



**Department of Energy**



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**JUN 30 2005**

Mr. Paul Pardi, RCRA Group Leader  
and FFCA Project Manager  
Ohio Environmental Protection Agency  
401 East 5th Street  
Dayton, Ohio 45402-2911

DOE-0272-05

Dear Mr. Pardi:

**REVISION 10.0 OF THE FERNALD CLOSURE PROJECT'S RESOURCE  
CONSERVATION AND RECOVERY ACT PART B PERMIT APPLICATION**

- References:
- 1) E-mail, T. Koch, Ohio EPA to E. Brucken, Fluor Fernald, Inc. dated May 17, 2005
  - 2) Letter and Director's Final Findings and Orders (DF&O), Thomas E. Crepeau, Ohio EPA to Phil Hamric, U. S. DOE and John Bradburne, FERMC0 dated June 6, 1996
  - 3) Letter, J. Craig, U. S. DOE to P. Pardi, Ohio EPA, "Proposed Strategy for Addressing Revisions to the Fernald Environmental Management Project's Resource Conservation and Recovery Act Part A/B Permit Application," dated September 24, 1997
  - 4) Letter, G. Griffiths, U.S. DOE to P. Harris, Ohio EPA, "Relocation/Closure of Hazardous Waste Storage Lockers," dated June 23, 2003

Enclosed are updated sections of the Fernald Closure Project's (FCP) Resource Conservation and Recovery Act (RCRA) Part B Permit Application (Revision 10.0). The FCP received approval to delay the submittal of the Update until June 30, 2005 to incorporate recent changes to the site's emergency notification and response system (Reference 1). The revisions to the permit application have been completed in accordance with Section V.9 of the Integrated RCRA/CERCLA Director's Findings and Orders (DF&O) (Reference 2) and the guidelines established in Reference 3.

The FCP is also revising the Annual Update to include the relocation of two hazardous waste storage lockers (MS-25 and MS-11) from the Silos Truck Staging to an area south of MS-15, to remove two Hazardous Waste Storage Lockers (MS-4 and MS-14) and to add another locker (MS-5). The roof in MS-14 has been damaged, allowing precipitation to leak into the secondary containment area. MS-14 had been used to store containers of mixed waste and is no longer needed. A review of facility release reports for MS-14 and MS-4 indicates that no spills of hazardous waste have been reported in these lockers. As a result, no decontamination of these lockers will be required in accordance with the approved closure strategy for the lockers (References 1 and 3).

MS-5 is located in the area south of Cell 8, north of MS-10. It was last used by the Garage to store materials. This locker will be used for the storage of containers of non-radiologically contaminated hazardous waste including wastes with free liquids and ignitable wastes

In addition, the FCP will begin using the former Silos 1 and 2 High Pressure Pump/Breathing Air Utilities Building (Building 94R) to sample and package containers of mixed waste. A map indicating the location of the safety/emergency equipment associated with this building has been added to the Contingency Plan.

Changes to the application have been made using redlines and strikeouts to assist in reviewing. A summary of these revisions is provided as Enclosure 2.

If you have any questions regarding this matter, please contact Ed Skintik at (513) 246-1369.

Sincerely,



for

William J. Taylor  
Director

Enclosure: As Stated

cc:

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**ENCLOSURE 2**  
**SUMMARY OF CHANGES TO THE FERNALD CLOSURE PROJECT'S RCRA PART B**  
**PERMIT APPLICATION (REVISION 10.0)**

**SECTION C – WASTE CHARACTERISTICS**

- 1) Section C has been revised to:
  - A) Identify current sources of waste generation;
  - B) Reflect organizational changes;
  - C) Update references for sample collection methods and preservation;
  - D) Clarify that PL-3048 (Prototype Sampling and Analysis Plan for Waste at the FCP), is provided for informational purpose as Attachment C-7 and is subject to change; and
  - E) Change the name of the site waste water treatment system to the Converted Waste Water Treatment facility.
  
- 2) Table C-4 (RCRA Regulated Hazardous Waste Streams) has been updated to include the FCP's current inventory of hazardous waste.

**SECTION D – PROCESS INFORMATION**

- 1) Section D has been revised to:
  - A) Remove references to the Plant 6 Warehouse (Building 79);
  - B) Update the location and number of hazardous waste storage lockers;
  - C) Define the current scope of the Sitewide Waste Information Forecasting and Tracking System (SWIFTS);
  - D) Update the list of equipment used on-site to transport containers;
  - E) Indicate that ramps are no longer used when moving containers into the hazardous waste storage lockers; and
  - F) Remove reference to enriched restricted material as a safety concern when repackaging leaking containers since these materials are no longer in inventory;

- 2) Figure D-1 (Site Map of RCRA Storage Units) has been revised to identify the new location of the hazardous waste storage lockers, remove two hazardous waste storage lockers (MS-14 and MS-4) and add MS-5 to the Part B Permit Application.
- 3) Table D-1 (RCRA Storage Units) and Attachment D-1 (Coating Systems/Vendor's Specifications) have been revised to remove references to the Plant 6 Warehouse (Building 79). Table D-1 has also been revised to clarify the container storage requirements associated with the hazardous waste storage lockers.

#### **SECTION F – PROCEDURES TO PREVENT HAZARDS**

- 1) Section F and Attachment F-1 (Facility Inspection Schedule) have been revised to:
  - A) Incorporate changes to site access controls, access requirements and entry points;
  - B) Delete references to container management practices and inspections associated with the Plant 6 Warehouse (Building 79);
  - C) Replace information regarding external communications and warning systems with a reference to the Contingency Plan where this information is already discussed;
  - D) Update the location of the hazardous waste storage lockers;
  - E) Update the list of material handling equipment; and
  - F) Remove reference to containers that predate the promulgation of DOT performance-based packaging standards since these containers are no longer in use at the FCP.

#### **SECTION G – CONTINGENCY PLAN**

- 1) Section G has been revised to:
  - A) Identify the new location of the hazardous waste storage lockers, remove two hazardous waste storage lockers (MS-14 and MS-4) and add one storage locker (MS-5) to the Part B Permit Application;
  - B) Remove the Boiler Plant (Building 93A) and add Building 94R as an area used to sample and package hazardous wastes;

- C) Delete references to the Communications Center since it is no longer operational;
  - D) Reflect organizational changes and incorporate changes to on-site communications systems and on-site and off-site telephone numbers:
  - E) Identify the new location of the Emergency Operations Center;
  - F) Incorporate changes to site facility alarm systems;
  - G) Address the transfer of responsibility for responding to medical emergencies to the Subcontracted Emergency Response Organization. The Emergency Coordinator/AEDO is also a state-certified Emergency Medical Technician and is present on-site 24 hours/day, seven days/week;
  - H) Revise lists of equipment available for emergency response;
  - I) Include the option of evacuating to designated assembly areas for locations that do not have an assigned rally point; and
  - J) Remove references to Nuclear Criticality guidelines as a safety concern when repackaging leaking containers since the FCP no longer has enriched material in storage. Procedures for evacuating in the event of an emergency involving a nuclear criticality have also been deleted.
2. Table G-1 (Emergency Operation Personnel and Organizations), Table G-2 (FCP Emergency Organization Roster), Figure G-1 (Map of RCRA Units), Figure G-2 (FCP Emergency Response Organization), Figure G-7 (Interorganizational Links) and Attachment G-1 (Emergency Procedures, Site Layout and Equipment Information) have also been revised to reflect the changes identified above.

## **SECTION H – TRAINING**

- 1) Section H has been revised to:
  - A) Reflect organizational changes;
  - B) Clarify the types of training received by workers directly involved in the management of hazardous waste; and
  - C) Remove information on training requirements for the on-site emergency response team since this service has been subcontracted to an off-site emergency response organization.

RCRA PART B 6003  
PERMIT APPLICATION

REVISION 10.0



JUNE 2005

FERNALD CLOSURE PROJECT

U.S. EPA Identification No. OH6890008976

**SECTION C - WASTE CHARACTERISTICS**

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**ATTACHMENTS**

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Attachment C-6	Quality Assurance Memorandum of the U.S. Environmental Protection Agency dated January 12, 1993, (start from page 19).
Attachment C-7	Prototype Sampling and Analysis Plan for Waste at the FCP

**SECTION C - WASTE CHARACTERISTICS**

**C-1.0 INTRODUCTION**

This section of the RCRA Part B Permit Application describes the Waste Characteristics of the Fernald Closure Project's (FCP) wastes. This section has been prepared in accordance with the requirements of Ohio Administrative Code 3745-50-44 (A)(2) and (3) (40 CFR 270.14 (b)(2) and (3)) and meets the requirements for a Waste Determination Plan in Subsection 3.5.1(a) of the Stipulated Amendment to the Consent Decree (SACD).

**C-1.1 ORGANIZATION**

Section C is divided into five sections. Section C-1 provides an introduction to Section C, providing the section organization [this subsection], a site background discussion, and a regulatory compliance discussion. Section C-2 presents the Waste Determination Criteria. Section C-3 discusses the requirements for the receipt of hazardous waste generated from off-site. Section C-4 discusses how waste characteristics affect the storage and management of wastes, while Section C-5 addresses how waste characteristics affect procedures to ship wastes off-site.

Section C-2 is divided into five subsections, as shown below.

- **Procedures** - Identify the operational procedures used to manage the identification of wastes;
- **Waste Analysis** - Identify the analyses needed to determine how to manage the waste;
- **Land Disposal Restrictions** - Identify the applicable Land Disposal Restrictions, and any associated regulatory requirements;
- **Quality Assurance / Quality Control Criteria** - What Quality Assurance and Quality Control techniques are used; and
- **Records** - What records are required and where they will be maintained.

### C-1.2 SITE BACKGROUND

The Fernald Closure Project (FCP), previously the Feed Materials Production Center, produced uranium metal used in the fabrication of fuel cores and target fuel elements for the U.S. Department of Energy (DOE). The FCP ceased production in 1989. The FCP's primary function was changed in August 1990 from uranium metal production to environmental restoration and site clean-up activities.

### C-1.3 REGULATORY COMPLIANCE

The FCP currently stores wastes generated from ~~former on-site production processes,~~ restoration activities ~~and~~ ongoing site maintenance, ~~and construction,~~ and material ~~received during the production years from off-site DOE facilities.~~ Most hazardous waste stored at the FCP is mixed waste. Mixed waste is defined as waste that contains both a hazardous waste component regulated under RCRA and a radioactive component consisting of source, special nuclear, or byproduct material regulated under the Atomic Energy Act. Any information included in this section on the radioactive portion of mixed wastes generated or stored at the FCP is included for information purposes only, and is not intended to be part of the FCP's RCRA Part B Permit Application. Because there are limited treatment/disposal facilities permitted for mixed wastes, the FCP ~~may be~~ is required to store the mixed waste on-site until treatment/disposal capacity is developed in accordance with plans and schedules established in the FCP's Federal Facility Compliance Act (FFCA) Site Treatment Plan.

The FCP is operating under several legal agreements including a Consent Decree and its Stipulated Amendment. Under this legal agreement, the parties agreed to a schedule for RCRA characterization of waste materials stored on site. RCRA characterizations were based on process and material knowledge of off-site material by researching historical material records and movement markings relating to material received during the production years. Additional testing has taken place when warranted. See Waste Determination, Section 2.0 for a discussion on the determination of hazardous wastes.

C-2.0 WASTE DETERMINATION

Hazardous wastes or mixed wastes currently generated at the FCP result from activities such as CERCLA response actions, construction and maintenance, and miscellaneous activities. The FCP uses process knowledge and/or analytical data to characterize waste as described in this section. The purpose of this section is to identify the information needed during the process of waste determination, and to describe the process of waste determination.

Note: Wastes generated from CERCLA remedial actions will be characterized in accordance with each Record of Decision (ROD) for each CERCLA Operable Unit (OU). The characterization of bulk soil and debris generated from CERCLA remedial activities is tracked using profiles while the Waste Water Discharge Request Form is used to evaluate waste waters generated from CERCLA remedial actions for discharge into the FCP's Converted Advanced Waste Water Treatment Facility. The process for completing the characterization of these wastes is not discussed in Section C which only addresses the characterization of containerized wastes. The use of profiles and other documents to characterize bulk remediation waste and wastewaters generated from CERCLA activities is discussed in documents developed for each of the Operable Units as part of the CERCLA remedial process.

Waste Characterization personnel develop, interpret, and implement all RCRA hazardous waste characterizations in accordance with OAC 3745-52-11 and all other applicable 40 CFR 262.11 regulatory requirements. ~~The Waste Characterization Manager oversees the development of an integrated strategy for all RCRA and CERCLA containerized hazardous waste characterizations at the facility.~~ Waste Characterization personnel are responsible for waste characterizations utilizing process knowledge and/or sampling and analysis to determine valid hazardous waste characteristics and listings as noted on Material Evaluation Forms. Waste generated from construction projects, maintenance projects, CERCLA response actions, newly identified waste materials, and laboratory programs are characterized by these personnel.

In accordance with OAC 3745-52-11 and 40 CFR 262.11, the FCP as a generator of solid waste will determine if that waste is a hazardous waste. This evaluation will be made prior to

any commingling or combining with other waste. The FCP will not commingle waste streams for purposes of this evaluation.

The FCP will then determine if the solid waste is excluded from regulation. If the waste is not excluded, the FCP, when appropriate, will then determine if the waste is listed as a hazardous waste as indicated in OAC 3745-51-30 and 40 CFR Part 261 Subpart D or is mixed with a listed hazardous waste.

If the waste is not a listed hazardous waste, the FCP will determine if the waste is a characteristic hazardous waste as indicated in OAC 3745-51-20 through 24 and 40 CFR Part 261 Subpart C. This determination will be made by either (1) testing the waste according to methods (or equivalent approved methods) set forth in OAC 3745-51 and 40 CFR Part 261 Subpart C; or (2) obtaining data necessary to determine whether the waste is hazardous. The data may be obtained from site literature, from experience with the waste, from other sources, or a combination of sources.

Adequate data for waste determination to evaluate for listing considerations exists when materials in a process can be tracked and documented from the start of the process to the point when the waste is generated. If information is not sufficient to identify the specific origin of the waste, the process information will be considered incomplete. Sources for documentation at the FCP include standard-operating-procedures (SOPs), manifests, shipping records, manufacturing specifications, piping and/or materials flow diagrams, minor event reports, miscellaneous operation reports, and other available technical or analytical reports. When no information exists or can be reconstructed on the origin of a process or waste stream, the waste may be assumed not to be a listed RCRA waste (55 FR 8758-8763; March 8, 1990 and 53 FR 51445; December 21, 1988). Therefore, when historical data is incomplete or unavailable, the waste is evaluated for hazardous characteristics only.

C-2.1 PROCEDURES

**Material Evaluation Form**

A diagram of the material evaluation process is provided in Figure C-1. The first step of the waste determination process is completion of the Material Evaluation Form (MEF), the vehicle for documenting waste characterizations. The Requestor Section of the MEF is filled out by the process operator/project supervisor who is responsible for the waste generation. An example of the Material Evaluation Form is provided in Figure C-2. This form is included as an example of the type of form used by the facility and is subject to change, based on changes in regulatory requirements or site procedures/requirements.

Once completed, the Requestor Section of the MEF is reviewed by FCP Waste Characterization personnel. FCP specialists evaluate the adequacy of process knowledge and, if sufficient and conclusive, use this information to characterize the waste. Waste determinations based on process knowledge also rely on supplemental information/documentation. This information can include but is not limited to:

- Historical knowledge and/or data on similar FCP processes and wastes;
- Conversations with personnel familiar with the process or location;
- Text books which describe the processes;
- Material Safety Data Sheets; and
- Vendor Specification information.

Documentation of process knowledge, and supporting documentation is maintained in the waste characterization files. Additional actions such as a visual inspection, a request for additional process information, and/or a request for sampling and analysis of the waste are taken when process knowledge is inadequate to complete a characterization. Data from portable field equipment (such as high purity germanium (HPGe) detectors, pH meters, and photo-ionization detectors (PID)) may also be used to support existing process knowledge. After adequate information is gathered for the

waste, results are evaluated, the Evaluation Section of the MEF is completed and RCRA waste codes assigned as warranted.

If the waste requires sampling and analysis, the parameters needed to assess the hazardous waste constituents of the waste are identified and a sampling plan is prepared. Preliminary information supplied on the Material Evaluation Form is used to develop the sampling plan. The sampling and analysis program is initiated by Waste Characterization personnel responsible for making the determination. Analytical results are also used for LDR documentation.

The sampling plans include but are not limited to the following information:

- the purpose of sampling;
- the identification of sampling procedures;
- number and location of samples;
- analytical parameters;
- sample volumes and containers;
- Quality Assurance/Quality Control requirements;
- equipment needed;
- decontamination of equipment; and
- health and safety concerns.

After the samples are analyzed and results are received by the FCP, the results are reviewed by Waste Characterization personnel. A determination is then made based on the statistical analysis of the results and available process knowledge. Table C-5 provides examples, when available, of analytical results or technical literature which has been utilized in addition to process knowledge to make a waste determination for a particular waste category. A description of each waste category is located in Table C-3.

### Debris

Prior to initiating work activities, an assessment is conducted to determine whether debris generated from a project can be characterized under an existing MEF or a new MEF has to be developed. Whenever possible, existing analytical information (Remedial Investigation characterization results, RCRA waste determination, and environmental monitoring results), historical facility information, and/or process knowledge will be utilized to complete the assessment. Physical sampling and analysis will be performed when information is not available to complete this assessment. If the waste is determined to be hazardous, the waste will be stored in one of the RCRA storage units.

### Compatibility

Compatibility of the hazardous waste with the container is verified prior to placing a hazardous waste in a container. The verification is completed by comparing analytical data or process knowledge for the hazardous waste to compatibility information for the container. After compatibility verification is completed, the appropriate container is obtained.

Chemical constituency or compatibility of each hazardous waste is evaluated to ensure that the hazardous wastes stored in a unit are compatible with each other and with the construction of the unit. A Reactivity Group Code is assigned to each hazardous waste stream to ensure that incompatible hazardous wastes are not stored together. The generator of the hazardous waste is responsible for ensuring that the Reactivity Group Code (RGC) has been stenciled on the container. The current Reactivity Group Codes in use at the FCP are included as Figure C-4. These Reactivity Group Codes will be modified ~~if~~ as additional hazardous wastes are identified at the FCP.

### Waste Determination

Following completion of the MEF, a waste determination is made. Table C-4 presents information on the current inventory of hazardous waste. The table shows the FCP waste identification numbers, along with the waste name, the waste code(s), the DOE waste category description and the basis of determination (e.g., process knowledge or

analysis). Specific analyses used to make the determinations are coded to information at the bottom of the table.

Table C-5 presents Example Analytical Results for various waste streams at the FCP. A description for each DOE waste category and subcategory may be found in Table C-3.

#### **Container Labeling**

The FCP has developed and implemented procedures to label hazardous waste containers. At a minimum, the container labels identify the material as "Hazardous Waste", the facility name and address, the EPA Identification Number, the contents of the container and the dates on which accumulation or storage of the hazardous waste began. Reactivity Group Codes are also applied to containers for safe storage. Container management activities are described in greater detail in Section D, Process Information.

#### **C-2.2 ANALYSIS**

This section presents the Waste Analysis Plan, including the parameters and rationale for parameter selection that apply to any individual waste stream generated by the FCP. Waste streams generated by the FCP may contain several constituents of concern. Waste is analyzed for specific parameters, as necessary, in order to meet the objectives of the Waste Analysis Plan.

The Waste Analysis Plan describes the procedures used at the FCP to manage waste; the plan has four objectives:

- Provide an overview to identifying the hazardous physical and chemical properties of each waste stream and facilitate assigning appropriate hazardous waste codes;

- To provide sufficient information to select the safest hazardous waste storage containers, appropriate hazardous waste storage areas, and establish appropriate shipping and handling techniques;
- To determine applicable land disposal restriction information for each hazardous waste stream; and
- To determine the appropriate treatment method for the material based on relevant information and current availability of mixed waste treatment capacity.

The Waste Analysis Plan may also be used to provide information for the initial screening of hazardous wastes for treatment as treatment facilities become available. As much relevant information as possible is obtained in the absence of clear understanding of how some waste material will be treated based on the current limits of mixed waste treatment capacity.

Each waste stream is reviewed for those parameters most likely to yield the maximum amount of chemical and physical information. In addition, specific analyses are selected based on historical knowledge, knowledge of the waste generation process, and the constituents suspected to be in the waste. The waste parameters selected by the FCP represent those characteristics and constituents necessary to manage the waste in compliance with applicable permit conditions.

#### Test Methods

When process knowledge is insufficient to characterize a waste stream, analytical methods are used to supplement the existing process knowledge. The test methods employed for the analytical parameters chosen to characterize and monitor the FCP waste streams are listed in Section 7.2 of the Prototype Sampling and Analysis Plan for Waste at the FCP (PL-3048). This plan is provided as Attachment C-7 ~~for informational purposes and is subject to change~~. When a waste stream has the potential to have several waste codes, the appropriate analytical tests are conducted on the sample.

Atomic absorption, direct aspiration or ICP techniques are the methods of choice for metallic analytes. However, where analytical or sample matrix interferences prevent the collection of accurate and/or precise data, the atomic absorption, furnace technique analogs are employed. An alternative gas chromatographic/mass spectroscopic method (SW-846 Method 8240) is substituted for the gas chromatography methods for the analysis of volatile organics if the methods listed do not provide definitive results for waste characterization or recertification.

For those constituent analyses not addressed in test methods presented in the SCQ, American Society of Testing Materials (ASTM) Standards has been adopted as appropriate. The USEPA's SW-846 and "Standard Methods for the Examination of Water and Wastewater," latest edition, prepared and published jointly by American Public Health Association, American Water Works Association, and the Water Environment Federation, may also be used.

The methods specified in the SCQ are also required for samples sent to off-site laboratories for analysis. Methods used to analyze wastes sent to off-site laboratories are specified in the FCP's contract with the laboratory. Laboratory reports document the specific SCQ method or its analog used to analyze for each constituent. The laboratory of choice may vary because the FCP must maintain the flexibility to select contract laboratories on a competitive basis.

#### **Toxic Characteristic Leaching Procedure (TCLP) Analysis**

Normally, RCRA metals and organics will be measured using the TCLP method to complete the RCRA waste characterization relative to the Toxicity Characteristic (TC). However, in certain cases, total metals/organics may be used in lieu of the TCLP. These cases and justifications are outlined below:

- **Process Knowledge** - When particular constituents are not suspected in the waste under evaluation, totals analyses may be used to confirm that individual constituents are not present in the waste at levels that could cause the waste

to fail the TCLP. The FCP uses a 20:1 ratio of Total concentration results for solid matrix samples to TCLP regulatory threshold limits to determine if TCLP analysis are required. If the analyte-specific upper limit of the 90% confidence interval exceeds the 20:1 ratio with its associated TCLP regulatory value, the waste will be evaluated if deemed necessary under TCLP. This ratio is for materials which are 100% solid wastes that contain no filterable liquids. In other situations, the Maximum Theoretical Leachate Concentration (MTLC) is evaluated using the following formula:

$$MTLC = \frac{(A \times B) + (C \times D)}{B + (20 \text{ Liter/kg} \times D)}$$

where,

- A = the concentration of the analyte in the liquid portion of the sample (in milligrams per liter)
- B = the volume of the liquid portion of the sample in liters
- C = the concentration of the analyte in the solid portion of the sample (in milligrams per kilogram)
- D = the weight of the solid portion of the sample in kilograms.

If the value calculated using the MTLC equation is below the regulatory concentration for a particular toxic constituent, the TCLP need not be performed, and the waste would not exhibit the toxicity characteristic. This is consistent with USEPA SW-846 Method 1311, item 1.2 and the flowchart diagram noted in SW-846 Vol. I.A page TWO-47. The source of the MTLC equation is an internal Quality Assurance memorandum of the U.S. Environmental Protection Agency dated Jan. 13, 1993.

- **Oil and oily wastes** - The TCLP has been demonstrated not to perform well on oily wastes; reproducibility of results has been shown to vary widely. Until

USEPA promulgates new standards, FCP will use totals analyses for these wastes to make compliance decisions regarding the TC.

- **Aqueous wastes** - When there are less than 0.5% filterable solids, the TCLP simplifies to a total analysis, as described in the method.

#### **Additional Requirements for Ignitable, Reactive and Incompatible Wastes**

Liquid ignitable hazardous wastes are identified through process knowledge or by use of the Pensky-Martens Closed Cup test (USEPA Method Number 1010) to determine the flashpoint of the waste.

A small quantity of reactive hazardous wastes have been generated and stored at the FCP. Reactive hazardous wastes are stored in areas that are compatible with the material stored and are separated from incompatible hazardous wastes. Each hazardous waste stream is assigned a Reactivity Group Code based on the process knowledge and/or analytical data for each waste stream on the Material Evaluation Form. Only compatible hazardous wastes are stored within each storage unit or containment system.

#### **Sampling Methods**

The FCP has prepared a prototype containerized waste sampling and analysis plan (Attachment C-7) for sampling waste materials for characterization which are stored in containers such as cans, pails, drums, metal boxes, and Sea/Land or top load containers. The plan is updated on a regular basis to resolve reoccurring sampling problems, regulatory changes, and changes in the supporting documents. The prototype plan incorporates the sampling methods in the SCQ, Methods for Evaluating the Attainment of Cleanup Standards, Vol. I, Soils and Solid Media (EPA/230-02-89-042), Characterizing Heterogeneous Wastes: Methods and Recommendations (EPA/600/R-92/033), and Test Methods for Evaluating Solid Wastes, Volume II, Field Manual, Physical/Chemical Methods (SW-846). All work will be conducted in accordance with the FCP SCQ which is designed to meet the data quality objectives

associated with FCP activities. Data generated under the SCQ is intended to fulfill defined needs of DOE, EPA, the Ohio Environmental Protection Agency, and the public.

Due to the fact that wastes generated at the FCP vary in types of matrices, the sampling methods and equipment used by the facility depend on the individual waste stream matrix. The selection of the appropriate sampling equipment is determined in accordance with Section 6 and Appendix K of the SCQ.

Representativeness, or the collection of samples that are unbiased and exhibit average properties of the population sampled, is achieved by segregating the containerized wastes into sub-waste streams. A sub-waste stream is comprised of a sample group of similar material matrix and physical properties.

Sampling accuracy, or the closeness of a sample value to its true value, is achieved through randomized sampling of the waste containers within a given sub-waste stream. Randomized sampling minimizes bias in the sample selection process by giving each container an equal probability of being sampled.

Sampling precision, or the closeness of repeated sample values, is achieved by increasing the number of samples to be collected, increasing the actual volume of the samples, or dividing a population into appropriate strata prior to sampling. Additional samples may be collected when the uniformity of the waste is not known and when sample collection is difficult. The volume of sample material collected at the FCP usually exceeds the minimum amount needed for analytical sample preparation and analysis to facilitate additional analyses for documentation of precision. Lastly, when a sub-waste stream is suspected or known to contain separate physical phases (i.e., solids and liquids), the number of samples required is calculated for each waste phase. During sample collection activities, a sample is collected from each waste phase from the randomly selected waste containers.

The sampling approach for containerized wastes at the FCP is dependent on the characteristics of the sub-waste stream as determined by process knowledge, previous analytical data, and/or visual inspection reviews. Simple random sampling methods are used for sub-waste streams which contain a single-phased (i.e., either solid or liquid) and relatively homogenous waste material. Stratified random sampling methods are used for sub-waste streams that have been segregated into multiple container groups (lots) based upon differences in: the physical characteristics (i.e., phase and degree of homogeneity) of the waste materials, the origin (time and location) of waste materials and their generation process, or the distribution and concentration of contaminants.

Methods of determining simple random sample locations include using a random number generator or random number lists. Computer generation of random numbers is preferred, since it eliminates the potential for error in reading a random number list and reduces bias in the selection of the origin point for a random number list. Stratified random sample locations will be determined by selecting random sample locations as previously described for each container group or lot.

All samples will be placed in containers and labeled with the following information: generator name, manifest number (if applicable), waste stream/sample number and date sample was taken.

#### **Number of Samples**

Sampling procedures used for waste characterization at the FCP are designed to ensure representative and random sampling. Sampling plans at the FCP are prepared following the Prototype Sampling and Analysis Plan for Waste at the FCP (SAP) (PL-3048) (Attachment C-7). The plan is updated on a regular basis to resolve reoccurring sampling problems, regulatory changes, and changes in the supporting documents. The primary objective of the SAP is to generate data of sufficient quality to identify the regulatory status of, and safely manage, containerized waste materials. To satisfy SCQ completeness requirements of 90%, the number of samples required to be collected will be calculated in accordance with methods described in EPA/230-02-89-042, Feb.

1989 Methods for Evaluating the Attainment of Cleanup Standards, Vol. I, Soils and Solid Media. The following equation will be used to determine the number of samples to obtain a 90% completeness level:

$$\# \text{ of Samples }_{(90\% \text{ comp})} = \frac{\text{Minimum number of samples required as determined by SW-846 methods}}{(1 - R)}$$

where,

R = 0.20 (20%), the expected percent of missing or unusable data (i.e., sample holding times exceeded, improper preservation of samples, sample container breakage during shipment to laboratory, etc.); An R-value of 0.20 (20%) was selected to take the most conservative approach for minimization or elimination of the potential need for re-sampling.

For drummed waste sampling at the FCP, the number of samples required equals 10% of the number of drums in a sub-waste stream. However, for sub-waste streams containing more than 100 drums, collecting samples for analysis at a rate of 10% may not be economically feasible or practical. Therefore, the FCP intends to use the 10% method for sub-waste streams with < 100 drums and the cube root method for sub-waste streams with > 100 drums.

Using this approach, the number of samples required for waste characterization is as follows:

Number of Drums	Min. # of Samples for Analysis	Number of Samples for Completeness
1 to 20	2	3
21 to 100	10%	12.5%
101 to 1000	10	13
1001 to 10,000	22	28

\* Total number of samples required to maintain 90% completeness using a conservative R-value of 0.20 (20%).

For metal boxes, Sea/Land, or Top Load container sampling, the proposed number of samples required shall be as follows:

Number of Boxes	Min. # of Boxes to be Sampled	Number of Samples for Completeness
1	1	3
2 to 100	10% + 1	12.5% + 1.25
101 to 1000	11	14
1,001 to 10,000	23	29

\* Total number of samples required to maintain 90% completeness using a conservative R-value of 0.20 (20%). This number includes collecting one random sample from each metal box, Seal/Land, or Top Load container sampled.

For sub-waste streams that have been characterized by process knowledge and confirmatory testing is prescribed, the number of confirmatory samples per sub-waste stream is as follows:

Number of Containers	Min. # of Samples for Analysis	Number of Samples for Completeness
1 to 10	2	3
11 to 100	3	4
101 to 1000	4	5

\* Total number of samples required to maintain 90% completeness using a conservative R-value of 0.20 (20%). If the containers are metal, Sea/Land, or Top Load boxes, the required number of samples in this table is equal to the number of samples in this table plus one additional sample.

Parametric analysis, or EPA SW-846 Equation 8, is the preferred method to select the required number of samples required to satisfy the 90% confidence level requirement. However, EPA SW-846 Equation 8 requires previous analytical data to determine the mean associated standard deviation for the analyte with the most restrictive regulatory threshold level. EPA SW-846 Equation 8 may be used as tertiary method, in situations where the upper limit of a 90% confidence level approximates or exceeds the regulatory threshold value for a given analyte, to determine if additional sample collection and analysis is warranted. In situations where sufficient previous analytical data exists for a sub-waste stream, EPA SW-846 Equation 8 may be used in lieu of the sample frequency identified above.

Composite samples are also used for large populations (more than 20 drums) of containers with capacities of 55 gallons or less. Samples are collected from randomly selected containers and then composited. Sample compositing does not occur when

there are physical anomalies between the wastes such as changes in color or the container holds co-mingled waste such as demolition debris. Composite sampling only occurs when evaluating materials from the same wastestream.

The majority of waste generating activities at the FCP has changed from continuous process sources to project and/or location-specific sources. Wastes generated by unique activities, such as ~~closure~~/remedial wastes, are sampled as they are generated if there is not sufficient available information (e.g. RI/FS sampling) to complete the characterization. ~~There are~~ A few wastestreams ~~may be~~ managed in Satellite Accumulation Areas. Controls are in place to ensure that only one specific waste stream, as characterized by its MEF, is accumulated in each SAA. An additional verification is completed when the SAA container has been filled to ensure that the waste meets the criteria for characterization under its associated MEF. If there is reason to believe the waste has changed, the waste is immediately re-evaluated.

~~For process wastes that are no longer generated, repeat analysis is not required for proper waste management. Because these wastes are stable and will not change, these wastes are not re-analyzed once they are characterized.~~

### C-2.3 LAND DISPOSAL RESTRICTIONS

The FCP is required to determine whether its hazardous waste is restricted from land disposal and to properly manage the mixed waste in accordance with the Federal Facility Compliance Act (FFCAct). Section C-2.3 has been prepared in accordance with the requirements of OAC 3745-270 (40 CFR Part 268). Figure C-5 is an example of the type of form used to document the information used to complete the LDR waste characterization.

USEPA has recognized that sufficient treatment capacity for mixed waste is not currently available, but believes that technologies may become available in the future. The FFCAct has provided relief to the U.S. DOE from the requirements of 40 CFR 268.50, which specifies that hazardous wastes will not be stored more than one year.

The USEPA has interpreted the LDRs to apply prospectively to affected waste placed in storage after the effective date as of an applicable land disposal restriction (51 FR 26597; June 23, 1989).

#### Waste Characterization

As described in Section C-2.1, hazardous wastes are assessed to determine the applicability of all possible hazardous waste codes including both listed and characteristic codes and to determine the appropriate LDR treatment requirements. Each hazardous waste code is evaluated for possible subcategories under OAC 3745-270 and 40 CFR 268. Underlying hazardous constituents are identified where required by OAC 3745-270-40 and 40 CFR 268.40. The FCP also determines whether the hazardous waste meets applicable treatment standards for each hazardous waste code identified.

Process knowledge may be used to determine the hazardous waste's LDR subcategory such as D001, high Total Organic Carbon, and treatability group (wastewater or non-wastewater). In addition, process knowledge may be used to determine whether hazardous wastes meet treatment standards for chemical constituents that are not suspected of being present in the waste (57 FR 37204; August 16, 1992) and to identify the underlying hazardous constituents reasonably expected to be present in wastestreams subject to LDR Universal Treatment Standards in OAC 3745-270-48 (40 CFR 268.48).

When process knowledge is not adequate to determine a hazardous waste's subcategory, treatability group and the underlying hazardous constituents (where applicable), the hazardous waste is analyzed according to the procedures and analytical methods discussed in Section C-2.2. In addition, restricted hazardous wastes may require analysis to confirm that they meet concentration-based treatment standards for certification purposes.

**Waste Characteristics: Solvent Wastes**

Hazardous wastes containing spent solvents may meet treatment standards in some instances. In these cases, the FCP uses existing analytical data and process knowledge, or conducts additional analyses to certify compliance with the treatment standards.

USEPA has revised treatment standards for both non-wastewater and wastewater forms of F001-F005 waste involving conversion from TCLP standards to standards based on total concentrations. When analyses are required, spent solvent waste is analyzed to determine if the hazardous waste meets concentration based treatment standards by the total concentrations for F001-F005 waste. The revision does not include nonwastewater forms of carbon disulfide, cyclohexanone, or methanol (57 FR 37204; August 16, 1992).

