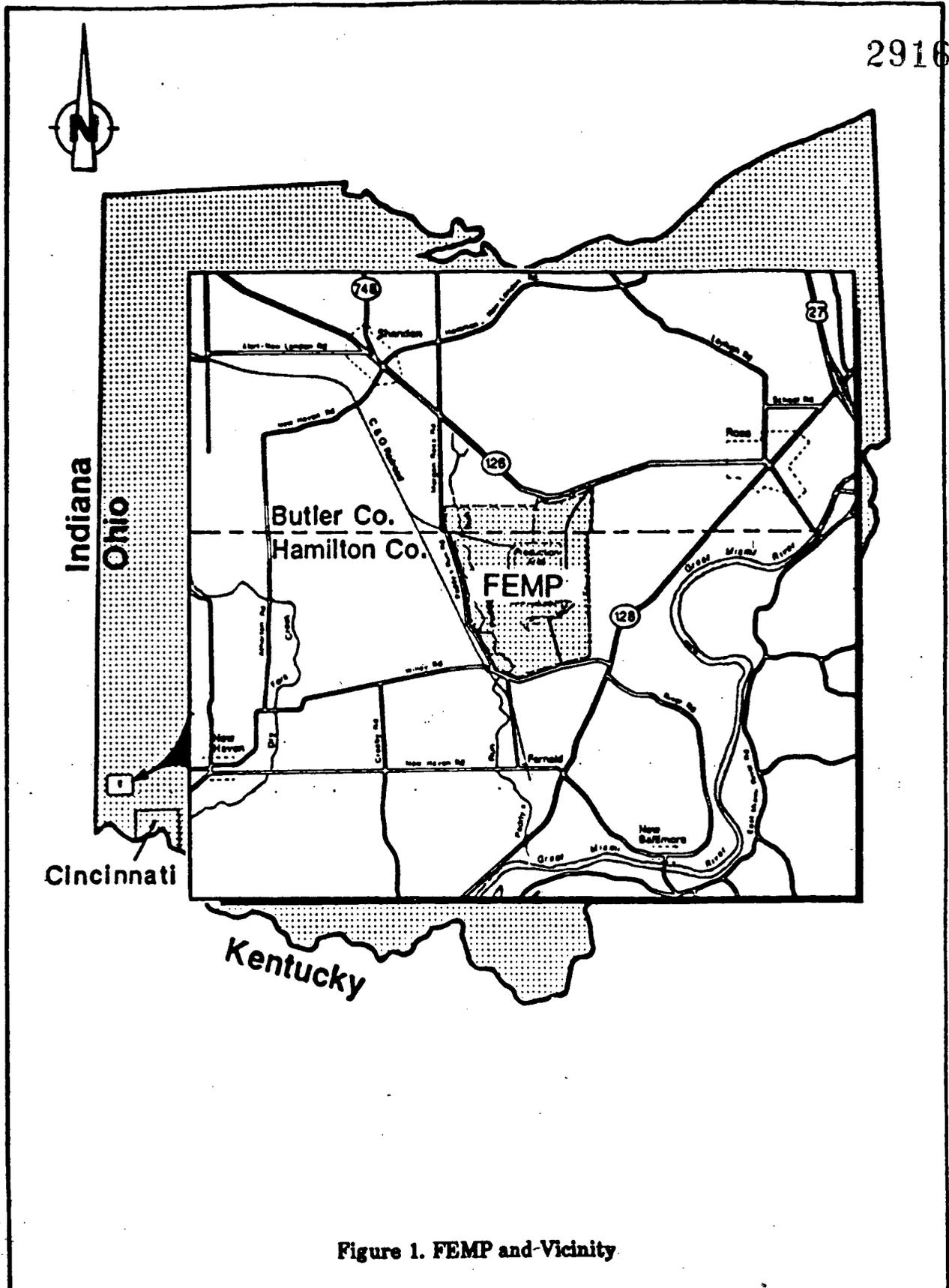


Figure 1. FEMP and Vicinity

