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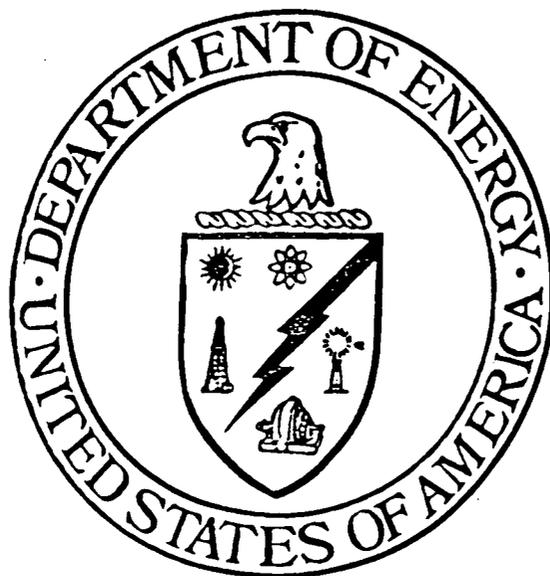
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**RCRA PART B PERMIT APPLICATION - SEPTEMBER 1994
REVISION NO 2**

09/14/94

DOE-2385-94
DOE-FN USEPA
300
PERMIT APP

RCRA PART B
PERMIT APPLICATION



September 1994
Revision No. 2

FERNALD ENVIRONMENTAL
MANAGEMENT PROJECT
CINCINNATI, OHIO 45253-8705

000001



Department of Energy
 Fernald Environmental Management Project
 P.O. Box 398705
 Cincinnati, Ohio 45239-8705
 (513) 733-6357

SEP 14 1994

DOE-2385-94

Mr. Valdus V. Adamkus
 Regional Administrator
 United States Environmental
 Protection Agency, 5HRE-8J, Region V
 77 West Jackson Boulevard
 Chicago, Illinois 60604-3590

Dear Mr. Adamkus:

SUBMITTAL OF REVISION 2 OF FERNALD ENVIRONMENTAL MANAGEMENT PROJECT'S RESOURCE CONSERVATION AND RECOVERY ACT PART B PERMIT APPLICATION

- Reference: 1) Letter, Harold O'Connell (OEPA) to W. J. Quaid, dated June 23, 1994.
- 2) Letter, Harold O'Connell (OEPA) to J. P. Hamric, "Notice of Deficiency - Part B Review Comments", dated April 15, 1994.
- 3) Letter, Paul Pardi (OEPA) to N. C. Kaufman and T. J. Rowland, dated June 7, 1993.
- 4) Letter, Paul Pardi (OEPA) to J. P. Hamric, dated November 1, 1993.

Please find enclosed Revision 19 to the Fernald Environmental Management Project's (FEMP) Resource Conservation and Recovery Act (RCRA) Part A Permit Application and Revision 2 to the RCRA Part B Permit Application. The revised permit application is submitted in accordance with the September 15, 1994, submittal date approved by the Ohio Environmental Protection Agency (OEPA) in Reference 1 (Attachment 1) for responding to the Notice of Deficiency (NOD) issued for the permit application in Reference 2 (Attachment 2).

The permit application has been revised as indicated to incorporate comments received from OEPA's technical/completeness review. Each comment is followed by a response and references where the comment is addressed in the FEMP's RCRA Part A/B Permit Application (Attachment 3).

The following revisions have also been incorporated into the permit application:

- Five units were officially removed from the Part A Permit Application based on concurrence from OEPA that these units were not Hazardous Waste Management Units (HWMU) (References 3 and 4). One HWMU (Tank T-2) has been added.

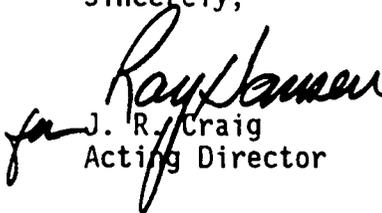
- The dimensions for Hazardous Waste Management Unit Number 18 - Plant 8 West Drum Pad listed in the Part A Permit Application have been corrected.
- Section I, Closure Plan, has been revised to state that closure of the seven storage units will be addressed through the RCRA/Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) integration process in accordance with the Director's Findings and Orders currently being negotiated with OEPA. Closure Plan information for each of the seven storage units have been removed from the permit application.
- Due to the discovery of an abandoned groundwater well in Bay 2 of the KC-2 Warehouse, this bay is currently not being used for the storage of hazardous waste. Bay 2 may be considered for the storage of hazardous wastes without free liquids in the future.
- Secondary containment calculations for Tension Structure (TS-6) on the Plant 1 Pad are not included in this submittal because the as-built drawings for this structure are not yet available. These calculations will be provided at a later date.
- Information in the application has been updated, as needed, including the evacuation routes and emergency equipment lists provided in Section G, Contingency Plan, and to incorporate changes to the Reactivity Group Code system used to identify incompatible wastes for storage in Section F, Procedures to Prevent Hazards.

Old language has been overstruck and new language has been shaded. Significant alterations to Section H, Personnel Training, and Section I, Closure Plan, have resulted in the submittal of complete revisions to these sections.

It should be noted that the FEMP has initiated discussions with OEPA to replace the Part B Permit Application with a Hazardous Waste Management Plan. This Plan would address management of hazardous wastes in the seven storage units that the FEMP is seeking to permit until closure of these units can be achieved. Discussions on the Director's Findings and Orders to implement this plan are still in the preliminary stages. With the ongoing negotiations of the Director's Findings and Orders discussions, Paul Pardi of OEPA concurred that certifications were not required with this revision.

If you have any questions regarding this information, please contact Ed Skintik of my staff at (513) 648-3151.

Sincerely,


J. R. Craig
Acting Director

FN:Skintik

Enclosures: As Stated

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cc w/enc:

T. Crepeau, OEPA-Columbus
P. Pardi, OEPA-Dayton(2)
AR Coordinator; FERMCO
RCRA Operating Record, FERMCO

cc w/o enc:

K. A. Chaney, EM-423, QO
K. L. Alkema, FERMCO
L. B. Ko, FERMCO
G. E. Mitchell, OEPA-Dayton
J. Saric, USEPA-V

000004

ATTACHMENT 1



State of Ohio Environmental Protection Agency

Southwest District Office

South Main Street
Cincinnati, Ohio 45402-2086
(513) 285-6357
FAX (513) 285-6404

LC: H-4544
FILE
DATE

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Jun 24 9 47 am '94

George V. Voinovich
Governor

June 23, 1994

RE: U.S. DOE-FEMP
PART B EXTENSION
HAZARDOUS WASTE
HAMILTON COUNTY
OH6 890 008 976
TSDF/GEN

Mr. Walter J. Quaider
U.S. Department of Energy
Fernald Environmental Management Project
P.O. Box 398705
Cincinnati, Ohio 45239-8705

Dear Mr. Quaider:

Ohio EPA is in receipt of DOE-FEMP's June 2, 1994 correspondence requesting an extension of time in order to address deficiencies noted from a second round completeness/technical adequacy review of DOE-FEMP's Part B permit application. Ohio EPA acknowledges that CERCLA and FFCA Site Treatment Plan issues, including receipt of off-site waste and/or waste residues, have direct bearing on the permit application, and that decisions regarding these issues have not been finalized. In view of these issues and the reasons outlined in your letter, your request for an extended timeframe in which to submit a revised application is granted. I concur with your proposal to submit all applicable revisions at one time. Barring additional extensions, Ohio EPA will expect the revised Part B permit application on or before September 15, 1994.

Ohio EPA urges DOE-FEMP to recognize the importance of effective strategy in coordinating the Part B permit application with other regulatory issues affecting the facility. DOE-FEMP needs to be consistent with the information provided so the State can act on the permit application.

Please contact me at (513) 285-6357 if you have any questions.

Sincerely,

Harold O'Connell
Harold O'Connell
Group Leader
Division of Hazardous Waste Management

Mr. Walter Quaider
June 23, 1994
page 2

cc: Allen Harness, OEPA DHWM RES CO
Graham Mitchell, OEPA OFFO
Mike Savage, OEPA DHWM CO
Tom Winston, OEPA SWDO

ATTACHMENT 2



State of Ohio Environmental Protection Agency

Southwest District Office

40 South Main Street
Canton, Ohio 45402-2096
513) 285-6357
FAX (513) 285-6404

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George V. Voinovic
Governor

CERTIFIED MAIL

FACILITY: U.S. DOE-FEMP
NOTICE OF DEFICIENCY C/TA2
OHIO ID: OH 6890008976

April 15, 1994

Mr. J. Phil Hamric, Site Manager
U.S. Department of Energy
Fernald Environmental Management Project
P.O. Box 398705
Cincinnati, Ohio 45239-8705

Dear Mr. Hamric:

Thank you for your March 29, 1993 submittal of the U.S. Department of Energy Fernald Environmental Management Project (U.S. DOE-FEMP) RCRA Part B Permit Application for storage of hazardous wastes.

The Ohio EPA, Division of Hazardous Waste Management (DHWM) has conducted a completeness/technical adequacy review of your Part B permit application and has determined it to be incomplete and technically inadequate. This application has been reviewed pursuant to the rules published in the Hazardous Waste Facility Standards Chapters in the Ohio Administrative Code and the corresponding Federal regulations.

We have enclosed completeness comments and technical adequacy comments that are the result of this review. Please provide detailed information addressing all areas indicated on the comment sheets to Ohio EPA within 55 days of the date of receipt of this correspondence. This submission shall be in accordance with the following editorial protocol:

1. Old language is overstruck.
2. New language is capitalized.
3. Page headers should indicate date of submission.
4. If significant changes are necessary, pages should be renumbered, table of contents revised, and complete sections provided as required.

Mr. J. Phil Hamric
April 15, 1994
page 2

6518

Please send one copy each to:

Tom Crepeau
Ohio EPA, DHWM
Data Management Section
1800 WaterMark Drive
P.O. Box 1049
Columbus, Ohio 43266-0149

Joel Morbito
RCRA Activities
Part B Permit Application
U.S. EPA, Region V, HRM-7J
77 West Jackson Boulevard
Chicago, Illinois 60604

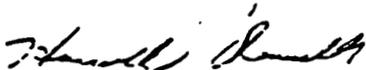
Please send two copies to:

Phil Harris, Division of Hazardous Waste Management
Ohio EPA, Southwest District Office
40 South Main Street
Dayton, Ohio 45402

Failure to submit a complete permit application or to correct deficiencies in the application may result in the following:
1) denial of the permit application; 2) referral of the matter to the Ohio Attorney General's Office for appropriate enforcement action.

We request that the facility contact Phil Harris of the Southwest District Office at (513) 285-6357 within ten (10) days of receipt of this NOD to discuss each of the enclosed comments in order to make clear the information being requested. This can be accomplished by a conference call. Any questions concerning the review of this permit application and the level of detail expected should be addressed to Mr. Harris.

Sincerely,



Harold O'Connell
Division of Hazardous Waste Management

Enclosure

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ATTACHMENT 3

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PART B REVIEW COMMENTS
U. S. DOE-FEMP
OH 6890009876

GENERAL COMMENTS

1. Specific wording used in the permit application, particularly within Section C, remains somewhat confusing in regard to the facility position on acceptance of off-site waste. In Revision 1.0 of the application, DOE-FEMP has made the appropriate changes to the narrative which address the facility's stated intent regarding the off-site issue. However, Section C procedures appear to be over-designed for the task required to and treatability studies.