Upon receipt of the analytical results, the FCP compares the results to the treatment standards in 3745-270 (40 CFR 268.40). If the results show that the treatment standards have been met, the FCP certifies that the hazardous waste meets treatment standards.

**C-2.4 QUALITY ASSURANCE/QUALITY CONTROL**

The quality assurance and quality control provisions for the waste determination shall be in compliance with applicable provisions of the latest edition of the Sitewide CERCLA Quality Assurance Project Plan. Additionally, the Quality Assurance Program Description shall be applicable.

Laboratory analysis will be in accordance with the SCQ, including applicable quality assurance and quality control provisions. Prior to the selection of a contract laboratory, the laboratory submits Quality Assurance and Quality Control (QA/QC) information to the FCP. The laboratory is required to meet the QA/QC goals established in SCQ for analytical procedures. Failure to demonstrate the ability to achieve the QA/QC goals disqualifies the use of that laboratory.

**Laboratory QA/QC**

Laboratory QA/QC will be in accordance with Table G-2 in the SCQ. Method blanks are performed for each batch of samples, and matrix spikes/duplicates are performed every 20 samples unless noted otherwise in the table. For waste characterization and confirmatory testing, Analytical Laboratory Support Level B (ASL-B) as described in Section 11 of the SCQ will be utilized. Laboratory QA/QC also involves the review of chain-of-custody documents, field logs, and shipping seals to ensure sample integrity as well as compliance with sample holding times. The quality control samples will include, but will not be limited to method blanks, instrument calibration, spikes (sample, matrix, and matrix spike duplicates), interference checks (metals), and blind control samples. The laboratory shall maintain the quality control charts. This information may be requested in evaluating overall system performance relative to a specific analyses.

**Sampling QA/QC**

Quality control and assurance blanks, such as duplicates, equipment blanks, and/or trip blanks, will be collected. Duplicate samples are collected for waste streams with more than one drum at the rate of at least 10 percent of samples taken. For example, one duplicate sample is collected if three drums of waste are sampled; two duplicate samples are collected if 11 drums of waste are sampled. Equipment blanks are collected immediately following equipment decontamination. Trip blanks accompany sample shipments every third week. Trip blanks are analyzed for volatile organics each time they are submitted. Other samples may be collected as specified by the contract laboratory QA/QC procedures. These samples may include laboratory blanks and spiked blanks, split samples, and standards.

In addition to the quality control samples described above, the FCP uses several established procedures to preserve the integrity of the samples during collection and shipment. These procedures include:

- sampling plans,

- field logs,
- sample preservation,
- sampling equipment decontamination,
- chain-of-custody documents, and
- shipping seals.

#### **Field Log**

A field log is maintained by sampling personnel. The type of information that is recorded in the field log includes, but is not limited to:

- sampling date and location;
- time of sampling;
- sampling plan number, if applicable;
- material type and source code, if available;
- sampling personnel;
- lot and drum number, if available;
- sampling equipment used (if other than specified in the sampling plan);
- number of phases or matrix;
- phase specific identifying number, if applicable;
- physical description;
- sampling anomalies and resolutions to sampling problems;
- customer number for laboratory use;
- requested analysis;
- quantity and type of bottles;
- preservation techniques (i.e., cool with ice, pH adjustment, etc.);
- type of sample (i.e., grab, composite, etc.); and
- identification of containers storing decontamination rinseate and personnel protective clothing.

The field log describes sampling conditions that might prejudice the analytical results.

**Sample Containers**

The sample containers selected for a particular waste stream are based on the sample matrix and the types of analysis that may be required for that particular waste stream. Where various sample matrices are encountered or more than one analysis is required, the appropriate sample containers are used. The types of containers, preservatives, holding times, and minimum volumes required are presented in **Appendix A of the SCO**. ~~Table 7.1 of the Prototype Sampling and Analysis Plan for Waste at the FCP (PL 3048). This plan is provided as Attachment C 7.~~

**Equipment Decontamination**

All sampling equipment is decontaminated prior to sampling. The frequency of decontamination is based on the type of sampling. For those waste streams undergoing composite sampling, equipment is not decontaminated between individually collected samples making the composite. For waste undergoing grab sampling, equipment is decontaminated after each collected sample. In every case, equipment is decontaminated between different waste streams. Periodically, an equipment blank is collected after the equipment undergoes final decontamination to ensure that the equipment is decontaminated.

The general equipment decontamination procedure is described below:

- 1) The sampling equipment is placed over a collection drum and washed using a warm detergent solution and bottle brush.
- 2) The sampling equipment is rinsed several times with tap water to remove detergent residues.
- 3) The sampling equipment is then rinsed with distilled water and the excess water is drained into the drum.
- 4) The sampling equipment is then air dried or rinsed with isopropanol and allowed to dry.
- 5) The clean sampling equipment is placed in a plastic bag or wrapped in aluminum foil.

#### Chain-of-Custody and Shipping Seals

Sample containers are placed in appropriate shipping containers after sample collection. The containers are cooled, as required, to meet preservative requirements. Sample transport documentation such as analytical requests and chain-of-custody forms (See Figure C-7) are affixed to or placed in the shipping container. The FCP maintains a strict chain-of-custody procedure for all samples collected for RCRA determination. A chain-of-custody tape or other tamper guard seals are affixed to the shipping container in order to indicate potential container tampering. The shipping container is then sent to the appropriate laboratory for analysis.

#### Laboratory Audits

A detailed description of laboratory audit procedures for off-site laboratories is found in Section 12.0 of the SCQ. As described in the SCQ, ". . . audits shall consist of evaluation of the QA program and procedures, effectiveness of their implementation, and review of associated project documentation. . . . Auditing shall be performed in accordance with DOE Guidelines [and] the SCQ . . ." As a minimum, surveillance shall consist of monitoring/observing ongoing project activity and work areas to verify item and activity conformance to specified requirements. Surveillance shall be scheduled, planned, and documented.

"Potential subcontractor laboratories shall be audited by the designated FCP QA organization (Section 3 and Appendix E [of the SCQ]). Contracted laboratories shall be audited annually at a minimum and will only perform services for FCP in the areas audited at the facility. Before a laboratory handles samples from FCP, audit team documentation is required specifying that performance in areas related to analysis of FCP samples is within pre-established specifications."

#### C-2.5 RECORDS

This section discusses records that are maintained in conjunction with this process. In addition to the records discussed here, several other records have been described earlier in the text.

The MEF and any corresponding hazardous waste manifests are maintained at FCP as part of the RCRA Operating Record.

Prior to shipment of any hazardous waste from the FCP to an off-site facility, the FCP completes a notification/certification form in accordance with the requirements for generators in OAC 3745-270-07 (40 CFR 268.7) as discussed in Section C-2.3.

The completed notification/certification form will be maintained on-site in accordance with OAC 3745-54-73 and OAC 3745-270-07. MEF files associated with hazardous waste containers that are in storage at the FCP will be maintained on-site until all containers associated with an MEF have been dispositioned. Following inventory removal, the MEF file will be transferred to the Records Center for long-term storage. The Records Center provides for long-term storage of the facility's records. The address is:

690 East Crescentville Road  
Cincinnati, Ohio 45246-1314  
(513) 648-3500

C-3.0 WASTE ACCEPTANCE CRITERIA

This section identifies the steps that the facility would follow when accepting waste material from an off-site source. No hazardous waste from off-site facilities is accepted and/or stored at the FCP unless the conditions of the Consent Decree and its stipulated amendment are met. Under terms of the Consent Decree, "No hazardous or mixed waste from an off-site source not already listed in the [FCP] Part B Permit Application, or a revision as of the date of entry of this Consent Decree, shall be stored, disposed or treated at the [FCP] without the prior approval of the State of Ohio."

The FCP does not currently anticipate receiving any hazardous waste generated from off-site sources. However, in the event that this would be required, the FCP will obtain approval from Ohio EPA in accordance with the Consent Decree and its Stipulated Amendment prior to

receiving this waste. Specific provisions for accepting this waste at the FCP would be discussed with Ohio EPA at that time.

#### **C-4.0 STORAGE AND MANAGEMENT OF WASTES**

This section presents several items pertaining to how waste characteristics affect the management of hazardous wastes at the FCP.

##### **Consolidation of Wastes**

When two or more wastes are consolidated, a review shall be conducted to ensure that the wastes to be consolidated are compatible. The review consists of evaluating the known characteristics of the material. If, after review of analytical data or other supporting documentation it is determined that there is insufficient information to evaluate compatibility, but prior to consolidating material together from different waste streams, aliquots representing the materials will be added to each other. ASTM D5058-90 test method A and B will be used to determine reactions which would indicate the materials are not compatible. Fingerprint analyses (i.e. pH, water-reactivity and flash point testing) may also be used to assess the compatibility of some wastes for bulking (e.g. for off-site treatment by incineration). Consolidation is not used as a form of treatment.

##### **Compatibility of Waste with Overpacks**

Compatibility of wastes will be monitored in accordance with provisions described earlier. In situations where containers are leaking and require overpacking, the overpack containers will be compatible with the leaking waste.

##### **Wastewater Exclusion**

Under provisions of OAC 3745-51-03 and 40 CFR 261.3(a), certain wastewaters are excluded from the regulatory definition of hazardous waste, and consequently are not covered by this RCRA Part B Permit Application.

#### C-5.0 OFF-SITE SHIPMENT OF WASTES

Hazardous wastes shipped off-site shall be manifested under the appropriate hazardous waste manifest. This form will vary, based on the ultimate disposition of the waste (states require use of their own form; for this reason, a copy of the manifest has not been included). In addition to the manifest, an LDR notification/ certification form shall be included with the first shipment of this waste.

##### Lab Packs

The FCP completes specific notification/certification forms when shipping hazardous waste lab packs to off-site facilities for treatment under the alternative treatment standards for lab packs. The notification includes the Manifest Number and the Hazardous Waste No. The certification is signed by an authorized facility representative.

##### Notification and Certification for Wastes to be Further Managed

Prior to shipment of any hazardous waste stored at the FCP to an off-site facility, the FCP completes a notification/certification form in accordance with the requirements for generators in OAC 3745-270-07 and 40 CFR 268.7 as discussed below. The FCP also has the option of sending a one-time notification/certification with the initial shipment of waste. The completed notification/certification form is retained for a minimum of three years (extended indefinitely in the case of unresolved enforcement actions).

##### Notification and Certification Requirements

Figure C-6 presents examples of the notification and certification that may accompany each off-site hazardous waste shipment. The specific notification/certification forms that are used by the FCP are discussed below. The FCP frequently uses the notification forms of the receiving facility; however, at a minimum the language used will comply with 40 CFR 268 as shown in Figure C-6.

##### Waste Meeting Applicable Treatment Standards

If the hazardous waste meets applicable treatment standards, each off-site shipment of hazardous waste or the initial shipment of a hazardous waste to a facility is accompanied by

the appropriate certification shown in Figure C-6. The certification includes the Manifest Number, Hazardous Waste No., the Subcategory if applicable, the Treatability Group, and the constituents of concern for certain waste types. The certification is signed by an authorized facility representative.

#### **Waste Not Meeting the Applicable Treatment Standard**

If the hazardous waste does not meet applicable treatment standards, a notification accompanies each off-site shipment or the initial shipment of a hazardous waste to a facility (see sample form in Figure C-5). The notification includes the Manifest Number, Hazardous Waste No., the Subcategory if applicable, the Treatability Group, and the constituents of concern for certain waste types unless the waste will be treated and monitored for all constituents. The sample notification form for hazardous wastes not meeting the applicable treatment standards is provided in Figure C-5.

#### **Waste with Applicable Extensions**

If a hazardous waste is subject to a case-by-case extension or a national capacity variance, the notification identified as "Restricted Wastes Exempt from Land Disposal Prohibitions" in Figure C-5 is completed prior to shipment of the hazardous waste. The notification includes the Manifest Number and the Hazardous Waste No. The notification also identifies the specific exemption that applies to the hazardous waste and the date the waste is subject to the prohibition.

#### **Characteristic Wastes That Are No Longer Hazardous**

If residues from treatment of a characteristic waste which has been treated to meet LDR treatment standards are shipped to a Subtitle D landfill, the FCP will complete a one-time certification for submittal to Ohio EPA. This certification will include the name and address of the Subtitle D facility and a description of the waste as initially generated (including Hazardous Waste No., Treatability Group, and the underlying hazardous constituents). The certification is signed by an authorized facility representative.

**TAB C-4**  
**RCRA REGULATED HAZARDOUS WASTE STREAMS**

WASTE ID#	DOE TYPE	WASTE NAME	US EPA HAZARDOUS WASTE#	DETERMINATION BASIS
1725	1	LUBRICATING OIL FROM GASOLINE ENGINES	D018	PK
1729	1	LEADED GASOLINE	D001, D008, D018	PK, 1, 3, 8, 9
2952	1	EXPIRED ORGANIC LAB STANDARDS - PCB	D001, F027, P004, P022, P037, P048, P050, P051, P059, P071, P082, P094, P123, U002, U004, U012, U019, U021, U022, U024, U027, U028, U031, U036, U037, U039, U043, U044, U045, U047, U048, U050, U052, U055, U057, U060, U061, U066, U068, U070, U072, U073, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U088, U101, U102, U105, U106, U112, U120, U127, U128, U129, U130, U131, U141, U154, U159, U161, U165, U167, U168, U169, U170, U171, U179, U183, U185, U187, U188, U191, U192, U196, U203, U207, U208, U209, U210, U220, U226, U227, U228, U239	PK, 5
3799	4	NON-EXCLUDED SILO PROJECT MATERIAL	D004, D005, D006, D007, D008, D010	PK
3830	1	DIESEL FUEL	D001, D018	PK, MSDS
3885	12	RCRA HAZARDOUS AND RADIOACTIVELY-CONTAMINATED UNUSED CHEMICALS	D001, D002, D005, D008, D011, D035, U121	PK, MSDS
3918	13	RCRA HAZARDOUS AND RADIOACTIVELY-CONTAMINATED UNUSED CHEMICALS	D001, D035	PK, MSDS

See final page of keys to DETERMINATION BASIS codes and DOE WASTE STREAM TYPES

# KEY TO TABLE C-4

## RCRA Hazardous Waste Streams

**Key to "Determination Basis" Codes:**

PK	PROCESS KNOWLEDGE
MSDS	MATERIAL SAFETY DATA SHEET
<b>ANALYSES</b>	
1	Total Volatile Organic
2	TCLP Volatile Organic
3	Total (TC) Metals
4	TCLP Metals
5	Visual Inspection of Waste
6	Paint Filter Liquids Test (PFLT)
7	pH
8	Flash Point
9	U-Total, %U235
10	PCBs
11	Total Semivolatile Organic
12	Total Pesticides
13	Total Thorium

**Key to "DOE Waste Stream Types":**

1	Organic Liquids
2	Aqueous Liquids
3	Organic Sludges/Particulates
4	Inorganic Sludges/Particulates
5	Cemented Solids
6	Organic Debris
7	Inorganic Debris
8	Heterogeneous Debris
9	Soil with Organics
10	Soil with Inorganics
11	Soil with Organics and Inorganics
12	Labpacks with Metals
13	Labpacks without Metals
14	Reactive Metals
15	Explosives
16	Compressed Gases
17	Liquid Mercury
18	Elemental Lead
19	Beryllium Dust
20	Batteries
99	Other

Fernald Closure Project (FCP) Fluor Fernald Inc. FCP Document Program	Plan Number: PL-3048 Effective Date: 05/17/2004 Revision No. 5
	Operationally Significant
<b>PROTOTYPE SAMPLING AND ANALYSIS PLAN FOR WASTE          AT THE FCP</b>	
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Issue Authorization	
Signature: <u><i>Dennis Carr</i></u> Date <u>5/12/04</u> Dennis Carr, EW FAM	Supersedes: PL-3050

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**RECORD OF ISSUE/REVISIONS**

ISSUE AUTHORIZATION DATE	EFFECTIVE DATE	PCN No.	REV. No.	DESCRIPTION
N/A	09-21-95		0	Issued the Plan for Prototype Sampling and Analysis.
02-24-98	02-25-98	1	0	Added Record and revision page; Section for Special Requirements for Enriched Nuclear Material Sampling; Added Notes for Maximum Total Grams of U-235 to be collected in attachments.
06-15-99	06-23-99		1	Major rewrite of the plan to reformat to conform to the latest format requirements of MS-2001; update references; change forms for sample request, box plan and drum plan; and to reflect current practices. This plan also supersedes plan PL-3050.
ISSUE AUTHORIZATION DATE	EFFECTIVE DATE	UDC No.	REV. No.	DESCRIPTION
01-19-2000	01-31-2000		2	Change all references from Environmental Monitoring to Waste Characterization and incorporate comments resulting from review.
07-25-2001	07-31-2001		3	Revised for periodic review to reflect cancellation of 34-00-002 and to correct title for EW-1016.
EFFECTIVE DATE	REV. NO.	PCN NO.	DESCRIPTION	
02/27/03	4	NA	Revised for periodic review to update organizational titles and references	
EFFECTIVE DATE	REV. NO.	DESCRIPTION		
05/17/2004	5	Revised to update organizational titles and responsibilities. Also, removed several tables, attachments, and referenced the SCQ (FD-1000) whenever possible.		

## 1.0 INTRODUCTION

### 1.1 Purpose

1.1.1 The purpose of this Plan is to provide a master Sampling and Analysis Plan (SAP) for characterization of containerized and non-containerized waste (which may be containerized) and materials at the Fernald Closure Project (FCP).

1.1.2 This plan provides reference information on sampling design, field and analytical quality control, collection methods, and analytical methods to develop condensed, Project-specific Sampling and Analysis Plans (PSAPs).

### 1.2 Scope

1.2.1 This plan applies to all sampling and analysis requirements for all containerized waste and materials stored within cans or pails, drums, metal boxes, T-Hoppers or J-Hoppers, International Shipping Organization (ISO) containers or Top Load Boxes, Tank/Sump Materials, and other miscellaneous container types being sampled at the FCP as well as bulk un-containerized waste that may be containerized based on sample results.

1.2.2 This plan applies to containerized and bulk wastes (which may be containerized) that require characterization (items declared or which may be declared waste).

1.2.3 Project-specific Sampling and Analysis Plans (PSAPs) will be developed based on the requirements of this Sampling and Analysis Plan (SAP).

### 1.3 SAP Objectives

1.3.1 The primary objective of this SAP is to generate data of sufficient quality to identify the regulatory status of, and safely manage waste materials.

1.3.1.1 Secondary objectives are to develop information required to determine appropriate waste disposition options, including disposal and/or treatment.

1.3.1.2 This SAP has been developed to meet the requirements for waste management and disposal within the DOE complex and at commercial facilities. Specifically, it meets the requirements of NTS-WAC, "Nevada Test Site (NTS) Waste Acceptance Criteria".

1.3.2 Specific objectives of this SAP are as follows:

1.3.2.1 Determine the presence and concentrations of RCRA hazardous constituents and radiological activities to support waste characterization.

1.3.2.2 Provide sufficient information to ensure that the sub-waste stream is managed safely.

1.3.2.3 Support identification of the appropriate disposal or treatment option (e.g., determine if the sub-waste stream meets NTS-WAC).

1.3.2.4 Identify potential hazards or risks to public health or the environment associated with storage of the sub-waste stream, if disposal or treatment is not feasible or practical.

1.4 Description of Waste Sampling Locations

1.4.1 Waste may be sampled at one of following general locations:

1.4.1.1 the storage area,

1.4.1.2 a staging area established for sampling activities, or

1.4.1.3 an established sampling line.

1.4.2 The sample plan writer determines the appropriate sampling location based on the environmental setting, the contaminants of concern, the logistics and feasibility of transporting the waste from the staging/storage area to a different site location. The selected sampling location shall be identified in Section A.8 of the PSAP. If the sampling location identified in Section A.8 of the PSAP must be changed, the sampling crew shall contact the PSAP writer to obtain verbal approval of the change. This variance will be documented on the PSAP and the associated field logbook page(s).

1.5 Use of Process Knowledge/Existing Analytical Data/Visual Inspections

1.5.1 In general, the use of process knowledge (PK) alone (without confirmatory sampling and analyses) shall be appropriate for waste characterization when one or more of the following conditions exist:

1.5.1.1 The sub-waste stream is difficult to sample because of physical form. This primarily applies to solid matrix waste such as metal, glass, or wood, rather than as a residue that could be removed for testing or in a decontamination process.

1.5.1.2 Sampling and Analysis (S&A) of sub-waste stream would result in unacceptable risk of radiation exposure, (i.e., violate the As Low As Reasonably Achievable, ALARA, precept of the DOE).

1.5.1.3 Sub-waste stream is too heterogeneous in composition (e.g., compactable trash containing clothing, booties, plastic, paper, experiment-driven, and decontamination and decommissioning waste).

1.5.2 PK is used to provide information related to the waste materials and their generation process(es). This information may be used for waste material segregation to ensure that representative samples are collected for sub-waste stream characterization. In addition, PK may be used to support "non-RCRA" (not RCRA hazardous) or "RCRA" (RCRA hazardous) determinations for appropriate waste materials.

- 1.5.3 Previous analytical data may be used for waste material segregation to ensure that representative samples are collected for sub-waste stream characterization. In addition, these data may be used to determine the number of samples required to characterize the waste materials (using the SW-846 equation, or parametric method), determine the appropriate analyses required for waste characterization, and determine the appropriate level of personal protective equipment (PPE) required during sampling activities.
- 1.5.4 Visual inspections are typically used to verify that the container's contents match the description provided on the MEF and document the physical characteristics of the waste materials. In addition, visual inspections may be used for waste material segregation to ensure that representative samples are collected for sub-waste stream characterization.
- 1.5.5 PK, previous analytical data, and visual inspection review documentation is prepared by Characterization. A brief summary of this document is incorporated into Section A.9 of the PSAP. The entire PK/previous analytical data/visual inspection review document is in the waste characterization file.

## 2.0 REFERENCES

- 2.1 EW-0002, Chain of Custody/Request for Analysis Record for Sample Control
- 2.2 EW-0010, FCP Data Validation Procedure
- 2.3 EW-0015, FCP RCRA Operating Records
- 2.4 EW-1016, Waste Management Project Work Authorization Program
- 2.5 RM-0005, FCP Lot Marking Codes and Color Coding System
- 2.6 FD-1000, (SCQ) Sitewide CERCLA Quality Assurance Project Plan
- 2.7 EW-0001, MEF Process Procedure
- 2.8 DQO: WS-0014, Characterizing the Constituents of Concern in Containerized and Bulk Waste
- 2.9 DQO: WS-0015, Characterizing the Radiological Constituents of Concern in Containerized Waste and Sealed Sources from Past Production and Current/Future Remediation Projects Using Non-Destructive Assay (NDA) Methods
- 2.10 Other applicable and appropriate DQOs

## 3.0 RESPONSIBILITIES

### 3.1 Characterization

- 3.1.1 Receives an FS-F-3787, Waste Characterization Sampling Request, from requestor.
- 3.1.2 Prepares a PSAP based on information supplied on the WC Sampling Request and in accordance with Data Quality Objective (DQO) WS-014, Characterizing the Constituents of Concern in Containerized and Bulk Waste.
- 3.1.3 Obtains the required concurrences and approvals prior to initiating sampling activities.
- 3.1.4 Initiates Work Package, in accordance with EW-1016, to direct container movement and sampling implementation.

- 3.1.5 Maintains supporting documentation traceable to the sub-waste stream and characterization file.
- 3.2 Project Operations - Collects and delivers the wastes samples to Analytical Laboratory Services (ALS) for analysis or shipment to FCP approved laboratories.
- 3.3 Analytical Laboratory Services/Sample Data Management (ALS/SDM)
- 3.3.1 Performs laboratory analysis of samples or prepares Work Package for analysis to be performed by an FCP approved (off-site) laboratory. Also prepares samples for shipment to FCP approved (off-site) laboratories.
- 3.3.2 Upon completion of sample analysis, reviews the data package and forwards data package to Characterization for statistical analysis.
- 4.0 **GENERAL**
- 4.1 Objectives
- 4.1.1 Containerized and bulk waste sampling and analysis is required to satisfy the following data needs:
- 4.1.1.1 Determine the regulatory status of the waste materials and ensure compliance with NTS-WAC, Envirocare WAC, OSDF WAC, or other applicable requirements
- 4.1.1.2 Determine the appropriate level of health and safety requirements for protection of site workers during waste handling, disposal, treatment, or storage
- 4.1.1.3 Determine the waste characteristics to evaluate the proper disposal, treatment, or storage option
- 4.1.1.4 Assess risks to human health or the environment if wastes must be stored at the FCP.
- 4.1.2 DQOs WS-014, Characterizing the Constituents of Concern in Containerized and Bulk Waste and WS-015, Characterizing the Radiological Constituents of Concern in Containerized Waste and Sealed Sources from Past Production and Current/Future Remediation Projects Using Non-Destructive Assay (NDA) Methods were developed for waste material sampling, analysis, and characterization. Appropriate Analytical Support Levels (ASLs) for each data need is discussed in Section 7.3 of the applicable DQO.
- 4.1.3 In general, the DQO provides a technically sound sampling and analysis approach capable of satisfying the following items: representativeness, sampling accuracy, sampling precision, analytical method detection limits, completeness, and comparability. These items are addressed in the following sections of this sampling and analysis plan

- 4.2 Representativeness - The collection of samples that are unbiased and exhibit average properties of the population sampled, is achieved by segregating the wastes into sub-waste streams. A sub-waste stream is generally comprised of waste identified with the same Material Type and Source Code. Material Type and Source Code identifiers are provided in each PSAP, in Sections A.5 and A.6, respectively. Requirements Manual RM-0005 identifies the applicable material types and source codes.
- 4.3 Sampling Accuracy - The closeness of a sample value to its true value, is achieved through randomized sampling of the waste within a given sub-waste stream. Randomized sampling minimizes bias in the sample selection process by giving all waste an equal probability of being sampled.
- 4.4 Sampling Precision - The closeness of repeated sample values, is achieved by increasing the number of samples to be collected, increasing the actual volume of the samples, or dividing a population into appropriate strata prior to sampling. Additional samples may be collected when the uniformity of the waste is not known and when sample collection is difficult. In general, the volume of sample material collected at the FCP exceeds the minimum amount needed for analytical sample preparation and analysis. Lastly, when a sub-waste stream is suspected or known to contain separate physical phases (i.e., solids and liquids), the number of samples required is calculated for each waste phase. During sample collection activities, a sample is collected from each waste phase from the randomly selected waste locations.
- 4.5 Analytical Method Detection Limits - In general, analytical methods are determined per the projects requirements and typical laboratory detection compatibilities. Method detection limits for solid- and liquid-phased non-radiological analyses are based upon EPA SW-846 or Contract Laboratory Program (CLP) protocol. Method detection limits for radiological analyses are based on typical laboratory detection compatibilities and are presented in Appendix G of FD-1000.
- 4.6 Completeness
- 4.6.1 To satisfy FD-1000 completeness requirements of 90%, the number of samples required to be collected will be calculated in accordance with methods described in EPA/230-02-89-042, Feb. 1989, "Methods for Evaluating the Attainment of Cleanup Standards, Vol. I, Soils and Solid Media". The following equation will be used to determine the number of samples to obtain a 90% completeness level:

Minimum number of samples required

$$\# \text{ of Samples}_{(90\% \text{ comp})} = \frac{\text{Minimum number of samples required}}{(1 - R)}$$

where,

R = 0.20 (20%), the expected percent of missing or unusable data (i.e., sample holding times exceeded, improper preservation of samples, sample container breakage during shipment to laboratory, etc.)

4.6.2 An R-value of 0.20 (20%) was selected to take the most conservative approach for minimization or elimination of the potential need for re-sampling activities.

4.7 Comparability - Laboratory facilities contracted to provide chemical analytical services are required to comply with all provisions in FD-1000. Therefore, data sets from differing laboratory facilities should be comparable since the same analytical method and method detection limit is required. However, in order to measure comparability between data sets from distinct laboratories, the FCP may periodically use split samples. Split sample analytical data may also be used to identify false negative or false positive errors.

## 5.0 SAP/PSAP DEVELOPMENT CRITERIA

### 5.1 Sampling Approach

5.1.1 The sampling approach for containerized wastes at the FCP is dependent on the characteristics of the sub-waste stream as determined by PK/previous analytical data/visual inspection reviews.

5.1.1.1 Sub-waste streams which contain heterogeneous materials and lack sufficient PK data will be subjected to "comprehensive" sampling and analysis (i.e., rate of 10% or cube root).

5.1.1.2 Sub-waste streams which contain homogenous materials and/or have preliminary determinations based on PK/previous analytical/visual inspection reviews may be subjected to "confirmatory" sampling and analyses (i.e., log base 10 + 1).

5.1.2 The sampling approach for bulk waste is dependent on the following factors:

5.1.2.1 matrix of bulk waste (e.g., liquids only, solids only, or combination thereof),

5.1.2.2 target analytes of concern,

5.1.2.3 number and lateral/vertical extent of distinct solid layers,

5.1.2.4 basic geometry, and

5.1.2.5 location of waste generation source(s) and loading rate(s) to bulk waste.

5.1.3 In order to increase the probability that representative samples are collected from the respective bulk waste, extensive PK/analytical data/visual inspection reviews will be conducted. Data generated by these reviews will be used for evaluation of the previously mentioned variables and determination of the appropriate sampling approach.

- 5.1.4 Simple-, systematic-, or stratified-random sampling techniques may be employed based upon the material characteristics, process history, and project-specific data needs.
- 5.1.4.1 Systematic or stratified random sampling methods will be used for sub-waste streams that have been segregated into multiple groups (lots).
- 5.1.4.2 "Stratified" simple- or systematic-random sampling methods will be used for bulk waste that have been segregated into multiple "strata".
- 5.1.4.3 Containerized bulk waste sampling methods will be based upon differences in: physical characteristics (i.e., phase and degree of homogeneity) of the waste materials, origin (time and location) of waste materials and their generation processes, or distribution and concentration of contaminants.
- 5.1.5 Methods of determining simple random sample locations include using a random number generator program or random number lists. In order to maintain representativeness and sampling accuracy, sample depths shall be randomly selected using computer algorithms. If the bulk waste contains multiple strata or media types, samples will be collected at randomized depths within each distinct stratum or media type.
- 5.2 Sampling Approach for Previously Generated Wastes - Sub-waste streams generated by previous FMPC/FEMP/FCP operations which contain homogenous waste materials or have preliminary determinations based on PK/previous analytical data/visual inspections, may be subjected to "confirmatory" sampling and analysis using simple-random sample selection techniques. Heterogeneous sub-waste streams which lack sufficient PK/previous analytical/visual inspection data will be subjected to comprehensive sampling and analysis using simple-, systematic-, or stratified-random sample selection techniques.
- 5.3 Sampling Approach for Currently Generated Wastes
- 5.3.1 Sub-waste streams generated by current FCP operations which contain homogenous waste materials based on PK/previous analytical data/visual inspection reviews may be subjected to "confirmatory" sampling and analysis. Appropriate process control will be identified and documented in Characterization files to demonstrate that the process generates homogenous sub-waste stream materials.
- 5.3.2 Heterogeneous sub-waste streams which lack sufficient PK/previous analytical/ visual inspection data will be subjected to "comprehensive" sampling and analysis using simple- or systematic-random sample selection techniques. Comprehensive samples will be collected at random time intervals from initiation to completion of respective material processing operations. Comprehensive samples may be collected in distinct batches for long-term processes that may generate volumes of waste materials in excess of respective storage capacities.

#### 5.4 Number of Samples for Containerized Waste

5.4.1 For drummed waste sampling at the FCP, typically the number of samples required equals 10% of the number of drums in a sub-waste stream. However, for sub-waste streams containing more than 100 drums, collecting samples for analyses at a rate of 10% may not be economically feasible or practical. Therefore, the FCP intends to use the 10% method for sub-waste streams with < 100 drums and the cube root method for sub-waste streams with > 100 drums. Using this approach, the number of samples required for waste characterization is as follows:

Number of Drums	Min. # of Samples for Analysis	Number of Samples for Completeness*
1 to 20	2	3
21 to 100	10%	12.5%
101 to 1000	10	13
1001 to 10000	22	28

\* - Total number of samples required to maintain 90% completeness using a conservative R-value of 0.20 (20%).

5.4.2 For metal box, ISO, or Top Load container sampling, the proposed number of samples required shall be as follows:

Number of Boxes	Min. # of Boxes to be Sampled	Number of Samples/Boxes for Completeness*
1	1	3
2 to 100	10% + 1	12.5% + 1.25
101 to 1000	11	14
1001 to 10000	23	29

\* - Total number of samples required to maintain 90% completeness using a conservative R-value of 0.20 (20%). This number includes collecting one random sample from metal box, ISO, or Top Load containers in addition to the minimum number of containers to be sampled.

- 5.4.3 For sub-waste streams that have been characterized by process knowledge but do not meet one of the conditions in Section 1.5 of this SAP, the number of required confirmatory samples per sub-waste stream is as follows:

Number of Containers	Min. # of Samples for Analysis	Number of Samples for Completeness*
1 to 10	2	3
11 to 100	3	4
101 to 1000	4	5
over 1001	5	6

\* - Total number of samples required to maintain 90% completeness using a conservative R-value of 0.20 (20%). If the containers are white metal, Sea/Land<sup>®</sup>, or Top Load boxes, the required number of samples is equal to the number of samples in this table plus one additional sample.

- 5.4.4 For larger container lots (> 100), an alternate method for determining the sample number may be applied dependent on the waste streams homogeneity. This alternate determination method will be documented in the PSAP where applicable.
- 5.4.5 Parametric analysis, or EPA SW-846 Equation 8, is the preferred method to determine the required number of samples required to satisfy the NTS WAC 90% confidence level requirement. However, EPA SW-846 Equation 8 requires previous analytical data to determine the mean and associated standard deviation for the analyte with the most restrictive regulatory threshold level. EPA SW-846 Equation 8 may be used as a secondary method, in situations where the upper limit of a 90% confidence level approximates or exceeds the regulatory threshold value for a given analyte, to determine if additional sample collection and analysis is warranted. In addition, in situations where sufficient previous analytical data exists for a sub-waste stream, EPA SW-846 Equation 8 may be used in lieu of the sample frequency identified above.

## 5.5 Number of Samples for Bulk Wastes

- 5.5.1 Parametric analysis, or EPA SW-846 Equation 8, is the preferred method to determine the required number of samples to satisfy the NTSWAC 90% confidence level requirement. This method requires either previous analytical data, the collection and analysis of a minimum of four samples, or extensive process knowledge to determine an estimate of the mean and standard deviation for the analyte with the most restrictive regulatory threshold level. Since a majority of the bulk wastes at the FCP have been investigated as part of the Remedial Investigation/Feasibility Study, the use of this method may be practical or feasible. As mentioned previously, computer algorithms employing EPA SW-846 Equation 8 may be used to determine the number of samples required. The computer program applies the correction factor "R" described in Step 4.6.1 for missing or unusable data.

5.5.2 For containerized waste sampling at the FCP that have not been characterized by PK, typically the number of samples required equals 10% of the number of containers in a waste stream. However, sample areas for bulk wastes may contain material volumes of several thousand to several hundred thousand drum equivalents. Collecting samples at a rate equal to 10% of the drum equivalents is not economically feasible or practical. However the cube root method may be substituted to determine the number of required sample points as follows:

Number of Drum Equivalents	Min. # of Samples for Analysis	Number of Samples for Completeness*
1 to 100	4	5
101 to 1000	10	13
1001 to 10000	22	28
10001 to 100000	46	58
100001 to 500000	75	94
over 500000	100	125

\* - Total number of samples required to maintain 90% completeness using a conservative R-value of 0.20 (20%).