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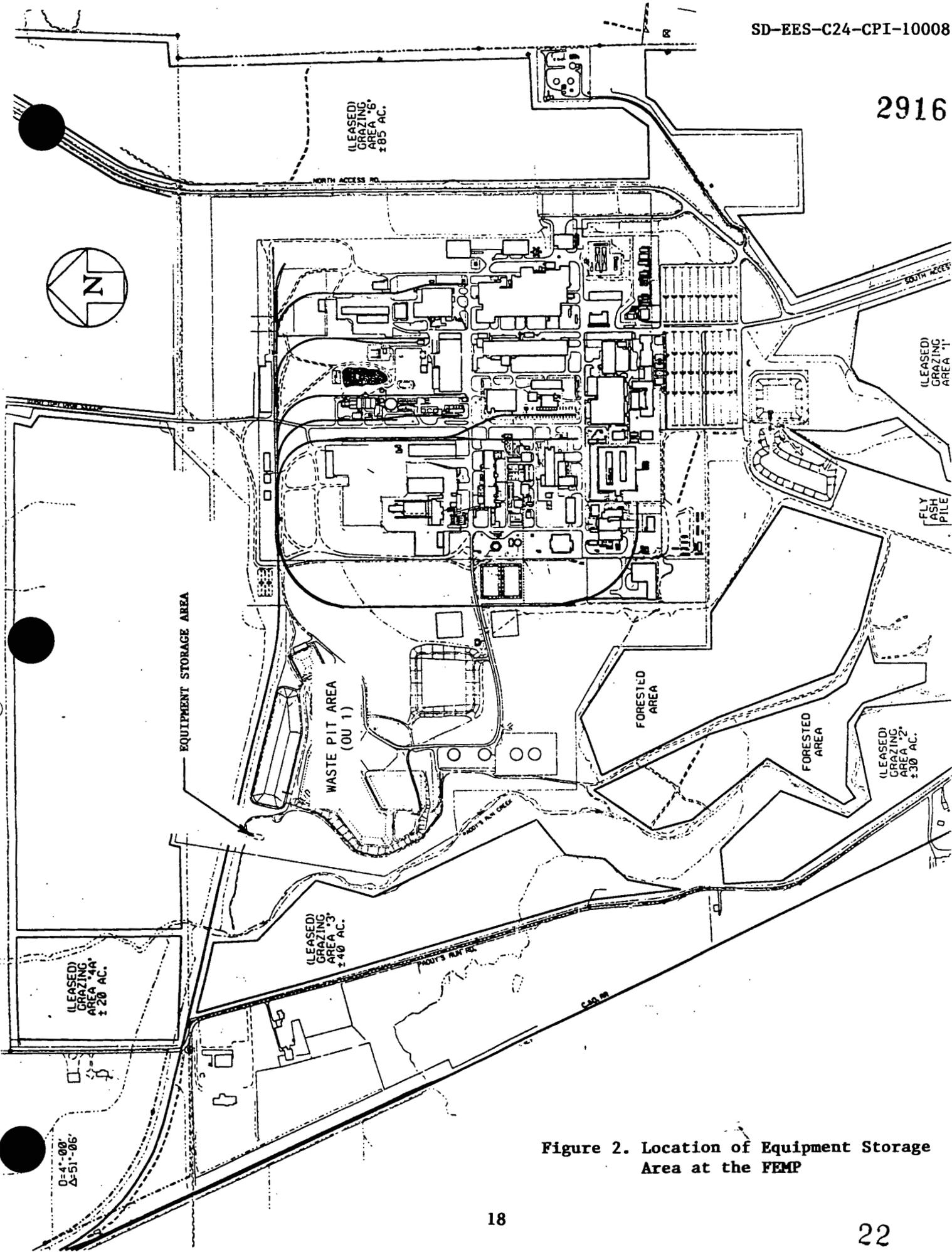