Please clarify if those procedures within Section C are for returning residuals, or have been developed for future use in the event DOE-FEMP would propose acceptance of off-site hazardous or mixed waste. If the latter, it is suggested that the appropriate mechanism for that activity would be a permit change request.

Response: Please see Technical Adequacy responses regarding this issue.

2. The Part B Permit process is designed to establish the specific procedures and controls which the facility will utilize to manage hazardous waste in accordance with regulations governing operation of Treatment, Storage, and Disposal Facilities. DOE-FEMP should be aware that any alteration or deviation or operating procedures from those established by the permit application and subsequent Part B permit must be done in agreement with the permitting process.

Response: DOE-FN agrees with the OEPA comment. Any proposed changes to hazardous waste management controls/procedures will be resubmitted for OEPA review.

3. Within Section B-1, include a brief discussion of remediation activity and site closure under CERCLA. Also reference and briefly discuss the impact of FFCA requirements for DOE mixed waste storage, treatment, and disposal. This will place those activities described within the RCRA permit application in proper context in relation to other site-wide activities.

Response: A brief description of preferred remedial alternatives for each operable unit was given (see Section B-1).

4. Section H (Personnel Training) was completely revised in Revision 1.0 of the application. It is not clear why the facility felt this necessary, since the section under Revision 0, was essentially acceptable as the Personnel Training Plan. Section [H] currently does not provide enough detail to adequately describe and outline the essential elements of training necessary for DOE-FEMP personnel involved in hazardous waste management.

It is understood, that of necessity DOE-FEMP has an extensive personnel training program, and much of it is maintained electronically. Hazardous Waste rules require the facility to have a written training plan. While it is not necessary to reproduce the training program verbatim within the permit application, Section [H] must be viewed as the written program that describes personnel training. Please revise this section accordingly.

Response: The format for Section H was changed to reflect the format of Revision 0. Please see Section H for adequacy of responses.

SPECIFIC COMMENTS

COMPLETENESS COMMENTS

A. PART A APPLICATION CHECKLIST OAC 3745-50-40; 50-42; 50-43

5. The following waste codes were listed on the Part A included with Part B Application Revision 0, and are not listed on the Part A included with Part B Application Revision 1.0:

D038	U078	U169
D041	U079	U188
D042	U101	U196
U036	U105	U227
U037	U127	U240
U043	U128	U247
U052	U129	
U056	U131	

The Part A/Part B permit will identify all EPA waste codes managed by the facility. Within DOE-FEMP's response to OEPA comments please provide information which explains the above deletions, and indicate the status of waste characterization efforts with regard to mixed waste/hazardous waste in storage at the facility.

Response: The waste codes were removed following a review of the waste inventory. These codes are for wastes that have not been managed at the FEMP in the past, are not currently being managed and are not expected to be managed at the FEMP in the future. The commercial chemical product codes are for chemicals not present on-site or present and in use only in laboratory quantities.

EPA Hazardous Waste Code D012 has been added to the list of waste codes managed at the site as a result of characterization efforts.

B. FACILITY DESCRIPTION CHECKLIST

OAC 3745-50-44;

6. Submit a copy of the new topographical map with updated contour information. Reference DOE-FEMP response to OEPA comment #48 for the November 1, 1991 application submittal.

Response: A new topographical map with updated contour information is provided with this revision (see Section B, Figure B-2).

D. PROCESS INFORMATION CHECKLIST

OAC 3745-50-44; 55-75;

7. The following sub-sections of Section D, fail to provide any information concerning the Plant 8 Warehouse (Building 80):

- * D-1a(3) Secondary Containment Design and Operation.
- * D-1a(3)(a) Requirement for the Base to Contain Liquids.
- * D-1a(3)(b) Containment System Drainage.
- * D-1a(3)(c) Containment System Capacity.
- * D-1a(3)(d) Control of Run-on.
- * Table D-1 RCRA Storage Units.
- * Attachment D-2 Secondary Containment Calculations and Summary Table.

Please revise this section to include all the appropriate information for the Plant 8 Warehouse container storage unit.

Response: Storage in the Plant 8 warehouse (Building 80) is limited to hazardous waste containers without free liquids (see D-1). The requested information (secondary containment, drainage, etc.) does not apply to this storage area.

8. Revise the introduction to Section D (or as an alternate location; Section C-4.0 Storage and Management of Wastes) to include information on the facilities tracking mechanism for hazardous waste containers in storage. Provide an overview of all management systems (eg. waste analysis plan, container labeling procedures, inspection programs, storage unit logs, etc.) which enable efficient information retrieval pertaining to location, contents, and status of waste containers.

Response: Information pertaining to the facility tracking mechanism has been included (see D-1).

E. GROUNDWATER MONITORING
OAC 3745-50-44;

9. Reference Director's Findings and Orders issued to the facility on September 10, 1993, with respect to groundwater monitoring requirements, and include a copy of the monitoring program as part of the permit application. Summarize the circumstances and facility conditions which led to the implementation of RCRA groundwater monitoring activity, and describe the current monitoring system in terms of number and types of wells. Indicate that DOE-FEMP is not seeking to permit land based units, and that these units are undergoing remediation under the CERCLA process.

Response: The requested information was added to Section E.

- END COMPLETENESS COMMENTS -

PART B REVIEW COMMENTS
U.S. DOE-FEMP
OH 6890008976

TECHNICAL ADEQUACY COMMENTS

C. WASTE CHARACTERISTICS CHECKLIST

OAC 3745-50-44; 54-13;

10. Off-site generation of waste is referenced in Waste Analysis Plan in (at least) the following locations:

- * Section C-1.1 Organization (1st paragraph, 2nd sentence),
- * Section C-1.2 Site Background (2nd paragraph, last sentence),
- * Section C-1.3 Regulatory Compliance (1st paragraph, 1st sentence and last sentence of 1st bullet under the 2nd paragraph,
- * Section C-3.0 Waste Acceptance Criteria

Revise language in these areas of the permit application to indicate that "off-site" waste is limited to acceptance of residuals from laboratory analyses and treatability studies of DOE-FEMP waste. This would be consistent with information given under Section B-1, Facility Description.

Response The permit application has been revised in several areas to clarify the present limitations on waste received at the FEMP. The FEMP presently only receives waste from off-site laboratories which have been generated during analyses of samples and treatability studies of DOE-FEMP waste. A small amount of waste may be brought on-site from other DOE facilities under the treatability exclusion (40 CFR 261.4(f)/OAC 3745-51-04(F)). The FEMP will, in accordance with OAC 3745-51-04 (F)(1), notify OEPA 45 days prior to conducting a RCRA treatability study on off-site waste. At the conclusion of the treatability study this material will be returned back to the original generator with the exception of the following:

- 1) Process wastewaters which may be discharged in compliance with the NPDES permit; and
- 2) Small amounts of contact wastes such as gloves, rags, etc., which at the discretion of the project manager can be easily handled within established FEMP procedures, available manpower, and storage capacity.

Please see responses and changes for the technical adequacy comments which follow.

11. Information in Tables C-3 through C-6 could be better presented to show how each waste stream is analyzed. Investigate the possibility of cross-indexing Table information for the following areas:

- * Reference Table C-3 Characterization (Analysis Requirements with Table C-6.
- * Reference Table C-4 with Table C-3.

Response Text has been added throughout section C to make the necessary connections between the text and any tables/figures/attachments as necessary.

Table C-6 has been streamlined to only show methods applicable to the information listed in the analytical test column for each main DOE waste category description. The previous table contained unnecessary information beyond the scope needed for this section. The analytical tests mentioned in Table C-3 appear in Table C-6, which gives the associated method.

An additional column will be added to Table C-4 which will reference the DOE category associated with each MEF. Table C-4 is updated quarterly and provided to the agency. The additional column will appear beginning with the September '94 quarterly update. The DOE category on Table C-4 may be found in Table C-3 which provides category descriptions and analysis rational.

12. Section C-1.2 Site Background:

The text indicates 21 waste categories are shown in Table C-2, however, the table depicts 20 waste categories (No. 1-19, plus 99). Please correct the discrepancy.

Response Changes have been made on page 1 and 2 to indicate 20 waste categories.

13. Section C-1.3 REGULATORY COMPLIANCE (1st bullet under 2nd paragraph):

Describe the types of information available regarding off-site waste from DOE facilities that is part of backlog inventory.

Response Additional text has been added to pages 2 and 3 to indicate that RCRA characterizations were based on process and material knowledge of off-site material by researching historical material records and movement markings. Additional testing has taken place when warranted.

14. Section C-2.0 WASTE DETERMINATION:

DOE-FEMP's Waste Determination Plan (WDP) was developed, as a requirement of the Consent Decree with the State of Ohio, to address hazardous waste characterization procedures at the facility. Please provide information to discuss and describe the relationships between the WDP and the hazardous waste characterization procedures of the Waste Analysis Plan (WAP, ie., Section C) as presented in the permit application. The two plans are designed, in part, to accomplish the same tasks. DOE-FEMP may wish to make a conceptual evaluation in regard to the following:

- * Will the WDP remain viable and/or appropriate to characterization activity as the WAP is developed? In theory the WAP could supersede the WDP and the WDP be withdrawn.
- * Should the WDP be viewed as a component WAP? If so, in what context? What elements of the two plans are in conflict?

Response The fate of the Waste Analysis Plan will be part of the discussions involving the FEMP RCRA Part B Permit Application and the OEPA's Director's Findings and Orders.

15. Section C-2.1 PROCEDURES:

Material Evaluation Form

- a. Information in this section states that a Material Evaluation Form... "is included as an example...and is subject to change, based upon changes in regulatory requirements or site procedures/requirements."

DOE-FEMP should be aware that any subsequent changes to contents of the Part B Application after permit issuance are subject to the permit change request process.

Response The FEMP is aware that any subsequent changes to the contents of the application after permit issuance are subject to the permit change request process. Text has been added on page 5 to reflect this.

- b. The 4th paragraph of this section references the waste characterization group as responsible for making characterization determinations. Provide a brief description of this group in terms of DOE-FEMP organization and accountability. It may be useful to provide an organizational table to depict overall hazardous waste/mixed waste management organization.

Response Text has been added on page 4 to provide a brief description of the waste characterization group. As discussed in our meeting with OEPA on May 5, 1994, an organizational table is not being included due to the frequent changes in organizational structure. The waste characterization group is ultimately accountable to the current co-operator of the FEMP which in turn is accountable to DOE.

Compatibility

- c. Delete the last sentence of 1st paragraph, or describe additional types of appropriate containers available with respect to waste/container compatibility.

Response This sentence has been deleted.

Waste Determination

- d. 1st sentence of 2nd paragraph is an incomplete sentence. Revise to clarify meaning.

Response This sentence and corresponding paragraph have been deleted. The information appearing in the paragraph is no longer relevant to the current waste determination process at the FEMP.

16. Section C-2.2 ANALYSIS:

- a. The 2nd paragraph bullets Waste Analysis Plan objectives. The 3rd paragraph indicates that this plan may also be used for treatment selection information. Revise the text to indicate that appropriate treatment selection is also a main objective of the Waste Analysis Plan, and that the plan is designed to provide as much relevant information as is possible in this regard, given the current limits of mixed waste treatment capacity.