5.5.3 For bulk waste materials that have been characterized by process knowledge and do not meet one of the conditions in Section 1.5 of this SAP, the number of required samples, per media or strata, is as follows:

Number of Drum Equivalents	Min. # of Samples for Analysis	Number of Samples for Completeness*
1 to 100	3	4
101 to 1000	4	5
1001 to 10000	5	6
10001 to 100000	6	8
100001 to 1000000	7	9

\* - Total number of samples required to maintain 90% completeness using a conservative R-value of 0.20 (20%).

5.5.4 Regardless of the primary method for determining sample size, EPA SW-846 Equation 8 is used as a secondary method (i.e., incorporated into statistical spreadsheets), to determine if additional sample collection and analysis is warranted.]

- 5.6 Sample Volumes, Containers, Preservation and Holding Times - Required sample volumes, containers, preservatives, and holding times are provided in Appendix A, Table 6-1 of FD-1000. Sample volumes, containers, preservatives, and holding times are presented in Section 7.0 of this SAP, and in Sections B.2, B.3, and C of each PSAP.
- 5.7 Sample Collection Procedures/Equipment
- NOTE:** Drummed waste sample collection procedures and appropriate sampling equipment, in accordance with Appendix K of FD-1000 and FCP Waste Management Projects Sampling Procedures.
- 5.7.1 Sample collection procedures and appropriate sampling equipment are contained in Appendix K of FD-1000 and Waste Management Projects work packages.
- 5.8 Sample Handling and Shipment - Field storage and shipment of samples procedures are presented in Section 6.7 and Appendix K of FD-1000.
- 6.0 **DOCUMENTATION AND SAMPLE CUSTODY**
- 6.1 Sample Identification and Labeling - Sample identification and labeling procedures are presented in Section 7.1.3 and Appendix K of FD-1000, Laboratory, and WMP procedures.
- 6.2 Recordkeeping
- 6.2.1 Field activities will be recorded on sequentially-numbered pages in logbooks or individual log sheets. Media-specific sample collection logs, calibration logs, sketches, and photographs may also be used to document field activities, site conditions, or unusual observations.
- 6.2.2 Detailed recordkeeping requirements are provided EW-0015
- 6.3 Sample Custody and Analysis Requests - Pertinent sample collection data will be recorded on the FS-F-3361, Chain of Custody/Request for Analysis Record (COC/RFA), in accordance with EW-0002, which will accompany the respective samples to the FCP analytical laboratory facility for analysis or shipment to a FCP-approved laboratory for analysis. Samples shipped to offsite laboratories are accompanied the COC/RFA.
- 6.4 Other Miscellaneous Forms - All sampling and analysis projects at the FCP require a Work Permit as a minimum. Other forms, such as a Chemical Hazard/Confined Space Entry Permit or a Construction/Excavation Permit may be required based on the nature of the project. In addition, sample line personnel complete a Work Package Briefing at the initiation of each project. This briefing is valid for the duration of the project or until project conditions change.

6.5 Special Requirements for Enriched Nuclear Material Sampling - When Enriched Nuclear Materials are sampled, special notifications are required. A calculation, performed by the Characterization PSAP developer, will determine the total possible amount of U-235 in grams to be contained in the samples to be collected. After collection, an additional calculation will determine the actual maximum amount of U-235 grams contained in the samples. All calculations are based on best available information. The PSAP developer will include maximum total U-235 grams to be collected during sampling in the PSAP.

## 7.0 ANALYSIS OF WASTE SAMPLES

7.1 Waste Analytical Parameters and Methods - In general, Characterization personnel or other requesters determine the appropriate waste analytical parameters based on PK and/or reviews of previous analytical data. This information is incorporated into the PSAP.

### 7.2 Non-Radiological Parameters and Methods

7.2.1 Based on PK and/or previous analytical data reviews, one or more of the following non-radiological analyses may be performed to characterize the chemical constituents within, and identify the regulatory status of the waste materials:

<u>Analytical Parameter</u>	<u>Test Method(s)</u>
RCRA Analyses	
Ignitability	EPA 1010/1020
Reactivity	40 CFR 261.23
Corrosivity	EPA 9040
Toxicity Characteristic	EPA 1311
LDR Solvents	TCLP (F001-F005)
LDR Halogenated Org.	EPA 9020
Cyanides	EPA 9010/9012
Sulfides	EPA 9030
Other NTS-WAC Analyses	
Free Liquids	EPA 9095
PCBs	EPA 8080

- 7.2.2 The FCP intends to use analytical methods (Total concentrations) to determine if Toxicity Characteristic Leaching Procedure (TCLP) or Land Disposal Restriction (LDR) analyses are warranted. The proposed analytical methods are as follows:

<u>Analytical Parameter</u>	<u>Test Methods (EPA)</u>
Organics (Gas Chromatography)	8010, 8015, 8020 8030, 8040, 8060 8080, 8090, 8120 8140, 8150
Organics (Gas Chromatography/ Mass Spectroscopy)	8240, 8250 8270, 8280
Inorganics/Metals (Atomic Absorption Spectroscopy)	40 CFR 261, App. III
Inorganics/Metals (Inductively Coupled Plasma - MS/ Atomic Emission Spectroscopy)	6010

- 7.2.3 In general, the FCP uses a 20:1 ratio of Total concentration results for solid matrix samples to TCLP regulatory threshold limits to determine if TCLP analyses are required. If the analyte-specific upper limit of the 90% confidence interval exceeds the 20:1 ratio to its associated TCLP regulatory value, Characterization will evaluate the leachability of this analyte to determine if TCLP analyses are warranted.

- 7.2.4 Additional analytical parameters may be required to satisfy secondary objectives identified in this SAP. For example, if the sub-waste stream is determined to be "mixed hazardous waste", then Target Analyte List (TAL) or Target Compound List (TCL) analytical data may be required to assess the potential risks of storing these containers at the FCP. The need for these parameters will be reviewed on a case-by-case basis.

### 7.3 Radiological Parameters and Methods

- 7.3.1 Based on PK and/or previous analytical data reviews, one or more of the following radiological analyses may be performed to characterize the radiological component of the waste materials:

#### Analytical Parameter

Total/Isotopic Uranium  
Total/Isotopic Thorium  
Total/Isotopic Radium

7.3.2 To satisfy secondary objectives identified in this SAP, additional waste samples may be collected and analyzed for ASL B or D Total Radiological Parameter analyses to determine the following constituents:

- 7.3.2.1 Uranium (U-234, U-235, U-238), in pCi/g
- 7.3.2.2 Thorium (Th-230, Th-232), in pCi/g
- 7.3.2.3 Radium (Ra-226, Ra-228), in pCi/g
- 7.3.2.4 Actinium (Ac-230, Ac-232), in pCi/g
- 7.3.2.5 Lead (Pb-210), in pCi/g
- 7.3.2.6 Polonium (Po-210), in pCi/g
- 7.3.2.7 Technetium (Tc-99), in pCi/g
- 7.3.2.8 Neptunium (Np-237), in pCi/g
- 7.3.2.9 Plutonium (Pu-238, Pu-239, Pu-240), in pCi/g
- 7.3.2.10 Strontium (Sr-90), in pCi/g
- 7.3.2.11 Ruthenium (Ru-106), in pCi/g
- 7.3.2.12 Cesium (Cs-137), in pCi/g

#### 7.4 Sample Container, Preservation, and Holding Time Requirements

7.4.1 Non-Radiological Analyses - Sample container, preservation, and holding time requirements for non-radiological analyses are provided in the SCQ (FD-1000) Appendix A, Table 6-1.

7.4.2 Radiological Analyses - Sample container, preservation, and holding time requirements for radiological analyses are provided in the SCQ (FD-1000) Appendix A Table 6-1.

### 8.0 **QUALITY ASSURANCE/QUALITY CONTROL**

#### 8.1 Field QC Samples

8.1.1 The following field QC samples may be collected (types selected based on the project-specific needs and identified in Section B.11 of the PSAP) and analyzed for the constituents identified in Section 7.0:

- 8.1.1.1 Container blanks - not required when vendor-supplied assay data is provided with container shipment. When required, collect one blank per each container batch or one per sampling round, whichever is more frequent.
- 8.1.1.2 Duplicate samples - one per every twenty samples per media matrix or one per sampling round per media matrix, whichever is more frequent.
- 8.1.1.3 Equipment rinsates - one per twenty pieces of a type of equipment cleaned by a specific decontamination method or one per sampling round, whichever is more frequent.
- 8.1.1.4 Field Blanks - one per twenty samples or one per sampling round, whichever is more frequent.

- 8.1.1.5 Preservative blanks - not required when vendor-supplied assay data is provided with preservative shipment. When required, collect one blank per each container batch or one per sampling round, whichever is more frequent.
- 8.1.1.6 Split samples - if required, one per every twenty samples per media matrix or one per sampling round per media matrix.
- 8.1.1.7 Trip blanks - daily, one trip blank per cooler containing Volatile Organics samples sent to laboratory. Analyzed for Volatile Organics only.
- 8.1.2 In accordance with Appendix D of FD-1000, field duplicate sample analytical data may be used to calculate the relative percent difference (RPD) and/or Relative Error Rate (RER) for evaluation of sampling precision or degree of homogeneity/heterogeneity of the waste materials.
- 8.1.3 Equipment rinsate analytical data may be used to evaluate the effectiveness of the decontamination procedure or estimate the amount of cross contamination between sample point locations.
- 8.1.4 Field blank analytical data may be used to estimate the amount of contamination associated with the sampling environment.
- 8.1.5 Split sample analytical data may be used to evaluate the accuracy of analytical performance between two distinct laboratory facilities and identify the potential for false positives or false negatives.
- 8.2 Field Screening Equipment Calibration and Documentation
- 8.2.1 Field screening instrumentation, such as radiation detection and photoionization detection (PID) devices, will be checked on a daily basis for proper operation. Any equipment that fails calibration (limit of +/- 10% of calibration gas value) or becomes inoperable will be tagged and taken out of service. Such equipment will be repaired and recalibrated before reuse.
- 8.2.2 Radiation detection devices will be checked before each use to ensure that the date of required calibration has not been exceeded. PID devices will be calibrated, on a daily basis and prior to use, to a known concentration of volatile gas in air mixture (i.e., isobutylene, etc.). Subsequent to completion of field activities, on a daily basis, the PID instrument will be checked by analyzing the respective gas-air mixture used for calibration. Field screening instrumentation checks and calibration will be recorded in bound field logbooks or field activity daily logs and instrument-specific calibration logs.
- 8.3 Field Audits/Surveillances
- 8.3.1 In accordance with NTS WAC, DOE-NV may conduct a biennial audit of the sampling activities covered under this SAP. In addition, the FCP may conduct surveillances of sampling activities to verify conformance with the requirements and procedures identified in this SAP. These surveillances will be documented in accordance with Section 12 of FD-1000.

- 8.3.2 Upon completion of each sampling event, QA/QC may review field logbook entries, COC/RFAs, etc., to ensure that sample collection and documentation were conducted in accordance with requirements of this SAP, its respective PSAP, and FD-1000. The completed field-generated documentation will be retained in Characterization MEF files.
  
- 8.4 Laboratory QC Samples - Laboratory QC sample requirements are provided in Appendix A (Table 2-2) and Appendix G of FD-1000 and based upon the requested ASL. In general, the types of laboratory QC samples will be selected based on project-specific needs.
  
- 8.5 Analytical Instrumentation/Equipment Calibration and Documentation - Analytical laboratory instrument and equipment calibration procedures are provided in Section 8.0 and Appendix E of FD-1000. The FCP and FCP-contracted analytical laboratory facilities will be responsible for ensuring that all analytical instrumentation and equipment is operating properly and is within prescribed calibration limits.
  
- 8.6 QA/QC Checks and Procedures
  - 8.6.1 Laboratory quality control checks and procedures for inorganic, organic, and radiological analyses are provided in Section 10.0 and Appendices A, B and E of FD-1000. The FCP and FCP-contracted laboratory facilities will be responsible for adherence to these quality control checks and procedures.
  
  - 8.6.2 In accordance with NTS WAC and FD-1000, the FCP Data Quality Management (DQM) group will conduct a laboratory qualification audit prior to contract award for analytical services. In addition, a system audit will be conducted for each FCP-approved laboratory on an annual basis to assure continued acceptable performance. Each data package submitted by a FCP-approved laboratory maybe reviewed by Analytical Data Management to ensure that contractual issues have been satisfied.
  
- 8.7 Data Reporting and Validation
  - 8.7.1 In accordance with the requirements of the program, specific DQO's and/or project specific needs, the field quality control, analytical data, and data validation requirements will be based on the waste acceptance criteria for the off-site management facilities.
  
  - 8.7.2 Data requiring validation shall be validated in accordance with the FCP Validation Plan in FD-1000 and EW-0010, *FCP Data Validation Procedure*.
  
  - 8.7.3 If any samples collected or analysis methods are used that are not in accordance with the SCQ, the Project Manager will be responsible to determine data usability as it pertains to supporting the DQO decisions.

## 8.8 Waste Disposition

### 8.8.1 **Contact Wastes**

8.8.1.1 Contact wastes, such as personal protective equipment (PPE) and rags or wipes (paper towels, Chemwipes<sup>®</sup>, etc.), are typically placed in 5-gallon pails or 55-gallon drums, lot marked so that they can be traced to (associated with) the waste stream sampled, and stored at the FCP for appropriate disposition.

8.8.1.2 Separate 55-gallon drums will be provided, for segregation of PPE wastes, and labeled as follows:

- A. Used Respirators
- B. Used Rubber Shoe Covers
- C. Used Tyvek/Saranex, Cartridges, Tape, Gloves

8.8.2 **Decontamination Solutions** - Equipment decontamination solutions are typically transferred to DOT-approved, bung-type, 55-gallon drums or 5-gallon pails, lot marked so that they can be traced to (associated with) the waste stream being sampled. The drums are placed within a Satellite Accumulation Area (SAA) with diked Herculite sheeting or containment devices, capable of capturing 2 times the capacity of the drum volume, to prevent contaminant migration resulting from spills, or leaks. The drummed decontamination solutions are stored at the FCP until the appropriate disposal or placement option can be identified.

## 9.0 **DISTRIBUTION AND CONTROL OF PSAPS**

### 9.1 Control of PSAPs

9.1.1 Once a PSAP is generated, approved and signed by an authorized individual, the PSAP shall be controlled by Characterization.

9.1.2 An individual project-specific file shall be maintained, and contain, at a minimum, the following:

- 9.1.2.1 Waste Characterization (WC) Sampling Request Form (FS-F-3787)
- 9.1.2.2 Project Sampling Plan Development/Sampling and Analysis/Field Activities
- 9.1.2.3 Master copy of the PSAP
- 9.1.2.4 Associated documentation (i.e. copies of logbook, log forms, chain of custody, data reports, etc.).

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- 9.1.3 Upon completion of a project, this project-specific file will either be:
  - 9.1.3.1 Forwarded by Characterization to the requestor, or
  - 9.1.3.2 Characterization will maintain the file for approximately one year, then the file will be archived.

9.2 Distribution of PSAPs

- 9.2.1 Once a PSAP is generated, distribution will be controlled by Characterization.
- 9.2.2 Distribution will be as follows:
  - 9.2.2.1 One working copy shall be forwarded to Sample and Data Management.
  - 9.2.2.2 One working copy shall be forwarded with the Work Package.
  - 9.2.2.3 One working copy shall be forwarded to the Data Validation group, if validation is required.

9.2.3 In the event of a revision or addendum, Characterization shall distribute the revised copies or addendum with instructions to the distribution points listed in Step 9.2.2

9.2.4 All revisions and addendums shall include an effective date.

10.0 **APPLICABLE DOCUMENTS**

10.1 Drivers

- 10.1.1 DOE Order 435.1, Radioactive Waste Management
- 10.1.2 NTS WAC, Nevada Test Site Waste Acceptance Criteria
- 10.1.3 Envirocare WAC
- 10.1.4 Onsite Disposal Facility (OSDF) WAC
- 10.1.5 TSCA Incinerator WAC
- 10.1.6 FD-1000, Sitewide CERCLA Quality (SCQ) Assurance Project Plan

10.2 Forms

- 10.2.1 FS-F-3361, Chain of Custody/Request for Analysis Record
- 10.2.2 FS-F-3787, Waste Characterization Sampling Request

### 10.3 Information Sources

- 10.3.1 PL-3078, Waste Characterization Program Plan
- 10.3.2 D22-11-001, Statistical Report Writing For Waste Acceptance Criteria
- 10.3.3 EPA SW-846, Test Methods for Evaluating Solid Wastes
- 10.3.4 EPA 230-02-89-042, Methods for Evaluating the Attainment of Cleanup Standards, Volume 1, Soils and Soiled Media
- 10.3.5 EPA 600/R-92/033, Characterizing Heterogenous Wastes: Methods and Recommendations
- 10.3.6 34-10-504, Dispositioning Samples from the On-Site Laboratory (and Retrieving Sample From) the Sampling Disposition Facility
- 10.3.7 DQO WS-014, Characterizing the Constituents of Concern in Containerized and Bulk Waste
- 10.3.8 DQO WS-015, Characterizing the Radiological Constituents of Concern in Containerized Waste and Sealed Sources from Past Production and Current/Future Remediation Projects Using Non-Destructive Assay (NDA) Methods

### 11.0 **DEFINITIONS**

- 11.1 Characterization: The determination of the physical, chemical, radiological, and biological properties of a material to the extent necessary to support informed decision making regarding the management of a waste.
- 11.2 Confidence Coefficient: The probability statement that accompanies a confidence interval and is equal to unity minus the associated type I error rate (false positive rate). A confidence coefficient of 0.90 implies that 90% of the intervals resulting from repeated sampling of a population will include the unknown (true) population parameter.
- 11.3 Confidence Interval: The numerical interval constructed around a point estimate of a population parameter, combined with the probability statement (the confidence coefficient) linking the interval to the population's true parameter value.
- 11.4 Disposal: The systematic and orderly placement, long term storage, distribution, or transformation of wastes (treatment).
- 11.5 Disposal: (NTS-WAC): The emplacement of low-level radioactive wastes in a manner which is considered permanent in that routine recovery is not provided for.
- 11.6 Facility - RCRA: (EPA 40 CFR 260.10): All contiguous land, and structures, other appurtenances and improvements on the land used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combinations of them).

- 11.7 Facility - Waste: (EPA 40 CFR 260.10): All contiguous land, and structures, other appurtenances and improvements on the land used for treating, storing, or disposing of waste. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combinations of them).
- 11.8 Hazardous Waste: (DOT 49 CFR 171.8): Any material that is subject to the Hazardous Waste Manifest Requirements of the Environmental Protection Agency specified in 40 CFR Part 262.
- 11.9 Hazardous Waste: (DOE EH-231-003/0191): A solid waste that must be treated, stored, or transported, and disposed of in accordance with applicable requirements under Subtitle C of RCRA.
- 11.10 Low-Level Waste: (NTS-WAC): All radioactive waste not classified as high-level waste, spent nuclear fuel, transuranic waste, uranium mill tailings, mixed waste, or by-product material as defined in DOE Order 435.1. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level waste, provided the concentrations of transuranics is less than 100 nanocuries (nCi/g).
- 11.11 Mixed Waste: (NTS-WAC): Waste containing both radioactive and hazardous components as defined by the Atomic Energy Act and the RCRA, respectively. Mixed waste must meet the Land Disposal Restrictions (LDR) as listed in 40 CFR 268.
- 11.12 Operable Unit: (EPA 40 CFR 300.6) A discrete part of the entire response action that decreases a release, threat of release, or pathway of exposure.
- 11.13 Radioactive Waste: (NTS-WAC): Solid, liquid, or gaseous material that contains radioactive nuclides regulated under the Atomic Energy Act of 1954, as amended, and of negligible economic value considering costs of recovery.
- 11.14 Radioactive Waste: (DOE 5480.2): Solid or fluid materials of no value containing radioactivity; discarded items such as clothing, containers, equipment, rubble, residues, or soils contaminated with radioactivity; or soils, rubble, equipment or other items containing induced radioactivity such that the levels exceed safe limits for unconditional release.
- 11.15 Solid Waste: (EPA 40 CFR 260.10, 261.2): Garbage, refuse, and other discarded solid materials, including solid waste materials resulting from industrial, commercial, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial wastewater effluent, dissolved materials in irrigation return flows, or other common water pollutants. It generally does not include mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.

11.16 Sub-Waste Stream: A group of containers that contain similar material based on process knowledge and are labeled with the same Material Type and Source Code as part of the FCP's Lot Marking System Number.

11.17 Waste Stream: (NTS-WAC): A waste or group of wastes from a process or a facility with similar physical, chemical, and radiological properties

**ATTACHMENT 1**  
**RECOMMENDED EXAMPLE FORMAT FOR DRUMMED WASTE MATERIAL**  
**PROJECT-SPECIFIC SAMPLING AND ANALYSIS PLAN (PSAP)**

Number:  
Date:  
Page 1 of 4

**A. Identifying Information**

- 1) **Project Name:**
- 2) **Plan No.:**
- 3) **Material Description/Matrix Code(s):**
- 4) **Number of Drums in Sub-Waste Stream:**
- 5) **Material Type:**
- 6) **Source Code:**
- 7) **Material Evaluation Form #:**
- 8) **Sampling Location for Drums:**
- 9) **Process Knowledge:**

**B. Sampling Information**

- 1) **General:** Samples taken will be contained in glass or polyethylene jars with Teflon lined lids.
- 2) **Preservation Method:** See Analytical Requirements in Section C.
- 3) **Holding Times:** See Preservative and Holding Time Guidelines in Section G. Holding times and sample volume/container requirements for media-specific analyses not listed in FD-1000 are provided by the FCP laboratory facility.
- 4) **Sample Technique:**
- 5) **Number of Drums to be Sampled and Analyzed:** , see page 2.
- 6) **Composite Samples:** No
- 7) **Visual Inspection Performed (# of visuals)?:** Yes ( ).
- 8) **Field Contact:**
- 9) **Send Results to:** Carolyn Waugh, ext. 5674, MS 52-3
- 10) **Charge No./Project Manager:**
- 11) **Required QA/QC Samples:**

<u>Field QC</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
Trip Blank	___	___	volatile organic samples
Field Blank	___	___	1 per 20 samples or 1 per sampling event
Equipment Rinsate	___	___	1 per 20 samples or 1 per sampling event
Duplicate	___	___	1 per 20 samples or 1 per sampling event
Container Blank	___	<u>X</u>	analytical data supplied by supplier
Preserv. Blank	___	<u>X</u>	assay data supplied by supplier

**Laboratory QC**

Laboratory QC sample type and frequency requirements are provided in Appendix G of FD-1000.

**ATTACHMENT 1  
RECOMMENDED EXAMPLE FORMAT FOR DRUMMED WASTE MATERIAL  
PROJECT-SPECIFIC SAMPLING AND ANALYSIS PLAN (PSAP)**

Number:  
Date:  
Page 2 of 4  
Charge:

Sampling Information

Start with Sample Number -1 for the first drum sample, then number consecutively until sampling is completed. The drum that is to be sampled in duplicate will be indicated with an asterisk (\*). The duplicate samples will be given different sample numbers.

<u>Sample Number</u>	<u>Inv. Number</u>	<u>Lot Number</u>	<u>Drum Number</u>
--------------------------	------------------------	-----------------------	------------------------

FIELD (1)-1

FIELD (1)

FIELD (1)

FIELD (1)

FIELD (1)

FIELD (1)

FIELD (1)

**NOTE:** If the material in the drum does not match the material description, do not sample. Perform a visual inspection of the contents of the drum.

If there is not enough material to meet the volume requirements, do not sample the drum. Perform a visual inspection of the contents of the drum.

Refer to page 1, Section B-7, for requested visuals. These will be performed regardless of the contents of the drum.

**NOTE:** When Enriched Material is sampled, include the following as a note:  
"Material to be sampled is enriched, notify Sample Processing Lab regarding the number of grams of U235."

**NOTE:** Reference applicable DQO (e.g., DQO WS-014)

**ATTACHMENT 1  
RECOMMENDED EXAMPLE FORMAT FOR DRUMMED WASTE MATERIAL  
PROJECT-SPECIFIC SAMPLING AND ANALYSIS PLAN (PSAP)**

TAL Number:  
Date:  
Page: 3 of 4

**C. Analytical Requirements**

In order to satisfy waste characterization requirements the following analyses shall be performed:

Analysis Requested ASL B	Solid Matrix Samples Container and Preservative/Units	Cool 4°C/ Mg/kg	Liquid Waste Samples Container and Preservative/Units	Cool 4°C/ mg/L	Quality Control Samples Container and Preservative/Units	Cool 4°C & HCl to pH < 2/ mg/L
Total VOA (off-site)	200 g GTL	Cool 4°C/ Mg/kg	(3) x 40 mL GTS	Cool 4°C/ mg/L	(3) x 40 mL GTS	Cool 4°C & HCl to pH < 2/ mg/L
TCLP VOA (off-site)	200 g GTL	Cool 4°C/ mg/L	---	---	---	---
Total Alcohols (off-site)	200 g AGTL	Cool 4°C/mg/kg	(2) x 1 L AGTL	Cool 4°C/mg/L	(2) x 1 L AGTL	Cool 4°C/ mg/L
Total SVOA (off-site)	-----	---	(3) x 1 L AGTL	Cool 4°C/ mg/L	(3) x 1 L AGTL	Cool 4°C/ mg/L
TCLP SVOA (off-site)	200 g AGTL	Cool 4°C/ mg/L	---	---	---	---
Total SVOA (off-site)	---	---	4.5 L AGTL	Cool 4°C/ mg/L	4.5 L AGTL	Cool 4°C/ mg/L
Total Pest/Herbicides (off-site)	---	---	---	Cool 4°C/ mg/L	---	Cool 4°C/ mg/L
Total Metal (on-site)	-----	---	(1) x 1 L GTL	Cool 4°C/ mg/L	(1) x 1 L jar, P	Cool 4°C & HNO <sub>3</sub> to pH < 2/mg/L
TCLP Metal (on-site)	250 g G or P	Cool 4°C/ mg/L	-----	---	-----	---
TCLP Pest/Herbicides (off-site)	100 g AGTL	Cool 4°C/ mg/L	---	---	---	---
Flashpoint (on-site)	-----	---	(1) x 250 mL GTL	None/ ° F	-----	---
Total U (on-site)	350 g G or P	None/ ppm	(1) x 120 mL G or P	None/ ppm	(1) x 250 mL G or P	HNO <sub>3</sub> to pH < 2/mg/L
pH (on-site)		---		None/ pH units		---
Quantitative PFLT** (on-site)		None/ present/ absent		---		---
Percent Moisture (on-site)		None/ Wt%		---		---
U-235 (on-site)	250 g G or P	None/ Wt%	(1) x 250 mL G or P	None/ Wt%	(1) x 250 mL G or P	HNO <sub>3</sub> to pH < 2/mg/L
Alpha-Beta (on-site)		None/ pCi/g		None/ pCi/L		---
Description of material (Color, appearance, consistency, etc.)						

ATTACH COPY OF THIS PAGE TO THE CHAIN-OF-CUSTODY.

\*\* - NOTE TO LAB: IF PFLT FAILS, PERFORM pH AND FLASHPOINT.

Lab Information:

Requested TAT-- 30 days (analysis)  
--14 days (validation)

**NOTE:** When Enriched Material is sampled, included the following as a note:  
"Maximum total grams of U-235 to be collected = \_\_\_\_\_ grams"

**NOTE:** DQO WS-014, Characterizing the Constituents of Concern in Containerized and Bulk Waste

**ATTACHMENT 1  
RECOMMENDED EXAMPLE FORMAT FOR DRUMMED WASTE MATERIAL  
PROJECT-SPECIFIC SAMPLING AND ANALYSIS PLAN (PSAP)**

TAL Number

Date

Page: 4 of 4

**D. Sub-Waste Stream Description**

The sub-waste stream consists of drum(s) in lot(s). The material type of "" and the source code of "" indicate that this material is.

**E. Precautions and Limitations**

See site Sampling Procedures for Precautions and Limitations.

**F. Representative Sampling Procedure**

The drums to be sampled are listed on page 2 of this form. If visual inspection indicates that the material has free liquid or is completely dry, then a P.F.L.T and Percent Moisture is not necessary. Record pertinent information in the Field Log Book for each drum sampled as specified in the site's Sampling Procedures. Excess sample material from samples analyzed on-site will be dispositioned as per 34-10-504, "Dispositioning Samples from the On-Site Laboratory (and Retrieving Sample From) the Sampling Disposition Facility."

**G. Preservative and Holding Time Guidelines**

See the "Prototype Sampling and Analysis Plan for Containerized Waste at the FCP" and/or Table 6-1 "Sample Container and Preservation Requirements," of FS-1000, Sitewide CERCLA Quality (SCQ) Assurance Project Plan. Sample container, preservative, and holding time requirements for analytical parameters not provided in these tables have been obtained from federal or state of generation policies/directives, or from the FCP or FCP-approved laboratory facility; and incorporated into this PSAP as permitted in Section 3.3.2 of FD-1000.

**H. Variances**

Drums specified on page 2 of this PSAP, may be replaced due to the following: matrix can't be sampled, matrix does not match Material Type, or there is inadequate volume to meet the specified volume requirements. A formal variance is not required. Logbook entries will record the specific variance.

This form must be dated and signed by an authorized individual.

If this Sub-Waste Stream is sampled and analyzed according to the information on this form, the results generated will be in agreement with the sampling and analysis requirements of PL-3048, "Nevada Test Site Waste Acceptance Criteria" (NTSWAC), and FD-1000, Site-wide CERCLA Quality Assurance (SCQ) Project Plan.

Sampling & Analysis Requestor	Date	PSAP Developer	Date	Project Manager	Date

**SECTION D - PROCESS INFORMATION**

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**SECTION D - PROCESS INFORMATION**

**RCRA Part B Permit Application**

**Fernald Closure Project**

**Fernald, Ohio**

The information provided in this section is submitted in accordance with the requirements of the Ohio Administrative Code (OAC) 3745-55-70 through 78. This information is also in accordance with Title 40 of the Code of Federal Regulations (CFR) Part 270.15-21. Other federal hazardous waste regulations addressed in this section include 40 CFR Part 264.171-175.

**D-1 CONTAINERS**

This section discusses the specific process information for hazardous waste container storage at the Fernald Closure Project (FCP). The units to be permitted for container storage of hazardous waste for more than ninety (90) days are:

- ~~Plant 6 Warehouse Building 79~~
- Hazardous Waste Storage Lockers (9 8 lockers; 3 locations)

Figure D-1 shows the location of each of the above storage units at the facility. The container storage information is discussed in the following paragraphs and in Table D-1.

The Materials Control and Accountability (MC&A) and Inventory Control (IC) Departments maintain surveillance over the storage, movement, measurement, and identification of ~~nuclear~~ materials at the FCP. Their mission is to control and account for ~~nuclear materials and~~ radioactive and mixed wastes in accordance with DOE Orders and regulatory requirements, including the Resource Conservation and Recovery Act (RCRA) and Toxic Substances Control Act (TSCA).

~~Materials accountability~~ MC&A/IC records begin with the proper identification of the material. ~~The materials inventory system consists of~~ databases are organized by lot and item number to record information about the material and its location. The FCP lot marking system is used to assign a unique code to each item of material. Materials are grouped by material type, ~~source~~, and by enrichment class in lots consisting of one or more items. Each item within a lot is then assigned a unique item number.

The materials inventory control system, which is part of the Sitewide Waste Information Forecasting and Tracking System (SWIFTS) maintains a perpetual inventory of all materials on site. Input to the MC&A accountability system from the materials inventory control system consists of the following material transactions: beginning inventory, additions, removals, adjustments, and transfer data. Source records that are generated by on-site operations personnel are entered by Inventory Control personnel into the database databases.

An accurate inventory of all material in storage at the FCP is an important part of the material control and accountability program. The beginning inventory for a reporting period is established by bringing forward the ending physical or book inventory balances from the previous report. Materials transactions of the period are used to calculate the book inventory. A book inventory can be obtained after all transactions for the day are entered.

Generators, with overview and assistance from Waste Management/Characterization personnel, are responsible for marking, and labeling, and recording the location and any movements of their hazardous waste containers. based on guidance from Waste Characterization personnel (See Section C, Waste Characteristics, for additional information). Initially this includes completing the hazardous waste label and assigning a reactivity group code (RGC). All other hazardous waste data such as RCRA classification is coordinated with Waste Characterization personnel. When Waste Characterization personnel complete a RCRA characterization of a material, the new information is keyed into the Waste Characterization system, which is part of SWIFTS, database and reports are generated to trigger relabeling or movement of containers as necessary.

Inspections of individual containers in the storage areas vary depending on the RCRA disposition of the material and the placement unit(s). Inspection forms for RCRA hazardous wastes are kept on file in the FCP's RCRA Operating Record.

#### **D-1a Containers With Free Liquids**

##### **D-1a(1) Description of Containers**

The primary containers used at the facility include but are not limited to 55-gallon and 85-gallon drums. When overpacking of 55-gallon drums is required, 85-gallon drums are typically used. Other containers that may be used at the facility and their Department of Transportation (DOT) specification are shown

in Table D-2.

Generally, containers currently purchased for hazardous waste storage meet UN packaging standards or DOT-specified packaging for radioactive materials. Waste containers already in storage may not meet these standards. These containers are inspected on the same schedule as all other containers that meet these standards. At the time of shipment, the stored material is classified under DOT regulations and the container is evaluated for DOT compliance. The material is then repackaged if necessary.

All containers storing hazardous waste are inspected for corrosion and other defects such as severe rusting, apparent structural defects, leaks, holes, dents, or bulges at the time they are first used. Dents that exceed one-inch in depth or 6-inches in length in any two directions render the container non- acceptable. Bulges that exceed outward from the original surface more than one-inch shall not be acceptable. Drums shall be convex-ended in order to be acceptable. The drum lid is inspected for holes, dents, and bulges. If damage exceeding the specifications is found, the container is recorded unacceptable and the supervisor is notified of damaged containers. All containers are inspected a minimum of once per week as required by 40 CFR 264.174 after they are filled and placed in the storage unit. The inspection schedule and procedures are described in Section F, Procedures to Prevent Hazards.

A hazardous waste label or the words "hazardous waste" is applied to the container at the accumulation start date. The hazardous waste label includes the facility name and address, the EPA Identification Number, EPA hazardous waste code(s), the accumulation start date, and/or hazardous waste determination date. Although not required by RCRA, the facility lot number, inventory number, drum number, and the gross, net and tare weights are also attached to the drum for internal tracking and inventory purposes. Also, a storage compatibility/Reactivity Group Code (RGC) is determined and applied to each container.

**D-1a(2) Container Management Practices**

Various equipment is used to transport containers throughout the facility. The equipment consists primarily of tuggers, trailers, forklifts, Ottowas (yard tractors), flat bed trailers, individual two-wheel drum dollies, riding hand stackers, and fork-mounted drum grabs (vertical and horizontal). The fork-

mounted drum grabs are used frequently to move individual drums for testing, sampling activities, and to repair leaking containers. All larger drum movements (i.e. from one unit to another or across the site) are accomplished by forklifts and the tuggers and trailers.