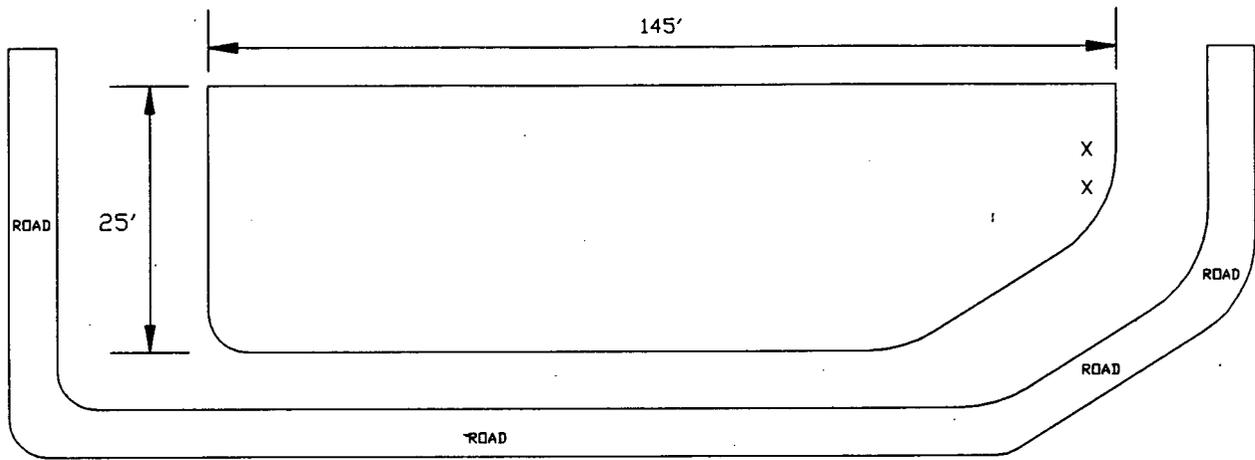
Figure 2. Location of Equipment Storage Area at the FEMP



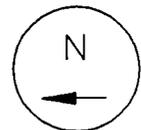
Figure 3. Topographic Map, Vicinity of Equipment Storage Area (Not to scale)

# EQUIPMENT STORAGE AREA

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NOT DRAWN TO SCALE



## LEGEND

X DIRECTED SAMPLING LOCATIONS

Figure 4. Layout of Equipment Storage Area and Proposed Sampling Locations

**ATTACHMENT A**

**EQUIPMENT STORAGE AREA  
SAMPLING AND ANALYSIS PLAN**

**SD-EES-C24-CPI-10008**

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U.S. Department of Energy  
Fernald Environmental Management Project  
7400 Willey Road  
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Closure Plan Information  
Sampling and Analysis Plan

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	LIMITS . . . . .	A-19

## 1.0 INTRODUCTION

Hazardous waste rules and regulations, under OAC 3745-66-12(B)(4) and 40 CFR 265.112(b)(4), require that closure plan information establish closure performance standards. The performance standards must define cleanup goals and decontamination or removal requirements for completion of partial and final closure of Hazardous Waste Management Units (HWMUs). The closure plan information must also provide detailed descriptions of how the established performance standards will be met.

This Equipment Storage Area Sampling and Analysis Plan (SAP) describes the sample collection and handling procedures, references analytical methods, and specifies the quality assurance/quality control procedures required to obtain valid analytical results to support the demonstration that closure of the Equipment Storage Area has met the closure performance standards. All closure sampling and analysis will follow approved procedures discussed in this SAP. This SAP is prepared to be consistent with the draft Site-Wide Quality Assurance Project Plan (QAPjP), as revised or approved, submitted to the Ohio Environmental Protection Agency (OEPA) and U. S. Environmental Protection Agency (U.S. EPA). Sampling and analytical procedures referenced in this SAP will also comply with the U.S. EPA Test Methods for Evaluating Solid Wastes (SW-846), latest edition.

The RCRA closure plan information and data specifies sampling to identify contamination and/or confirm decontamination or removal of contaminated surfaces and materials from the unit. The sample types, sample locations, and number of samples to be collected during closure of the unit are specified in the plan. The analytical results obtained from sampling during closure will be used to evaluate closure performance, as discussed in the closure plan information and data.