Response Text added on page 9 has been revised to indicate that appropriate treatment selection is a main objective of the Waste Analysis Plan and is accomplished by using as much relevant information as possible.

TCLP Metals Analysis

- b. The statement that "if total metals concentrations do not exceed twenty time (20x) the TC, then the waste cannot possibly fail the TC", is inaccurate. Please review the TCLP guidelines and revise the waste analysis procedures to clarify when TCLP is appropriate in the characterization process.

Response The use of totals vs. TCLP has been clarified. In addition, the Maximum Theoretical Leachate Concentration (MTLC) formula has been added for clarification. The source of the MTLC equation is from an internal Quality Assurance memorandum of the U.S. Environmental Protection Agency dated Jan. 12, 1993 from the Methods Chief. A copy of the totals vs. TCLP excerpt from the memorandum has been faxed to OEPA.

Number of Samples

- c. The 1st and 2nd paragraphs refer to "general procedures" and a "general guideline" with respect to representative sampling. Revise the text to indicate a commitment to a standard procedure rather than general procedures or guidelines.

Response See response to C.16.e.

- d. Identify the source/guideline which is the basis for equating the number of samples required for given waste stream as representative of the container population.

Response See response to C.16.e

- e. Identify the source or reference for the equation (for containers with volumes of 20 cubic yards or larger) used to develop the number of grab samples which are then composited as a representative sample.

Response Major changes have occurred concerning the section on the number of samples. Text has been added to clarify the sampling procedures currently in use at the FEMP. The old information has been removed due to lack of supporting sources/guidelines.

- f. In the discussion of composite sampling procedures, indicate that this sampling technique is only appropriate for materials from the same waste stream.

Response Text has been added to page 17 to indicate that composite sampling only occurs when evaluating materials from the same waste stream.

17. Section C-3.0 WASTE ACCEPTANCE CRITERIA:

- a. This section of the waste analysis plan remains ambiguous with respect to acceptance of off-site waste. The application must be explicit with regard to DOE-FEMP's intent to manage hazardous waste. As stated in the opening narrative, the current understanding between DOE-FEMP and OEPA is that the facility will not accept anything other than residues (with radionuclide content that originated from the FEMP) from samples sent off-site for analysis or treatability studies. In reviewing this section however, it would appear DOE-FEMP is prepared to accept waste other than returning residues. It is suggested that this section (and supporting Figures and Attachments) be re-written to describe only the procedures and criteria DOE-FEMP will employ to accept returning waste residues. This section cannot be completely reviewed by the Agency until DOE-FEMP proposals on this issue are clearly stated. Please reference comments made below under Section C-3.1 OPERATIONS, as examples.

Response Text added on page 26 more accurately describes the limited types of waste accepted from off-site. See additional changes made to address technical adequacy comments C.18.

- b. The 3rd paragraph references "...Hazardous Waste Receipt Procedure is shown in Attachment C-3." Attachment C-3 is not included with this application submittal, nor is it referenced within the Table of Contents.

Response The reference to the Hazardous Waste Receipt Procedure has been removed. This procedure was utilized for the receipt of hazardous substances/materials on-site, not waste.

18. Section C-3.1 OPERATIONS:

- a. This section is ambiguous in light of stipulations DOE-FEMP presents in the preceding section (C-3.0 WASTE ACCEPTANCE CRITERIA). Please clarify the reference to "Generators will provide the FEMP with waste characterization data for each waste stream shipped to the FEMP from an off-site facility...", and other references to "generators" as used within this section. Who are the generators?

Response Additional information concerning the types of waste being accepted at the FEMP has been clarified on page 26. Under the Operations section, changes in text have been made to clearly indicate that "generators" refers to and is limited to generators of lab waste from FEMP samples.

- b. The 2nd paragraph of this section (top of pg. 16) states, "The following types of waste cannot be accepted at FEMP:" What is the basis for stipulating the list of waste types which cannot be accepted, and the implication that other waste types will be accepted? Please clarify.

Response This section containing the types of wastes which cannot be accepted at the FEMP has been removed. As noted by OEPA this information is ambiguous in light of the current understanding between DOE-FEMP and OEPA that the facility will not accept anything other than residues (with radionuclide content that originated from FEMP) from samples sent off-site for analysis or treatability studies.

In accordance with Section III, paragraph 3.2 of the Consent Decree (CD), "No hazardous or mixed waste from an off-site source not already listed in the FMPC Part B Permit Application or a revision Part B Permit Application or a revision as of the date of entry of this Consent Decree, shall be stored, disposed of or treated at the FMPC without the prior approval of the State of Ohio."

- c. Page 19 of this section states, "When hazardous waste arrives at the FEMP, acceptance verification is initiated..." Are the procedures described in regard to returning residuals? Are these procedures designed for hazardous waste other than returning residuals? Please clarify.

Response These procedures are designed for the return of lab waste which does not fall within the exclusions located at 40 CFR 261.4 (OAC 3745-51-04).

- d. Table C-9 (Acceptance Criteria on Fingerprint Analysis for Waste Received from off-site) information must be clarified in context with the off-site acceptance issue. What is the justification for the fingerprint parameters specified?

Response The fingerprint parameters specified are for laboratory waste received from off-site labs. Laboratory waste which is returned undergoes fingerprint analysis to ensure the material being received matches the waste profile documented on the MEF and any additional documentation concerning the material. Fingerprint testing also provides confirmation of the wastes characteristics to help ensure safe storage of the material.

19. Section C-4.0 STORAGE AND MANAGEMENT OF WASTES:

Consolidation of Wastes

- a. Describe the review procedure used to ensure consolidated wastes are compatible.

Response: Text has been added to describe the review procedure prior to consolidation of materials which are not from the same waste stream.

Additional Requirements Pertaining to Storage of Restricted Wastes

- b. This reviewer does not consider the discussion of storage provisions under OAC 3745-59-50 (40 CFR 268.50), as relevant to the lack of mixed waste treatment capacity. Requirements under the Federal Facility Compliance Act will have bearing on the storage and disposition of mixed waste. Storage of mixed waste, as addressed by this application, is based on the premise that such waste will eventually be treated for disposal under the provisions of FFCA and/or CERCLA.

Response The discussion concerning the current U.S. EPA enforcement practices regarding the storage of mixed wastes has been removed.

The May 5, 1994 meeting with OEPA briefly touched on the storage of waste in areas which do not provide secondary containment. Text has been added to address the testing for the presence of liquids prior to a material being placed into an area without secondary containment.

Wastes Meeting Applicable Treatment Standards

- c. Clarify reference to "notification/certification:.. Waste meeting treatment standards are "certified".

Response Text revised as indicated.

G. CONTINGENCY PLAN CHECKLIST**20. Section G-2 EMERGENCY COORDINATION:**

(Reference OEPA comment #19.b for the November 1, 1991 application submittal):

The added Figure G-3.1, as referenced in Section G-2 does not adequately present the qualifications which demonstrate that individuals who assume the role of Emergency Coordinator (AEDO), Emergency Duty Officer, or Emergency Chief have the knowledge and experience to respond to all emergencies which may occur at the facility. This figure does provide some useful information regarding facility Emergency Response Training Requirements, but the footnote states that additional training may be necessary to fulfill emergency responsibilities. Within Section G-2, please utilize language from facility position descriptions or job requirements to demonstrate required qualifications for these positions.

Response: Additional language from position descriptions in Section H has been inserted on pages 7 and 8 of Section G to demonstrate the required qualifications for the Emergency Coordinator, Emergency Duty Officer and Emergency Chief.

21. Section G-4j(4) Notifications, Reports

(Reference OEPA comment #29 for the November 1, 1991 application submittal):

Revise the language to specify that (release information) notification or reporting is (or is also) made to the Director OEPA.

Response : On page 21, the language in Section G-4j(4) has been revised to specify that reporting is also made to the Director of the Ohio EPA.

H. PERSONNEL TRAINING CHECKLIST

OAC 3745-50-44; 54-16;

22. SECTION H INTRODUCTION:

The second paragraph references training provided employees in waste management positions, but the plan does not clearly identify that training. Information under H-1b(1) supposedly addresses training content, however, the information is not specific. Please revise to better outline the content of hazardous waste management training.

Response: The requested information was added to section H-1b(1).

23. Section H-1a Job Title/Job Description

- a. Within the training plan, provide the job title and job description for each employee classification whose position at the facility is involved in hazardous waste management.

Response: The requested information was added to section H-1a. The revised section H excludes any descriptions of the three employee classifications, i.e., Non-Hazardous Site Worker, Occasional Site Worker, and General Site Worker. For clarification, the revised section H now places emphasis on the employee job title/descriptions when discussing training requirements.

- b. The text gives brief descriptions of three worker classifications; Non-Hazardous Site Worker, Occasional Site Worker, and General Site Worker. Clarify how these classifications relate to hazardous waste management personnel. Are hazardous waste management employees "Occasional Site Workers", and hazardous waste staff employees "General Site Workers"? Do personnel change from one classification to another on a daily/weekly basis? The classification system is not clearly explained in the context of personnel engaged in hazardous waste management activity.

Response: The requested information was added to section H-1d. The revised section H excludes any descriptions of the three employee classifications, i.e., Non-Hazardous Site Worker, Occasional Site Worker, and General Site Worker. For clarification, the revised section H now places emphasis on the employee job title/descriptions when discussing training requirements.

24. Section H-1b(1) Training Content

This section states "... employees receive...facility-specific training in the following areas", and itemizes training by personnel classification. For example, the classification of General Site Worker lists several areas of training; Safety and Health information (basic and advanced), Standard operating procedure, engineering controls, waste management, etc. Are these "areas of training" meant to be titles of training classes or courses, or just broad descriptions of relevant training?

What are the specifics of training provided in regard to "Engineering controls", and "Waste Management"? Clarify this section or provide a better description or outline of the content of these training components.

Response: The requested information was added to section H-1b(1).

END TECHNICAL ADEQUACY COMMENTS -

ATTACHMENT 4

**INSTRUCTIONS FOR REPLACING FEMP RCRA PART A/B PERMIT APPLICATION SECTIONS
(REVISION 2)**

I. Part A Permit Application

The following have been revised and should replace previously submitted sections:

- Part A Permit Application
- Figure A-1
- Figure A-2
- Table A-1
- Attachment A-1

Attachment A-2: A new photograph has been provided for Plant 1 Pad (HWMU #20) which includes the tension support structures. The photograph of HWMU #54, Tank T-2 should be added to this attachment. Remove photos for removed HWMUs. Insert the pages containing the removed HWMUs numbers.

II. Section B - Facility Description

The following sections have been revised and are provided in this submittal:

- Table of Contents
- Section B - text
- Table B-1
- Table B-2
- Figure B-2: Sections A, B, and C
- Figure B-6: Sections A and B

III. Section C - Waste Characteristics

The following sections have been revised and are provided in this submittal:

- Table of Contents
- Section C - text
- Figure C-2

- Figure C-4
- Table C-3
- Table C-4
- Table C-6
- Attachment C-5
- Attachment C-6

A new cover page has been provided for Attachment C-1, Waste Determination Plan.