A container is inspected for dents, leaks, holes, corrosion or rust, bulges, and signs of leakage, and that they are closed and properly labeled while in storage. Prior to transport, the containers and the staging areas are inspected. Items checked include container condition and signs of leakage. Spill clean-up equipment is also accessible. Records for inventory control are documented and verified before movement. FCP procedures detail the steps taken prior to the transfer of containers. Containers moved by truck or trailer are loaded and unloaded by forklift. The containers are strapped down and transported to the storage unit, once safe conditions for movement are verified. The supervisor is responsible for providing oversight and guidance and ensuring that the motor vehicle operators (MVOs) are trained to operate equipment used to transport hazardous waste. These training records are maintained in the training department. The supervisor must be notified by the MVO before movement of any containers occurs.

~~The number of containers and hazardous waste volume for each storage unit will vary depending on the size of container used and the applicable aisle spacing and stacking height necessary to meet additional fire protection standards required on-site. The number of containers in each RCRA storage unit must not exceed the maximum storage capacity for that unit. See Table D-1 for specific information regarding maximum stacking height and maximum capacities for each storage unit.~~

Containers are delivered to staging areas where they are weighed, labeled/stenciled (if needed) and inspected according to FCP procedures to document that the containers are acceptable for storage. Once the container is verified as acceptable, the container is logged into the MC&A Material Movement Record (MMR) or Container Tracking Log (CTL). The minimum information recorded in these logs include the container inventory number, serial number, original location, new location, and date of movement. Figure D-4 provides examples of these logs.

Hazardous waste types are grouped together and stored according to compatibility in accordance with Reactivity Group Codes and other appropriate information. Incompatible hazardous wastes are separated by means of a dike, berm, or other device (e.g. stored on separate spill pallets). Section F,

Procedures to Prevent Hazards, provides more information on the procedures used to ensure that incompatible hazardous wastes are segregated. In addition, the number of containers stored in the hazardous waste storage lockers will not exceed the maximum capacity for the lockers as specified in Table D-1.

Individual drums removed or shipped from the storage unit are documented on the MMR or the CTL. Containers remain closed except when a sample must be obtained or a visual inspection conducted as a part of the waste characterization, or during addition or removal of hazardous waste. Some containers are equipped with filtered vent plugs to prevent the build-up of pressure within the container. These vent plugs are installed to provide ventilation to containers of wastes containing free reactive uranium metal that has the potential to generate hydrogen gas. Other examples in which vent plugs may be installed include: drums containing unpunctured aerosol cans, bulging or pressurized containers, and containers of biological gas-generating waste. The filter vent plug contains a charcoal filter. The size of the filter vent plug is a maximum of two inches, and is inserted into the bung opening of the drum lid. The plugs are installed also on outer containers if the vented containers are overpacked.

**D-1a(3) Secondary Containment System Design and Operation**

All hazardous waste storage lockers The following RCRA storage units are designed to store hazardous waste with free liquids and provide a secondary containment system for the storage of liquids. Attachment D-1 provides information regarding floor coatings for the units. The secondary containment systems are operated according to 40 CFR 264.175 regulations and are designed to contain, at a minimum, 10 percent of the maximum storage capacity volume.

Hazardous Waste Storage Lockers. ~~Currently, nine~~ Eight hazardous waste storage lockers are used for the storage of containers of hazardous waste. ~~Seven lockers are used for the storage of containers of mixed waste: four lockers are located north of the Plant 6 Warehouse (Building 79) and three lockers are staged in an area east of the Advanced Waste Water Treatment Facility (AWWT). Two lockers, located north of the West Parking Lot, are used for the storage of containers of non-radiologically contaminated hazardous waste.~~ Each locker measures 28' in length by 13' in width x 8' in height. The lockers are constructed of galvanized steel with a steel grate flooring. The flooring is elevated to prevent containers from contacting spilled materials in the secondary containment area. The secondary

containment is constructed of structural steel and is sealed with a chemically-resistant epoxy coating. Each locker has at least one forklift access door on each end and two on each side. ~~Metal ramps placed at the entrances provide access to the interior.~~ A map indicating the location of the storage lockers is provided as Figure D-1. Engineered design drawings of the storage lockers, including the secondary containment dimensions, are provided as Figure D-58.

~~**Plant 6 Warehouse (Building 79).** The Plant 6 Warehouse consists of a steel framed, enclosed, metal building with an 8 inch thick, reinforced concrete slab and is equipped with a secondary containment system. This containment system includes six inch by six inch concrete dikes around the perimeter of the three containment units (Bays A, B, and C) as shown in the Foundation Plans and Details as provided in Figure D-41. Ramps are used to allow access to the containment areas. The building is fully sprinkled using a dry pipe sprinkler system and meets the standards for storage of ignitable liquids. The drum layout drawing for the Plant 6 Warehouse is included in Figure D-42. Figure D-43 includes the dimensions of the containment areas for the Plant 6 Warehouse.~~

#### D-1a(3)(a) Requirement for the Base to Contain Liquids

~~The concrete floor of the Plant 6 Warehouse (Building 79) is inspected for cracks and gaps weekly. The inspector checks the building for any structural failure of the floor surface and curbing. The condition of the secondary containment in the Hazardous Waste Storage Lockers and Plant 6 Warehouse (Building 79) is checked to ensure that all portions of the system are sealed, and free of any cracks or gaps. Standing liquids from a release of hazardous waste must be removed within one working day from discovery and the area re-inspected to ensure compliance. Any cracks or gaps identified will be noted on the inspection checklist. A Maintenance Work Order is written for the repair of the crack or gap. The inspector will re-inspect the area and note the conditions until the gap or crack is repaired.~~

Hazardous Waste Storage Lockers. The secondary containment area in each of the hazardous waste storage lockers is coated with a chemically resistant epoxy sealant, Amershield, to provide an impermeable surface. Attachment D-1 provides information regarding the coating system, including chemical resistance data.

~~**Plant 6 Warehouse (Building 79).** The floor and curbs are coated with a chemically resistant coating to~~

~~create an impermeable surface. The base of the Plant 6 Warehouse was re-coated with Surtreat during December 1992. Attachment D-1 provides information regarding the coating system, including chemical resistance data.~~

**D-1a(3)(b) Containment System Drainage - Hazardous Waste Storage Lockers.** Precipitation will not affect hazardous waste containers in the hazardous waste storage lockers because they are enclosed structures. The floor of the storage lockers is grated and is elevated to prevent containers from contacting spilled materials in the secondary containment area. The floor grating is removable to allow access to the secondary containment area for clean up in the event of a spill.

~~**Plant 6 Warehouse (Building 79).** Containers stored in the Plant 6 Warehouse are elevated on pallets during storage to eliminate the potential of spilled liquids coming into contact with the containers. The accumulated liquid is contained within the secondary containment system until the material is removed as described in Section D-1(a)(3)(e). Precipitation is not a factor since the storage unit is completely enclosed.~~

**D-1a(3)(c) Containment System Capacity**

**Hazardous Waste Storage Lockers.** The maximum storage capacity for each of the hazardous waste storage lockers is 2,640 gallons (48 55-gallon drums). The secondary containment capacity is 1,291 gallons which is greater than 10% of the maximum storage capacity for the unit. Secondary containment calculations for the lockers are provided in Attachment D-2.

~~**Plant 6 Warehouse (Building 79).** Hazardous waste containers stored in the Plant 6 Warehouse storage bays are elevated (e.g. placed on pallets) during storage. The storage and containment capacities for each bay of the Plant 6 Warehouse storage unit are discussed separately below. The secondary containment capacity calculations are provided in Attachment D-2.~~

● ~~**Bay A** The maximum storage capacity for Bay A is 82,060 gallons (1,492 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 1,097 ft<sup>3</sup>. The secondary containment capacity is 1,928 ft<sup>3</sup>.~~

● ~~**Bay B** The maximum storage capacity for Bay B is 79,640 gallons (1,448 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the~~

~~maximum storage volume of 1,064 ft<sup>3</sup>. The secondary containment capacity is 2,061 ft<sup>3</sup>.~~

- ~~● Bay C The maximum storage capacity for Bay C is 69,080 gallons (1,256 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 923 ft<sup>3</sup>. The secondary containment capacity is 1,940 ft<sup>3</sup>.~~

#### **D-1a(3)(d) Control of Run-On.**

Hazardous Waste Storage Lockers. Precipitation is prevented from entering the hazardous waste storage lockers since these units are completely covered and enclosed on all sides.

~~Plant 6 Warehouse (Building 79). Precipitation is prevented from entering the storage unit since this area is completely covered and enclosed on all sides. To further prevent run-on, the topography around the warehouse is sloped away from the building.~~

#### **D-1a(3)(e) Removal of Liquids from Containment System**

Spills and leaks are contained within the diked containment area. Spills and leaks are remediated as follows:

Containers of hazardous waste found to be leaking will be controlled upon discovery. Absorbent "pigs", or equivalent, are used to contain and/or absorb the spilled material within the immediate area. The characteristics of the spilled material are established from the container identification if possible. The spill may then be cleaned up by absorption. If an acid or a base, a neutralizing agent is used as necessary to reduce or eliminate the hazardous properties of the spill before absorption. Saturated sorbent material is placed in a compatible container for proper disposal. A pumping system may be used to remove larger spills. Spilled material will be pumped out of the secondary containment system within one working day from discovery of the incident.

If spilled material is not identifiable, samples are analyzed for hazardous characteristics in accordance with Section C, Waste Characteristics. The container is properly labeled. Storage and disposal is performed in accordance with applicable regulatory requirements. Equipment and materials used are decontaminated or disposed of properly.

In addition, Section 3.8 (c) of the Stipulated Amendment to the Consent Decree states the following regarding spill response:

"For any drums that are actually leaking in such a manner as to allow wastes to be released onto the pad, DOE shall immediately contain the release or spill and shall manage the drum in accordance with OAC 3745-66-71 as soon as possible after detection, but in no event more than 24 hours after discovery."

Note that safety basis controls and safe container handling practices (e.g. for gas-generating wastes or ~~enriched restricted materials~~) will not be compromised. A safety issue would be the only reason that compliance with this requirement would be delayed, and in that case, notification would be made to management and the action plan documented. Additional information regarding responses to leaking/deteriorated containers is found in Section G-4i (Container Spills and Leakage) in the FCP's Contingency Plan.

**D-1b Containers Without Free Liquids**

The hazardous waste storage lockers ~~and the Plant 6 Warehouse~~ are designed to store hazardous waste with or without free liquids.

**D-1b(1) Test for Free Liquids**

The chemical and physical characteristics of the hazardous waste placed in the storage units are determined by visual inspection, specific material data, documented criteria, and/or process knowledge. The visual inspection includes checking the container contents visually for any free standing liquids. The waste characterization process is described further in Section C, Waste Characteristics.

**D-1b(2) Description of Containers**

The hazardous waste container storage areas accept and store wastes in containers meeting RCRA specifications as delineated in OAC 3745-55-71 and 40 CFR Parts 264.171 and 264.172. A thorough description of containers is presented in D-1a(1).

**D-1b(3) Container Management Practices**

A thorough description of container management practices on-site is presented in D-1a(2).

#### **D-1b(4) Container Storage Area Drainage**

Hazardous Waste Storage Lockers. The floor of the hazardous waste storage lockers is grated and is elevated to prevent containers from coming into contact with the spilled material.

~~Plant 6 Warehouse (Building 79). The Plant 6 Warehouse is a pre-engineered, ribbed, unheated building covered by metal roofing. Since this unit is completely enclosed, precipitation is not a factor. A photograph of the Plant 6 Warehouse is provided as Figure D-54. The storage unit is divided into three (3) diked bays with access ramps provided for access to the enclosed areas as shown in Figure D-41. As indicated, the base is constructed of eight inch concrete with number 4 reinforcement rebar at 12 inch intervals. Containers stored in the Plant 6 Warehouse are elevated (e.g. placed on pallets) during storage to eliminate the potential of spilled liquids coming into contact with the containers.~~

#### **D-1c Containers of Uncharacterized/Newly Characterized Waste**

Containers of wastes undergoing characterization are stored on the best available hard surface in accordance with Section 3.5.1(f) of the Stipulated Amendment to the Consent Decree (SACD). Containers of uncharacterized waste stored in covered areas (e.g. Hazardous Waste Storage Lockers) ~~Plant 6 Warehouse (Building 79)~~ will be inspected on a weekly basis.

In the event that containers of uncharacterized waste are stored in an area that is not identified as a Hazardous Waste Management Unit in the FCP's RCRA Part A Permit Application, the FCP shall, as soon as reasonably possible but in no event more than sixty days from a determination that any drummed materials are hazardous or mixed waste, move such material to units that are identified in the FCP's RCRA Part A Permit Application. If storage space which meets RCRA requirements is not available, DOE shall store such wastes in a manner as protective of human health and the environment as possible, shall perform daily leakage inspections on all such containers that are not located under cover and shall, within sixty days of a determination that sufficient hazardous waste storage space is not available, submit a plan and schedule for Ohio EPA approval for short-term storage of such wastes. The FCP shall perform weekly inspections in accordance with 40 CFR 265.15 and 265.174 and OAC 3745-65-15 and 3745-66-74 on all such containers of hazardous/mixed waste.

#### **D-2 TANKS SYSTEMS**

The FCP is not seeking a permit for a tank or tank systems, therefore, this section is not applicable.

**D-3 WASTE PILES**

The FCP is not seeking a permit for a waste pile, therefore, this section is not applicable.

**D-4 SURFACE IMPOUNDMENTS**

The FCP is not seeking a permit for a surface impoundment, therefore, this section is not applicable.

**D-5 INCINERATORS**

The FCP is not seeking a permit for an incinerator, therefore, this section is not applicable.

**D-6 LANDFILLS**

The FCP is not seeking a permit for a landfill, therefore, this section is not applicable.

**D-7 LAND TREATMENT**

The FCP is not seeking a permit for a land treatment unit, therefore, this section is not applicable.

**D-8 MISCELLANEOUS UNITS**

The FCP is not seeking a permit for a miscellaneous unit, therefore, this section is not applicable.

**D-9 SUBPART AA**

The facility has no process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction or air or steam stripping managing hazardous wastes with organic concentrations at least 10 parts per million (ppm). Therefore, the facility is not subject to the requirements of this subpart.

**D-10 SUBPART BB**

The facility has no equipment that contains or contacts hazardous waste with organic concentrations of at least 10 percent by weight that are managed in:

- Units that are subject to the permitting requirements of 40 CFR Part 270, or
- Hazardous waste recycling units that are located at hazardous waste management facilities otherwise subject to the permitting requirements of 40 CFR Part 270.

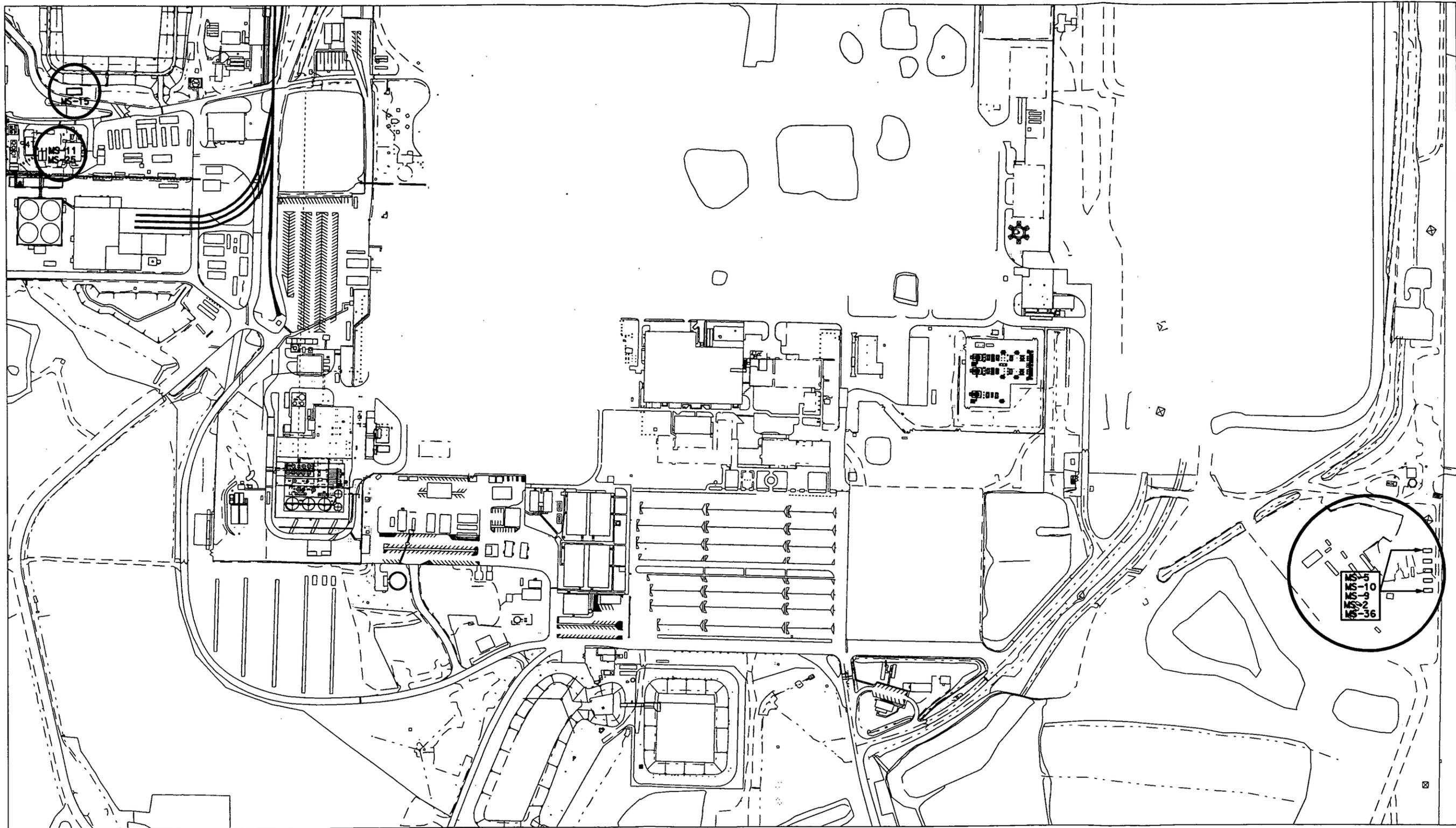
Therefore, the facility is not subject to the requirements of this subpart.

**D-11 SUBPART CC**

Subpart CC air emission standards require facilities to control emissions of volatile organic compounds (VOC) from containers if the hazardous waste in these containers contains an average VOC concentration of greater than or equal to 500 parts per million by weight. Subpart CC emissions standards do not apply to:

- A waste management unit that holds hazardous waste placed in the unit before December 6, 1996, and in which no hazardous waste is added to the unit on or after December 6, 1996.
- A waste management unit that is used solely for on-site storage of hazardous waste that is placed in the unit as a result of implementing remedial activities required under CERCLA authorities.
- A waste management unit that is used solely for the management of radioactive mixed waste in accordance with all applicable regulations under the authority of the Atomic Energy Act.
- A container that has a design capacity less than or equal to 0.1 m<sup>3</sup>.

If a FCP hazardous waste container does not meet one of the Subpart CC exemptions, it will be managed in accordance with the applicable Subpart CC container level standard. If a DOT container is used to meet these standards, no additional testing, inspection, or monitoring requirements apply (59 FR 62899; December 6, 1994).



N

SCALE



320 160 0 320 FEET

LOCATION MAP

SECTION D - PROCESS INFORMATION  
 RCRA STORAGE UNITS

TABLE D-1

RCRA STORAGE UNIT	MAXIMUM CAPACITY IN GALLONS	WITH FREE LIQUIDS OR WITHOUT FREE LIQUIDS	STORAGE OF IGNITABLE LIQUIDS	STACKING HEIGHT (55-GAL. Drum)	AISLE SPACING
1. Hazardous Waste Storage Lockers	2,640 (per locker)	With or Without free liquids	Yes	No Stacking	Containers are accessible and visible for inspection Minimum of 22 inches
2. Plant-6 Warehouse—Bldg. 79	230,780	With or Without free liquids	Yes	Four High (Two High when storing ignitables)	Minimum of 22 inches
Bay A	82,060	With or Without free liquids	Yes	Four High (Two High when storing ignitables)	Minimum of 22 inches
Bay B	79,640	With or Without free liquids	Yes	Four High (Two High when storing ignitables)	Minimum of 22 inches
Bay C	69,080	With or Without free liquids	Yes	Four High (Two High when storing ignitables)	Minimum of 22 inches

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**SECTION D - PROCESS INFORMATION**

**ATTACHMENT D-1**

<b>RCRA STORAGE UNIT</b>	<b>FLOOR COATING</b>
1. Building 79 (Plant 6)	Surtreat
2. 1 Hazardous Waste Storage Lockers	Amershield

**SECTION F - PROCEDURES TO PREVENT HAZARDS**

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## SECTION F - PROCEDURES TO PREVENT HAZARDS

### RCRA Part B Permit Application

#### Fernald Closure Project

#### Fernald, Ohio

The information provided in this section is submitted in accordance with the requirements of the Ohio Administrative Code (OAC) 3745-50-44(A)(4) and Title 40 of the Code of Federal Regulations (CFR) Part 270.14(b)(4). Other regulations addressed to complete this section include OAC 3745-54-14, 3745-54-15, 3745-54-17, 3745-54-32, 3745-54-35, 3745-55-74, and 3745-55-76 (40 CFR 264.14, 264.15, 264.17, 264.32, 264.35, 264.174, and 264.176).

The FCP is not required to comply with Federal and Ohio hazardous waste laws and hazardous waste regulations, with regard to mixed waste, where compliance will increase the risk to human safety and health or the environment, as stated in Section 3.1 of the Consent Decree and its Stipulated Amendment. In these circumstances the FCP will, in consultation with the Ohio EPA, handle the hazardous or mixed waste in a manner protective of human health and safety and the environment as if the hazardous waste requirement had been applied.

### F-1 SECURITY

#### F-1a Security Procedures and Equipment

General security at the Fernald Closure Project (FCP) is provided by ~~fencing~~, gates, and security officers as discussed in Section F-1a(1). The following features also contribute to the safety and security of the hazardous waste storage lockers and the entire facility:

- Ample lighting is provided throughout the site.
- Communication devices are available for personnel accessing these units, for emergency notification purposes.
- Employees and contractors are required to show identification badges when reporting for work. Visitors must complete an access request form when entering the site. ~~The request form must be signed by an authorized manager.~~

#### F-1a(1) 24-Hour Surveillance System

The FCP is under 24 hour surveillance by security officers on mobile and foot patrols. Entry into the facility is monitored through ~~two~~ three access points: the South Access Control Point located on the south access road, ~~Post 2 located near the east entrance to the east parking lot~~ and Post 4 located off of Route 126 which permits access to the ~~northern portion of the site~~ railyard and On-Site Disposal Facility (OSDF) operations. The South Access Control Point serves as the site's primary access point and is manned 24 hours a day.

#### F-1a(2) Barrier and Means to Control Entry

##### F-1a(2)(a) Barrier

~~The former FCP production area, which includes three of the hazardous waste storage lockers, is surrounded by a physical barrier and monitored 24 hours a day by security. Note that these lockers are planned to be moved to an area south of Cell 8 in November 2004. At that point, all of the hazardous waste storage lockers will be located outside of the former production area. These lockers are locked when they are being used for hazardous waste storage.~~

~~The facility's vehicular access point to the hazardous waste storage lockers in the former production area is through an entrance located east of the Advanced Waste Water Treatment Facility (AWWT) facility.~~

The security checkpoint at the South Access Control Point at the south entrance is manned 24 hours a day to control access. In addition, all of the hazardous waste storage lockers are locked when they are being used for hazardous waste storage. ~~All other access points are manned from 0530 until 1800 (except during construction season) to allow project required ingress and egress of employees. At the conclusion of daily operations, access points are secured and the corresponding gates are locked.~~

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**F-1a(2)(b) Means to Control Entry**

~~The vehicular entrance point to the hazardous waste storage lockers in the former production area of the facility is through an entry located east of AWWT, as discussed in Section F-1a(2)(a).~~

Personnel access is controlled during ingress/egress as dictated by project working hours. Employees and contractors are required to present an identification badge when reporting to work. Visitors must sign an access sheet and obtain a visitor's pass. ~~Visitors are permitted to enter the former production area only if escorted by facility personnel.~~ These practices restrict unauthorized visitors from entering the main facility.

**F-1a(3) Warning Signs**

Signs legible from a distance of 25 feet are posted at the entrance(s) to the individual hazardous waste storage units within the facility.

The signs state:

**"Danger -- Authorized Personnel Only"**

No languages other than English are necessary for the signs at this facility.

**F-1b Waiver**

A waiver of the security procedures and equipment requirements is not requested by the FCP at this time, therefore this section is not applicable.

**F-2 INSPECTION SCHEDULE**

The information provided in this section is submitted in accordance with the requirements of OAC 3745-50-44(A)(5) and 3745-54-14 and 40 CFR 270.14(b)(5) and 264.15.

The FCP is not required to comply with Federal and Ohio hazardous waste laws and hazardous waste regulations, with regard to mixed waste, where compliance will increase the risk to human safety and health or the environment, as stated in Section 3.1 of the Consent Decree and its Stipulated

Amendment. In these circumstances the FCP will, in consultation with the Ohio EPA, handle the hazardous or mixed waste in a manner protective of human health and safety and the environment as if the hazardous waste requirement had been applied.

#### **F-2a General Inspection Requirements**

In addition to inspection of the RCRA storage units, the FCP conducts inspections of safety and emergency equipment, operating equipment, and general conditions of the structures. An informational example of the current FCP Inspection Schedule is provided as Attachment F-1. The Inspection Schedule is updated as needed and maintained in the FCP's RCRA Operating Record.

Deteriorations or malfunctions revealed by the inspection are remedied as soon as possible. Where a hazard is imminent, or has already occurred, remedial action is taken immediately. If the hazard involving hazardous waste is declared to be an "Operational Emergency", as defined in the Contingency Plan, Section G of this permit application, the contingency plan is implemented.

Inspections are documented by recording results on inspection forms. The completed inspection forms are maintained for a minimum of three years from the date of inspection. Examples of the inspection forms currently in use are provided in Attachment F-2. The inspection forms are updated as needed and maintained in the FCP's RCRA Operating Record.

#### **F-2a(1) Types of Problem**

Types of problems that may be encountered during inspections are listed on the Facility Inspection Schedule provided as an example in Attachment F-1. Generally, the inspection verifies the adequacy of emergency equipment and the operating condition of the facility as identified on the inspection schedule.

#### **F-2a(2) Frequency of Inspections**

The frequency of inspections at the FCP is based on the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if deterioration goes undetected between inspections. The frequency of inspections at

the FCP conforms to accepted industry practices, RCRA guidance information and the Consent Decree and its Stipulated Amendment. The frequency of inspection for each item can be found on the Facility Inspection Schedule (example provided as Attachment F-1).

The emergency and personnel protection equipment discussed in Section F-3 is inspected weekly. Inspection of the hazardous waste storage units takes place weekly.

#### **F-2b Specific Process Inspection Requirements**

##### **F-2b(1) Container and Storage Area Inspections**

The container storage areas are inspected weekly as per the Facility Inspection Schedule (Attachment F-1). Each storage area is inspected to ensure that ~~all containers are accessible and visible for inspection~~ for proper aisle spacing, stacking, pallet condition, evidence of leaks or spills and condition of the floor and ~~secondary containment~~ ~~dikes~~. Containers of hazardous waste are inspected weekly for evidence of damage or deterioration, and container labels. The inspector immediately reports to the supervisor if a hazardous waste release is observed.

Completed inspection forms for the RCRA Storage Areas are maintained in the FCP's RCRA Operating Record. Examples of RCRA Container Storage Area Inspection Forms are provided in Attachment F-2 and are subject to change.

##### **F-2b(2) Tank System Inspection**

The FCP is not seeking a RCRA permit to operate a hazardous waste tank.

##### **F-2b(3) Waste Pile Inspection**

The FCP is not seeking a RCRA permit to operate a hazardous waste pile.

**F-2b(4) Surface Impoundment Inspection**

The FCP is not seeking a RCRA permit to operate a hazardous waste surface impoundment.

**F-2b(5) Incinerator Inspection**

The FCP is not seeking a RCRA permit to operate a hazardous waste incinerator.

**F-2b(6) Landfill Inspection**

The FCP is not seeking a RCRA permit to operate a hazardous waste landfill.

**F-2b(7) Land Treatment Facility Inspection**

The FCP is not seeking a RCRA permit to operate a hazardous waste land treatment facility.

**F-2b(8) Miscellaneous Unit Inspection**

The FCP is not seeking a RCRA permit to operate a miscellaneous hazardous waste unit.

**F-2b(9) Subpart AA Inspection**

The FCP has no process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction or air or steam stripping managing hazardous wastes with organic concentrations at least 10 parts per million (ppm). Therefore the FCP is not subject to the requirements of this subpart.

**F-2b(10) Subpart BB Inspection**

The FCP has no equipment that contains or contacts hazardous waste with organic concentrations of at least 10 percent by weight that are managed in:

- Units that are subject to the permitting requirements of 40 CFR 270, or

- Hazardous waste recycling units that are located on hazardous waste management facilities otherwise subject to the permitting requirements of 40 CFR 270.

Therefore the FCP is not subject to the requirements of this subpart.

**F-2b(11) Subpart CC Inspection**

Subpart CC air emission standards require facilities to control emissions of volatile organic compounds (VOC) from containers if the hazardous waste in these containers contains an average VOC concentration of greater than or equal to 500 parts per million by weight. Subpart CC emissions standards do not apply to:

- A waste management unit that holds hazardous waste placed in the unit before December 6, 1996, and in which no hazardous waste is added to the unit on or after December 6, 1996.
- A waste management unit that is used solely for on-site storage of hazardous waste that is placed in the unit as a result of implementing remedial activities required under CERCLA authorities.
- A waste management unit that is used solely for the management of radioactive mixed waste in accordance with all applicable regulations under the authority of the Atomic Energy Act.
- A container that has a design capacity less than or equal to 0.1 m<sup>3</sup>.

If a FCP hazardous waste container does not meet one of the Subpart CC exemptions, it will be managed in accordance with the applicable Subpart CC container level standard. If a DOT container is used to meet these standards, no additional testing, inspection, or monitoring requirements apply (59 FR 62899; December 6, 1994).

### **F-2c Remedial Action**

Repairs or other actions taken to remediate problems identified during an inspection are recorded on the inspection forms. Deficiencies are reported to the supervisor and arrangements for prompt, appropriate remediation of the problem are made.

Repairs are made in a timely manner so that a situation does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action shall be taken immediately. Items identified as missing or present in insufficient quantities such as emergency equipment are obtained promptly and placed in the proper location. The remedial response to deficiencies is to restore an item to proper working order, or to restock an item to ensure its availability in an emergency.

Leaking, damaged, or deteriorating containers identified during an inspection are managed in accordance with OAC 3745-55-71. Once mitigated and if repair is not feasible, the containers are overpacked in place where practicable. Drums are overpacked by placing the leaking container into a larger-size container.

Repackaging is accomplished by transferring the contents of the damaged drum into a different container. All overpacking and repackaging activities are controlled by procedure.

### **F-2d Inspection Forms**

Attachment F-2 (RCRA Container Storage Area Inspection Forms) provides examples of the current inspection forms. These examples are subject to change. The inspection forms have been designed to readily identify those areas routinely checked for acceptability and highlight conditions which potentially could cause problems.

Inspection forms include at a minimum, the following information:

- Date of inspection
- Time of inspection
- Name of the inspector
- Notation of the observation(s) made

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- Corrective action(s) taken
- Date corrected.

### **F-3 PREPAREDNESS AND PREVENTION REQUIREMENTS**

The FCP does not wish to request a waiver of the preparedness and prevention requirements under OAC 3745-54-30 (40 CFR 264 Subpart C). Requirements of this Subpart are also discussed in further detail in Section D, Process Information, and Section G, Contingency Plan, of this application.

#### **F-3a Equipment Requirements**

A detailed discussion of the FCP emergency equipment and communications systems and the capabilities of each item is provided in Section G, Contingency Plan.

#### **F-3a(1) Internal Communications**

##### **Communications within a Unit**

Voice communication is used within any single RCRA storage unit. Voice communication is adequate to provide immediate emergency instruction to personnel within the storage areas because of the sizes and open configurations of the storage units.

~~Additional information regarding on-site and off-site communications systems and emergency response are provided in Section G, Contingency Plan.~~

##### **Communications to the Communications Center**

~~Communication devices are available for personnel accessing RCRA storage units for emergency notification purposes. The communication devices are used to contact:~~

- ~~1) the Communications Center,~~
- ~~2) other personnel who, in turn, can contact the Communications Center, or~~
- ~~3) the area supervisor to report any emergency.~~

~~The Communications Center summons additional on-site and off-site assistance as needed.~~

~~Signals from manual fire alarm boxes, automatic fire monitoring, and/or suppression systems located within the vicinity of the hazardous waste storage lockers within the operating units throughout the facility are automatically transmitted to the Communications Center.~~

#### ~~On-site Emergency Warning System~~

~~The FCP has an extensive on-site emergency alarm and communications system for notifying employees and on-site emergency response personnel. This system provides facility-wide, building, and off-site warning systems.~~

~~The facility evacuation alarm system is controlled in the Communications Center, which operates 24 hours per day. The facility alarm system, which includes electronic alarm bells or air horn signals, can be activated from the Communications Center. A voice message, following the sounding of a warning signal, is broadcast throughout the facility to transmit appropriate instructions and other important information to FCP personnel.~~

#### ~~F-3a(2) External Communications~~

##### ~~Communications Center~~

~~External communications are managed by the Communications Center which is staffed 24 hours per day. The Communications Center has the ability to summon additional emergency assistance from local police departments, fire departments, or state and local emergency response teams as needed.~~

~~The Communications Center has the following equipment for contacting off-site assistance organizations:~~

- ~~• Conventional and special phone systems capable of summoning off-site emergency assistance including wired phones connected to the local telephone company.~~

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~~Two-way radios capable of internal communications and direct contact with the Hamilton and Butler County Dispatch Centers, the Butler County Emergency Management Agency (BCEMA) and the Hamilton County Emergency Management Agency (EMA).~~

#### Off-site Emergency Warning System

~~The off-site emergency warning system warns citizens within a two-mile radius of the site, when emergencies may affect people outside facility boundaries. Activating the sirens alerts residents to seek shelter immediately and tune to a radio or TV station for an Emergency Broadcast System message for information.~~

#### F-3a(2) Emergency Equipment

The FCP hazardous waste container storage areas are equipped with supplies, materials, and equipment for responding to emergencies (e.g. portable fire extinguishers and materials for spill response and cleanup). This equipment is inspected at least weekly. Additional fire protection, spill control, and decontamination equipment is maintained on-site. See Section F-2 for further inspection information.

The emergency equipment at the FCP is described in detail in Section G, Contingency Plan.

#### Fire Control Equipment

Each of the hazardous waste storage lockers has a dry pipe sprinkler system plumbed to an outside Fire Department connection. The system can be activated by connection to a fire truck. Fire extinguishers are also placed in locations that are accessible to the storage lockers.

#### Spill Control Equipment

Protective clothing, boots, gloves, respirators, and face shields are stored in a central location and are readily accessible in the event of a spill. Spill cleanup equipment and material such as shoe covers, booties, gloves, absorbent pads/"PIGS", radiological drum liner bags, caution/banner tape, and duct tape are stored in each storage location.

### Decontamination Equipment

A full complement of decontamination equipment is maintained on-site in addition to the spill equipment. This equipment is described in detail in Section G, Contingency Plan.