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Closure Plan Information  
Sampling and Analysis Plan

A-1

### 1.1 Sampling Objectives

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

- 1) Identify environmental contamination resulting from waste management practices associated with the HWMU being closed.
- 2) Confirm decontamination and/or removal of contaminated materials.
- 3) Screen for radiological parameters in the samples being shipped to off-site laboratories for analysis.
- 4) Characterize waste materials generated during RCRA closures. (Waste characterizations and determinations referenced in this SAP will be conducted in accordance with the Fernald Environmental Management Project [FEMP] Waste Analysis and Waste Determination Plans, as approved by the 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 in accordance with applicable hazardous waste rules and regulations.

### 1.2 Sample Analysis

To evaluate HWMU closure performance, samples collected during RCRA closures will be analyzed for selected target analytes. Refer to Section 3.1.1 of the closure plan information and data for the specific target parameters. The analyses will be conducted using applicable SW-846 analytical methods specified in the FEMP Laboratory Analytical Methods Manual, referenced in the draft QAPJP (as revised or approved). Samples for radiological analyses to determine gross alpha and gross beta levels will be taken concurrently with samples collected during closure, and will be analyzed using approved analytical methods.

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Sampling and Analysis Plan

## 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.

Prior to sampling, the laboratory identified to conduct the analyses shall be contacted to confirm the ability to provide analyses within the holding times required by the analytical method(s), and confirm sample volumes, container types, and required preservatives for the specified analytical parameters.

### 2.1 Sampling Equipment

The following equipment may be used in the process of collecting samples during closure of the Equipment Storage Area:

- Bucket or hand auger (stainless steel)
- Hand driven core sampler (stainless steel)
- Soil core sample cylinders (6 or 12 inch stainless steel)
- Bowls or pans (stainless steel)
- Scoops or trowels (stainless steel or other suitable material)
- Glass tubes
- Spatulas (stainless steel, glass)
- Sample bottles for liquid and solid samples
- Thermal coolers and freezer packs
- Portable pumps
- Tygon tubing
- Sample labels
- Waterproof marking pen
- Field sampling logbook and field data forms
- Chemical resistant gloves
- Polyethylene or other approved impervious sheeting

This list may be modified as appropriate by a trained, qualified sampling supervisor or manager. Any change in procedures or deviations from this plan shall be noted in the field sampling logbook.

## 2.2 Soil Sampling

Soil samples will be taken, as indicated in the closure plan information and data, to determine whether a hazardous waste release has occurred at the Equipment Storage Area.

Before initiating any soil sampling operations, site blueprints will be reviewed with the facility engineer to determine if there are any known underground utilities, pipes, wiring or other similar structures. Areas where sampling is restricted because of underground structures will be identified and marked at the unit.

### 2.2.1 Soil Sampling Procedures

Where required, soil borings will be made for collection of samples in accordance with the following procedures:

- 1) Remove grass and other vegetation from sample collection area prior to sampling. Place clean polyethylene or other approved impervious sheeting on the ground to protect sampling equipment from potential contamination.
- 2) Use a clean, decontaminated stainless steel bucket auger or soil core sampler to advance the soil boring to extract a 6 inch soil sample.
- 3) Use a decontaminated spatula (stainless steel or other suitable material), or other approved device to remove soils from the auger and place them into a stainless steel pan (or, if using soil core sampler, remove soil core cylinder).

- 4) To composite the sample, divide the sample volume into four quarters within the pan. Mix opposite quarters together, then mix resulting halves together into a single volume. Repeat this step.
- 5) Using the spatula or other approved device, transfer a grab sample from the composite sample in the pan into the appropriate sample container (or, if using a soil core sampler, cap the sample cylinder). See Table A-1 to identify the appropriate types of sample containers, preservation methods, and holding times applicable for the sample analyses required. Follow container management procedures in Section 2.3.
- 6) Decontaminate sampling equipment (see Section 2.4) or use clean sampling equipment (e.g., pan, augers, and soil core sampler) and continue to advance the hole for additional sampling.
- 7) After advancing the hole, repeat steps 3, 4, and 5 to collect a second composite soil sample from a depth of six (6) to eighteen (18) inches.
- 8) Collect a minimum of one (1) duplicate sample for every twenty (20) samples collected. If less than twenty (20) samples are taken, collect at least one (1) duplicate sample for each sampling event.
- 9) Upon completion of sampling at a sampling location, decontaminate all sampling equipment used, following procedures in Section 2.4. Equipment that cannot be decontaminated shall be managed in a manner consistent with FEMP hazardous waste management practices pending a RCRA

hazardous waste determination.