IV. Section D - Process Information

The following sections have been revised and are provided in this submittal:

- Table of Contents
- Section D - text
- Table D-1
- Figures D-2, D-5, D-7, D-10, D-11, D-12, D-13, D-14 and D-15

The table of coatings for each storage unit provided as the first page in Attachment D-1 has been updated to include Tension Support Structure 3 and should replace the previously submitted table.

V. Section E - Groundwater Monitoring

Section E has been revised and should replace the previously submitted section.

VI. Section F - Procedures to Prevent Hazards

The following sections have been revised and are provided in this submittal:

- Table of Contents
- Section F - text
- Figure F-2

Attachment F-2: The RCRA Container Storage Area Inspection Forms for each of the seven container storage areas have been revised and should replace the previously submitted forms for each unit.

VII. Section G - Contingency Plan

The following sections have been revised and are provided in this submittal:

- Table of Contents
- Section G - text
- Table G-1
- Attachment G-1

VIII. Section H - Personnel Training

Section H has been completely revised and is being resubmitted as a new section.

IX. Section I - Closure Plan

Section I has been completely revised and is being resubmitted as a new section.

X. Section J - Corrective Action for Solid Waste Management Units

One correction has been made to Section J. The section provided should replace the previously submitted section.

XI. Section K - Other Federal Laws

Section K has been updated and should replace the previously submitted section.

EPA I.D. Number (enter from page 1)

Secondary ID Number (enter from page 1)

0 H 6 8 9 0 0 0 8 9 7 6

VII. Operator Information (see Instructions)

Name of Operator

U S D E P A R T M E N T O F E N E R G Y

Street or P.O. Box

P O B O X 5 3 8 7 0 5

City or Town

State

ZIP Code

C I N C I N N A T I

O H 4 5 2 5 3 - 8 7 0 5

Phone Number (area code and number)

5 1 3 - 7 3 8 - 6 2 0 0

B. Operator Type

F

C. Change of Operator Indicator

Yes No

Date Changed

Month Day Year

VIII. Facility Owner (see Instructions)

A. Name of Facility's Legal Owner

U S D E P A R T M E N T O F E N E R G Y

Street or P.O. Box

P O B O X 5 3 8 7 0 5

City or Town

State

ZIP Code

C I N C I N N A T I

O H 4 5 2 5 3 - 8 7 0 5

Phone Number (area code and number)

5 1 3 - 7 3 8 - 6 2 0 0

B. Owner Type

F

C. Change of Owner Indicator

Yes No

Date Changed

Month Day Year

IX. SIC Codes (4-digit, in order of significance)

Primary

4 9 5 3 (description) HAZARDOUS WASTE

Secondary

(description)

Secondary

(description)

Secondary

(description)

X. Other Environmental Permits (see Instructions)

A. Permit Type (enter code)

B. Permit Number

C. Description

N

1 I O 0 0 0 0 4 * D D

E

O T H E R

SEE ATTACHMENT #1

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION A: RCRA PART A PERMIT

RCRA PART B PERMIT APPLICATION
FEMP REVISION 2.0 0994

ITEM VII: OPERATOR INFORMATION (Continued)

NAME OF CO-OPERATOR

Fernald Environmental Restoration Management Corporation (FERMCO)

STREET OR P.O. BOX

P.O. Box 538704

CITY OR TOWN

Cincinnati

STATE

Ohio

ZIP CODE

45253-8704

TELEPHONE NUMBER

(513) 738-6200

EPA I.D. Number (enter from page 1)

Secondary ID Number (enter from page 1)

0 | H | 6 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 7 | 6 |

XI. Nature of Business (provide a brief description)

The Fernald Environmental Management Project (FEMP) is a large scale integrated production facility which formerly produced uranium metal used in the fabrication of fuel cores for nuclear reactors operated by the United States Department of Energy. Current activities include waste management operations, remedial investigation, environmental response actions, nuclear materials disposition, new construction (primarily to support CERCLA response/RCRA - HSWA corrective actions), and miscellaneous operations (e.g., wastewater treatment).

XII. Process - Codes and Design Capacities

- A. **PROCESS CODE** - Enter the code from the list of process codes below that best describes each process to be used at the facility. Twelve lines are provided for entering codes. If more lines are needed, attach a separate sheet of paper with the additional information. If a process will be used that is not included in the list of codes below, then describe the process (including its design capacity) in the space provided in Item XIII.
- B. **PROCESS DESIGN CAPACITY** - For each code entered in column A, enter the capacity of the process.
 1. **AMOUNT** - Enter the amount. In a case where design capacity is not applicable (such as in a closure/post-closure or enforcement action) enter the total amount of waste for that process unit.
 2. **UNIT OF MEASURE** - For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.
- C. **PROCESS TOTAL NUMBER OF UNITS** - Enter the total number of units used with the corresponding process code.

PROCESS CODE	PROCESS	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY	UNIT OF MEASURE	UNIT OF MEASURE CODE
	DISPOSAL:		GALLONS	G
D79	INJECTION WELL	GALLONS: LITERS: GALLONS PER DAY: OR LITERS PER DAY	GALLONS PER HOUR	E
D80	LANDFILL	ACRE-FEET OR HECTARE-METER	GALLONS PER DAY	U
D81	LAND APPLICATION	ACRES OR HECTARES	LITERS	L
D82	OCEAN DISPOSAL	GALLONS PER DAY OR LITERS PER DAY	LITERS PER HOUR	H
D83	SURFACE IMPOUNDMENT	GALLONS OR LITERS	LITERS PER DAY	Y
	STORAGE:		SHORT TONS PER HOUR	D
S01	CONTAINER (Barrel, drum, etc.)	GALLONS OR LITERS	METRIC TONS PER HOUR	N
S02	TANK	GALLONS OR LITERS	SHORT TONS PER DAY	M
S03	WASTE PILE	CUBIC YARDS OR CUBIC METERS	METRIC TONS PER DAY	S
S04	SURFACE IMPOUNDMENT	GALLONS OR LITERS	POUNDS PER HOUR	J
	TREATMENT:		KILOGRAMS PER HOUR	R
T01	TANK	GALLONS PER DAY OR LITERS PER DAY	CUBIC YARDS	Y
T02	SURFACE IMPOUNDMENT	GALLONS PER DAY OR LITERS PER DAY	CUBIC METERS	C
T03	INCINERATOR	SHORT TONS PER HOUR: METRIC TONS PER HOUR: GALLONS PER HOUR: LITERS PER HOUR: OR BTU'S PER HOUR	ACRES	B
	OTHER TREATMENT		ACRE-FEET	A
	<i>Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundment or incinerators. Describe the processes in the space provided in Item XIII.</i>	GALLONS PER DAY: LITERS PER DAY: POUNDS PER HOUR: SHORT TONS PER HOUR: KILOGRAMS PER HOUR: METRIC TONS PER DAY: METRIC TONS PER HOUR: OR SHORT TONS PER DAY	HECTARES	Q
			HECTARE-METER	F
			BTU'S PER HOUR	X

EPA I.D. Number (enter from page 1)

Secondary ID Number (enter from page 1)

0 H 6 8 9 0 0 0 8 9 7 6

XII. Process - Codes and Design Capacities (continued)

EXAMPLE FOR COMPLETING ITEM XII (shown in line numbers X-1 and X-2 below): A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

Line Number	A. PROCESS CODE (from list above)			B. PROCESS DESIGN CAPACITY		C. PROCESS TOTAL NUMBER OF UNITS	FOR OFFICIAL USE ONLY					
				1. AMOUNT (specify)	2. UNIT OF MEASURE (enter code)							
X 1	S	0	2	600	G	0	0	2				
X 2	T	0	3	20	E	0	0	1				
1	S	0	1	11,678,480	G	0	0	7				
2												
3												
4												
5												
6												
7												
8												
9												
1 0												
1 1												
1 2												

NOTE: If you need to list more than 12 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for additional treatment processes in Item XIII.

XIII. Additional Treatment Processes (follow instructions from Item XII)

Line Number (enter numbers in sequence with item XII)	A. PROCESS CODE			B. TREATMENT PROCESS DESIGN CAPACITY		C. PROCESS TOTAL NUMBER OF UNITS	D. DESCRIPTION OF PROCESS
				1. AMOUNT (specify)	2. UNIT OF MEASURE (enter code)		
	T	0	4				
	T	0	4				
	T	0	4				
	T	0	4				

0 H 6 8 9 0 0 0 8 9 7 6

XIV. Description of Hazardous Wastes

A. EPA HAZARDOUS WASTE NUMBER - Enter the four-digit number from 40 CFR, Part 261 Subpart D of each listed hazardous waste you will handle. For hazardous wastes which are not listed in 40 CFR, Part 261 Subpart D, enter the four-digit number(s) from 40 CFR, Part 261 Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. ESTIMATED ANNUAL QUANTITY - For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE - For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:

For listed hazardous waste: For each listed hazardous waste entered in column A select the code(s) from the list of process codes contained in Item XII A. on page 3 to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non-listed hazardous waste: For each characteristic or toxic contaminant entered in column A, select the code(s) from the list of process codes contained in Item XII A. on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that processes that characteristic or toxic contaminant.

NOTE: THREE SPACES ARE PROVIDED FOR ENTERING PROCESS CODES. IF MORE ARE NEEDED:

1. Enter the first two as described above.
2. Enter "000" in the extreme right box of Item XIV-D(1).
3. Enter in the space provided on page 7, Item XIV-E, the line number and the additional code(s).

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form (D.(2)).

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER- Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "Included with above" and make no other entries on that line.
3. Repeat step 2 for each EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM XIV (shown in line numbers X-1, X-2, X-3, and X-4 below) - A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

Line Number	A. EPA HAZARD WASTE NO. (enter code)				B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESS														
	(1) PROCESS CODES (enter)						(2) PROCESS DESCRIPTION (if a code is not entered in D(1))														
X 1	K	0	5	4	900	P	T	0	3	D	8	0									
X 2	D	0	0	2	400	P	T	0	3	D	8	0									
X 3	D	0	0	1	100	P	T	0	3	D	8	0									
X 4	D	0	0	2																	Included With Above

EPA I.D. Number (enter from page 1) Secondary ID Number (enter from page 1)

0	H	6	8	9	0	0	0	8	9	7	6								
---	---	---	---	---	---	---	---	---	---	---	---	--	--	--	--	--	--	--	--

XIV. Description of Hazardous Wastes (continued)

Line Number	A. EPA HAZARDOUS WASTE NO. (enter code)				B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES													
							(1) PROCESS CODES (enter)						(2) PROCESS DESCRIPTION (If a code is not entered in D(1))							
1	U	0	8	0																INCLUDED IN ABOVE
2	U	1	0	7																"
3	U	1	0	8																"
4	U	1	1	7																"
5	U	1	2	1																"
6	U	1	3	4																"
7	U	1	5	1																"
8	U	1	5	9																"
9	U	1	6	1																"
10	U	2	1	0																"
11	U	2	1	1																"
12	U	2	1	3																"
13	U	2	2	0																"
14	U	2	2	6																"
15	U	2	2	8																"
16	U	2	3	9																"
17	U	3	5	9																"
18																				
19																				
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33																				

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
 FERNALD, OHIO
 EPA ID NO. OH6890008976
 SECTION A: RCRA PART A PERMIT

RCRA PART B PERMIT APPLICATION
 FEMP REVISION 2.0 0994

ITEM XV: MAPS

There are ~~fifty one (51)~~ forty seven (47) RCRA Hazardous Waste Management Units (HWMUs) at the Fernald Environmental Management Project (FEMP). ~~Fifty one (51)~~ forty seven (47) of those units are included with this submittal. The HWMU #2, Parts Cleaner in Welding Shop (Bldg 12), has been removed as requested in DOE letter # 997-92, dated 2-28-92. The HWMU #24, Equipment Storage Area has been removed due to the correspondence from Ohio EPA to John Sattler DOE, dated June 2, 1992. HWMUS #39 - the Clearwell, #43 - Lime Sludge Ponds and #44 - Coal Pile Runoff Basin were removed in accordance with correspondence from the Ohio EPA dated June 7, 1993. HWMUS #23 - Well Drilling Storage Area and #45 - UST No. 5 were removed in accordance with correspondence from the Ohio EPA dated November 1, 1993. The HWMU's are identified on Figure A-1. The type of HWMU, process code, status, and dimensions are provided on Table A-1.