### Alarm Systems

~~The facility alarm and communications horn system is tested in accordance with NFPA-72 National Fire Alarm Code schedules. The Emergency Message System is tested daily. Failure of any component of the system results in immediate remedial action or implementation of a back-up system.~~

### F-3a(3) Water for Fire Control

Water for fire protection is available from the following source:

Ground Level/Domestic Fire Water Tank	400,000 gallons
---------------------------------------	-----------------

The system for fire control is described below.

### High Pressure Distribution System

The High Pressure Distribution System provides water to the high pressure hydrants, ~~located outside each storage unit,~~ and to building sprinkler systems. A static pressure of 114 psi (gauge) is maintained in the system by a jockey pump. The fire pump system is activated when the pressure in the system drops. The fire pump system consists of one electric and one-diesel powered pump, rated at 1,250 gallons per minute (gpm) at 125 psig. The electric pump and the diesel pump start automatically as the result of low water pressure. The fire pumps obtain water from the ground level tank. The fire pumps take suction at the bottom of the tank and have access to all 400,000 gallons, while the domestic water pumps take suction approximately eight feet from the bottom of the tank. This limits the domestic water pumps to the top 300,000 gallons and reserves the bottom 100,000 gallons strictly for the fire pumps only. This system is capable of providing sufficient water at sufficient volume and pressure for sprinkler systems.

**F-3b Aisle Space Requirements**

~~Containers in the hazardous waste storage lockers are stored in a configuration such that they are readily accessible and visible for inspection.~~ An aisle space of a minimum of 22 inches is maintained between pallets of drums or between containers not stored on pallets (e.g., boxes).

~~The 22-inch minimum inspection aisle space is adequate because the aisles are adequate for personnel to inspect drums for leaks and deterioration.~~

**F-4 PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT**

**F-4a Prevent Hazards in Loading/Unloading Operations**

After a hazardous waste container has been filled, labeled and closed, it is transferred to a storage area. Small containers can be moved by equipment such as, but not limited to, handcarts or handtrucks. Large containers may be moved by equipment such as, but not limited to, forklifts, trucks or trailers.

Containers of non-radiologically contaminated hazardous waste are loaded for off-site shipment from the two hazardous waste storage lockers located ~~on the south end of the East Parking Lot.~~ Beginning in November 2004, these lockers will be moved to an area south of Cell 8.

Mixed waste shipments may be temporarily staged in truck trailers in the southern portion of the West Parking Lot. These containers are staged in order to conduct the final inspections of the loaded trailers prior to notifying the receiving facility (via a five day notice) that the containers are ready to ship and to call in the carrier to transport the shipment. Although it is anticipated that the containers would be staged for no longer than one week, the FCP would initiate weekly inspections of any trailers which exceed this time frame. Copies of these inspections forms would be retained in the RCRA Operating Record.

In addition, Ohio EPA will be contacted for further discussions regarding the management of these containers should these containers be staged in the parking lot for longer than two weeks. If these containers are not shipped within a reasonable time frame, one option would

be to move the containers back into a storage unit identified in the FCP's RCRA Part B Permit Application.

#### **F-4b Prevention of Run-Off to Other Areas**

##### **Hazardous Wastes With Free Liquids**

Hazardous wastes with free liquids are stored in ~~diked areas~~ hazardous waste storage lockers ~~with secondary containment~~ capable of holding a minimum of 10 percent of the maximum storage capacity of the unit. The lockers are enclosed, preventing the accumulation of precipitation within the secondary containment. ~~Storage areas for hazardous waste containing free liquids are enclosed within hazardous waste storage lockers preventing accumulation of precipitation within the diked areas.~~

##### **Hazardous Wastes Without Free Liquids**

Hazardous wastes without free liquids are stored (as described in Section D) inside the hazardous waste storage lockers. Indoor storage areas are not subject to precipitation and therefore do not produce precipitation runoff.

##### **Prevention of Flooding**

Flooding created by run-on from other areas is prevented from entering the hazardous waste storage lockers by ensuring that there is adequate drainage. ~~and/or using topography which slopes away from these areas.~~

The hazardous waste storage units are in areas outside of the 100-year flood plains for the Great Miami River and Paddy's Run.

#### **F-4c Prevent Contamination of Water Supplies**

Contamination of water supplies by hazardous wastes or hazardous waste constituents is prevented by storing the hazardous waste in enclosed structures and by controlling run-off as described in Section F-4b. Container management practices as described in Section D, Process Information, provide an integral aspect of water supply contamination prevention.

#### **F-4d Equipment and Power Failure**

Flashlights and natural lighting are used in the hazardous waste storage lockers to see inside the unit. Powered equipment involved in handling materials includes primarily fork lift trucks. ~~barrel stackers and gantry cranes.~~ Since this equipment is internally powered by electric battery or internal combustion engine, it is not subject to a site-wide power failure. A replacement is available, in the event of a mechanical failure of the fork lift ~~and/or barrel stacker,~~ as the facility maintains ~~an~~ a large operating supply.

Portable generators are available in case of emergencies. Generators are not permitted within areas where ignitable hazardous wastes are stored, unless proper precautions are taken. Precautions may include the use of an explosion-proof generator, or placement of the generator at a safe distance or location from the ignitable hazardous wastes.

#### **F-4e Personnel Protection Equipment**

Personnel exposure to hazardous waste is minimized through the use of protective equipment, as well as by safe handling practices. The protective equipment appropriate for employees working in the storage areas is specified by the health and safety personnel at the FCP. Protective equipment can include coveralls, boots, gloves, face shields, and respirators. Personnel involved in management of hazardous wastes receive training in the use of protective equipment and the proper handling of hazardous wastes. Annual fit-testing of respirators and RCRA refresher training are also provided, as described in Section H, Personnel Training.

#### **F-4f Prevent Releases to Atmosphere**

The FCP is required to prevent release to the atmosphere from process vents and equipment leaks under Subpart AA and BB regulations (40 CFR 264). Currently, the FCP has no equipment that is subject to these rules.

Hazardous wastes generated at the FCP which are subject to Subpart CC standards are placed into DOT-approved containers which have a design capacity of less than or equal to 0.46 m<sup>3</sup>. These containers are equipped with a cover and remain closed except when adding or removing waste, sampling or conducting a visual inspection.

**F-5 PREVENTION OF REACTION OF IGNITABLE, REACTIVE AND INCOMPATIBLE WASTES**

**F-5a Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Wastes**

Containers of hazardous waste are inspected for corrosion and other defects to minimize the possibility of ignition or reaction of ignitable or reactive hazardous wastes. Stored containers remain closed except when a sample must be obtained, during visual inspections as a part of waste characterization, or during addition or removal of hazardous waste. Some containers are equipped with filter vent plugs (maximum size of two inches) to prevent the build-up of pressure within the container.

Hazardous wastes are acceptable if placed in compatible drums meeting DOT performance standards. ~~The FCP has some containers that were in use prior to the promulgation of the DOT performance oriented standards. These containers are inspected on the same schedule as all other containers to ensure their integrity.~~

The hazardous waste container storage areas are inspected at the frequency identified in the Facility Inspection Schedule (example provided as Attachment F-1). Any leaks or spills are cleaned up immediately, reducing the possibility of adverse reactions. Drums may be overpacked or repacked to correct a leak or to improve the integrity of the container to preclude future leaks.

**Prevention of Ignition**

Containers that hold ignitable hazardous waste are stored in areas protected from accidental ignition sources. Smoking is not permitted in these areas. "NO SMOKING" signs are conspicuously posted.

Waste characterization as described in Section C, Waste Characteristics, is performed to provide sufficient information to select the safest hazardous waste storage containers, appropriate hazardous waste storage areas and to accurately characterize the hazardous physical and chemical properties of each waste stream.

The following precautionary measures are enforced to prevent fires and/or the release of hazardous waste constituents:

- Hazardous waste containers are identified by Reactivity Group Codes (RGCs) to ensure that ignitable and reactive hazardous wastes are appropriately stored.
- Approved work permits are required before welding is performed.
- Surveys for combustible gases and vapors are performed by health and safety personnel before performing certain work involving ignition sources such as open flames, and heating elements.
- "NO SMOKING" signs are conspicuously placed at the entrances to the hazardous waste storage areas.
- Non-sparking tools are used to open and close containers which contain ignitable hazardous waste.
- Fire protection systems and equipment (e.g. fire extinguishers, ~~sprinkler systems~~) <sup>are</sup> available to extinguish small fires.

#### Prevention of Reaction

Hazardous wastes are marked, separated and segregated according to the Reactivity Group Code (RGC) system maintained at the facility. Figure F-2 is the current RGC Hazardous Waste Compatibility Chart used to determine the segregation of incompatible hazardous waste. PCB compatibility is also provided in Figure F-2.

Waste characterization as described in Section C, Waste Characteristics, is performed to provide sufficient information to select the safest hazardous waste storage containers, appropriate hazardous waste storage areas and to accurately characterize the hazardous physical and chemical properties of each waste stream.

#### F-5b General Precautions for Handling Ignitable or Reactive Wastes and Mixing

##### Incompatible Wastes

Hazardous waste containers stored at the FCP remain closed during storage and may be opened when a sample must be obtained, for visual inspection as part of the waste characterization, or during addition or removal of hazardous waste. Some containers are

equipped with filter vent plugs (maximum size of two inches) to prevent the build-up of pressure in the container. These vent plugs are primarily installed to provide ventilation to drums of wastes containing free reactive uranium metal that has the potential to generate hydrogen gas. Vent plugs are also installed in drums containing unpunctured aerosol cans, bulging or pressurized containers and containers of biological gas-generating waste. Vent plugs are not used when drums contain mixed waste with RCRA organics unless it is one of the waste types identified above. The filter vent plug contains a charcoal filter. The filter vent plug is inserted into the bung opening of the drum lid. The plugs are also installed on outer drums if the vented drums are overpacked.

Accidental ignition or mixing of ignitable or incompatible hazardous waste types is unlikely. As discussed in the previous section, the FCP uses a Reactivity Group Code (RGC) marking system to segregate incompatible hazardous wastes. Incompatible hazardous wastes are separated (e.g. stored on separate spill pallets) and/or stored in separate units). At the present time the FCP is not seeking a permit for any treatment processes which may require mixing of incompatible hazardous wastes.

Some examples of mixing of hazardous wastes at the FCP are listed below:

- Consolidation of the same or similar hazardous wastes into larger containers; and
- Consolidation of lab samples into larger containers.

These practices are only allowed for hazardous wastes which are compatible.

#### **F-5c Management of Ignitable or Reactive Wastes in Containers**

Ignitable and reactive hazardous wastes are stored at least 50 feet from the FCP property line. Figure F-1 (Facility 50 Foot Boundary Line) shows the location of the FCP hazardous waste storage areas relative to the property line.

The storage practices followed by the FCP include the use of lockers. Storage areas for hazardous wastes with free liquids are designed with a secondary containment system capable of holding at least 10 percent of the maximum waste volume stored in the area. FCP container management practices are discussed further in Section D, Process Information.

Inspections are performed at least at the frequency identified in the Inspection Schedule (Attachment F-1), to ensure the proper management of hazardous wastes. Inspection procedures are discussed in Section F-2.

A Reactivity Group Coding system (Figure F-2) has been developed to ensure the compatibility of hazardous wastes stored in the same area. The system incorporates "letter code signs". ~~in storage areas.~~ Incompatible wastes are separated (e.g. stored on separate spill pallets).

#### **F-5d Management of Incompatible Wastes in Containers**

Facility personnel responsible for the management, transfer and storage of hazardous waste at the FCP are trained in proper hazardous waste handling procedures. Hazardous waste containers are approved for storage after confirmation that the containers are closed, properly labeled and are in good condition. Previously used containers are cleaned before reuse. Combining of waste from different sources into the same container is not allowed without review.

#### **F-5e Management of Ignitable or Reactive Wastes in Tank Systems**

The FCP is not seeking a RCRA permit to operate a hazardous waste tank system.

#### **F-5f Management of Incompatible Wastes in Tank Systems**

The FCP is not seeking a RCRA permit to operate a hazardous waste tank system.

#### **F-5g Management of Ignitable or Reactive Wastes Placed in Waste Piles**

The FCP is not seeking a RCRA permit to operate a hazardous waste pile.

#### **F-5h Management of Incompatible Wastes Placed in Waste Piles**

The FCP is not seeking a RCRA permit to operate a hazardous waste pile.

#### **F-5i Management of Ignitable or Reactive Wastes Placed in Surface Impoundments**

The FCP is not seeking a RCRA permit to operate a hazardous waste surface impoundment.

**F-5j Management of Incompatible Wastes Placed in Surface Impoundments**

The FCP is not seeking a RCRA permit to operate a hazardous waste surface impoundment.

**F-5k Management of Ignitable or Reactive Wastes Placed in Landfills**

The FCP is not seeking a RCRA permit to operate a hazardous waste landfill.

**F-5l Management of Incompatible Wastes Placed in Landfills**

The FCP is not seeking a RCRA permit to operate a hazardous waste landfill.

**F-5m Management of Ignitable or Reactive Wastes Placed in Land Treatment Units**

The FCP is not seeking a RCRA permit to operate a hazardous waste land treatment unit.

**F-5n Management of Incompatible Wastes Placed in Land Treatment Units**

The FCP is not seeking a RCRA permit to operate a hazardous waste land treatment unit.

**Section F - PROCEDURES TO PREVENT HAZARDS**

ATTACHMENT F-1

INSPECTION SCHEDULE  
for  
FIRE PROTECTION EQUIPMENT  
LOCATED WITHIN A CONTAINER STORAGE UNIT

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Portable Fire Extinguisher	Weekly	Missing, obvious physical damage
	Monthly	<del>Operating condition (e.g., gauge pressure, hose condition)</del>
	Annual (multi-years)	Weight and condition of agent (e.g., powder), hydrostatic testing
Sprinklers (if installed)	Weekly	<del>Obvious damage, operating pressure</del>
	Annual	<del>System operation test</del>

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**Section F - PROCEDURES TO PREVENT HAZARDS**

ATTACHMENT F-1

INSPECTION SCHEDULE  
for  
SPILL RESPONSE AND CLEANUP EQUIPMENT/SAFETY EQUIPMENT  
LOCATED WITHIN A CONTAINER STORAGE UNIT

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Spill Response Materials: <ul style="list-style-type: none"><li>• Absorbent Pads/PIGS</li><li>• Radiological Drum Liner Bags</li><li>• Protective Gloves</li><li>• Shoe Covers, Booties</li><li>• Caution/Banner Tape</li><li>• Duct Tape</li><li>• Shovel (where provided)</li></ul>	Weekly	Availability, condition
Emergency Eye Wash and Safety Shower	Quarterly When required by work being performed	Condition, green light, water change

**Section F - PROCEDURES TO PREVENT HAZARDS**

ATTACHMENT F-1

INSPECTION SCHEDULE  
 for  
 EMERGENCY PERSONAL PROTECTIVE EQUIPMENT  
 LOCATED WITHIN A CENTRAL AREA

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Respirators and Cartridges	Annually by IH w/more frequent random checks, user inspects prior to use  Varies according to location	Condition  Quantity
Disposable Coveralls	Inspect prior to use  Varies (depending on location)	Condition  Quantity

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

INSPECTION SCHEDULE  
for  
OPERATION EQUIPMENT  
LOCATED IN PLANT 6 WAREHOUSE (BUILDING 79)

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Electrical Power	Weekly	Power of lights
Lighting	Weekly	Operating condition
Warning Signs (Interior/Exterior)	Weekly	Present and legible
Two-Way Radio	Daily (when in use), minimum once weekly	Operating condition
Building Audible Warning Alarms	Annual	Operations test
Fire Alarm Manual Pull Stations	Every 6 months	Operations test

**Section F - PROCEDURES TO PREVENT HAZARDS**

ATTACHMENT F-1

SPECIFIC INSPECTION SCHEDULE  
 for  
 RCRA CONTAINER STORAGE UNIT

EQUIPMENT FREQUENCY	FREQUENCY	TYPE OF PROBLEMS
Containment Diking (Curbs)	Weekly	Damage, cracks, breaks and operating condition
Ramps	Weekly	Damage and operating condition
Containment Floor Condition	Weekly	Free liquid, damage, cracks (sealant), breaks and operating condition
Container Configuration Aisle Spacing	Weekly	Adequate aisle spacing, Accessibility, proper container placement and stacking
Housekeeping	Weekly	Clutter, general condition
Container Condition	Weekly	Container labels, dates, closure, compatibility, damage or deterioration (e.g. hole, dent, bulge, corrosion/paint/rust)

**Section F - PROCEDURES TO PREVENT HAZARDS**

ATTACHMENT F-1

INSPECTION SCHEDULE  
 for  
 FACILITY FIRE PROTECTION EQUIPMENT

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Fire Pumps	Weekly	Start-up and operation test of pump and system, diesel fuel level
	Annual	Pump capacity test
	Every 5 Years	Underground test of fire main systems, flow of water
Ground Level Fire Pump Water Tank	Weekly	Water level, operating condition
Fire Hydrants	Annual	Operating condition, annual flushing, pressure
Fire Alarm System	Semi-Annual	Operations test

OTHER INSPECTIONS

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Load/Unload areas and other areas subject to spills (per OAC 3745-54-15(B)(4))	Daily when in use	Evidence of spills

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**SECTION G – CONTINGENCY PLAN**

**RCRA Part B Permit Application**

Fernald Closure Project

Fernald, Ohio

This Contingency Plan is required by Ohio Administrative Code (OAC) 3745-50-44(A)(7) and Title 40 of the Code of Federal Regulations (CFR) 270.14 (b)(7) in order to provide planned procedures to be followed in an emergency at any hazardous waste facility. This information is submitted for the Fernald Closure Project (FCP), formerly the Feed Materials Production Center (FMPC), in accordance with OAC 3745-54-50 to 56 and 40 CFR 264.50 to 56 as well as other applicable parts of the Ohio Administrative Code. This Contingency Plan addresses the actions to be taken to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.

The FCP manages both hazardous waste and mixed waste. Mixed waste is defined as waste that contains both a hazardous component regulated under RCRA and a radioactive component consisting of source, special nuclear, or by-product material regulated under the Atomic Energy Act. Any information included in this section on the radioactive portion of mixed wastes generated or stored at the FCP is included for informational purposes only and is not intended to be part of the facility's RCRA permit.

**NOTE: THE CONTINGENCY PLAN HAS BEEN UPDATED TO REFLECT CURRENT SITE CONDITIONS AND EMERGENCY RESPONSE ACTIVITIES AS OF OCTOBER 2004 AND TO INCLUDE INFORMATION ON ANTICIPATED CHANGES WHICH WOULD IMPACT THIS PLAN. HOWEVER, RAPID CHANGES IN SITE CONDITIONS AS REMEDIATION PROCEEDS WILL HAVE CONTINUING IMPACTS ON THE CONTINGENCY PLAN. THE FCP WILL MAINTAIN A CURRENT COPY OF THIS PLAN WITH SECURITY PERSONNEL AT THE SECURITY CHECK POINT AT THE SOUTH ENTRANCE TO THE FACILITY. THIS COPY WILL BE MADE AVAILABLE TO OFF-SITE EMERGENCY RESPONSE ORGANIZATIONS IN THE EVENT OF AN EMERGENCY.**

**G-1 GENERAL INFORMATION**

The FCP is a former production facility which produced uranium metal used in the fabrication of fuel

cores for nuclear reactors operated by the United States Department of Energy. During production, several types of hazardous wastes were produced from virgin materials, including (but not limited to): toxic halogenated solvents (from parts cleaning), ignitable oil and lubricants (from machining operations), ignitable and metal-bearing paint residues (from drum reconditioning), corrosive acids and alkalis (from metal and ore digestion and extraction), and pyrophoric non-nuclear metals (from foundry operations). In addition, some non-hazardous materials such as cleaning rags and wastewater sump cakes were contaminated with hazardous wastes, and thus became hazardous wastes themselves.

All production activities at the facility have ended. Current activities include waste management operations, site remediation, and miscellaneous operations such as wastewater treatment. More specifically, waste storage operations are allocated as follows:

Hazardous Waste Storage Lockers (8 9 lockers, 3 4 locations)  
Location:

~~3 2~~ lockers are located ~~west of Building 94A in the Silos Truck Staging Area, south of the AWWT (Advanced Waste Water Treatment) facility);~~

1 locker is located at the Silos Project, north of the Radon Control System Building; and

5 lockers are located on the east side of the site, in an area south of Cell 8

~~3 lockers are located east of AWWT (Advanced Waste Water Treatment) facility; and~~

~~2 lockers are located in the south west corner of the East Parking Lot~~

~~NOTE: Beginning in November 2004, the 3 lockers located east of AWWT and the 2 lockers located in the south west corner of the East Parking Lot will be moved their new location will be on the east side of the site, south of Cell 8.~~

Maximum Capacity: 2,640 gallons / 48 55-gallon drums per locker  
Waste Types: Combustible and flammable liquids, solids, trash, PCBs.

Mixed waste shipments are temporarily staged in trailers in the south half of the West Parking Lot. ~~and, beginning in November through December 2004, the FCP will use an enclosure in the East Bay of the Boiler Plant (Building 93A) for processing of mixed waste containers.~~ ~~The FCP is also using Building 94R to sample and repackage containers of hazardous waste.~~

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The FCP site and mailing addresses are:

**Fernald Closure Project - Site Address**  
7400 Willey Road  
Fernald, Ohio 45030  
(513) 648-3000

**Fernald Office - Mailing Address**  
U. S. Department of Energy  
175 Tri-County Parkway  
Cincinnati, Ohio 45246-3222  
~~(513) 246-0020~~  
~~(513) 648-3000~~

Operation missions and program direction are administered through the U.S. Department of Energy (DOE) Office of Environmental Management (EM). The name, address, and telephone number of this office are:

**U. S. Department of Energy**  
**Office of Environmental Management**  
1000 Independence Avenue Southwest  
Washington, D. C. 20585  
(202) 586-5000

This plan describes the actions facility personnel must take in response to a hazardous waste event or emergency such as fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water. The location of areas managing hazardous waste at the FCP is shown in Figure G-1. Evacuation routes and lists of safety and emergency equipment assigned to each of these areas are included in Attachment G-1. A copy of this Contingency Plan is readily accessible to anyone entering these areas.

**G-1a Emergency Organization**

The Emergency Coordinator/ Assistant Emergency Duty Officer (AEDO) may request support and allocate resources under the responsibilities of any or all of the Emergency Response Support Organizations discussed in this section. Table G-2 provides a roster of the FCP Emergency Organization. Figure G-2 provides an organizational chart of the FCP Emergency Response Organization. A contract has been awarded to the Crosby Township Fire Department and Life Squad to provide emergency services at the FCP. This agency is responsible for the emergency response at

the site when facility response can not mitigate the event. Any mutual aid agreements are the responsibility of the Subcontracted ~~Community~~ Emergency Response Organization (Crosby Township). The Subcontracted ~~Community~~ Emergency Response Organization has signed mutual aid agreements with other agencies and/or has agreed to provide needed assistance to the FCP at local, county, state and federal levels. Information regarding the contract with the Crosby Township Fire Department and Life Squad is provided in Attachment G-3.

### Fernald Closure Project

#### **Emergency Management**

The Emergency Director (the operating contractor ~~Project Director~~ ~~President~~ or his designee) has designated an AEDO/Emergency Coordinator who is responsible for emergency responses at the FCP. The AEDO is the primary Emergency Coordinator.

The Emergency Coordinator/AEDO manages and controls the response to any event at the FCP until subcontracted ~~community~~ response forces arrive on-scene. A minimum of one Emergency Coordinator/AEDO is present onsite at all times. ~~Through an extensive Emergency Duty Officer training program coordinated by Emergency Preparedness,~~ The Emergency Coordinator/AEDO is knowledgeable of this Contingency Plan, operations and activities at the FCP, the locations and characteristics of hazardous waste at the facility, the location of records within the FCP, and the facility layout. Figure G-3.1 illustrates the range of training requirements for the Emergency Coordinator/AEDO.

The Emergency Coordinator/AEDO, as Incident Commander, can activate the FCP emergency response organizations including, but not limited to, the Subcontracted ~~Community~~ Emergency Response Personnel, Monitoring ~~Team(s)~~, ~~Team medical staff~~, security personnel, and the Emergency Operations Center. Figure G-7 provides a table showing the activation methods for all elements of the Emergency Response Organization.

The Subcontracted ~~Community~~ Emergency Response Organization's Officer In Charge will assume the Incident Commander responsibilities once they have arrived on-scene. Additional support and mutual aid may be summoned at any time by ~~this~~ the Incident Commander.

### **~~Subcontracted~~ Community Emergency Response Organization**

The ~~Subcontracted~~ Community Emergency Response Organization is responsible for on-scene emergency event mitigation, rescue, damage control, firefighting, and medical assistance.

### **Security Response Organization**

The Security Response Organization maintains the security and integrity of the FCP. The FCP security staff consists of qualified security inspectors. The security staff provides surveillance and control at the incident location and the entire facility during an emergency.

### **Emergency Operations Center (EOC) Staff**

The Emergency Operations Center (EOC) Staff is a functional organization which works with the Emergency Coordinator/AEDO to oversee and direct emergency response actions. The Emergency Operations Center, located in ~~the off-site Uno Building T-214~~, assesses the incident, coordinates protective actions, and coordinates personnel accountability. The Emergency Operations Center also supports and directs protective actions, allocating additional resources as needed and providing notifications and information to employees, appropriate authorities, and the general public. ~~The EOC staff is composed of three primary teams, the Policy Team, Operations Team, and the Information Management Team.~~ Primary and alternate staff members have been selected for each position.

### **Public Information Response**

The Manager of Public Affairs has overall responsibility for the emergency public information program and serves as the designated spokesperson at the FCP during emergencies. News and information about an emergency is provided to the media through the Public Affairs Department Offices or a Media Information Area which is activated for a major event.

### **Medical Response Organization**

~~Primary emergency medical treatment is provided by an on-duty, state-certified Emergency Medical Technician and CPR/First Aid-trained Initial Responders. This response is supplemented by the Subcontracted Emergency Response Organization. The Medical Response Organization provides treatment and stabilization for injuries. At least one state~~

certified Emergency Medical Technician is on duty at all times.

#### **~~Communications Center Staff~~**

~~Site based communications are operated by the FCP Communications Center. The Communications Center coordinates the dispatch of equipment and personnel to emergency events. The Communications Center provides communication links between the Emergency Coordinator/AEDO and support groups, implements systems instructions, and makes appropriate notifications when instructed.~~

#### **Monitoring Team**

The FCP ~~on-site~~ monitoring organization consists of Radiological Safety and Industrial Hygiene personnel for on-site and off-site monitoring of chemicals and radiological materials. ~~Personnel are summoned from normal job activities to perform this function.~~

Monitoring data is provided to the Emergency Coordinator/AEDO. The State of Ohio provides monitoring and assessment support to the counties as requested.

#### **U.S. Department of Energy (DOE)**

##### **DOE-Fernald Closure Project (DOE- FCP)**

The DOE-Fernald Closure Project (DOE- FCP) provides oversight, ensures an effective response, conducts investigations, makes appropriate notifications, and coordinates interactions with the media and requests for assistance during an incident. The DOE-FCP is responsible for notifying state and federal governmental agencies of an incident as necessary.

##### **DOE Headquarters (DOE-HQ)**

DOE Headquarters (DOE-HQ) Office of Environmental Management has overall responsibility for emergency operations at the FCP and designates response authority to the Emergency Coordinator to act as the primary AEDO. The FCP is delegated specific responsibilities for implementing event response and for notifying the DOE Emergency Operations Center (DOE-HQ EOC).

### State of Ohio

#### **Ohio Emergency Management Agency (OEMA)**

The Ohio Emergency Management Agency (OEMA) coordinates disaster response for all state agencies. OEMA also procures support and assistance from the Federal government as necessary.

#### **Hamilton and Butler Counties**

Hamilton and Butler counties may activate their respective Emergency Operations Centers (Emergency Management Agencies) in an emergency. The counties provide emergency medical service and fire protection support through mutual aid agreements. The county law enforcement organizations provide additional support as needed.

### G-1b Distribution

Copies of this Contingency Plan and all revisions to this Plan are maintained at the FCP EOC. ~~Copies of this plan have also been~~ and submitted to the following off-site organizations via certified mail (return receipt) or overnight delivery service:

- Crosby Township Fire Department
- Hamilton County Emergency Management Agency
- Hamilton County Sheriff
- Ohio Emergency Management Agency
- Ohio State Highway Patrol, Post 9
- Mercy Franciscan Hospital – Mount Airy
- Butler County Emergency Management Agency
- Butler County Sheriff
- Colerain Township Fire Department
- University Hospital
- Ohio EPA
- U.S. EPA

## G-2 EMERGENCY COORDINATION

The FCP ~~Health and Safety Organization~~ Emergency Services staff is responsible for in charge of the preparation of ~~plans and procedures to mitigate~~ for an emergency at the FCP. The Emergency Coordinator/AEDO is in charge of emergency response. ~~Figure G-3 depicts the relationships between the key FCP Emergency Services Staff.~~ Figure G-3.1 describes the qualifications for the staff.

The Emergency Operation Personnel & Organizations list in Table G-1 provides emergency phone or pager contact information. Individuals or organizations on this list are contacted through the Communications Center as required.

### FCP Emergency Services Staff

#### Emergency Coordinator/AEDO

The Emergency Coordinator/AEDO is the Utility Engineer on shift. The Emergency Coordinator/AEDO has authority to initiate all necessary response actions. The Emergency Coordinator/AEDO responds to the event site, assesses and categorizes the event as an emergency or lesser event.

There are currently four personnel assigned to the position of Emergency Coordinator/AEDO. This group works a four-person rotating shift schedule. ~~A status board which lists the Emergency Coordinator/AEDO is established for each shift at the Communications Center.~~ At least one Emergency Coordinator/AEDO is on site at all times, who can be reached by radio ~~or cellular~~ telephone. ~~or pager.~~ If the shift AEDO should be unavailable for duty, an Alternate AEDO will be summoned. Table G-1 lists the pertinent contact information for the designated Emergency Coordinator/AEDO.

As stated in Section G-1, the Emergency Coordinator/AEDO is fully knowledgeable of this Contingency Plan, operations and activities at the FCP, the locations and characteristics of hazardous waste at the facility, the location of records within the FCP, and the facility layout. Required training for the Emergency Coordinator/AEDO is listed in Figure G-3.1.

~~The Emergency Coordinator/AEDO has the authority to activate the FCP Offsite Emergency Warning System at any time.~~ The Emergency Coordinator/AEDO is a representative of the Emergency Operations Center (EOC) staff and may activate the EOC for response support. Mandatory activation

of the EOC is required for ~~specific~~ all emergencies. ~~Key~~ All EOC staff members are supplied with personal ~~electronic devices~~ ~~pages~~ that can be activated to ~~summon personnel to the site.~~ ~~by a group page.~~ Off-duty Emergency Coordinator/AEDO ~~Security Lieutenants, and Medical~~ personnel may also be summoned in this manner.

**Emergency Duty Officer**

The Emergency Duty Officer is the designated, on-call representative of the Emergency Operations Center and senior facility management. The Emergency Duty Officer reviews the emergency assessment with the Emergency Coordinator/AEDO and coordinates the Emergency Operations Center staff in support of the Emergency Coordinator/AEDO. The Emergency Duty Officer is responsible for proper notification of off-site ~~regulatory response~~ organizations.

The Emergency Duty Officer is in control of response ~~support~~ operations until the Deputy Emergency Director approves and assumes control of the response ~~support~~ organization. Designated senior staff managers rotate as the Emergency Duty Officer.

The Emergency Duty Officer may be reached through the 24-hour-staffed FCP Communications Center by:

- personal digital display pager, ~~or;~~
- ~~cellular telephone; or~~
- conventional telephone service.

Required training for the Emergency Duty Officer is listed in Figure G-3.1 and Section H.

**Release Evaluator**

A Release Evaluator evaluates regulatory requirements for reporting hazardous waste releases. The Release Evaluator is on call on a 24-hour basis through a personal digital pager and assists the Emergency Coordinator/AEDO and Emergency Duty Officer in determining the need for regulatory reporting and notifications.

### **G-3 IMPLEMENTATION**

The first step taken during any incident involves its observance by employees and supervisors on the scene. Actions to be taken in reporting an explosion, fire, or release are described in Attachment G-1.

The Emergency Coordinator/AEDO categorizes the event according to increasing levels of severity as listed below:

- 1) SIGNIFICANCE CATEGORY 5
- 2) SIGNIFICANCE CATEGORY 4
- 3) SIGNIFICANCE CATEGORY 3
- 4) SIGNIFICANCE CATEGORY 2
- 5) RECURRING EVENT CATEGORY
- 6) SIGNIFICANCE CATEGORY 1
- 7) OPERATIONAL EMERGENCY

An event greatest in magnitude is categorized as an Operational Emergency. Categorization of a hazardous waste incident as an Operational Emergency activates the Emergency Operations Center (EOC) and thereby implements this Contingency Plan.

The following implementation plan is used to respond to a hazardous waste event. Contingency Plan implementation and notification actions are diagramed in Figure G-4. Implementation of the Contingency Plan is initiated for potential or actual events involving hazardous wastes or hazardous waste constituents.

The Emergency Coordinator/AEDO after categorizing an event as an Operational Emergency, begins evaluation and classification of the event per Figure G-5.2, the Emergency Action Level Guide, and advises the Emergency Duty Officer as necessary. By increasing order of severity, the action levels for Operational Emergencies are:

- 7a) ALERT
- 7b) SITE AREA EMERGENCY

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7c) GENERAL EMERGENCY

The Emergency Coordinator/AEDO or the Emergency Duty Officer activates the Emergency Operations Center as necessary. The emergency action level may be changed by the Emergency Operations Center staff, based on information provided by the Emergency Coordinator/AEDO at the scene and on an assessment of potential health effects or environmental impacts by the Emergency Operations Center staff.

The Incident Commander and the Emergency Coordinator/AEDO retain responsibility for directing and coordinating all efforts to resolve the emergency at the field command post with the assistance of the Emergency Operation Center once it is declared operational. Such actions may include, but are not limited to, the following:

- Responding, and assuring the response of others; ~~to all alarms sent over the site-wide alarm system, radiation detection alarm, and emergency message systems;~~
- Coordinating all emergency response groups;
- Instituting any operational changes necessary to control the emergency, including shut-down of operations as required;
- ~~Directing the Communications Center to send out the necessary alarms and messages for personnel evacuation and accountability;~~
- ~~Instructing the Communications Center, when necessary, to~~ Obtain assistance such as rescue and fire fighting equipment and crews.

All assistance from the FCP's Subcontracted ~~Community~~ Emergency Response Organization can be summoned by:

Telephone: 911 or 825-2280

- Requesting further assistance, as necessary, from the Butler County and the Hamilton County emergency response agencies. Each agency has prepared a "Response Plan for a Hazardous Materials Emergency at the Feed Materials Production Center".

- Terminating the state of emergency as conditions permit, ~~and instructing the Communications Center to sound the appropriate signal.~~

#### G-4 EMERGENCY RESPONSE PROCEDURES

The following procedures are the responsibility of the Emergency Coordinator/AEDO or his designee whenever the Contingency Plan is implemented.