**NOTE:** Characterization and disposal of waste shall be conducted in accordance with the approved FEMP Waste Analysis and Waste Determination Plans.

- 10) Seal sample coolers and transfer them to the designated FEMP sample receiving/shipping area.

### 2.3 Management of Sample Containers

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

- 1) For all samples: Add preservatives (as required or specified in Table A-1), 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 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 physical control,

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

#### 2.4 Decontamination of Sampling Equipment

All sampling equipment to be used during closures must be clean or decontaminated. Before beginning any decontamination procedures, 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. Sampling equipment decontamination procedures are discussed in the following sections.

##### 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 scrapers (stainless steel, glass)
- Long-handled, soft bristled brushes
- Portable low-pressure water sprayer
- Potable water
- Deionized water (organic free)
- Reagent grade methanol
- Dilute acid for rinse (see QAPjP)
- 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 sampling equipment will be decontaminated after each use. If decontamination is not practical, the sampling equipment will be managed in a manner consistent with FEMP hazardous waste management practices pending RCRA hazardous waste determination. 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. As appropriate, construct containment dikes or berms for control of runoff.
- 2) Provide appropriate containers for containment, handling, and collection of wastes and rinsewater. Non-liquid wastes shall be collected in a heavy duty plastic bag, 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.

**NOTE:** All wastes and materials being held for RCRA hazardous waste determinations shall be managed in a manner consistent with approved hazardous waste management practices. Wastes determined to be RCRA hazardous shall be managed and disposed in accordance with applicable hazardous waste rules and regulations.

- 3) Remove visible residues and stains from the equipment by brushing, scraping, or scrubbing.
- 4) Rinse with potable water.
- 5) Wash with a non-phosphate laboratory grade detergent solution.

- 6) Rinse with potable water.
- 7) Rinse with dilute acid solution (as specified in QAPJP, as revised or approved)
- 8) Rinse with potable water.
- 9) Triple rinse with deionized water.
- 10) Follow procedures in Section 4.1 to collect a deionized water QC rinse sample after the final rinse. This sample shall be analyzed for lead and pH, to confirm that decontamination of the equipment was successful. Detection of lead in the rinseate sample will invalidate the soil analytical results, and necessitate resampling of the soils in the unit.
- 11) After the equipment has been properly decontaminated, place it on a clean sheet of polyethylene 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.

#### 2.4.3 Wastes from Decontamination of Sampling Equipment

Non-liquid wastes and wastewaters collected during decontamination of sampling equipment, and miscellaneous wastes such as 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 following the FEMP Waste Analysis and Waste Determination Plans, as approved by the OEPA. Based on these RCRA determinations, wastes shall be managed and disposed of in accordance with 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 basic procedures to be followed after samples are 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
- Documentation of deviations (if any) from the approved closure plan information and data
- 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 in accordance with FEMP document control procedures.

### 3.2 On-Site Handling/Processing Procedures

Sample coolers, along with the signed and completed sample Analysis Request/Custody Record form, will 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 to determine where, when, and how samples will be sent for analyses.

### 3.3 Shipping Procedures

Samples that are to be shipped will be packaged and labeled at the designated FEMP sample receiving/shipping area. Samples shall be shipped using the following procedures:

- 1) Prepare all samples for shipment following DOT packaging and shipping procedures.
- 2) If samples are to be delivered by a carrier service, contact the carrier to confirm delivery can be made within 24 hours.
- 3) Seal sample shipping container lids and openings with a custody seal. Sign and date all custody seals.
- 4) Indicate the name of the carrier and date of shipment on the accompanying sample Analysis Request/Custody Record form. Before packaging for shipment, seal the form inside a waterproof plastic bag and tape the bag to the inside lid of the sample shipping containers. All shipping papers (e.g.,

bill of lading and carrier shipping forms) become part of the Custody Record. The FEMP shall instruct the laboratory to attach the signed shipping papers to the sample Analysis Request/Custody Record form.