Drinking Water Wells

The only drinking water wells within one-quarter mile of the production area are those that supply the FEMP. They are shown on Figure A-1 as Production Wells #1 through #3. The drinking water wells within one-quarter mile of the property boundaries are shown on Figure A-2.

Outfall Locations

<u>Outfall No.</u>	<u>Latitude</u>			<u>Longitude</u>			<u>Receiving Water</u>
	(Deg)	Min	Sec)	(Deg)	Min	Sec)	
001	39	17	53	84	40	48	Great Miami River
002	39	17	36	84	41	21	Storm Sewer Outfall Ditch to Paddy's Run

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION A: RCRA PART A PERMIT

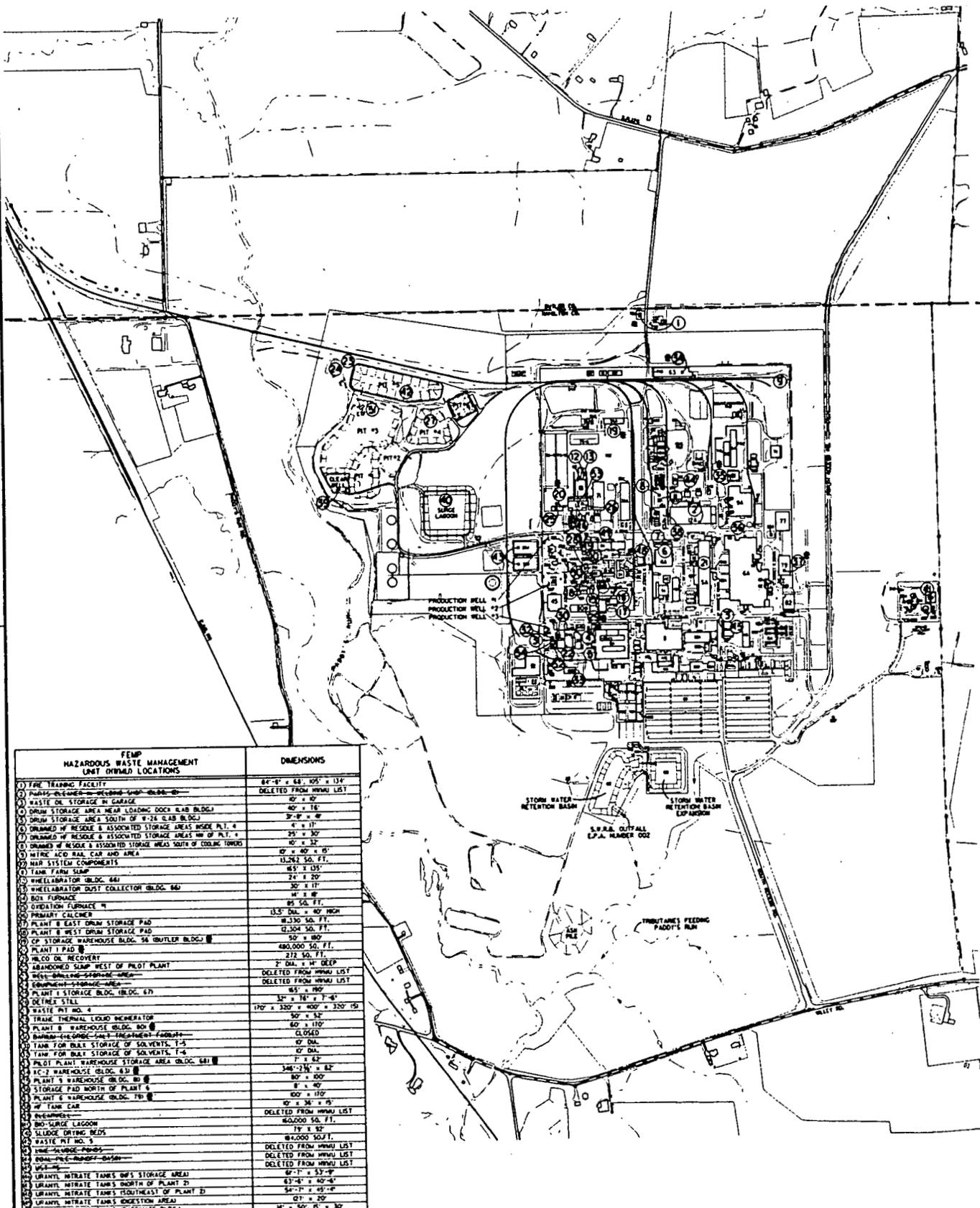
RCRA PART B PERMIT APPLICATION
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XVI: FACILITY DRAWING

The Fernald Environmental Management Project is located on a 1,050 acre Federal Reservation in Hamilton and Butler Counties, Ohio. It is approximately 20 miles northwest of downtown Cincinnati, midway between Ross and Fernald, Ohio.

Due to the size of the FEMP, two maps have been provided to indicate the Hazardous Waste Management Units (HWMUs) and their boundaries. Figure A-1 shows the location of each HWMU and Figure A-2 provides a general overview of the topographic region.

000039



FEMP HAZARDOUS WASTE MANAGEMENT UNIT (HWML) LOCATIONS		DIMENSIONS
1	THE TRADING FACILITY	84'-0" x 68'-10 1/2" x 134'
2	WASTE OIL STORAGE IN GARAGE	DELETED FROM HWML LIST
3	DRUM STORAGE AREA NEAR LOADING DOCK BLDG.	40' x 16'
4	DRUM STORAGE AREA SOUTH OF W-24 LAB BLDG.	37'-0" x 4'
5	DRAINAGE OF RESIDUE & ASSOCIATED STORAGE AREAS INSIDE PLANT #4	4' x 17'
6	DRAINAGE OF RESIDUE & ASSOCIATED STORAGE AREAS INSIDE OF COOLING TOWER	25' x 30'
7	DRAINAGE OF RESIDUE & ASSOCIATED STORAGE AREAS SOUTH OF COOLING TOWER	40' x 32'
8	NITRIC ACID RAIL CAR AND AREA	10' x 40' x 65'
9	NAR SYSTEM COMPONENTS	13,262 SQ. FT.
10	TANK FARM SEW	65' x 135'
11	WHEELABRATOR BLDG. 64J	24' x 20'
12	WHEELABRATOR DUST COLLECTOR BLDG. 64D	30' x 17'
13	BOX FURNACE	4' x 4'
14	OPERATION FURNACE #1	65' SQ. FT.
15	PRIMARY CALCINER	13.5' DIA. x 40' HIGH
16	PLANT #8 EAST DRUM STORAGE PAD	8,330 SQ. FT.
17	PLANT #8 WEST DRUM STORAGE PAD	12,504 SQ. FT.
18	DRUM STORAGE WAREHOUSE BLDG. 56 (OUTLET BLDG.)	30' x 80'
19	PLANT #1 PAD	480,000 SQ. FT.
20	W/CO OIL RECOVERY	272 SQ. FT.
21	ABANDONED SLUMP WEST OF PILOT PLANT	37' DIA. x 4' DEEP
22	WASTE-BUILDING-SPRINKLER-AREA	DELETED FROM HWML LIST
23	GUMPHREYS-SPRINKLER-AREA	DELETED FROM HWML LIST
24	PLANT #1 STORAGE BLDG. (BLDG. 67)	65' x 160'
25	DETREX STILL	32' x 18' x 3'-6"
26	WASTE PIT NO. 4	170' x 320' x 400' x 320' (S)
27	THERMAL LIQUID INCINERATOR	50' x 52'
28	PLANT #8 WAREHOUSE BLDG. 60H	60' x 110'
29	BARRON-ENGELBACH-SALE-TREATMENT-FACILITY	CLOSED
30	TANK FOR BULK STORAGE OF SOLVENTS, T-5	10' DIA.
31	TANK FOR BULK STORAGE OF SOLVENTS, T-4	10' DIA.
32	PILOT PLANT WAREHOUSE STORAGE AREA BLDG. 64I	7' x 62'
33	HC-2 WAREHOUSE BLDG. 63J	346' x 24' x 62'
34	PLANT #9 WAREHOUSE BLDG. 60I	80' x 100'
35	STORAGE PAD NORTH OF PLANT #4	8' x 40'
36	PLANT #6 WAREHOUSE BLDG. 70	100' x 110'
37	W/ TANK CAR	10' x 34' x 65'
38	PNEUMATICS	DELETED FROM HWML LIST
39	NO-LURGE LAGOON	80,200 SQ. FT.
40	SLUDGE DRYING BEDS	19' x 92'
41	WASTE PIT NO. 5	84,000 SQ. FT.
42	FINE-SLAGGING-REHAB	DELETED FROM HWML LIST
43	NON-ACID-REHAB-REHAB	DELETED FROM HWML LIST
44	URANIUM NITRATE TANKS (W/5 STORAGE AREA)	10' x 34' x 53'-0"
45	URANIUM NITRATE TANKS (NORTH OF PLANT #2)	63'-0" x 40'-0"
46	URANIUM NITRATE TANKS (SOUTHWEST OF PLANT #2)	54'-7" x 45'-0"
47	URANIUM NITRATE TANKS (EASTERN AREA)	10' x 20'
48	URANIUM NITRATE TANKS (W/RAFFINATE BLDG.)	14' x 50' x 3' x 30'
49	EXPERIMENTAL TREATMENT FACILITY (EFP)	20' x 48'
50	NORTH & SOUTH SOLVENT TANKS (PILOT PLANT)	6'-6" DIA.
51	SAFE GEOMETRY DIBESTION SLUMP	8' DIA. x 12' DEEP
52	THORNUM NITRATE STORAGE TANK, T-2	47' DIA.