##### G-4a Notification

###### General Notification Activities

- 1) The Emergency Coordinator/AEDO ~~informs Communications Center that the Contingency Plan has been implemented and is classified~~ **classifies the event** as an ALERT, SITE AREA EMERGENCY, or GENERAL EMERGENCY involving hazardous waste.
- 2) The ~~Communications Center~~ (or Emergency Coordinator (AEDO)) notifies the Subcontracted ~~Community~~ Emergency Response Organization and Emergency Duty Officer (EDO) of the event categorization.
- 3) The Emergency Duty Officer notifies Emergency Director (ED) and DOE Site Manager, or designee(s), of the event categorization.
- 4) The ~~Communications Center~~ **EDO or the EOC** completes County Event Report<sup>1</sup> as directed by the Emergency Coordinator/AEDO.
- 5) ~~The Communications Center Operator activates site wide alarm system, the site wide message system, and/or the off site Emergency Warning System, as directed.~~
- 5) 6) The Emergency Coordinator/AEDO begins identification of the character, source, amount, and extent of any released materials by observation, for example hazardous

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1 County Event Reports notify both Butler and Hamilton counties for events categorized as Alert or Higher.

waste labels on the container, review of facility records, interaction with facility personnel, and if necessary, by chemical analyses.

~~6) 7)~~ The ~~Communications Center Operator in coordination with~~ The Emergency Operations Center completes all required notifications to:

- DOE-HQ EOC,
- State of Ohio Emergency Management Agency (OEMA), who then notifies the appropriate offsite agency(ies) listed in Table G-1, according to the type of incident,
- Butler and Hamilton counties' 24-hour notification points <sup>1</sup>
- Director, Ohio Environmental Protection Agency
- FCP Release Evaluator,
- DOE- FCP Duty Officer,
- Appropriate local organizations, if not notified by OEMA,
- Federal and State regulatory agencies, if not notified by OEMA.

The first three agencies listed above are notified within 15 minutes of any hazardous waste emergency.

~~7) 8)~~ The DOE- FCP Duty Officer ~~provides FCP Communications Center, as soon as possible,~~ ~~with maintains~~ a written record documenting that the appropriate regulatory agencies have been verbally contacted.

~~8) 9)~~ The DOE-FCP Duty Officer is responsible for making and verifying any follow-up notifications communicated to them by the FCP, Emergency Coordinator/AEDO, Emergency Duty Officer or Emergency Operations Center.

#### Initial Oral Notification for Hazardous Waste Emergencies

The Emergency Coordinator/AEDO or the Emergency Operations Center immediately reports to

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DOE-HQ when the facility has had a release, fire, or explosion which could threaten human health or the environment.

The FCP Emergency Operations Center notifies appropriate local authorities to advise whether protective actions are required. The FCP Emergency Operations Center provides oral notification immediately to the Ohio Emergency Management Agency. The DOE-FCP Duty Officer will provide oral notification immediately to the Ohio EPA Emergency Response Center.

The verbal report will contain the following information:

- name, address, and telephone number of the reporter;
- name and address of the facility;
- the time and date of the incident;
- type of incident (e.g., fire, spill, etc.);
- identification of material(s) involved to the extent known;
- quantity of each material included;
- extent of injuries, if any;
- potential hazards to human health or the environment, outside of the facility; and
- date and time that call was made and person contacted.

Form A (Figure G-9) may be used as a guideline to facilitate this verbal reporting.

#### **Local Evacuation Notices**

Local agencies are responsible for protective actions required for the population surrounding the FCP. ~~The FCP Communications Center will activate the Off-site Emergency Warning System for emergency events that could have significant off-site impact. The FCP Off-Site Emergency Warning System is utilized to inform the population within a two-mile radius of the FCP to seek shelter and tune to an Emergency Broadcast System Station for further instructions.~~

#### Written Notification

A written report notifying Ohio EPA that this Contingency Plan was implemented is submitted to the Ohio EPA by the FCP within 15 days after an occurrence of an incident that requires implementation of this Contingency Plan. The report will include the following information:

- name, address, and telephone number of the owner or operator of the facility;
- name, address, and telephone number of the facility;
- date of incident;
- time of incident;
- type of incident (e.g. fire, spill);
- type of material(s) involved;
- quantity of material(s) involved;
- the extent of injuries, if any;
- an assessment of actual or potential hazards to human health or the environment, where this is applicable;
- estimated quantity and disposition of recovered material that resulted from the incident; and
- an outline or description of procedures or measures that will be taken to prevent or mitigate such incidents in the future.

#### Cessation/Resumption of Activities

The Emergency Coordinator/AEDO must take the preventive measures described in Section G-4e, if the event causes the affected area of the facility to cease activities. The equipment in the affected area of the facility will be returned to a clean and serviceable condition after an emergency. Waste generated during spill cleanup will be managed in accordance with all applicable regulatory requirements. Ohio EPA regulatory authorities will be notified by the Department of Energy of the readiness to resume hazardous waste activities.

#### G-4b Identification of Hazardous Materials

The Emergency Coordinator/AEDO immediately begins identification of the character, exact source, amount, and extent of the event or release.

The Emergency Coordinator/AEDO will begin identification of the hazardous material by using the following procedure:

- 1) Visual inspection of the container labeling will be the initial identification method. The labeling includes all pertinent waste characterization information.
- 2) If labels are obscured or not easily read, site records such as the Material Movement Record or Container Tracking Log may be used to identify the composition and quantity of stored or released material. A detailed inventory of the location of every drum of hazardous waste is maintained and readily available from the Sitewide Waste Information, Forecasting and Tracking System (SWIFTS) Database.
- 3) Samples will be taken for analysis and characterization if the released material cannot be identified by the above methods.

#### **G-4c Assessment**

The Emergency Coordinator/AEDO will assess potential hazards to human health or the environment from the incident. The assessment will consider both direct and indirect effects of the release such as the effects of any hazardous fumes released. The Emergency Coordinator (AEDO) assesses the event by evaluating:

- The population at risk (both on- and off-site);
- The environmental conditions contributing to the seriousness of the event such as wind speed and direction, precipitation, ground moisture, and temperature;
- Potential radionuclide hazards;
- Protective Action Guide (PAG) or Emergency Response Planning Guideline (ERPG) exposure levels; and
- The capabilities of available equipment.

The existing DOE event categorization system used by the FCP provides a uniform, shared understanding of event severity. The emergency categorization system classifies emergency

events based on the potential or actual impact of the event on facility safety, facility personnel health and safety, and on public health and safety. The site Emergency Plan provides for predetermined responses by the Emergency Coordinator/AEDO based upon the incident categorization criteria.

### Categorization Systems

Events that operationally involve or affect the FCP are grouped into ~~seven~~ ~~eight~~ categories, by relative ranking of the assessed facility status, to ensure that the urgency of notification is readily identifiable and appropriate response actions are directed immediately. Inputs to the event categorization system include the status of systems, the observation of operating personnel, and the levels of radiological or hazardous materials in areas of the facility or in facility effluent. Incident severity defines the categorization level providing a uniform, shared understanding of event severity common to all involved groups.

The ~~seven~~ ~~eight~~ categories in order of increasing severity are as follows: ~~Significance Category 6~~, Significance Category 5, Significance Category 4, Significance Category 3, Significance Category 2, Recurring Event Category, Significance Category 1, and Operational Emergency. The Operational Emergency level has been further subdivided for hazardous material and radiological events into three classes: Alert, Site Area Emergency, and General Emergency. Each are discussed below with detailed definition, classifications of emergencies, and appropriate emergency responses to be taken provided in DOE 151.1 and in the Emergency Action Levels of the FCP Emergency Plan.

### Operational Emergency Classification

#### **Base Program Events**

Operational Emergencies are unplanned significant events or conditions that require time-urgent response from outside the immediate/affected site/facility or area of the incident. Such emergencies are caused by, involve, or affect DOE facilities, sites, or activities and represent, cause, or have the potential to cause the events or conditions describe below. Incidents that can be controlled by employees or maintenance personnel in the immediate/affected facility or area are not Operational Emergencies. Incidents that do not pose a significant hazard to

safety, health, and/or the environment and that do not require a time-urgent response are not Operational Emergencies. Note that the initiating events described are not all-inclusive. Other initiating events that warrant categorization as Operational Emergencies shall be included in site/facility-specific procedures. Less severe events are reported through the Occurrence Reporting process.

An **Operational Emergency** for a Base Program Event shall be declared when events that represent a significant degradation in the level of safety at a site/facility and that require time-urgent response efforts from outside the site/facility occur. These events do not require further classification (i.e.; as Alert, Site Area Emergency, or General Emergency).

**Hazardous Materials Program Events (Radiological and Non-Radiological)**

Operational Emergencies for a Hazardous Materials Program Event shall be classified as either an Alert, Site Area Emergency, or General Emergency, in order of increasing severity, when events occur that represent a specific threat to workers and the public due to the release or potential release of significant quantities of radiological and non-radiological hazardous materials. Classification aids in the rapid communication of critical information and the initiation of appropriate time-urgent emergency response actions.

Alert (LEPC Level I Emergency Conditional Level): An Alert shall be declared when events are predicted, are in progress, or have occurred that result in one or more of the following:

1. An actual or potential substantial degradation in the level of control over hazardous materials (radiological and non-radiological).
2. The radiation dose from any release to the environment of radioactive material or a concentration in air of other hazardous material is expected to exceed either:
  - a. The applicable Protective Action Guide or Emergency Response Planning Guideline at or beyond 30 meters from the point of release to

the environment or;

- b. a site-specific criterion corresponding to a small fraction of the applicable Protective Action Guide or Emergency Response Planning Guideline at or beyond the facility boundary or exclusion zone boundary.
- c. It is not expected that the applicable Protective Action Guide or Emergency Response Planning Guideline will be exceeded at or beyond the facility boundary or exclusion zone boundary.
- d. An actual or potential substantial degradation in the level of safety or security of a facility or process that could, with further degradation, produce a Site Area Emergency or General Emergency.

Site Area Emergency (LEPC Level II Emergency Condition Level): A Site Area Emergency shall be declared when events are predicted, in progress, or have occurred that result in one or more of the following situations.

1. An actual or potential major failure of functions necessary for the protection of workers or the public. The radiation dose from any release of radioactive material or concentration in air from any release of other hazardous material is expected to exceed the applicable Protective Action Guide or Emergency Response Planning Guideline beyond the facility boundary or exclusion zone boundary. The Protective Action Guide or Emergency Response Planning Guideline is not expected to be exceeded at or beyond the site boundary.
2. Actual or potential major degradation in the level of safety or security of a facility or process that could, with further degradation, produce a General Emergency.

General Emergency (LEPC III Emergency Condition Level): A General Emergency shall be declared when events are predicted, in progress, or have occurred that result in one or more of the following situations.

1. Actual or imminent catastrophic reduction of facility safety or security systems with potential for the release of large quantities of hazardous materials (radiological or non-radiological) to the environment.
2. The radiation dose from any release of radioactive material or a concentration in air from any release of other hazardous material is expected to exceed the applicable Protective Action Guide or Emergency Response Planning Guideline at or beyond the site boundary.

**G-4d Control Procedures**

Emergencies involving hazardous waste will fall under three general classifications for the purpose of this Contingency Plan:

- explosion
- fire
- spills or material release.

The FCP is prepared for timely response to fires, explosions, and spills at all times. Personal protective clothing, pumps, generators, and respiratory equipment, and heavy equipment are noted in Section G-5 and containment supplies and procedures are identified in Section G-5(b). and major self propelled and other "heavy" equipment in Section G-5(a)(4).

The following Emergency Response Team members respond to fire alarms as needed:

- Emergency Coordinator (AEDO) with vehicle
- Subcontracted Community Emergency Response Organization with appropriate emergency apparatus

- Security Officer with vehicle
- Monitoring Personnel with appropriate equipment

Rescue of persons from an evacuated building or area will be undertaken only by the Subcontracted ~~Community~~ Emergency Response Organization under the direction of the Incident Commander.

Response procedures for trained personnel are summarized below:

- 1) Immediately notify personnel to evacuate the danger area and activate the local evacuation alarm while taking action to ensure own personal safety.
- 2) Report urgent situations ~~directly to the Communications Center~~ via the Emergency Phone Number 911. ~~, pull manual fire alarm, or have the report relayed to the Communications Center over the site-wide FM radio network, if a person with a portable radio is nearby. Otherwise, report information to a local supervisor who will relay the report to the Communications Center or Emergency Coordinator/AEDO.~~
- 3) Report the following information to the Emergency Coordinator/AEDO:
  - Location;
  - Type of emergency; fire, explosion, chemical release, and personnel, equipment, and chemicals or hazardous wastes involved and amounts if known;
  - The magnitude of the emergency, such as an estimate of the extent, size, quantity, volume, intensity, area, etc.; and
  - Emergency actions taken.
- 4) If possible, the facility personnel encountering the emergency should remain in the vicinity to direct emergency service groups to the scene.

- ~~5) Determine need for emergency service groups and summon them by calling 911, pulling manual fire alarms, or relaying the information to the Communications Center via the FM radio network.~~
- 5) ~~6)~~ Shut off all operation equipment, air, water, steam, gas, and electricity.
- 6) ~~7)~~ Remove and segregate all non-burning combustible or otherwise hazardous wastes from the vicinity of the incident, depending on the location of the incident.
- 7) ~~8)~~ Unlock all doors.
- 8) ~~9)~~ Evacuate all personnel in the vicinity of the incident not actively involved in responding to the emergency.
- 9) ~~10)~~ Account for all personnel at location, designated assembly point or at ~~a~~ the Rally Point.
- 10) ~~11)~~ Assist the Emergency Coordinator/AEDO if called upon.
- 11) ~~12)~~ Assess possible human health and environmental hazards of the event and define or assess the hazard impact including:
- Identify the involved substance and its source;
  - Determine the extent and the amount of materials involved.
- 12) ~~13)~~ Assess the emergency and establish the initial event categorization.
- 14) ~~14) If not already done, authorize the request for assistance from the Subcontracted Community Emergency Response Organization.~~
- 13) ~~15)~~ Notify the EDO of significant actions prior to EOC being declared operational.

- 14) 16) Set up a field command post to ensure coordination of all EOC instructions. The field command post shall formulate and forward requests for additional resources.
- 15) 17) Initiate the "All Clear" signal when the emergency is under control and/or resolved.
- 16) 18) Initiate necessary precautions to ensure that further fires, explosions and releases do not occur, recur or spread to other hazardous waste or materials.
- 17) 19) Initiate appropriate monitoring for leaks, pressure build up, gas generation or rupture in valves, pipes, or other equipment.
- 18) 20) Initiate reentry activities including recovery, treatment, storage, and/or disposal of any recovered waste, contaminated soil, surface water, or other materials resulting from the emergency.
- 19) 24) Ensure that all emergency equipment is returned to normal status when the event has been terminated.

Should the Incident Commander determine that a fire is out of control and additional personnel are required, the Incident Commander will direct the activation of the Subcontracted Emergency Response Organization's mutual aid agreements.

Additional fire fighting support can be requested from surrounding community fire departments. The members of the arriving mutual aid fire departments will be met at a staging area or at the gate by FCP personnel, given any pertinent instructions, supplied with Thermal Luminescent Dosimeter (TLD) badges as needed, and escorted to the location of the fire.

~~The personnel responding from off site departments will be under FCP direction. They will be responsible for their own equipment and to their senior officer who will report to the Emergency Coordinator/AEDO for instructions.~~

**G-4e Prevention of Recurrence or Spread of Hazardous Waste Fires, Explosions or Releases**

Actions to prevent the recurrence or spread of releases or fires include; immediately determining the cause of the incident, stopping of processes and operations where applicable, cleaning up all debris from the incident and maintaining good housekeeping, containing and collecting released waste, recovering and isolating affected containers, ensuring fires are completely extinguished, and decontaminating affected areas and equipment. Procedures and policies will be reviewed and revised as necessary to prevent a recurrence, upon determining the cause of the incident.

**G-4f Storage and Treatment of Released Waste**

The Emergency Coordinator/AEDO or his designee will immediately collect representative samples of all recovered wastes for analysis and characterization after an emergency. Waste will be placed in a compatible container. All waste materials generated during the emergency response will be handled, treated, stored, and/or disposed of in accordance with the applicable hazardous waste regulations.

Methods for containment, cleanup, and decontamination of the affected areas are discussed in Sections G-4i, Container Spills and Leakage, and ~~G-4j, Tank Spills and Leakage.~~

**G-4g Incompatible Wastes**

Containers are marked with Reactivity Group Codes (RGCs) based upon the results of waste characterizations. The RGC chart is readily available to personnel accessing the RCRA storage units, and is provided as Figure F-2 in Section F, Procedures to Prevent Hazards. Adherence to the codes provides a convenient, reliable system to assure that incompatible wastes will be separated (e.g. stored on separate spill pallets or stored in separate lockers buildings) to prevent mixing in the event of a spill or leak. In addition, since water might commonly be used for flushing or fire suppression, waste material that is incompatible with water is clearly marked as such.

Thus, in the event of (large) spills or leaks, the Emergency Coordinator/AEDO can ensure against the mixing of incompatible substances by maintaining separation of the incompatible

wastes. As necessary, storage unit inventory records will be examined and facility owners consulted to identify released material. As described in Section G-4b, samples will be taken for analysis and characterization if identification proves impossible due to obliterated drum labels or inaccessible site records.

The recovered materials or wastes generated during cleanup will be characterized and stored in accordance with all applicable regulatory requirements.

**G-4h Post-Emergency Equipment Maintenance**

Emergency equipment which has been used in the affected area will be decontaminated, cleaned and readied for its intended use before operations are resumed in the affected area(s) of the FCP. Depleted stocks of materials will be replenished. ~~Self-contained breathing apparatus,~~ Protective clothing and other emergency equipment which cannot be successfully cleaned, repaired, or decontaminated will be replaced as necessary. An inspection of all safety equipment will be conducted by response personnel before operations are resumed in the affected area(s) of the facility.

The State regulatory authorities shall be notified of the readiness of the facility to resume hazardous waste operations after the equipment is returned to a clean and serviceable condition.

**G-4i Container Spills and Leakage**

The FCP has developed specific criteria to facilitate the prioritization of mitigation activities for deteriorated/leaking containers. Consistent with the SACD, the FCP has classified its containers based upon the container condition. As a result of these classifications, those containers of hazardous, mixed and uncharacterized waste that are described as Type I containers are subject to Section 3.8 (c) of the SACD.

The classifications are:

### Type 1

Type 1 containers are any container that has actually leaked in such a manner as to allow wastes to be released onto the pallet or the floor.

The following actions will be initiated in response to a Type I container:

- Notify supervisor
- Immediately stop or contain leak. (Note: Employees without the specific training or knowledge of the released material or equipment should not take action to control the spill which may put their safety or that of others at risk).
- Supervisor notifies AEDO
- Complete additional cleanup as necessary
- Identify on inspection form as Type I container requiring further action

After the initial leak is contained, the container will be managed in accordance with OAC 3745-66-71, as soon as possible after detection, but in no event more than 24 hours after discovery unless safety issues require a longer time period. Safety issues to be considered include ~~Nuclear Criticality guidelines~~, radiological exposure and/or personnel safety in handling, lifting and movement activities. Safety concerns which impact the completion of these actions within the required time frame will be documented. Once these concerns have been resolved, the final corrective actions will be completed.

If there are no safety concerns or the concerns are resolved, corrective action will be accomplished by repairing the container or repacking/overpacking it. If repair is not possible or not effective, repacking or overpacking will be done. The container will be staged in an individual secondary containment area such as a spill pallet until this has been accomplished. Type 1 containers take priority over other work activities.

Type II

Type II containers exhibit localized evidence of material on the exterior of the container but no material has been released onto the pallet or the floor.

The following actions will be initiated in response to a Type II container:

- Notify supervisor
- Immediately stop or contain leak. (Note: Employees without the specific training or knowledge of the released material or equipment should not take action to control the spill which may put their safety or that of others at risk).
- Complete additional cleanup as necessary
- Identify on inspection form as Type II container requiring further action

After the initial leak is contained, the container will be managed in accordance with OAC 3745-66-71, as soon as practicable after detection, unless safety concerns prevent this. Safety issues to be considered include ~~Nuclear Criticality guidelines~~, radiological exposure and/or personnel safety in handling, lifting and movement activities. Safety concerns which impact the completion of these actions will be documented. Once these concerns have been resolved, the final corrective actions will be completed. These may include container repair, overpack or repack.

Type III

Type III containers exhibit severe corrosion without evidence of a release.

The following actions will be initiated in response to a Type III container:

- Evaluate container condition through required inspections to assess further actions
- Overpack/repack container prior to off-site disposition

If a container's condition causes its classification to change (e.g. Type III to Type II), it will be managed in accordance with the container management procedures for the new classification.

Very large spills involving the release of hazardous waste are unlikely in the container storage areas. Secondary containment structures in areas storing hazardous waste with free liquids are capable of holding at least 10% of the maximum volume of hazardous waste stored in that structure. If several drums are spilled simultaneously, the spilled material will be pumped from the containment area and re-containerized to prevent overflow of the containment area before attempting to use absorbent materials. Spilled hazardous waste will be treated, stored, and disposed of in accordance with the appropriate regulatory requirements.

#### **G-4j Tank Spills and Leakage**

The FCP does not have any hazardous waste tanks remaining on-site. The FCP has dismantled all tanks classified as HWMUs.

#### **G-5 EMERGENCY SUPPORT AND EQUIPMENT**

The Emergency Coordinator/AEDO when notified of an event involving hazardous waste or hazardous waste constituents, may utilize the emergency resources, support and equipment summarized below. The facilities and equipment available for use in an emergency at the FCP are at the Emergency Operations Center (EOC). ~~and the Communications Center.~~ Supporting equipment and resources include warning systems (on-site and off-site), response vehicles, personnel decontamination equipment, medical support, radiological monitoring, and industrial hygiene monitoring equipment. The FCP also maintains a contract with a local emergency response organization as described in Section G-6.

#### **Emergency Operations Center (EOC)**

The EOC is located in ~~the off-site Uno Building, Trailer T-214.~~ ~~The dose assessment area is located in Trailer T-76.~~ EOC staffing and responsibilities are outlined in Section G-2. ~~Resources available in the EOC include telephones, white boards, and computers with internet access.~~ ~~A paging system links response personnel with the Communications Center.~~ All response personnel can be alerted ~~simultaneously or individually,~~ in case of an event.

~~A comprehensive communications system in the EOC includes telephones, telefax, computers, and portable radios.~~

~~Computer support systems in the EOC maintain a historical record, perform meteorological and heavy gas modeling, aid in reporting current event status information to local county officials, and aid in drafting and transmitting press releases.~~

In the event of an emergency, the Springdale office can also serve as an alternate location for the EOC.

#### Communications Center/Security

Security maintains the safeguard and integrity of the FCP and provides communications, as needed in an emergency. ~~The Communications Center is typically the first to be advised of an emergency via plant alarm or personnel.~~

~~The Communications Center includes a full complement of one-way and two-way radio communications facilities, including a mobile and portable FM radio network, scanners, special telephone system, and a paging system. Special monitoring systems include a computerized emergency monitoring system. On-site Security Inspectors are equipped with emergency vehicles with lights and siren, portable communications equipment, and mobile cellular telephones, a mobile radio telephone, and a bullhorn.~~

#### Warning Systems

There are on-site, local building, ~~and off-site~~ warning systems at the FCP.

#### Facility Alarm System

This system is centered in the ~~Silos Control Room, Communications Center.~~ Signals from manual fire alarm boxes and automatic fire monitoring and/or extinguishing systems located throughout the plant ~~are equipped with an audible alarm that announces within the facility and transmits a signal to the Fire Control Panel in the Silos Control Room and monitored by control room personnel.~~ ~~transmitted to the Communications Center and monitored by a Honeywell Delta 1000 system. The Communications Technician, using the control panel, activates alarms located throughout the facility.~~

Each alarm system is tested by qualified personnel according to the following schedule, and the results are recorded:

Manual alarm boxes: Every six months

#### Emergency Message System and Local Evacuation Alarm

The Emergency Message System is a one-way system used by the Silos Control Room Communications Center to transmit verbal instructions and important information to facility personnel following the sounding of a warning signal within the Silos 1 and 2 process facility. Areas within the Silos 1 and 2 process facility are linked to a Honeywell Evacuation Alarm (loudspeaker) system. Appropriate evacuation and other messages will be broadcast over the loudspeakers in affected and adjacent locations.

#### Local Evacuation Alarm

All process are linked to a Honeywell Evacuation Alarm (loudspeaker) system. In the event of an emergency in any location, dialing 911 or calling "CONTROL" by radio will alert Emergency Preparedness via the Control Center. Appropriate evacuation and other messages will be broadcast over the loudspeakers in affected and adjacent locations. The speaker system is tested daily.

#### Ambulance Alarm

Primary response personnel are notified from the Communications Center via special Alert Pagers. The pagers alert assigned ERT members that a call has been made for the ambulance and the off-site contract fire department is notified to respond to the FCP.

#### Offsite Emergency Warning System

In emergencies with offsite implications the Offsite Emergency Warning System warns citizens within the 2-mile immediate notification zone surrounding the FCP. Activating the sirens alerts residents to take shelter immediately, tune to a radio or TV station and listen for an Emergency Broadcast System (EBS) message for information.

The warning system consists of ten electronic sirens (seven offsite and three onsite) and numerous tone-alert radio receivers. The sirens are located within or just outside the 2-mile immediate

~~notification zone. This system is tested on the first Wednesday of each month at noon.~~

**Fire and Rescue**

Fire and rescue equipment furnished by the Subcontracted Community Emergency Response Organization include vehicles with forcible entry tools, communications equipment, electric lights and generators, portable pumps, protective equipment, and heavy equipment.

Fire protection and extinguishing equipment at the FCP includes building sprinkler systems ~~(both wet pipe and dry pipe)~~, fire and smoke alarm systems, hand-held fire extinguishers, and fire hydrants.

**Decontamination Equipment**

~~Decontamination capabilities for injured and/or contaminated personnel are available at all times. The FCP maintains safety showers, eye wash stations, and radiological control points throughout the site and project areas that may serve as decontamination points prior to, or in conjunction with, emergency medical treatment.~~

~~Decontamination equipment is stored in the mobile emergency spill response vehicle. This equipment consists of brushes, soap, diking devices and recovery containers. All of the equipment is designed to be used in conjunction with a portable water supply or water supplied from emergency equipment (pumpers/tankers). The mobile emergency spill response vehicle is described in further detail in Section G-5a(4).~~

**Medical**

~~The FCP maintains immediate, on-site first aid and emergency medical treatment capability in conjunction with the capabilities of the Subcontracted Emergency Response Organization. One Emergency Medical Technician is on-site at all times.~~

~~Medical Services, located in T195, is staffed by physicians, nurses, and technicians. There are also various pieces of diagnostic equipment, hospital wards, and other equipment. Detailed information on medical equipment appears in Section G-5e.~~

### Environmental Radiological Monitoring

Environmental radiological monitoring equipment includes dosimeters, stack alarms, friskers, and other radiation survey instruments and monitors. Multimedia baselines are continuously established in all areas using airborne radioactivity air sampling pumps and friskers. Should an incident occur, changing and/or radiologically hazardous conditions can be monitored by direct reading dosimeters, swipes, friskers, and personal contamination monitors. This information can be used to establish boundaries of the contaminated area, and to provide control point monitoring of personnel and equipment involved in the incident.

### Industrial Hygiene Equipment

Monitoring capabilities are established by each project, which is dependent upon the hazards at that project. The FCP has dedicated portable kits that are maintained to conduct chemical or radiological monitoring on-site or off-site.

~~Industrial hygiene equipment includes devices for detecting multimedia hazardous materials and hazardous conditions. Sampling of large or small air spaces for chemical contaminants is accomplished by means such as: photoionization detector, combustible gas analyzer, oxygen meter, hang-on personal dosimeter (for nitrogen dioxide, sulfur dioxide, carbon monoxide, ammonia), direct-reading colorimetric (Dräger) tubes, and mercury vapor monitors. The output from the first two can be analyzed in the field by a portable gas chromatograph or a MIRAN infrared gas analyzer, the latter of which is also a direct-reading analyzer. Non-chemical hygiene hazards can be detected/determined by: sound level meter, microwave survey meter, low-frequency electromagnetic radiation meter, and a light scattering (airborne) dust monitor.~~

### Emergency Power System

~~Emergency exit lighting is furnished for many of the facilities on-site. Emergency diesel generators also furnish emergency power for limited lighting, communications, and certain operations of the Water Distribution Facility. One of the pumps that supplies firefighting water is also diesel powered.~~

~~Dedicated emergency generators supply emergency power for lighting, communications, and for certain designated facilities. The emergency generators are tested at least once each week by the Emergency Coordinator/AEDO according to established procedures. Records of these tests are maintained at the~~

facility. A portable unit is available when a power failure affects the Communications Center and the emergency generator fails to start.

**Additional Emergency Equipment**

The following additional emergency equipment is maintained at the FCP:

- ~~Self contained breathing apparatus (SCBA) and other respiratory equipment~~
- Chemically resistant clothing, boots, and gloves
- Showers and eye wash stations
- Emergency power and lighting equipment, including power-failure lighting
- 2 man-lift baskets
- Industrial vacuum loader
- 10-ton hydraulic mobile crane
- Gasoline pumps and submersible electric pumps
- Miscellaneous construction equipment including: backhoe/front end loader, trucks and forklifts
- Welding/cutting equipment
- ~~Showers and eye wash stations in fixed locations, and as portable units (as needed) throughout the plant~~
- ~~Emergency power and lighting equipment, including power failure lighting~~
- ~~Submersible electric pumps~~
- ~~Portable electric generators~~
- ~~Portable gasoline powered pumps (to 250 gpm)~~
- ~~Mobile gasoline powered pump (trailer mounted, @ 500 gpm)~~

A list of FCP emergency respiratory equipment and their typical applications and limitations is provided in Table G-3. A summary of pressurized fire extinguishers is provided in Table G-4.

**G-5a Fire Protection Equipment**

**G-5a(1) Plant Water Supplies and Fire Loop Water Supply**

The FCP water systems and related equipment provide the FCP with the first line of

defense in fighting fires, and supply the primary means of fire extinguishment.

#### **High Pressure Distribution System**

The High Pressure Distribution System provides water to the high pressure hydrants, and to building sprinkler systems. A static pressure of 114 psi (gauge) is maintained in the system by a jockey pump. The fire pump system is activated when the pressure in the system drops. The fire pump system consists of one electric and one-diesel powered pump, rated at 1,250 gallons per minute (gpm) at 125 psig. The electric pump and the diesel pump start automatically as the result of low water pressure. The fire pumps obtain water from the ground level tank. The fire pumps take suction at the bottom of the tank and have access to all 400,000 gallons, while the domestic water pumps take suction approximately eight feet from the bottom of the tank. This limits the domestic water pumps to the top 300,000 gallons and reserves the bottom 100,000 gallons strictly for the fire pumps only. This system is capable of providing sufficient water at sufficient volume and pressure for sprinkler systems.

#### **G-5a(2) Automatic Sprinklers**

Automatic sprinklers are an effective means of fire protection, and will extinguish or contain most fires. Major buildings and processing areas are protected by heat-activated automatic sprinkler systems. The automatic sprinklers release water when heat at the sprinkler head reaches a predetermined temperature. Emergency response personnel will immediately proceed to the area where an automatic sprinkler system is activated and take appropriate actions.

~~The following building is fully equipped with a dry pipe sprinkler system:~~

- ~~● Boiler Plant (Building 93A will be used from November through December to repackage containers of mixed waste)~~

Dry pipe sprinklers located inside each hazardous waste storage locker are plumbed to an outside Fire Department connection. The system can be activated by connection to a fire truck.

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G-5a(3) Fire Extinguishers

CLASSES OF FIRE EXTINGUISHERS

Fires are placed in one of four classes according to the type of fuel involved. The class of fire determines the method of extinguishment and, for this reason, all fire extinguishers are marked according to class. The various classes of fires are as follows:

- Class A fires involve ordinary combustibles such as wood or paper. These are most readily extinguished by removing the heat. Water extinguishers are best suited here. All-purpose dry chemical extinguishers may also be used.
- Class B fires involve flammable liquids such as gasoline or alcohol. Since these are liquid fires, the application of water may tend to "float" the fire away. The best method of extinguishment here is to remove the oxygen. Carbon dioxide, foam, or dry chemical extinguishers are best suited for Class B fires.
- Class C fires involve energized electrical equipment. Since some extinguishing agents conduct electricity and the best method of extinguishment is to remove the oxygen, carbon dioxide and dry chemicals are recommended here. An electrical fire, if the electricity can be turned off, is usually Class A and can be easily extinguished.
- Class D fires involve certain combustible metals such as magnesium which require specific extinguishing compounds to put them out.

~~Table G-4, Types of Pressurized Fire Extinguishers, describes the four types of pressurized fire extinguishers used at the FCP and lists typical applications and limitations for each type of extinguisher.~~

G-5a(4) FCP Emergency Response Equipment

### HEAVY EQUIPMENT

The following equipment, although not designated specifically for emergency use, is available to support emergency response activities if needed:

- ~~flatbed trucks~~
- ~~dump trucks~~
- ~~tow tractors~~
- ~~semi-trailers~~
- ~~semi tractors~~
- ~~tank truck~~
- ~~industrial trucks~~
- ~~industrial hand stackers~~
- ~~locomotive engine~~
- ~~front end loaders~~
- ~~bulldozers~~
- ~~road grader~~
- ~~cranes~~
- ~~back hoe~~
- ~~cement mixer~~
- ~~portable generator~~
- ~~numerous tractors, pickup trucks, and small vehicles~~
- ~~vacuum tanker truck, "Super Sucker"~~
- ~~water sprayer truck~~

### G-5b Spill Control and Monitoring Equipment

#### Spill Control and Emergency Spill Response Equipment

Spill response equipment is available for use at the FCP. Stockpiles of absorbent material (such as clay absorbent and spill booms or absorbent pillows called "PIGS") are located at each storage area and at certain satellite accumulation points. Runoff

can be diverted by temporary diking to prevent entry into the storm sewer. Contents from the storm sewer system can be diverted and held in the Stormwater Retention Basin to control offsite releases.

### MONITORING EQUIPMENT

Monitoring capabilities are established by each project, which is dependent upon the hazards at that project. The FCP has dedicated portable kits that are maintained to conduct chemical or radiological monitoring.

~~Equipment used to monitor for contamination, explosive atmospheres, and hazardous releases is located in specific locations within the various remediation projects. This equipment includes; detector tubes, air sampling equipment, explosive gas detectors, chemical analyzers and personal dosimeters.~~

### ~~G-5c Alarm and Electronic Monitoring Systems~~

~~Descriptions of alarm systems for areas used to manage hazardous waste are included in Attachment G-1. Automatic electronic alarm and monitoring systems consist of the Honeywell D-1000 System and the Meteorological Tower Monitors.~~

### HONEYWELL D-1000 SYSTEM

~~This centralized, computer controlled system has two main parts:~~

#### ~~(A) Multiplex, Digital Alarm System~~

~~(1) Remotely monitors activation of alarm sensors throughout the plant.~~

~~(2) Signals are converted by the Delta 1000 microprocessor to plain language messages.~~

~~(3) The CRT display includes:~~

800A

- ~~Alarm type~~
- ~~Signal number~~
- ~~Location~~
- ~~Action to be taken by Communications Center personnel~~

~~(4) Alarm sensors monitor the following:~~

- ~~Fire alarms~~
- ~~Sprinkler system~~
- ~~Smoke alarms~~
- ~~Radiation detection alarms~~
- ~~Supervisory alarms, including tampering, equipment, malfunction, and pressure varieties~~
- ~~Process alarms for temperature and gas detection~~

~~(B) Audible Alarm System~~

~~(1) Activated by Communications Center or Honeywell System automatically.~~

#### METEOROLOGICAL TOWER MONITORS

~~(A) Meteorological information collected includes wind speed and direction.~~

~~(B) Information is used to calculate plume direction during a radiological or gaseous hazardous materials emergency.~~

~~(C) Monitors displaying near real time conditions are located in the Communications Center and Trailer T-76 along with computer plume models.~~

~~(D) Communications Center personnel can relay the information to the Emergency Coordinator (AEDO). National Weather Service information is available in case back-up data is needed.~~

**G-5c Communication System**

The FCP utilizes other special radios, receivers, and telephones including the following; and monitoring equipment, in addition to the Alarm Systems described in the previous section. The following communications and monitoring equipment is located in the FCP Communication Center and is operated by Communications Center personnel on duty, seven days a week:

**TWO-WAY RADIOS**

The FCP utilizes multiple eight separate high-band radio frequencies.