- 5) Place sample shipments, along with all required paper work, in a designated carrier pick-up area.
  
- 6) The off-site analytical laboratory will contact the manager of the designated FEMP sample receiving/shipping area to confirm receipt of the shipment. If the off-site analytical laboratory does not call, a representative from the designated FEMP sample receiving/shipping area will call and confirm receipt of shipment.

#### 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 analyses. Validation of data requires accurate records to document procedures and conditions during the sampling event. At a minimum, this will include:

- a field sampling logbook
- sample labels
- collection of field and laboratory QA/QC samples
- completed sample Analysis Request/Custody Record forms

Quality assurance procedures will include:

- 1) Only clean sample containers will be used.
- 2) Clean chemical resistant gloves will 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 will be documented in the field sampling logbook (see Section 3.1 of this SAP).

Sampling activities conducted during RCRA closures shall be consistent with applicable FEMP and draft QAPjP (as revised or approved) QA/QC procedures. The following sections discuss field QA/QC, laboratory QA/QC, and sample Analysis Request/Custody Record forms.

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#### 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 will be collected and analyzed for lead and pH to confirm that decontamination was effective, and to evaluate the potential for cross-contamination. Detection of lead in the rinseate sample will invalidate the analytical results, and necessitate resampling of the soils in the unit. For every media being sampled, at least one (1) sample of final decontamination rinseate from the sampling equipment will be collected for every twenty (20) samples taken, or at least one sample per sampling event, using the following procedure:

- 1) Pour deionized water over and through the cleaned surfaces of the decontaminated equipment.
- 2) Collect the deionized water rinseate using an appropriate sample container. See Table A-1 to identify the appropriate sample containers, preservation methods, and holding times applicable for the sample analyses required.
- 3) Follow container management procedures in Section 2.3.

Blanks will be collected and analyzed as part of normal QC procedures. Solutions used to clean sampling equipment in the field will also be evaluated as a source of potential contamination. At a minimum, the following samples will be collected for each sampling event or every twenty (20) samples, unless otherwise specified:

- one (1) trip blank, a sample of clean deionized water prepared in a non-contaminated area and taken into the field during the sampling event, for each sample shipment to be sent to the

off-site analytical laboratory.

- 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 will be collected. A minimum of one (1) duplicate sample will be collected for every twenty (20) samples collected from each media. If less than twenty (20) samples are collected, then a minimum of one (1) duplicate sample will be taken for each sampling event. If requested, additional duplicate samples will be collected for QC confirmation by an independent laboratory.

#### 4.2 Laboratory QA/QC Procedures

The laboratory used by the FEMP for analyses of samples in support of closure shall use approved U.S. EPA SW-846 methods, as specified in the FEMP Laboratory Analytical Methods Manual referenced in the draft QAPjP (as revised or approved). In addition, the laboratory shall demonstrate that it has a quality assurance/quality control plan for all parameters, consistent with SW-846 guidance and draft QAPjP (as revised or approved) procedures.

The laboratory conducting the analyses shall document the use and results of laboratory quality control samples and analyses. Laboratory samples for quality control (QC) include:

- laboratory equipment blanks to detect residual contamination of analytical equipment that may affect analytical results,
- matrix spike, matrix spike duplicates and method surrogate compounds to evaluate accuracy (i.e., the efficiency of the

methods used to recover and detect analytes) and precision,

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

All pertinent information concerning problems and conditions which 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 conducting the analyses 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 which could affect sample quality and validity of analytical results should also be documented by the laboratory. These 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 reduce any laboratory bias, field duplicate samples will 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. A sample Analysis Request/Custody Record form shall be filled out in accordance with procedures in Sections 2.3 and 3.3, and shall accompany all samples throughout the sample handling and analysis process. The Custody Record (including any shipping papers) will document sample possession from the time of collection through receipt by the off-site analytical lab conducting the analyses. Records of any custody seals used on shipping containers shall be maintained. The laboratory shall be instructed to document in writing the condition of any custody seals on containers that they receive.