HWML'S THE FEMP IS SEEKING TO PERMIT

NO.	REVISIONS	DATE	BY	APP'D.	REF. Dwg. NO.
4	REVISED PER RES #2788		WSP	S.A.S.	CEP
3	REVISED PER RES #2783		WSP	S.A.S.	CEP
2	ADDED HWML NO. 53		WSP	S.A.S.	CEP
1	REVISED PER RES #268		WSP	S.A.S.	CEP

NOTES:
FERNCO C.A.D.
DRAWING NOT
TO BE REVISED
MANUALLY

DATE	BY	APP'D.	REVISION

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

SITE PLAN
 FIGURE 1-1
 FACILITY LOCATION MAP
 SCALE: 1" = 300'

FILE NAME: 75X-5500-X-0071

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION A: RCRA PART A PERMIT

RCRA PART B PERMIT APPLICATION
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ITEM XVII: PHOTOGRAPHS

Photographs of the ~~fifty-one (51)~~ forty-seven (47) RCRA Hazardous Waste Management Units are provided as Attachment #2.

TABLE A-1

UNIT NO.	FEMP HAZARDOUS WASTE MANAGEMENT UNITS	Type of Unit (1)	Process Code (2)	Status (3)	Dimensions (4)
1A	Fire Training Facility*	D	D80	4	84'8" x 68'
1B	Fire Training Facility*	D	D80	4	105' x 134'
2	Paints-Cleaner-in-Welding-Shop-(Bldg-12)-(Removed in accordance with DEPA letter of November 1, 1993)	S	S01	2	33" x 71" x 5.0" L
3	Waste Oil Storage in Garage	S	S01	2	10' x 10'
4	Drum Storage Area Near Loading Dock (Lab Bldg)	S	S01	2	40' x 76'
5	Drum Storage Area South of W-26 (Lab Bldg)	S	S01	2	31'8" x 41'
6	Drummed HF Residue/Associated Storage Areas Inside Plant 4	S	S01	2	4' x 17'
7	Drummed HF Residue/Associated Storage Areas NW of Plant 4	S	S01	2	25' x 30'
8	Drummed HF Residue/Associated Storage Areas S. of Cooling Towers	S	S01	2	14' x 40' x 15'
9	Nitric Acid Rail Car and Area	S	S01	2	10' x 40' x 15'
10	MAR System Components	S	S02	4	13,262 sq ft
11	Tank Farm Sump	T	T02	3	165' x 135'
12	Wheelabrator (Bldg 66)	S	S01	4	24' x 20'
13	Wheelabrator Dust Collector (Bldg 66)	S	S01	2	30' x 17'
14	Box Furnace	T	T03	4	14' x 18'
15	Oxidation Furnace #1	T	T03	4	85 sq ft
16	Primary Calciner	T	T03	4	13.5 ft diam x 40' high
17	Plant 8 East Drum Storage Pad	S	S01	4	18,330 sq ft
18	Plant 8 West Drum Storage Pad	S	S01	4	12,304 sq ft
19	CP Storage Warehouse - Bldg 56 (Butler Bldg)	S	S01	1	50' x 180'
20	Plant 1 Pad	S	S01	1	480,000 sq ft
21	Hilco Oil Recovery	S	S01	2	272 sq ft
22	Abandoned Sump West of Pilot Plant	S	S01	4	2' diam x 14' deep
23	Well-Drilling-Storage-Area (Removed in accordance with DEPA letter of November 1, 1993)	S	S01	2	29' x 56'
24	Equipment-Storage-Area (Removed in accordance with DEPA letter of June 2, 1992)	S	S01	2	45' x 145'
25	Plant 1 Storage Bldg (Bldg 67)	S	S01	4	165' x 190'
26	Detrex Still	S	S02	2	32" x 76" x 7'6"

1) T=Treatment S=Storage D=Disposal
 2) Process Codes provided in Item XII of Hazardous Waste Permit Application Part A
 3) 1=HMU to be permitted, 2=HMU to be closed, 3=HMU to be operated, not permitted, Closure to be integrated with remedial actions, 4=HMU not to be operated, Closure to be integrated with remedial actions, 5=HMU closed
 4) Dimensions: width x length x height - unless otherwise indicated
 5) Waste Pit No. 4 is irregularly shaped; dimensions provided are for each side
 * Unit 1 remains one unit, but is split into 2 areas (A & B) because a road divides the unit

TABLE A-1(cont.)

UNIT NO.	FEMP HAZARDOUS WASTE MANAGEMENT UNITS	Type of Unit (1)	Process Code (2)	Status (3)	Dimensions (4)
27	Waste Pit No. 4	D	D80	4	170' x 320' x 400' x 320'
28	Trane Thermal Liquid Incinerator	T	T03	4	50' x 52'
29	Plant 8 Warehouse (Bldg 80)	S	S01	1	60' x 170'
30	Barium Chloride Salt Treatment Facility (Closed)	T	T04	5	50' x 75'
31	Tank for Bulk Storage of Solvents, T-5	S	S02	2	10' diameter
32	Tank for Bulk Storage of Solvents, T-6	S	S02	2	10' diameter
33	Pilot Plant Warehouse (Bldg 68)	S	S01	1	69' x 7'
34	KC-2 Warehouse (Bldg 63)	S	S01	1	346'2-3/8" x 82'
35	Plant 9 Warehouse (Bldg 81)	S	S01	1	80' x 100'
36	Storage Pad North of Plant 6	S	S01	2	8' x 40'
37	Plant 6 Warehouse (Bldg 79)	S	S01	1	100' x 170'
38	HF Tank Car	S	S01	2	10' x 36' x 15'
39	Clearwell (Removed in accordance with DEPA letter of June 7, 1993)	T	T02	3	30,600 sq ft
40	Bio-Surge Lagoon	T	T02	3	160,000 sq ft
41	Sludge Drying Beds	T	T02	4	79' x 92'
42	Waste Pit No. 5	T	T02	4	184,000 sq ft
43	Line Sludge Ponds (Removed in accordance with DEPA letter of June 7, 1993)	S	S04	3	40,000 sq ft
44	Geopile Runoff Basin (Removed in accordance with DEPA letter of June 7, 1993)	S	S04	3	5,778 sq ft
45	Unit No. 5 (Removed in accordance with DEPA letter of November 1, 1993)	S	S02	2	246" diameter
46	Uranyl Nitrate Tanks (NFS Storage Area)	S	S02	4	61'7" x 53'9"
47	Uranyl Nitrate Tanks (North of Plant 2)	S	S02	4	63'6" x 40'6"
48	Uranyl Nitrate Tanks (Southeast of Plant 2)	S	S02	4	54'7" x 45'4"
49	Uranyl Nitrate Tanks (Digestion Area (2 locations))	S	S02	4	127' x 20' (each loc.)
50	Uranyl Nitrate Tanks (Raffinate Building (2 locations))	S	S02	4	14' x 50' : 15' x 30'
51	Experimental Treatment Facility (ETF)	T	T04	4	20' x 48'
52	North and South Solvent Tanks (Pilot Plant)	S	S02	2	6'6" diameter each
53	Safe Geometry Digestion Sump (Plant 1)	S	S02	2	8" diameter x 12" deep
54	Tank for Bulk Storage of Thorium Nitrate Solution, T-2	S	S02	4	10' diameter

1) T=Treatment S=Storage D=Disposal
 2) Process Codes provided in Item XII of Hazardous Waste Permit Application Part A
 3) 1=HMU to be permitted, 2=HMU to be closed, 3=HMU to be operated, not permitted, Closure to be integrated with remedial actions
 4) 4=HMU not to be operated, Closure to be integrated with remedial actions, 5=HMU closed
 5) Dimensions: width x length x height - unless otherwise indicated
 * Waste Pit No. 4 is irregularly shaped; dimensions provided are for each side
 Unit 1 remains one unit, but is split into 2 areas (A & B) because a road divides the unit

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ITEM X: OTHER ENVIRONMENTAL PERMITS (Attachment 1)

Pursuant to OAC 3745-50-41, the following is a list of all permits or construction approvals received or applied for under the specified programs:

1) Hazardous Waste Management Program under RCRA

Part A Permit Applications submitted to OEPA:

Original submittal	07/06/84	
Revision 1	05/15/85	
Revision 2	10/30/85	(Part B submittal)
Revision 3	03/19/86	
Revision 4	04/28/86	
Revision 5	03/27/87	
Revision 6	11/02/87	
Revision 7	02/04/88	
Revision 8	07/28/88	
Revision 9	03/22/89	
Revision 10	09/22/89	(Part B submittal)
Revision 11	09/25/90	
Revision 12	06/28/91	
Revision FEMP 0	10/31/91	(Part B submittal)
Revision FEMP 1	03/31/92	
Revision FEMP 1.1	08/31/92	
Revision FEMP 1.2	10/15/92	
Revision FEMP 1.3	03/01/93	
Revision FEMP 1.4	03/26/93	(Part B submittal)

Closure Plans (CP) previously submitted:

- a. Waste Pit No. 4
 Barium Chloride Salt Treatment Facility
 Storage Pad North of Plant 6
 Trane Thermal Liquid Incinerator
 Tank for Bulk Storage of Solvents, T-5 & T-6
 UST #5 (Withdrawn)
 Waste Pit No. 5
 Equipment Storage Area (Withdrawn)
 HF Tank Car
 Waste Oil Storage in Garage
 Drum Storage Area South of W-26 (Laboratory Building)
 Drummed HF Residue Storage Inside Plant 4
 Drummed HF Residue Storage Northwest of Plant 4
 Nitric Acid Rail Car
 CP Storage Warehouse - Bldg 56 (Butler Bldg)¹
 Plant 1 Pad¹
 Pilot Plant Warehouse (Bldg 68)¹

ITEM X: OTHER ENVIRONMENTAL PERMITS (continued)

KC-2 Warehouse (Bldg 63)¹
Plant 9 Warehouse (Bldg 81)¹
Plant 6 Warehouse (Bldg 79)¹
Plant 8 Warehouse (Bldg 80)¹
Fire Training Facility
Drum Storage Area near Lab Loading Dock
Detrex Still
Uranyl Nitrate Tanks
North and South Solvent Tanks (Pilot Plant)
NAR System Components

b. Waste Pit No. 4 Post Closure Plan

2) Underground Injection Control Program (UIC) under SWDA

None

3) National Pollutant Discharge Elimination System (NPDES) Program under CWA

~~11000004*CD~~ 11000004*DD (Former NPDES permit no. OH000004*CD)

4) Prevention of Significant Deterioration (PSD) Program under the Clean Air Act

None

5) Nonattainment Program under the Clean Air Act

None

6) National Emission Standards for Hazardous Pollutants (NESHAPS) preconstruction approval under the Clean Air Act

NESHAP approval of construction received from EPA for the following:

1. UF₆ to UF₄ Reduction Facility #2
2. Thorium Packaging

NESHAP approval of modification received for the following:

1. Plasma Spray Crucible Coating Station

¹ Included in Part B Application, Section I

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ITEM X: OTHER ENVIRONMENTAL PERMITS (continued)

2. Crucible Grit Blaster
3. West Wagner Cold Saw
4. Flat Ingot Model 4 Milling Machine
5. Flat Ingot Model 4A Milling Machine
6. Flat Ingot Model 4B Milling Machine
7. Flat Ingot 425-20 Milling Machine
8. Flat Ingot No. 6 Milling Machine
9. Flat Ingot K&T A Milling Machine
10. Flat Ingot K&T B Milling Machine
11. Plant 6 Sump and Waste Treatment System
12. D&D Facility
13. Ingot Cooling Booth
14. Plant 8 Sump
15. Plant 8 Crusher
16. Plant 1 Material Handling