**RADIO RECEIVERS**

These include the following:

- Radio receiver to monitor Crosby Township Fire Department

**SPECIAL TELEPHONES AND TELEPHONE SERVICE**

These include the following:

- Emergency telephone number 911 (also 648-6511)
- Emergency message system through which the Communications Center furnishes information to onsite personnel relative to emergencies and general information.
- Mobile and Cellular radio telephones, utilized by the Security vehicles.

**G-5d First Aid and Medical Supplies**

**G-5d(1) Emergency Treatment**

The FCP maintains immediate on-site first aid and emergency medical treatment capability in conjunction with the capabilities of the Subcontracted Emergency Response Organization. A minimum of one state certified Emergency Medical Technician (EMT) is on-site at all times. This EMT, along with personnel who are CPR/First Aid trained, are available for emergency response.

~~Personnel are provided first aid treatment in the emergency treatment room in T195. A doctor is normally on duty and nurses are always on duty during the day shift, Monday through Friday. First aid and/or arrangements for transporting ill or injured personnel for treatment is provided at other times by Subcontracted Community Emergency Response Organization (who are state certified Emergency Medical Technicians). A minimum of one state certified Emergency Medical Technician is scheduled for each shift on site. Emergency personnel may be summoned by calling the Communications Center in an emergency.~~

**G-5d(2) Ambulance Service - General**

Injured or ill employees will be transported by the FCP Subcontracted ~~Community~~ Emergency Response Organization's ambulance or through their mutual aid equipment to pre-designated area hospitals.

**G-5d(3) Ambulance Service, 2nd and 3rd Shifts, Weekends, Holidays, Vacation Shutdown**

Ambulance service is provided during second and third shifts, weekends, and holidays in the same manner as during regular day shift hours.

**G-6 COORDINATION AGREEMENTS**

A contract has been awarded to a local off-site emergency response agency. This agency is responsible for the emergency response at the site when facility response can not mitigate the event. Any mutual aid agreements are the responsibility of the Subcontracted Emergency Response Organization. The Subcontracted ~~Community~~ Emergency Response Organization has signed mutual aid agreements with other agencies and/or have agreed to provide needed assistance to the FCP at local, county, state and federal levels. Attachment G-3 contains information regarding the contract with the Crosby Township Fire Department and Life Squad and the current letters of agreement with Mercy Franciscan Hospital-Mount Airy (formerly Providence Hospital) and University Hospital.

Off-site organizations have been provided information of facility layouts, associated hazardous areas, entrances to the facility and primary evacuation routes to facilitate emergency response. Hospitals

have been familiarized with the types of injuries and illnesses which may potentially occur at the facility. In addition, off-site responders are provided with annually updated facility layouts, evacuation routes, floor plans, etc., and are invited to participate in joint emergency exercises conducted every three years (more often if changing conditions warrant).

The Incident Commander will request the call-in of additional mutual aid assistance as needed. Equipment dispatched for such requests operate under the immediate supervision of the responder's senior on-scene official, but under the general direction of the requester's senior on-site official.

~~The Communications Center Operator, in the event of Contingency Plan Implementation and at the request of~~ The Emergency Coordinator/AEDO, shall request additional assistance by calling one or more of the off-site organizations' telephone numbers listed in Table G-1; see Figure G-4 for interrelationships between these organizations.

## G-7 EVACUATION PLAN

### EVACUATION OF RCRA FACILITIES

Personnel will respond to voice warnings from a supervisor, audible alarms, or (when alone without supervision) to their own cognition of the events without the benefit of signals. As determined by the Emergency Coordinator/AEDO, personnel may have to evacuate to their rally point ~~or designated assembly area~~. Personnel will be instructed as to what action to take, if further movement is necessary. A discussion and maps of the evacuation routes and rally points are provided for each area used to manage hazardous waste in Attachment G-1.

### GENERAL EVACUATION

All major emergencies require prompt and deliberate action. Following an established set of procedures is required, in the event of any major emergency, for the safe evacuation of personnel. In specific emergency situations, however, the Emergency Coordinator/AEDO may deviate from the procedures to provide a more effective plan for bringing the situation under control. The Emergency Coordinator/AEDO is responsible for advising Management of the necessity for any evacuation.

The following actions, in the event that a facility evacuation is required, will be taken by those present:

~~(A) The Sitewide Alarm System will be activated at the Communications Center followed by an announcement over the emergency message system.~~

(A) ~~(B)~~ Employees shall carry out assigned responsibilities during an emergency shutdown. For example, individuals may have assignments to shut off fuel gas, water, steam, electricity and/or perform other special duties.

(B) ~~(C)~~ All employees will report to their predetermined rally point for accountability and further instruction. ~~Should the emergency involve a nuclear criticality, all employees will report instead to the specific locations indicated in the Site Criticality Procedure.~~

## **G-8 REPORTS**

Certain notifications and reports may be required by the regulatory authorities, in the event of an emergency that requires implementation of the Contingency Plan. Section G-4a describes the oral notifications and written reports required upon the implementation of the Contingency Plan. Any one or more of these reports may be required depending on the nature and extent of the emergency. Current record keeping/reporting procedures are maintained in the Operating Record.

### **G-8a Required Written Reports**

#### **GENERAL INCIDENT REPORTING**

The FCP will note in its operating and event reporting records, the time, date, and details of any incident that requires implementation of this Contingency Plan. Within 15 days after an occurrence of an incident, a written report describing the implementation of the Contingency Plan (Form B Notification to Ohio EPA of Implementation of Contingency Plan) is required to be submitted to the Ohio EPA by the FCP as outlined in Section G-4a. An example of Form B is shown in Figure G-10.

#### **RESUMPTION OF OPERATIONS REPORTING**

The State regulatory authority shall be notified of the readiness to resume hazardous waste operations by using Form C (Written Notice to Ohio EPA and Appropriate Local Authorities of Resumption of Hazardous Waste Operations). Prior to notification, the equipment must be

FERNALD CLOSURE PROJECT  
FERNALD, OHIO  
EPA ID NO. OH6890008976  
SECTION G: CONTINGENCY PLAN

RCRA PART B PERMIT APPLICATION  
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returned to a clean and serviceable condition (as described in Section G-4h). An example of Form C is shown in Figure G-11.

#### **G-9 AMENDING THE CONTINGENCY PLAN**

The FCP will amend the plan and distribute amended copies, when any of the following occur:

- a) The plan fails in an emergency; or,
- b) The list of emergency coordinators changes; or,
- c) The list of emergency equipment changes; or,
- d) Changes in the facility increase the potential for fires, explosions, or releases of hazardous waste, or change the response necessary in an emergency.

**Table G-1**  
**Emergency Operation Personnel & Organizations**

**EMERGENCY COORDINATORS/ASSISTANT EMERGENCY DUTY OFFICERS**

<u>NAME</u>	<u>HOME PAGER*</u>	<u>OFFICE</u>	<u>HOME ADDRESS</u>	<u>TELEPHONE</u>
David L. Jackson**		4036		
Duckworth, R.		4749		
Bierman, J		4749		
McCool, D.		4749		
Stacey, E.		4749		
Meeks, J. (Casey)				
Miller, A. (Alternate)				

- The most effective means for reaching the on-site Emergency Coordinator/AEDO is via pager, or Radio #202. The on duty Emergency Coordinator/AEDO may also be reached by:
  - o ~~radio through the 24-hour staffed FEMP Communications Center~~
  - o ~~office, (513) 648-4749,~~
  - o portable cellular telephone, (513) 484-2295 ~~(513) 484-2294, or~~
  - o ~~mobile vehicle cellular telephone, (513) 484-2295, or (513) 484-2296~~

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There is an Emergency Coordinator/AEDO on-site at all times, 24 hours per day, 365 days per year. The home addresses and telephone numbers of all Emergency Coordinator/AEDOs (and other Emergency Operations personnel as well) are available on-site from the Communications Center or the Emergency Operations Center, if, for some reason, an off-duty Emergency Coordinator/AEDO would need to be reached.

\*\* D. Jackson is the Safety and Health Program ~~Director~~ ~~Manager~~. The on-site/on-duty Emergency Coordinator/AEDO at the time of an incident will be the primary incident commander for that incident.

**OTHER**

All Emergencies.....	911	<del>(513) 648-6511</del>
<del>On-Duty AEDO.....</del>	<del>(513) 648-6511</del>	
<del>FEMP Communications Center.....</del>	<del>(513) 648-4444</del>	
DOE Site Office.....	(513) 648-3155	
<del>Security Office.....</del>	<del>(513) 648-5614</del>	
<del>Medical Office.....</del>	<del>(513) 648-4433</del>	
Release Evaluator (Pager).....	<del>(513) 303-3880</del>	<del>(513) 303-3884</del>
US EPA Region 5.....	(312) 353-2318	
<del>US EPA RCRA Hotline.....</del>	<del>(800) 424-9346</del>	

**OFF-SITE NOTIFICATION**

**DEPARTMENT OF ENERGY**

DOE Headquarters, Washington, D.C.....	(202) 586-5000
DOE Headquarters Emergency Operations Center .....	(202) 586-8100
DOE Ohio Field Office .....	<del>(513) 246-0021</del>
	<del>(513) 246-0020</del>

**STATE OF OHIO**

Ohio Emergency Management Agency .....	(614) 889-7150
Ohio EPA Emergency Response Center (Spill Reporting Hotline) .....	(800) 282-9378
Ohio EPA Columbus (Division Emergency Remedial Response) .....	(614) 644-2924
Ohio EPA Southwest District Office .....	(937) 285-6357
	<del>(800) 686-8930</del>
Ohio Department of Health .....	(614) 466-3543

Table G-1

Off-Site Emergency Operation Organizations

Ohio State Highway Patrol ..... (513) 863-4606  
Ohio State Fire Marshall ..... (800) 686-0736

**HAMILTON COUNTY**

Communications Center ..... Emergency - 911  
..... (513) 825-2280  
Emergency Management Agency (Emergency Operations Center)..... (513) 851-7080  
Hamilton Cty. Dept. of Environ. Svces., Air Quality Pgms. .... (513) 946-7777  
Southwest Local School District ..... (513) 367-4139  
Sheriff's Department ..... (513) 825-2280

**BUTLER COUNTY**

Sheriff Dispatch..... ~~(513) 887-3010~~  
..... ~~(513) 785-1300~~  
Emergency Management Agency (Emergency Operations Center).....(513) 785-5810

**LOCAL FIRE DEPARTMENTS**

Crosby Township ..... 911 or (513) 385-8338  
Ross Township ..... 911 or (513) 728-2023  
Colerain Township ..... 911 or (513) 825-6143

**EMERGENCY MEDICAL SERVICE**

Colerain Township Fire Department.....(513) 825-6143  
Crosby Township Fire Department.....(513) 385-8338  
~~Mercy Franciscan MediCenter - Harrison~~.....(513) 367-2222  
Mercy Franciscan Hospital – Mount Airy ~~(Emergency Room)~~.....(513) 853-5000  
..... ~~(513) 853-5222~~  
~~Mercy Hospital - Fairfield~~.....(513) 870-7001

Table G-1

Off-Site Emergency Operation Organizations

University Hospital ~~(Emergency Room)~~ ..... ~~(513) 584-4571~~  
~~(513) 558-5281~~  
University Air Care ..... (800) 826-8100 or ~~(513) 584-7522~~

**OTHER AGENCIES**

Chemical Referral Center, CMA ..... (800) 262-8200  
Coast Guard/DOT National Response Center ..... (800) 424-8802  
N.O.A.A. .... ~~(513) 283-3195~~  
~~(937) 383-0430~~  
~~RCRA/EPCRA Superfund Call Center~~ ..... ~~(800) 424-9346~~  
American Red Cross ..... (513) 579-3000  
Chemtrec ..... (800) 424-9300

**Table G-2**

**The FCP Emergency Organization Roster**

**EMERGENCY RESPONSE TEAM**

Assistant Emergency Duty Officer/Emergency Coordinator  
Subcontracted ~~Community~~ Emergency Response Personnel  
Emergency Medical Technicians

**ADDITIONAL SUPPORT PERSONNEL to the EMERGENCY RESPONSE TEAM**

Radiological Safety Technicians (As Needed)  
Industrial Hygiene Technicians (As Needed)

**ADDITIONAL FIELD PERSONNEL**

**Operations Response**

Plant Supervisors  
Facility Owner  
Operations Personnel

**Security Response**

Shift Lieutenant  
Security Officers  
~~Security Support Group~~

**COMMUNICATIONS CENTER**

~~Communication Technician~~

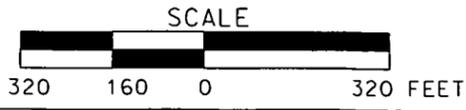
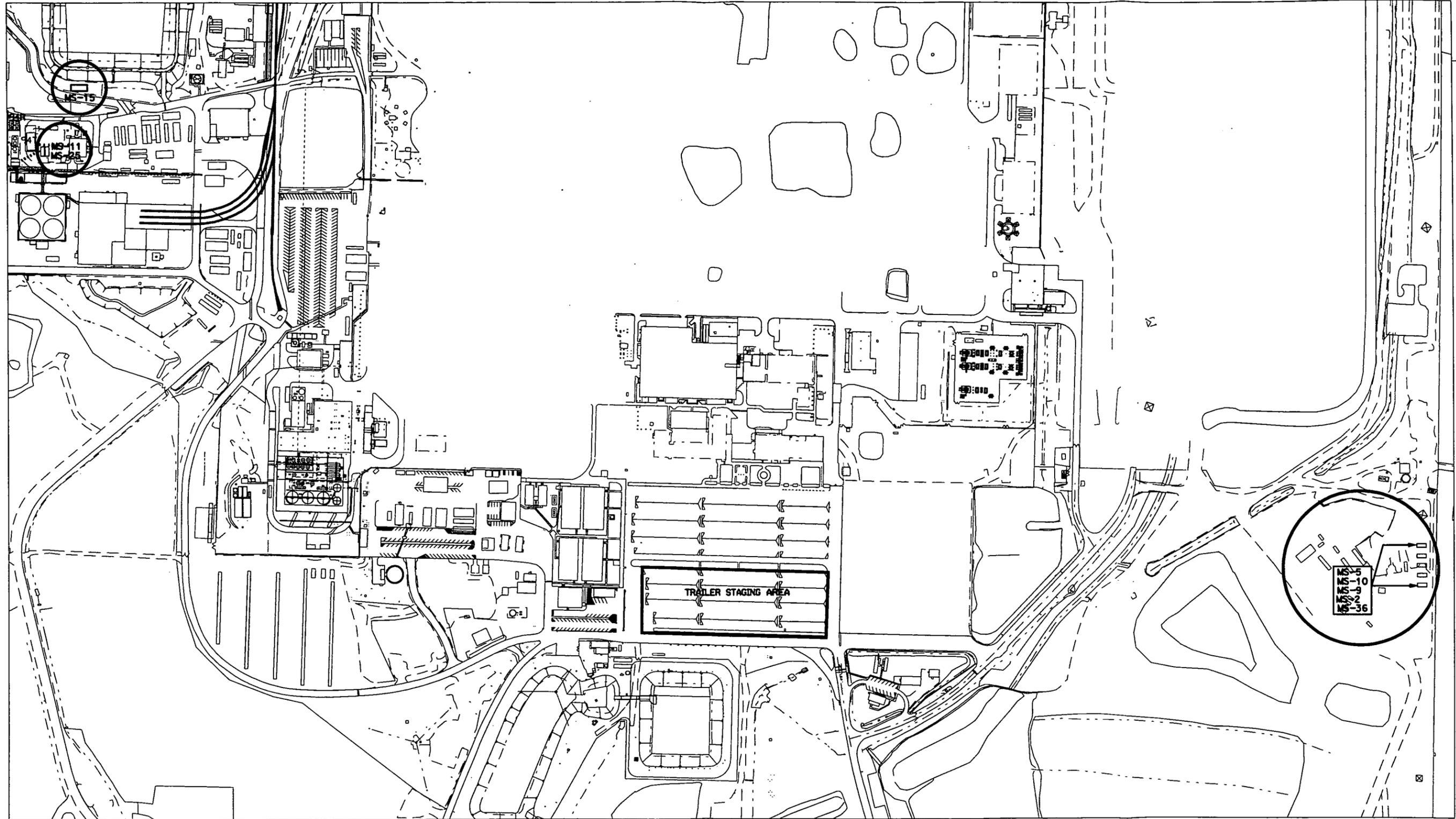
**EMERGENCY OPERATIONS CENTER**

Emergency Duty Officer  
DOE Site Manager  
Emergency Director  
~~Emergency Management Advisor~~  
Deputy Emergency Director  
Safety and Health Advisor  
Operations Advisor  
Environmental Advisor  
Public Information Advisor  
Security Advisor  
DOE Liaison  
~~Off-site Notification Officer (2)~~

The FCP Emergency Organization Roster  
(continued)

**EMERGENCY OPERATIONS CENTER (Continued)**

Field Communicator  
~~Information Plotters~~  
Runners  
Historian  
~~Administrative Support~~



LOCATION MAP

FIGURE G-2

# FCP EMERGENCY RESPONSE ORGANIZATION

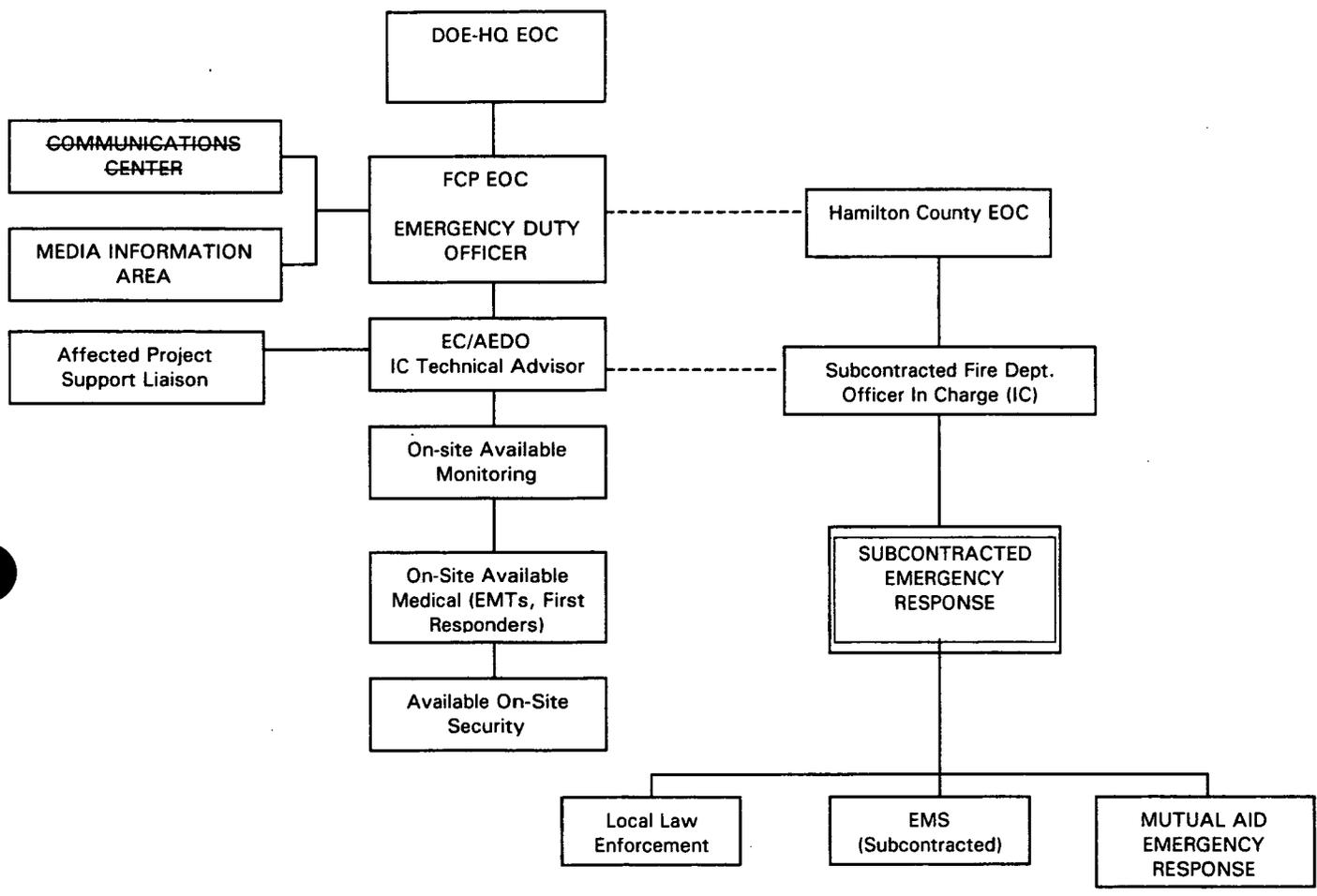


FIGURE G-3.1

**Training and Participation Requirements**

	Drills & Exercises	EMT - State of Ohio	Firefighter -NFPA	HazMat -NFPA	Incident Command	GET/HAZ WOPER	EOC Staff
Administrative Support							
AEDO							
Comm Center Staff							
Emergency Director							
Employees							
Deputy Emergency							
DOE-FCP Manager							
DOE Liaison							
Environmental Advisor							
EOC (County & State)	Invited					Invited	
Field Communicator							
Historian							
Information Officer							
Medical Staff							
Monitoring Teams							
Responders	Invited	Invited	Invited	Invited	Invited		
Off-Site Notification							
Operations							
Plotter							
Public Information							
Safety & Health							
Security							
Visitors							
<b>Key</b>	Full participation req'd			Some participation			Invited

Figure IS NOT intended to be inclusive of all training that may be required for each position.

Figure G-7

-- 6003

Activation methods for all elements of the Emergency Response Organization

Emergency Response Organization Elements	Pager Group(s)	Activation Method		Approximate Response Time	
		Primary	Backup	Onsite	Offsite
AEDO	All	Cell Phone ERT Pager or radio	Pager -EMS or telephone	Immediate upon notification	Variable, < 45 minutes
EDO	1 & 2	Cell Phone or Pager	Telephone		
EOC Staff	1 and/or 2	Cell Phone or Pager ERT Pager or radio	Pager EMS or telephone		
Security and Accountability	4	Cell Phone Pager	Radio Telephone		
Monitoring Team	5	Cell Phone Pager	Pager Telephone		
Release Evaluator	None	Cell Phone Pager	Pager Telephone		
Public Affairs	1 & 2	Cell Phone Pager	Pager Telephone		
Offsite Responder	N/A	Call 911 Crosby Twp. Radio otherwise telephone request	Radio request	Onsite in 10 to 30 minutes	

**ATTACHMENT G-1**

**Emergency Procedures, Site Layout and Equipment Information**

Attachment G-1 contains the description of evacuation procedures and general procedures to be followed in the event of an explosion, fire or spill, and a description of the evacuation routes and a listing of safety and emergency equipment for each area currently being used to manage hazardous waste.

These areas include the following:

- Hazardous Waste Storage Lockers (8 9 lockers; 3 4 locations) (Note: Beginning in November 2004, 5 of these lockers will be moved to one location so this will become 9 lockers, 3 locations)
- Trailer Staging Area
- ~~Waste Sampling/Repackaging Building~~
- ~~Boiler Plant (Building 93A)~~

**General Information**

Emergency procedures for areas used to manage hazardous waste are described specifically in this section. Responses to an event are identical for each unit and the details are given for the response to the three types of events:

- 1) an explosion;
- 2) a fire; or
- 3) a spill of hazardous waste

A response involves the action that endangered personnel must take when encountering an actual or potential explosion, fire, or spill. Personnel may have the knowledge and judgement to discern the severity of the situation. Personnel lacking knowledge sufficient to discern the severity of the situation should immediately move to a safe location and contact the Emergency Coordinator/AEDO. The categorization level of an EVENT may not reach an OPERATIONAL EMERGENCY level, and thus will not cause the implementation of this Contingency Plan. The situation may nevertheless warrant a protective and remediation response. For example, an incident that does not involve the Subcontracted

0000-71

Community Emergency Response Organization may be handled by personnel properly trained under the RCRA training curriculum; small spills or fires may be handled by immediate action of the individuals discovering the event. Even events that involve response by the Subcontracted Community Emergency Response Organization, if the Emergency Coordinator/AEDO so determines, may not require implementation of this Contingency Plan. See Section G-3 and G-4c for guidelines the Emergency Coordinator/AEDO uses in determining implementation of this Contingency Plan. See Section G-4 of this Contingency Plan for general emergency response procedures.

## **EVACUATION & SAFETY PLAN**

### **1. Purpose and Scope of the Contingency Plan**

To protect the lives and property of all personnel inside and in the vicinity of an event at the FCP, and the prevention of environmental damage.

### **2. Reason for Activating the Contingency Plan**

#### **2.1 Explosion**

**2.1.1** Any employee who detects an actual or potential explosive situation in the vicinity should immediately alert all nearby workers unless the situation is self evident.

**2.1.2** Pull the nearest fire alarm. Dial 911 and report the exact location of the explosion to the Hamilton County Dispatch, then call the Emergency Coordinator/AEDO at 648-6511. Communication Center by two-way radio or telephone (Direct line call 911 or cell phone call 648-6511), if an alarm box is not near.

**2.1.3** Leave the area promptly by the least dangerous and most direct or designated route. Continue the escape by evacuating to the designated rally point or assembly area (Figure G-1) before trying to make a radio report to summon emergency response personnel.

**2.1.4** Using nearby emergency equipment may not be possible if it is in what appears

to be the danger zone.

~~2.1.5 Report the nature of the problem and exact location to the Communication Center by two-way radio or telephone and wait for assistance from the emergency response personnel.~~

2.1.5 Supervisor or senior person in charge should take account of all personnel and summon immediate medical attention to seriously injured personnel by dialing 911.

2.1.5 Continue evacuation to the next safe rally point or designated assembly area before taking account of all personnel, if it is evident that the explosion poses a threat to the designated Rally Point or designated assembly area or if these locations are this rally point is downwind in the path of smoke or vapors.

2.1.6 Use any available and appropriate emergency equipment such as eyewash and shower, if exposed to fumes, smoke, or other hazardous physical irritations. Notify your supervisor. ~~and report to medical personnel in T-195 immediately.~~ Anyone who is aware of any exposure to a fellow worker should request immediate medical help by dialing 911 for serious injury or by contacting the Emergency Coordinator/AEDO ~~for that person.~~

## 2.2 FIRE

2.2.1 Any employee who detects an actual or potential fire situation in the vicinity should immediately alert all nearby workers.

2.2.2 Pull the nearest fire alarm. Dial 911 and report the exact location of the fire to the Hamilton County Dispatch, then call the Emergency Coordinator/AEDO at 648-6511. ~~Communication Center by two-way radio or telephone (Direct line-call 911 or cell phone-call 648-6511), if an alarm box is not near.~~

2.2.3 Use available fire fighting equipment to fight the fire until the Fire Department arrives if there is no immediate danger involved and you have proper training.

- 2.2.4** Immediately use available emergency equipment to provide first aid for burns and other minor injuries.
- 2.2.5** Supervisor or senior person in charge should take account of all personnel and summon immediate medical attention to seriously injured personnel by dialing **911**.
- 2.2.6** Leave the building quickly and calmly by the least dangerous and most direct or designated route.
- 2.2.7** Evacuate to the designated rally point or **assembly area**. Supervisor or senior person in charge should take account of all personnel.
- 2.2.8** Continue evacuation to the next safe rally point or **designated assembly area**, if **these locations are** this rally point is downwind in the path of smoke or fumes, before taking account of all of the personnel.
- 2.2.9** Use any available and appropriate emergency equipment such as eyewash and shower, if exposed to vapors, smoke, or other hazardous physical irritations. Notify your supervisor. ~~and report to medical personnel in T195 as soon as possible.~~ Anyone who is aware of any exposure to a fellow worker should see that medical help is provided to that person **by contacting 911 for serious injuries and the Emergency Coordinator/AEDO at 648-6511.**

## **2.3 HAZARDOUS WASTE SPILL INCIDENT**

### **Initial Response**

- 2.3.1** Any employee who detects an actual or potential hazardous waste spill situation in the vicinity should immediately alert all nearby workers.

**NOTE: If exposed to waste materials, use appropriate emergency equipment such as eyewash and shower. Notify supervisor and the **Emergency Coordinator/AEDO**, report to Medical.**

**2.3.2** If time and conditions permit, conduct an initial evaluation, to determine the extent and seriousness of the event. Take immediate steps, if possible (without risk of injury), to control the source of the discharge, spill, or leak, or to prevent it from migrating. (This may involve such actions as shutting off equipment, closing valves, or using absorbent pads or pigs for blocking/diking).

**NOTE: Employees without specific training or knowledge of the released material or equipment, should not take action to control the spill, which may put their safety, or that of others, at risk.**

**2.3.3** In the event of an emergency incident, contact the Emergency Coordinator/AEDO immediately and evacuate the area.

**Hazardous Waste Spill Incident Notification**

**2.3.4** Promptly notify immediate supervision or Emergency Coordinator/AEDO in supervisor's absence, of the magnitude, location, status, and type of material spilled, as well as any other pertinent information.

**2.3.5** For routine spill events/incidents, contact Radiological Safety and/or Industrial Hygiene technicians to perform monitoring and analyses of the spill incident, as necessary, in order to determine material hazards, monitor the extent of contamination, or to specify PPE requirements.

**2.3.6** Initiate spill incident reporting/recording.

**Hazardous Waste Spill Incident Cleanup**

**2.3.7** Ensure spill incident cleanup is conducted in accordance with Emergency Coordinator/AEDO's direction and guidance contained in procedures.

**SAFETY EQUIPMENT**

Areas used to manage hazardous waste are supplied with varying levels and amounts of safety equipment depending upon the use, occupancy, and contents of the unit. The remainder of Attachment G-1 lists the locations of safety and emergency equipment designated for each area. Only

personnel with the appropriate training and experience shall utilize the specified safety equipment. ~~fire extinguishers, respirators and protective clothing, and spill clean up equipment.~~

**HAZARDOUS WASTE STORAGE LOCKERS BY ADVANCED WASTE WATER TREATMENT FACILITY**

~~Three hazardous waste storage lockers (MS 2, MS 6 and MS 10) are located east of the Advanced Waste Water Treatment Facility. These lockers may be used for the storage of containers of hazardous waste with and without free liquids and ignitable wastes.~~

~~Personnel should evacuate to Rally Point No. 12, located south of the Advanced Waste Water Treatment Facility (Building 51).~~

~~The following is a list of safety equipment assigned to this unit:~~

~~• Fire Extinguisher~~

- ~~1) 10# ABC posted outside, west of the storage lockers~~

~~• Portable Eye Wash Station~~

- ~~1) Available to personnel during operations~~

~~• Spill Cleanup Equipment~~

- ~~1) One Portable spill kit located outside, north of MS 2~~

~~**NOTE: These lockers are planned to be moved from this area in November 2004. The new location for these lockers will be on the east side of the site, south of Cell 8.**~~

### ~~CLEAN SIDE HAZARDOUS WASTE STORAGE LOCKERS~~

~~Two hazardous waste storage lockers (MS-14 and MS-36) are located at the southwest corner of the East Parking Lot. These lockers may be used for the storage of containers of hazardous waste with and without free liquids, PCBs and ignitable wastes.~~

~~Personnel should evacuate to Rally Point No. 2, located south of the Medical trailer (T-195).~~

~~The following is a list of safety equipment assigned to this unit:~~

~~• Fire Extinguisher~~

- ~~1) 10# ABC posted outside, on the south wall of MS-14~~

~~• Portable Eye Wash Station~~

- ~~1) Available to personnel during operations~~

~~• Spill Cleanup Equipment~~

- ~~1) One Portable spill kit located inside MS-14~~

~~**NOTE:** These lockers are planned to be moved from this area in November 2004. The new location for these lockers will be on the east side of the site, south of Cell 8.~~

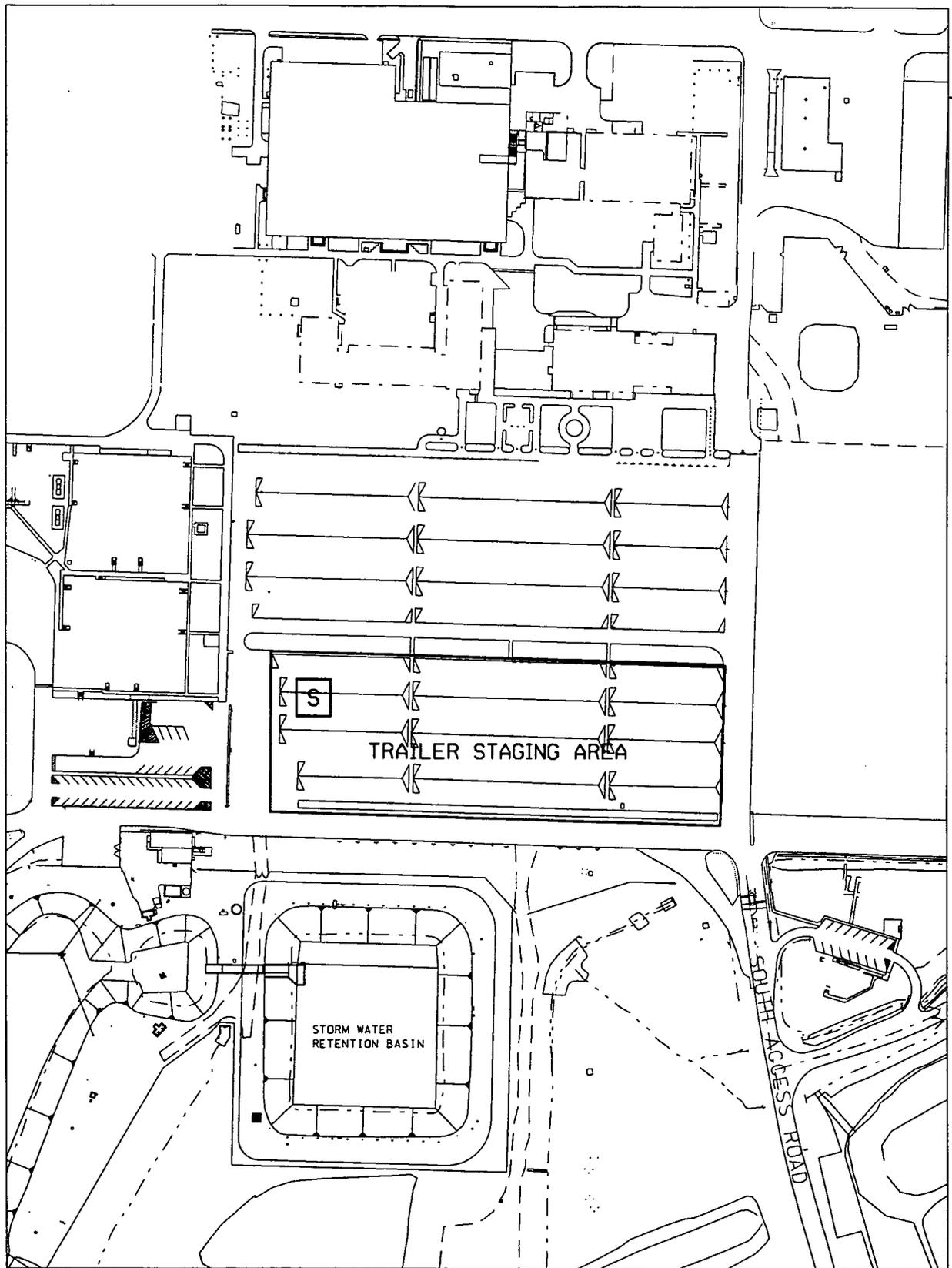
### MIXED WASTE TRAILER STAGING AREA

Mixed waste containers may be temporarily staged in truck trailers in the southern half of the West Parking Lot prior to shipment. These trailers may contain mixed waste with and without free liquids, PCBs and ignitable wastes.