The completed sample Analysis Request/Custody Record form shall be signed by the laboratory and returned with the analytical report for the samples identified on the form(s). Sample analytical results and reports will be returned to:

FEMP RCRA Programs  
Westinghouse Environmental Management Company of Ohio  
7400 Willey Road  
Fernald, Ohio 45030

#### 4.4 Disposition of Analytical Samples

Where applicable, the FEMP will instruct the laboratory to retain samples for further reference or use. The FEMP reserves the right to have the samples shipped to another FEMP approved laboratory (with the proper chain-of-custody) for additional analyses. Prior to final disposal/disposition of samples, the analytical laboratory shall contact the FEMP for concurrence with waste disposal or treatment methods and facilities to be used. Samples for which acceptable disposal and treatment alternatives are unavailable shall be returned to the FEMP.

**5.0 HEALTH AND SAFETY**

A Project/Task Specific Health and Safety Plan will be prepared for each closure plan information and data to reflect site conditions and health and safety requirements at the time of closure. All sampling activities shall be conducted in accordance with the Project/Task Specific Health and Safety Plan.

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Closure Plan Information  
Sampling and Analysis Plan

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TABLE A-1: SAMPLE CONTAINER, PRESERVATION, AND HOLDING TIME LIMITS <sup>1</sup>

Parameters	Container Type (Glass or Polyethylene)	Matrix	Preservation Methods	Holding Times
Total Metals	Glass	Solids	Cool to 4° C	6 months
Total Metals	Glass or Polyethylene	Water	Cool to 4° C, HNO <sub>3</sub> to <2 pH	6 months
Radiological	Glass or Polyethylene	Water	N. A.	6 months
Radiological	Glass or Polyethylene	Solids	N. A.	6 months

<sup>1</sup> Sample volume, type of container, preservatives required, and lab holding times will be confirmed with the laboratory prior to actual sampling.

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Closure Plan Information  
Sampling and Analysis Plan

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)

GUIDELINES FOR THE PREPARATION OF FMPC  
PROJECT/TASK SPECIFIC HEALTH & SAFETY PLAN

PROJECT/TASK TITLE: \_\_\_\_\_

PREPARED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

SD-EES-C24-CPI-10008

Revision 0

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 at the work site at all time. Review all of the listed sections is required prior to work start.

**INTRODUCTION**

A project/task specific health and safety plan is a complimentary 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 the 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 FMPC 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.

**SECTION NO.****TITLE**

1	History & Description of Building, Equipment, Area
2	Work Area Description Organization and Control
3	Job Activities/Work Plan
4	Hazard Risk Assessments
5	Standard Operating Procedures
6	Education and Training
7	Medical Surveillance
8	Monitoring
9	Levels of Protection
10	Safety Equipment List
11	Decontamination
12	Emergency Plan
13	Amendments

## TASK SPECIFIC HEALTH & SAFETY QUESTIONNAIRE

2916

### 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 FMPC 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.*

## SECTION NO. 2 Work Area Organization and Site Access Control

2916

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 No. 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 existing 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 WMO 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 a 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 (SOP's)**

Some project/tasks will require that special SOPs be prepared or existing issued 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 field 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 supervisory - 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 is required 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:

- o work operations
- o personal protective equipment
- o air monitoring data
- o hazard communication
- o hearing conservation
- o monitoring results

- o decontamination procedures
- o task organization
- o physical stress
- o emergency procedures
- o communications
- o general safety
- o 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 licenced physician having knowledge of the specified tasks to be performed and the exposure potential as it relates to the worker. FMPC form HR 3162 is used for this 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 Personal 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 be workers.

Examples: *Personal 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, disposables 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 shall require a review of and may require changes in this plan.
- 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.