7) Ocean Dumping permits under the Marine Protection Research and Sanctuaries Act

None

8) Dredge or Fill permits under section 404 of the CWA

None

9) Other relevant environmental permits, including State Permits

State of Ohio Hazardous Waste Permit 05-31-0681

10) Wastewater Treatment Facility, Ohio EPA Permits-To-Install (PTI)

	<u>Project</u>	<u>PTI No.</u>
1.	Stormwater/Spill Retention Facility - FMPC	05-1043
2.	Process Wastewater Bionitrification	05-3672
3.	Bionitrification Surge Lagoon Facility - FMPC	05-2872
4.	Plant 6 Sump Reconstruction	05-2405
5.	Tank Farm Padwater Collection & Neutralization Sump	05-2873

ITEM X: OTHER ENVIRONMENTAL PERMITS (continued)

6.	General Sump/Lime Handling System	05-3368
7.	Modification Plant 8 Sump	05-3518
8.	Decontamination and Decommissioning (D&D) Facility	05-3390
9.	Biodenitrification Effluent Treatment System	05-3879
10.	Coal Pile Runoff Collection Facility	05-4172
11.	Manhole 34 Spill Control	05-5127
12.	Ultraviolet Disinfection Unit	05-0944
13.	Modification of Plant 8 Sump	05-5471
14.	pH Neutralization System for the General Sump	05-5634
15.	Advanced Wastewater Treatment Facility	05-5722

11) Air Permit Status Source Report

See attached lists: FEMP Air Permit Report
FEMP Sources Submitted for Air Permits

August 29, 1994

Fernald Environmental Management Project
Regulatory Programs
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Listed by Ohio EPA Permit Number

Permit Number	Equipment Description
B001	100 MMBTU/HR COAL-FIRED BOILER:MULTICLONE-ESP
B003	100 MMBTU/HR COAL-FIRED BOILER:MULTICLONE-ESP
B006	100 MMBTU/HR NATURAL GAS FIRED BOILER
F001	ACTIVE FLY ASH PILE
K002	MAINTENANCE SHOP PAINT SPRAY BOOTH
P119	PLANT 2/3-STG PROCESSING TANK D1-7: NAR TOWER
P206	MgO SLURRY TK (F1-611)
P227	PROCESS AREA TRASH COMPACTOR
P237	GENERAL SUMP LIME HANDLING
P239	EAST OLIVER FILTER
P240	WEST EIMCO FILTER
P248	EAST EIMCO FILTER
P263	HIGH PRESSURE WASH SYSTEM
P264	ULTRA HIGH PRESSURE WATER WASH SYSTEM
P266	BOILER PLANT HIGH VACUUM SYSTEM
P272	LIME/ALUM DUMP STATIONS
P274	DRYERS FOR RADIOLOGICALLY CONTAMINATED CLOTHING
P275	DRYERS FOR NON-RADIOLOGICALLY CONTAMINATED CLOTHING
P276	PLANT 8 NEUTRALIZATION OF SUMP LIQUOR D-101
P277	NEUTRALIZATION TANK (D-102):EXISTING PLANT 8 SUMP
P278	NEUTRALIZATION TANK (D-103):EXISTING PLANT 8 SUMP
P279	NEUTRALIZATION TANK (D-104):EXISTING PLANT 8 SUMP
P280	NEUTRALIZATION TANK (D-105):EXISTING PLANT 8 SUMP
P281	NEUTRALIZATION TANK (F-203):EXISTING PLANT 8 SUMP
P282	NEUTRALIZATION TANK (F-203A):EXISTING PLANT 8 SUMP
P285	VACUUM SYSTEM WITH CYCLONE, CARTRIDGE FILTER, MEPA/HEPA
P286	PLANT 2/3 SLURRY MIX TANK F1-609
P287	NON-RADIOLOGICALLY CONTAMINATED CLOTHES DRYER
P288	INDUSTRIAL HYGIENE LABORATORY HOOD SYSTEM
T002	PLANT 8 - CAUSTIC STORAGE TANK A
T003	PLANT 8 - CAUSTIC STORAGE TANK B
T004	CAUSTIC STORAGE TANK (F43-108)
T007	PLANT 2/3 - NITRIC ACID ST TK (F1-23)
T008	PLANT 2/3 - DIL NITRIC ST TK (F1-24)
T013	PLANT 2/3 - NITRIC ACID STOR (D3-27)
T014	PLANT 2/3 - NITRIC ACID STOR (F3-12)
T015	PLANT 2/3 - NITRIC ACID STOR (F3-19)
T020	PLANT 2/3 - COND HOLD TK (F3E-7)
T021	3300 GAL. FIXED ROOF URANYL NITRATE STORAGE TANK
T023	3300 GAL. FIXED ROOF URANYL NITRATE STORAGE TANK
T024	23,500 GAL. FIXED ROOF URANYL NITRATE STORAGE TANK
T025	23,500 GAL. FIXED ROOF URANYL NITRATE STORAGE TANK
T026	23,500 GAL. FIXED ROOF URANYL NITRATE STORAGE TANK

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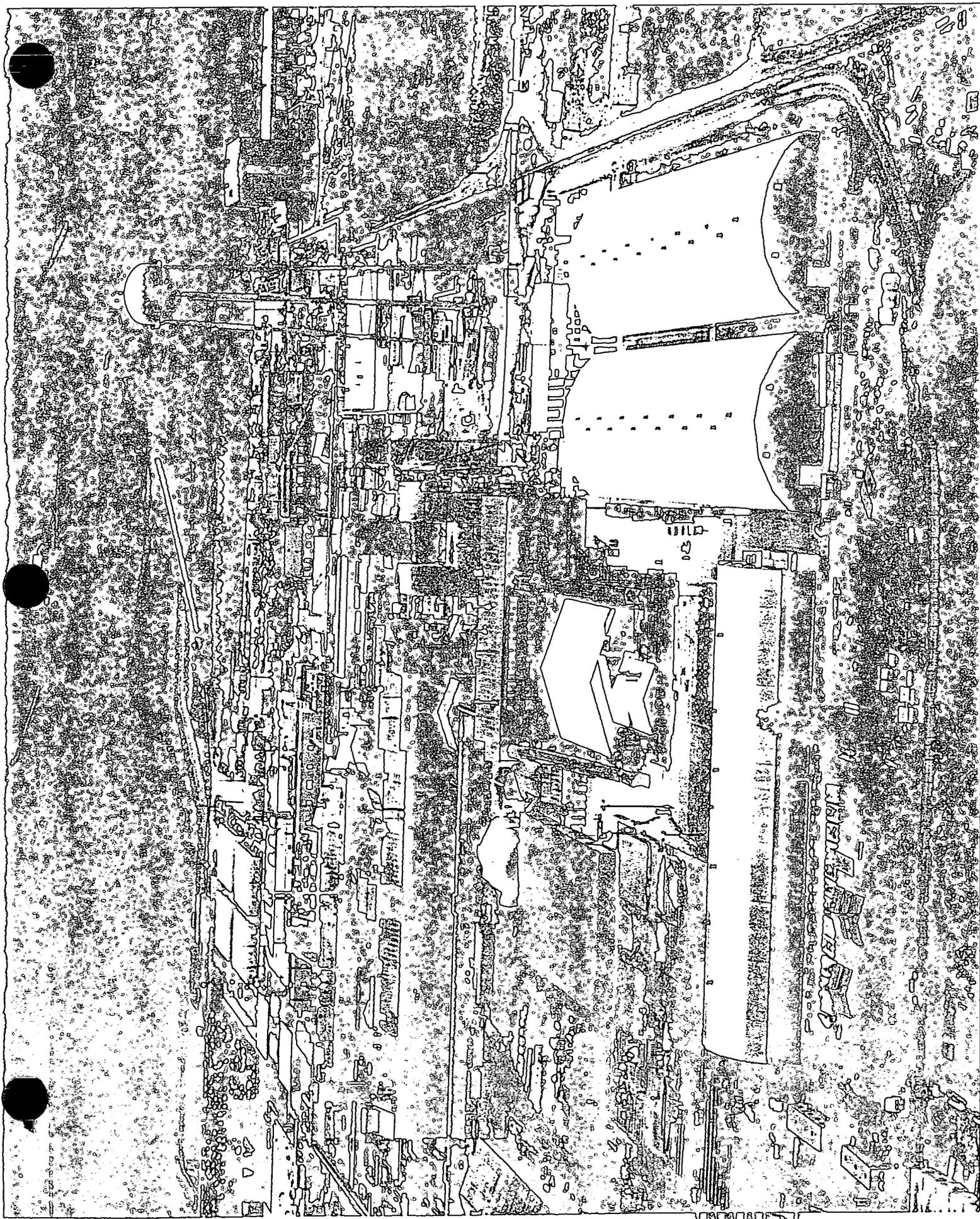
Permit Number	Equipment Description
T029	25,265 GAL. FIXED ROOF URANYL NITRATE STORAGE TANK
T030	25,265 GAL. FIXED ROOF URANYL NITRATE STORAGE TANK
T031	25,265 GAL. FIXED ROOF URANYL NITRATE STORAGE TANK
T032	25,265 GAL. FIXED ROOF URANYL NITRATE STORAGE TANK
T033	14,500 GAL. FIXED ROOF URANYL NITRATE STORAGE TANK
T034	14,500 GAL. FIXED ROOF URANYL NITRATE STORAGE TANK
T035	PLANT 2/3 - SLOPWATER ST TK (D1-130)
T036	PLANT 2/3 - SLOPWATER ST TK (D1-129)
T039	PLANT 2/3 - URANYL NITR STOR TK (F2-608)
T040	PLANT 2/3 - URANYL NITR STOR TK (F2-607)
T041	PLANT 2/3 - URANYL NITR STOR TK (F2-606)
T042	PLANT 2/3 - URANYL NITR STOR TK (F2-605)
T045	PLANT 2/3 - SLOPWATER STORAGE TANK F1-608
T046	PLANT 2/3 - SLOPWATER STORAGE TANK F2E-601
T047	PLANT 2/3 - S.L. STOR TK (F1-301)
T048	PLANT 2/3 - S.L. STOR TK (F1-302)
T049	PLANT 2/3 - S.L. STOR TK (F1-303)
T050	PLANT 2/3 - CAUSTIC STORAGE (D1-174)
T056	PLANT 2/3 - RAFF STOR TK (F1-403)
T057	PLANT 2/3 - RAFF STOR TK (F1-401)
T058	PLANT 2/3 - RAFF STOR TK (F1-402)
T059	PLANT 2/3 - RAFF STOR TK (F1-400)
T063	2,250 GAL FIXED ROOF DIRTY SOLVENT STORAGE TANK (17B)
T064	2,250 GAL FIXED ROOF DIRTY SOLVENT STORAGE TANK (17A)
T065	2,600 GAL FIXED ROOF DIRTY SOLVENT STORAGE TANK (5B)
T066	2,600 GAL FIXED ROOF DIRTY SOLVENT STORAGE TANK (5A)
T068	25,600 GAL FIXED ROOF DIRTY SOLVENT STORAGE TANK
T069	30,000 GAL FIXED ROOF OK LIQUOR STORAGE TANK (F3E-222)
T070	30,000 GAL FIXED ROOF OK LIQUOR STORAGE TANK (F3E-223)
T071	30,000 GAL FIXED ROOF OK LIQUOR STORAGE TANK (F3E-224)
T072	PLANT 2/3 - OK LIQ STOR TK (F3E-225)
T073	PLANT 2/3 - FILTRATE STOR TK (F1-308)
T081	PLANT 2/3 - FILTRATE STOR (SL) (F1-317)
T085	PLANT 2/3 - FILTRATE STOR (SL) (F3E-408)
T088	PLANT 2/3 -NITRIC ACID STOR TK, WS-PILOT PLANT
T095	PLANT 6 - SPENT ACID TANK (06-F035-TNK)
T096	6,192 GAL FIXED ROOF FILTRATE STORAGE TANK
T097	6,192 GAL FIXED ROOF FILTRATE STORAGE TANK
T098	22,100 GAL FIXED ROOF FILTRATE STORAGE TANK
T099	6,192 GAL FIXED ROOF FILTRATE STORAGE TANK
T106	7,833 GAL FIXED ROOF SUMP ACCUMULATOR STORAGE TANK
T107	7,833 GAL FIXED ROOF SUMP ACCUMULATOR STORAGE TANK
T111	K-65 SILO #1 STORAGE TANK-RADIUM CAKE