Personnel should evacuate to ~~the nearest designated assembly area as determined by Safety personnel.~~  
~~Rally Point No. 2, located south of the Medical trailer (T-195).~~

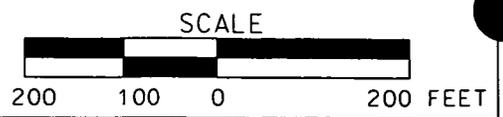
The following is a list of safety equipment assigned to this unit:

- Spill Cleanup Equipment
  - 1) One Portable spill kit located in the Trailer Staging Area



LEGEND:

[S] SPILL CLEANUP EQUIPMENT



MIXED WASTE TRAILER STAGING AREA

~~HAZARDOUS WASTE STORAGE LOCKERS IN SILOS TRUCK STAGING AREA~~

~~Three hazardous waste storage lockers (MS 4, MS 11 and MS 25) are located in the northeast corner of the Silos Truck Staging Area. These lockers may be used for the storage of containers of hazardous waste with and without free liquids, PCBs and ignitable wastes.~~

~~Personnel should evacuate to Rally Point No. 4, located at the west end of the former Building 30/45 parking lot.~~

~~The following is a list of safety equipment assigned to this unit:~~

~~• Fire Extinguishers~~

- ~~1) 10# ABC posted outside, on the south wall of MS 4,~~
- ~~2) 10# ABC posted outside, on the south wall of MS 11~~
- ~~3) 10# ABC posted outside, on the south wall of MS 25~~

~~• Portable Eye Wash Station~~

- ~~1) Available to personnel during operations~~

~~• Spill Cleanup Equipment~~

- ~~1-3) A portable spill kit is located outside, on the south end of each Hazardous Waste Storage Locker (3 total)~~

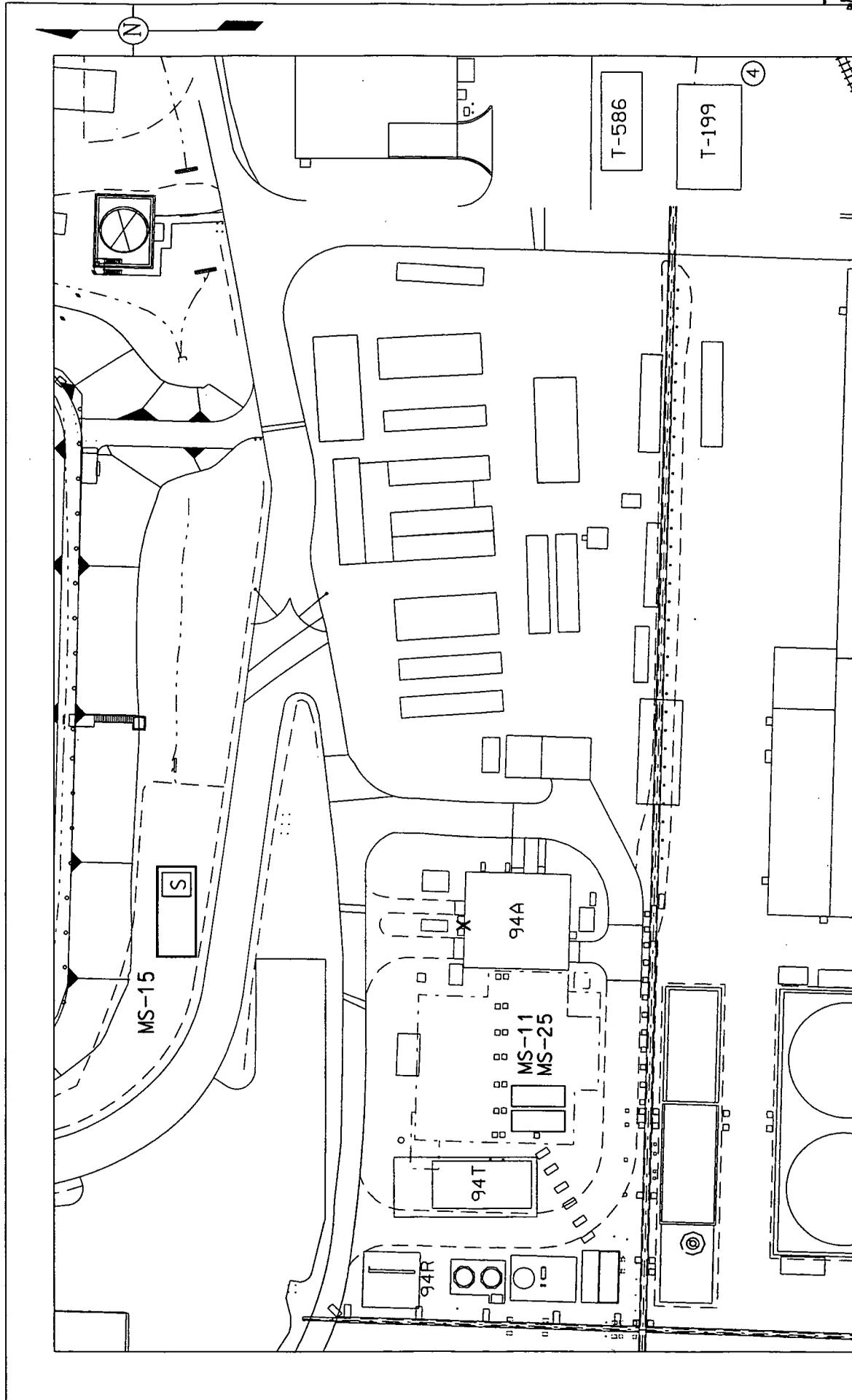
### **HAZARDOUS WASTE STORAGE LOCKER BY SILOS**

One hazardous waste storage locker (MS-15) is located near the Silos, north of the Radon Control System Building (Building 94A). This locker may be used for the storage of containers of hazardous waste with and without free liquids and ignitable wastes.

Personnel should evacuate to Rally Point No. 4, located at the southeast corner of T-199. ~~the west end of the former Building 30/45 parking lot.~~

The following is a list of safety equipment assigned to this unit:

- Fire Extinguisher
  - 1) 10# ABC posted inside, on the north wall of Building 94A
  
- Portable Eye Wash Station
  - 1) Available to personnel during operations
  
- Spill Cleanup Equipment
  - 1) One Portable spill kit located inside MS-15



LEGEND:

- X FIRE EXTINGUISHER
- S SPILL CLEANUP EQUIPMENT
- ④ RALLY POINT



HAZARDOUS WASTE STORAGE LOCKER BY SILOS

22-JUN-2005

### **HAZARDOUS WASTE STORAGE LOCKERS SOUTH OF CELL 8**

Five hazardous waste storage lockers (MS-5, MS-14, MS-36, MS-2, MS-9 and MS-10) are located south of Cell 8. ~~Beginning in November 2004, five hazardous waste storage lockers (MS-14, MS-36, MS-2, MS-9 and MS-10) will be located south of Cell 8.~~ These lockers may be used for the storage of containers of hazardous waste with and without free liquids and ignitable wastes. Note that a sixth locker is also located in this area (MS-14) (MS-5) but it is not being used for the storage of containers of hazardous waste.

Personnel should evacuate to the Rally Point located at the entrance to T-139.

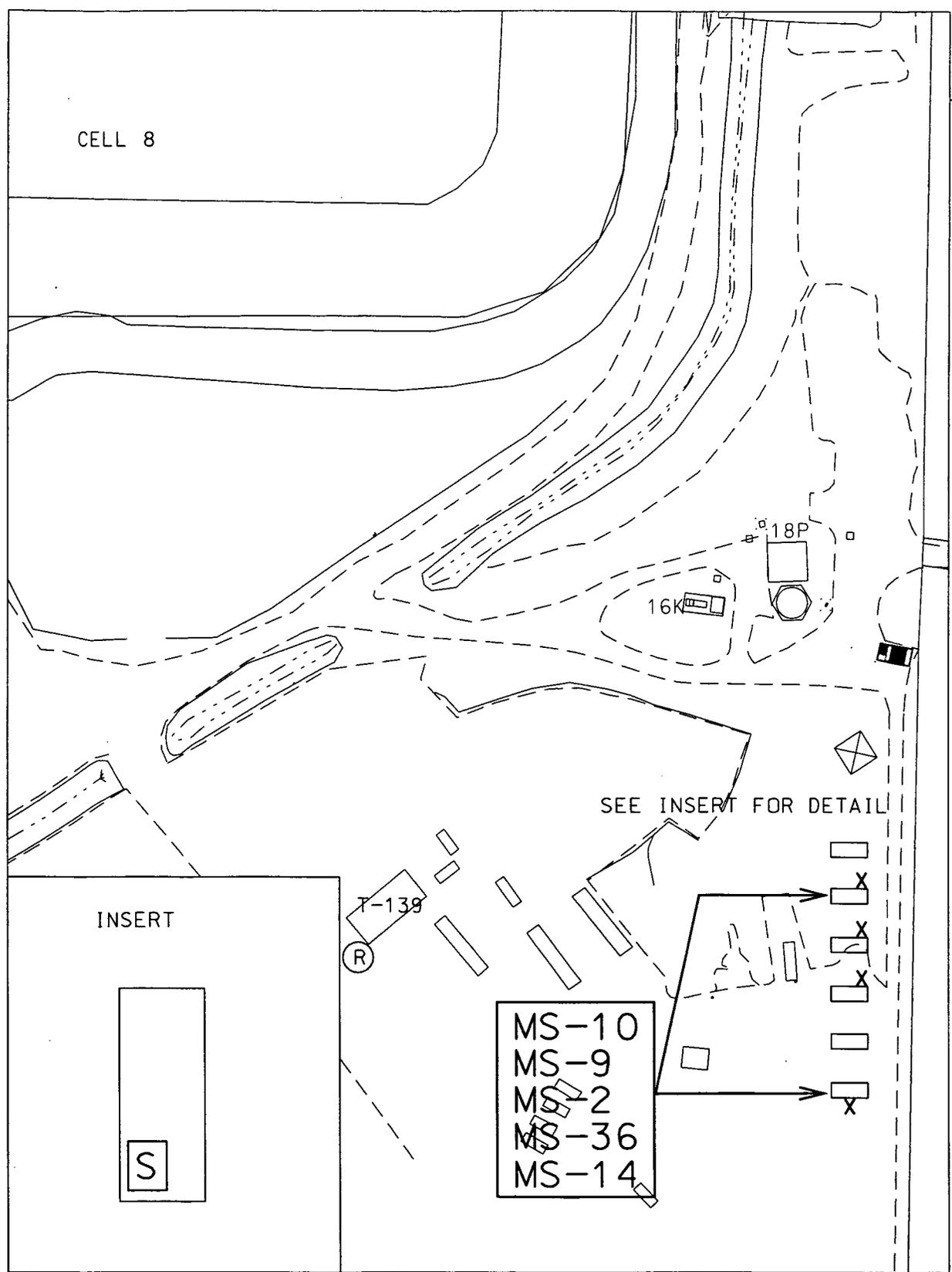
The following is a list of safety equipment assigned to this area:

- Fire Extinguishers
  - 1-3) 10# ABC posted on the ~~west~~ east outside wall of MS-5, MS-10, MS-9, and MS-2
  - 4) 10# ABC posted on the south outside wall of MS-14
  
- Portable Eye Wash Station
  - 1) Available to personnel during operations
  
- Spill Cleanup Equipment
  - 1-3) Three portable spill kits are assigned to this area

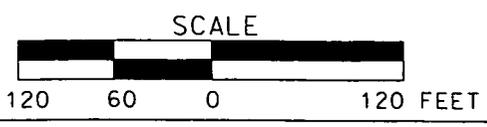
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- LEGEND:**
- X FIRE EXTINGUISHER
  - S SPILL CLEANUP EQUIPMENT
  - R RALLY POINT



HAZARDOUS WASTE STORAGE LOCKERS SOUTH OF CELL 8

**HAZARDOUS WASTE REPACKAGING AREA IN BOILER PLANT (BUILDING 93A)**

~~Beginning in January 2005, the FCP will utilize the east bay of the Boiler Plant (Building 93A) to repackage hazardous waste containers for off site shipment. These operations will occur in an enclosure which will be constructed in the north east corner of the building.~~

~~Personnel should evacuate to Rally Point No. 12, located south of the Advanced Waste Water Treatment Facility (Building 51).~~

~~The following is a list of safety equipment assigned to this building:~~

- ~~• Automatic sprinkler system with automatic fire alarms to an attended location~~
  
- ~~• Manual Fire Alarms~~
  - ~~1) By South east door~~
  - ~~2) Middle bay, along North wall~~
  
- ~~• Fire Extinguishers~~
  - ~~1) 20# ABC posted on column in East bay, near the South wall~~
  - ~~2) 20# ABC posted on the North wall near the West corner~~
  - ~~3) 20# ABC posted on South wall near the West end~~
  
- ~~• Portable Eye Wash Station~~
  - ~~1) Available to personnel during operations~~
  
- ~~• Spill Cleanup Equipment~~
  - ~~1) At least one portable spill kit is assigned to this building~~

### **HAZARDOUS WASTE STORAGE LOCKERS WEST OF BUILDING 94A**

Two hazardous waste storage lockers (MS-11 and MS-25) are located west of the Silos Operations/Maintenance Building (Building 94A). These lockers may be used for the storage of containers of hazardous waste with and without free liquids and ignitable wastes.

Personnel should evacuate to Rally Point No. 4, located at the southeast corner of T-199.

The following is a list of safety equipment assigned to this area:

- **Fire Extinguishers**

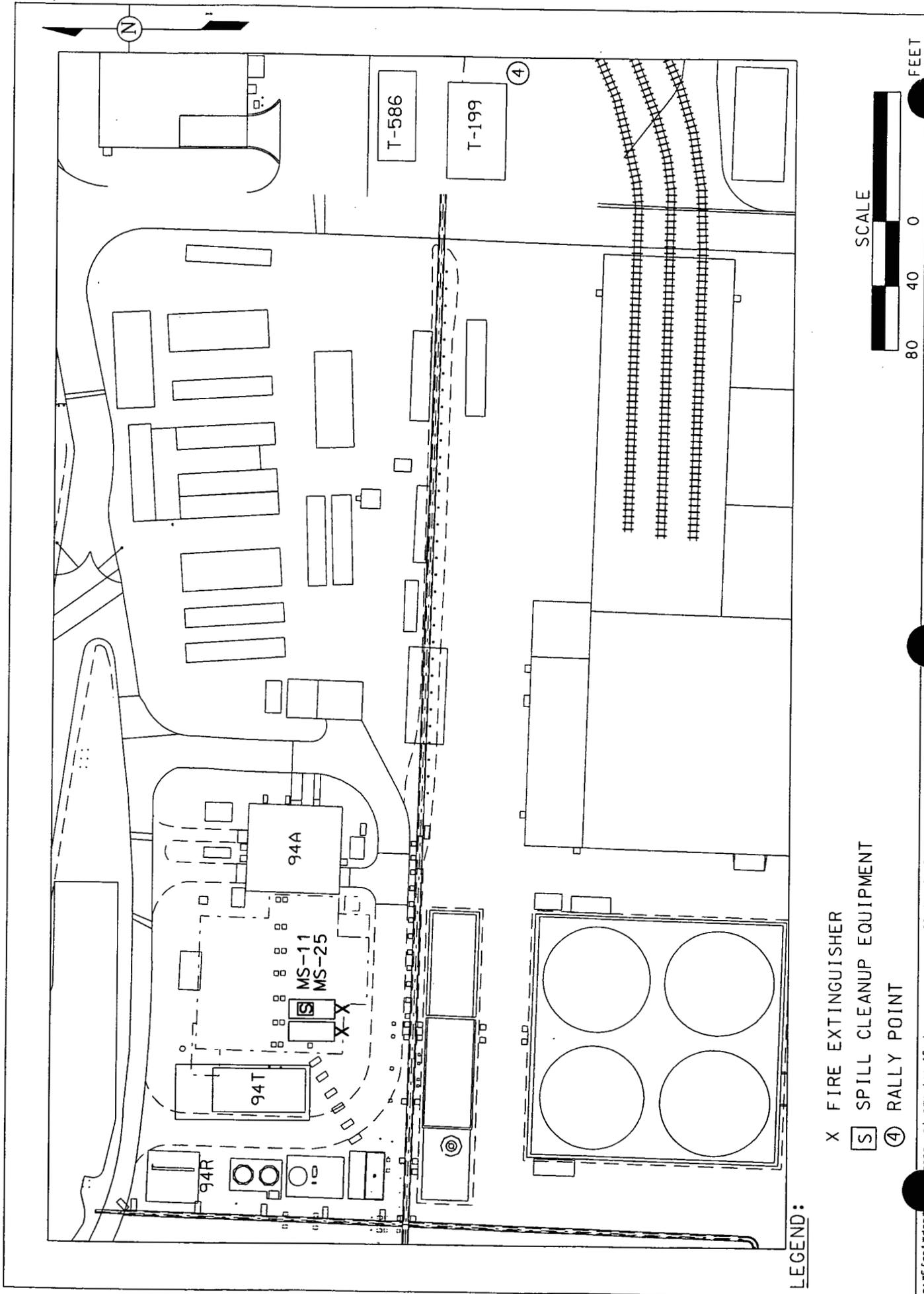
1-2) 10# ABC posted on the outside wall of MS-11 and MS-25

- **Portable Eye Wash Station**

1) Available to personnel during operations

- **Spill Cleanup Equipment**

1) One portable spill kit is assigned to this area



LEGEND:

- X FIRE EXTINGUISHER
- S SPILL CLEANUP EQUIPMENT
- ④ RALLY POINT



HAZARDOUS WASTE STORAGE  
LOCKERS WEST OF BUILDING 94A

22-JUN-2005

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STATE PLANNING AND ZONING SYSTEM 1983

**WASTE SAMPLING/PACKAGING BUILDING (BUILDING 94R)**

Building 94R is utilized to sample and repackage containers of hazardous waste.

Personnel should evacuate to Rally Point No. 4, located at the southeast corner of T-199.

The following is a list of safety equipment assigned to this building:

• **Fire Extinguishers**

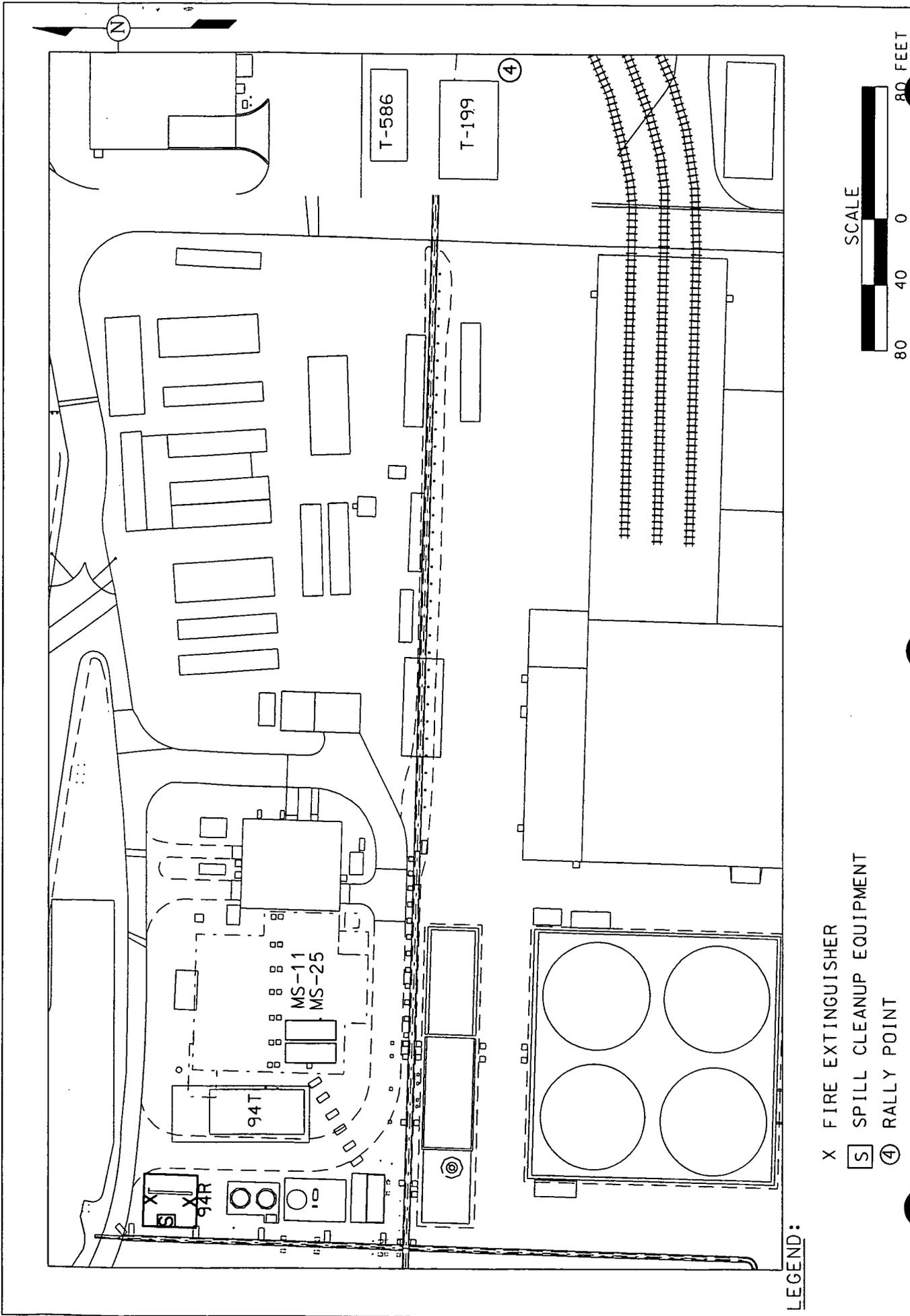
- 1) 10# ABC posted on the North wall
- 2) 10# ABC posted on the South wall

• **Portable Eye Wash Station**

- 1) Available to personnel during operations

• **Spill Cleanup Equipment**

- 1) At least one portable spill kit is assigned to this building



LEGEND:

- X FIRE EXTINGUISHER
- [S] SPILL CLEANUP EQUIPMENT
- ④ RALLY POINT



**SECTION H - PERSONNEL TRAINING**

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## SECTION H - PERSONNEL TRAINING

### **Part B Permit Application Fernald Closure Project Fernald, Ohio**

#### INTRODUCTION

This Section describes the personnel training program for the Fernald Closure Project (FCP) in accordance with the requirements of the Resource Conservation and Recovery Act (RCRA) and Ohio Administrative Code (OAC) 3745-50-44 (A)(12) and OAC 3745-54-16, Title 40 Code of Federal Regulation (CFR) 270.14(b)(12) and 264.16.

Training is essential to ensure the safe and efficient operation of the facility and the rapid, effective response to incidents involving hazardous wastes. Employees are trained in accordance with FCP policy to emphasize safety, and to protect human health and the environment.

The training requirements apply to all appropriate employees of the U.S. Department of Energy (DOE) and their contractors who regularly work at the facility and may come in contact with and/or manage hazardous waste. Section H describes the initial and continuing training provided to personnel, which allows them to operate the facility safely and in compliance with hazardous waste regulations.

#### H-1 OUTLINE OF THE TRAINING PROGRAM

The training program conducted by the FCP prepares hazardous waste personnel to maintain and operate the facility in a safe, efficient, and environmentally sound manner. The program emphasizes compliance with Ohio Environmental Protection Agency (OEPA), US EPA, Department of Transportation (DOT), and Occupational Safety and Health Administration (OSHA) regulations, as well as Department of Energy (DOE) Orders and regulations in providing personnel with a consistent level of training needed to respond to incidents in a prompt and effective manner.

The Training Program materials are designed and developed with qualified subject matter experts to ensure compliance with:

- Ohio EPA hazardous waste rules in OAC 3745-50-44(A)(12) and OAC 3745-54-16 and 40 CFR 270.14(b)(12) and 264.16,

- OSHA regulations in 29 CFR 1910.120, which prescribe the training requirements for RCRA permitted treatment, storage and disposal facilities, and
- DOT requirements, applicable by reference in Ohio EPA and US EPA Rules and Regulations, for packaging, labeling and transportation of hazardous wastes.

General RCRA training requirements for all personnel subject to the OSHA Standard 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER) are integrated into required site access training.

Additional job-specific training, as applicable, is presented to prepare employees to execute FCP procedures and specific job tasks, some of which relate to RCRA compliance and hazardous waste management. The training required is defined in the applicable Training and Qualification Programs. Both classroom and on-the-job training are used to prepare the individual employees for their specific job assignment.

#### H-1a Job Title/Job Description

Employees responsible for the handling and storage of hazardous waste(s) at the FCP are identified by job titles and job descriptions. FCP Training Qualification Programs employees identify general areas of responsibility and expertise necessary for specific job categories. However, these job descriptions do not necessarily identify whether an employee will be directly involved with handling or oversight responsibility for RCRA waste materials. This requirement will be identified through the individual employee's training profile.

All FCP employees are required to have a training profile upon initial assignment or reassignment to or within the FCP. This profile is part of the Fluor Fernald Training System. This database is used to track, record, and update employee training records.

The intent of the profile is to identify whether an employee is required to have additional or job specific training related to their respective job assignments. ~~For example, not all employees assigned to the Waste Management Division will be required to handle or oversee operations involving RCRA waste materials. For this reason,~~ The profile services becomes an effective

tool for identifying and focusing on the specific training needs of the individual and the work center.

The employee's profile is a two-part process. Part I of the process consists of an interview. The employee's supervisor is asked questions by the interviewer relevant to his/her job assignment at the FCP. Based upon the interview, the job classification and corresponding training requirements are identified. This step eliminates training redundancy and also unnecessary training requirements for the employee. At the conclusion of the interview, the respective supervisors of that employee interviewed review the results and validate authenticity and applicability to work center needs.

The Training Coordinator enters the individual's new training profile in the database. Part II of the process compares the employee's previous training and qualifications to the training and qualification requirements for the new position. If personnel require additional training, they must successfully complete the training before they are assigned to work in an unsupervised status.

The Fluor Fernald Training System database allows for a systematic approach for entering FCP employees into the training process. The profile and the employee's initial Job Title and Job Description determine exactly where the employee will enter the training process. The profile determines what type of training requirements the employee will be required to complete in order to meet regulatory requirements.

#### **H-1b Training Content, Frequency, and Techniques**

All employees, regardless of job description, who require routine access into RCRA or Hazardous Waste regulated areas must meet minimum site access training requirements. This training includes the General Employee Training (GET), Basic Principles of Respiratory Protection (for those classified as OSHA General Site Workers), the Site Worker Training (SWT), and Radiological Worker Training.

In addition to these requirements, the employee must participate and satisfactorily complete job specific training at the worksite. The job specific field training is conducted at the employee's

worksite under the direction of those managers with oversight and handling responsibilities for hazardous waste activities. The training is designed to enhance the background that the employee has already received on RCRA hazardous waste operations and focus specifically on hazardous waste operations in his/her job.

#### H-1b(1) Training Content

General Employee Training applies to all FCP workers, contracted employees, and temporary personnel who are not visitors, including those not directly involved with hazardous waste management. GET addresses employees' rights and responsibilities for a safe and healthful work environment under applicable safety and health regulations in addition to the following topics:

- General description of facility
- Production history
- Regulatory issues
- Policy and procedures
- Site security program description
- Facility Emergency Plan
- Overview of 29 CFR 1910.120
- Safety and health program and philosophy
- Classification of hazards and hazard controls
- Waste Management
- Emergencies and RCRA contingency plan
- Quality assurance program

Those employees directly involved in the management of hazardous waste ~~are~~ ~~classified as General Site Workers under the OSHA HAZWOPER Standard and in~~ ~~addition to GET,~~ are required to ~~complete attend~~ ~~forty hours of training, including GET,~~ Basic Principles of Respiratory Protection, Site Worker Training and Radiological Worker Training.

These courses include instruction on the RCRA Occupational Safety and Health

Administration (OSHA) regulations, and emergency procedures for handling both hazardous and mixed site-generated waste. These courses cover the following topics:

Safety and Health information (basic)

Hazard Control Methodologies, including

- Engineering Controls
- Administrative Control
- Personnel Protective Clothing and Equipment

Legal/Regulatory aspects

Annual refresher training on the topics are taught in two four-hour HAZWOPER Refresher Training Courses and, where required for job specific training, as designated in the ~~appropriate Waste Management Project Training and Qualification Program~~ (TQP). This program provides employees with a review of the initial training topics, lessons learned, and current information relating to operations at the FCP.

Job specific training is provided by personnel assigned by their managers, who are qualified in hazardous waste management procedures. The training focuses on RCRA operations inherent to the employee's job assignment. The program is designed to ensure the employee's ability to effectively respond to emergency situations such as fires, spills, or explosions, ground-water contamination events, shutdown operations, and methods for communicating and responding to site wide alarm systems.

#### **H-1b(2) Training Frequency**

All FCP employees are required to complete the indicated initial courses upon employment, and prior to performing unsupervised waste management activities. Employees are also required to attend annual refresher training per the dates established in each individual employee's profile.

Employees do not work unsupervised in hazardous waste management positions until they have completed the required initial training. All managers of new or reassigned employees to their work centers will be responsible for ensuring that those employees

are properly trained and qualified to perform duties associated with waste management activities.

#### **H-1b(3) Training Techniques**

A variety of instruction techniques are used at the FCP depending on the subject matter and the techniques that best suit the learning objectives. Many courses include a combination of lecture, demonstrations, visual aids (such as video tapes, slides, and view graphs, computer based training), and exercises. Most equipment operation courses include hands-on practical instruction.

Written examinations are used as a method to test the knowledge level of individuals participating in classroom training courses. The length and content of each exam varies according to the objectives. Calculation, multiple choice, true/false and fill-in-the-blank questions may be used. Performance standards (Training/Evaluation Standards) may be utilized to evaluate the individual's capability where hands-on training is used.

#### **H-1c Training Services Manager**

The Functional Area Manager for Training directs the FCP RCRA training program and is responsible for establishing technical training requirements in cooperation with the line managers. The Training Services Manager assigns qualified Training Developers to work with designated Subject Matter Experts to ensure compliance with hazardous waste management procedures and 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response. Fluor Fernald Management identifies qualified Training Developers and/or Subject Matter Experts based on their demonstrated expertise and training in all applicable sections of 29 CFR 1910, and applicable regulations, orders, guidelines, and the specific training process employed at the FCP.

#### **H-1d Relevance of Training to Job Position**

The FCP training program provides employees with training relevant to their positions. The performance based training process described in Section H-1 is a systematic method for determining the proper training for each waste management position. It compels managers and

training staff to look critically at each position and to determine the necessary training program for each employee to fully develop their necessary expertise.

Equipment, processes or systems unique to a position will be identified by the appropriate line manager and the requirements for safe operation incorporated into the qualification standard for the position.

Several training courses are determined to be so basic to the FCP mission that they are considered relevant for all FCP employees. The basic philosophy at the FCP is that, as a RCRA-regulated facility, all employees must recognize the basic regulatory requirements under which the FCP must operate. Therefore, all FCP employees receive an introduction to RCRA during their initial training.

Beyond these "umbrella" courses, training is designed and implemented relevant to the specific job functions being performed. For example, employees who perform key waste management operations (such as material sampling, drum handling, area inspections, equipment operations, etc.) must be trained in the proper operation, maintenance, and inspection of the equipment before being allowed to perform that specific job function. These employees must receive classroom instruction and/or job specific training and demonstrate the ability to operate the equipment, as appropriate, before being qualified. This process is controlled and documented by the qualification process described in Section H-1. Descriptions of all required training courses are on file in the training department records section.

Supervisors who have direct responsibility for supervising waste management personnel receive waste management training relevant to their positions identified during the profile process. As is the case with all FCP employees, all managers receive RCRA/OSHA overview training.

#### **H-1e Training for Emergency Response**

The FCP training program ensures that personnel are able to respond appropriately and effectively to emergency situations. All FCP employees receive instruction on hazard awareness, emergency preparedness, spill control, and the FCP Contingency Plan/Emergency Plan as appropriately identified in each individual employee's profile described in Section H-1a.

This training ensures that every employee recognizes real or potential emergencies and how to report such occurrences to the proper FCP officials. It also ensures that employees will not endanger themselves or others by taking actions beyond their ability.

~~The FCP no longer maintains an on-site Emergency Response Team. Emergency response is provided by local emergency services. In addition, an Emergency Coordinator/AEDO is on-site twenty-four hours/day to assist in the event of an emergency. All Emergency Coordinators/AEDOs are certified Emergency Medical Technicians (EMTs).~~

~~The FCP emergency response organization is described in the FCP Contingency Plan (see Chapter G for a complete description of the Contingency Plan). Members of this team receive thorough emergency response training before they are called upon to perform in real emergencies. This training includes fire fighting elements such as rescue, cardiopulmonary resuscitation, first aid, use of self-contained breathing apparatus and handling hazardous materials.~~

~~The members of the FCP emergency response team volunteer for this assignment and are profiled to establish the respective training requirements. Training records for these individuals are maintained in each individual's training file in the Records Management Department Training Records Section.~~

Waste handling and emergency response personnel receive training which ensures their familiarity with emergency procedures, emergency equipment, and emergency systems where applicable including:

- Procedures for using, inspecting, repairing, and replacing facility emergency equipment and monitoring equipment.
- Communications and alarm systems.
- Response to fires and explosions.
- Response to groundwater contamination incidents.

**H-2 IMPLEMENTATION OF TRAINING PROGRAM**

The FCP training program is being implemented to ensure that all waste management personnel employed at the FCP receive the required training described in Section H-1b which is identified by their respective individual employee profiles administered as described in Section H-1a. All recently hired employees and new-hires receive applicable site access training, before they are allowed to work in areas hazardous waste are or have been present and/or identified contaminated areas. Job specific training must be completed within six months of their date of hire or their transfer to a new position. Personnel do not work in unsupervised positions until they successfully complete the indicated training requirements. All waste management personnel attend annual refresher courses that review and update the initial training received.

Records relating to the FCP training program for waste management personnel are maintained by the FCP Records Management Department. The Fluor Fernald Training System database is used by the FCP to record and track employee training records. These records include the individual employee Profiles for all waste management positions; a list of courses required for each position; and dates of course completion. Course descriptions are also maintained by the Records Management Department. All of the backup information regarding certification, qualification, and examination, tests and training rosters are maintained at the FCP Records Center. Training records of current personnel are kept by the FCP until closure. Records of former employees are kept by the FCP for at least three years from the date the employee last worked at the facility. Records include rosters, exams and test results maintained in hard copy.