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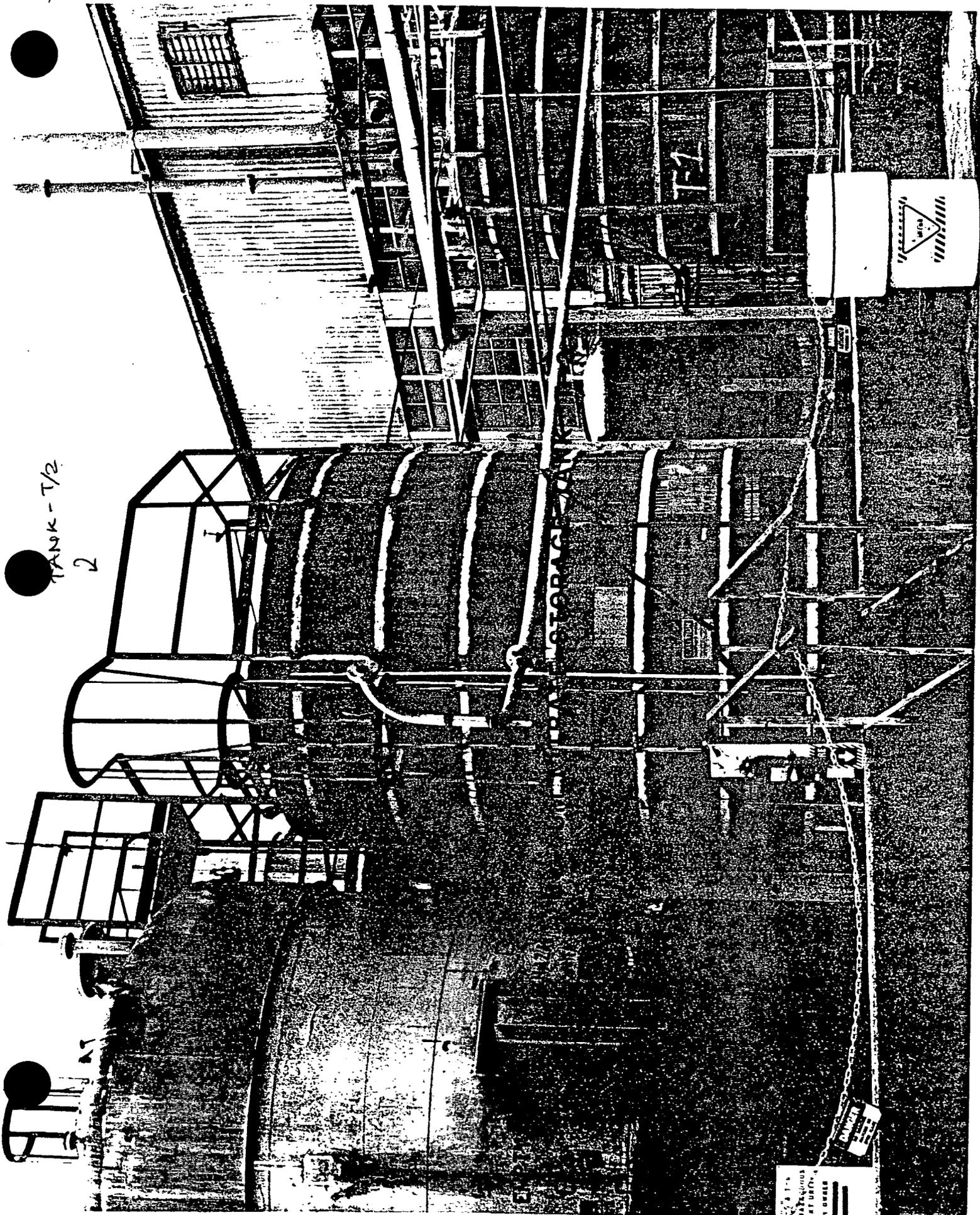
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Permit
NumberEquipment
Description

T112	K-65 SILO #2 STORAGE TANK-RADIUM CAKE
T116	NO. 3 WELL PUMPHOUSE STORAGE TANK
T117	MAINTENANCE SHOP DIESEL FUEL STORAGE TANK
T124	30,500 GAL DILUTE HYDROFLUORIC ACID STORAGE TANK
T126	4,200 SULFURIC ACID-93% STORAGE TANK
T127	50,000 GAL METHANOL STORAGE TANK W/I I.F.R.
T128	36,000 GAL CAP. AHF STORAGE TANK: HF SCRUBBER
T158	CONCENTRATED SULFURIC ACID STORAGE TANK
T159	"SILO NO. 3, METAL OXIDES"



TANK - T/2
2



STORAGE TANK

DANGER

DANGER

STORAGE TANK

Hazardous Waste Management Unit #45
UST No. 5
has been removed

6518

000053

**Hazardous Waste Management Unit #23
Well Drilling Storage Area
has been removed**

000054

Hazardous Waste Management Unit #39
Clearwell
has been removed

6518

000055

Hazardous Waste Management Unit #43
Lime Sludge Ponds
has been removed

6518

000056

**Hazardous Waste Management Unit #44
Coal Pile Runoff Basin
has been removed**

6518

000057

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LIST OF ATTACHMENTS

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SECTION B - FACILITY DESCRIPTION

RCRA Part B Permit Application Fernald Environmental Management Project Fernald, Ohio

This section provides a general description of the Fernald Environmental Management Project (FEMP) as required by Ohio Administration Code (OAC) 3745-50-44(a)(1) and Title 40 of the Code of Federal Regulations (CFR) 270.14(b).

B-1 GENERAL DESCRIPTION

Formerly named the Feed Materials Production Center (FMPC), the Fernald Environmental Management Project (FEMP) is located on a 1050-acre Federal Reservation in Hamilton and Butler counties in Southwestern Ohio. The FEMP is approximately 20 miles northwest of Cincinnati, Ohio between the villages of Ross and Fernald. The former production facilities occupy approximately 136 acres in the center of the site. Figure B-1 shows the location of the FEMP relative to the surrounding area.

The FEMP is owned by the United States Department of Energy (DOE) and operated by the DOE/Fernald Area Office (DOE-FN). DOE/FN is responsible for day-to-day site management, program decisions, interpretation of DOE orders, interaction with regulatory agencies, milestone compliance, and transmission of deliverables. Operational guidance and program direction for the FEMP is administered through DOE Headquarters, Environmental Restoration and Waste Management.

The DOE/FN site manager reports directly to DOE headquarters in Washington, D.C. Procedures for site operations are outlined at headquarters level through DOE orders and guidance and are interpreted and implemented at the FN level.

The FEMP was a large-scale integrated feed materials production facility which produced uranium metal used in the fabrication of fuel cores and target fuel elements for the DOE defense programs. Operations consisted of foundry and other processes to convert uranium ore concentrates and recoverable, recyclable residues into uranium metal and compounds. During the manufacturing process, high quality uranium compounds were introduced into the FEMP processes at several points. Impure starting materials were dissolved in nitric acid and the uranium was purified through solvent extraction to yield a solution of uranyl nitrate. Evaporation and heating, converted the uranyl nitrate solution to uranium trioxide (UO₃) powder. This compound was reduced with hydrogen to uranium dioxide (UO₂) which was then converted to uranium tetrafluoride (UF₄) by reaction with anhydrous hydrogen fluoride. Uranium metal was produced by reaction of uranium tetrafluoride and magnesium metal with recycled magnesium fluoride by-product (MgF₂). This primary uranium metal was then remelted with scrap uranium metal to yield a purified uranium ingot.

In addition to the primary uranium products, small amounts of thorium were produced at the FEMP. Currently, the FEMP serves as the thorium repository for DOE but efforts are being made to recycle/reuse, or dispose of the remaining thorium.

A variety of chemicals such as nitric acid, anhydrous fluoride, magnesium metal, metal cleaning solvents, coolants, and lubricating oils were used in the production process. As a result of these operations, various types of liquid and solid matrix wastes were generated. These include spent solvents, oils, sludges, filter cakes, process intermediates, and barium chloride salts.

In July 1989, production activities were suspended. ~~The shutdown was intended to be temporary.~~ The formal closure of production activities became effective in June 1991. At that time, the FEMP's primary function officially changed from uranium metal production to environmental restoration and site clean-up activities. Most of the waste currently generated at the FEMP originates from CERCLA remediation activities such as closures, response actions, and underground storage tank removals, and from construction, maintenance and miscellaneous activities. ~~These wastes are remediation wastes as defined by the Corrective Action Management Unit (CAMU) Rule established in 58 FR 8658, February 16, 1993.~~

Several restoration activities involving sampling and laboratory analysis, or treatability studies, have also resulted or will result in the generation of hazardous waste from off-site locations that must be returned to the FEMP facility prior to disposal. The FEMP is exempted from the requirements of OAC 3745-66-40 through 3745-66-48 by OAC 3745-66-40 because the FEMP is owned by a federal agency (DOE). Therefore, waste generated as a result of characterization or treatability studies on FEMP waste projects, in accordance with DOE Order 5820.2A, cannot be sent to a commercially permitted facility for disposal. These wastes must instead be returned to the FEMP. The FEMP will not accept off-site waste unless that waste contains radionuclides which have originated from the FEMP. Any other off-site waste, if necessary to be brought onsite, will be brought onsite only in accordance with the Consent Decree and its Stipulated Amendment. Off-site generators include, but not limited to, analytical laboratories, vendors and other laboratory facilities that have processed FEMP wastes. ~~The FEMP received 7,498 pounds of hazardous waste from these sources in CY 1992. Most of this material was "backlog waste" generated during the analysis of FEMP samples.~~

B-1a Legal Agreements

On December 2, 1988, DOE signed and entered into a Consent Decree with the State of Ohio that outlined specific actions to characterize and manage hazardous waste and to protect waters of the State in accordance with the Resource Conservation and Recovery Act (RCRA) and the Clean Water Act (CWA), respectively. Further negotiations between the State of Ohio, DOE, and Westinghouse

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FERNALD, OHIO
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SECTION B: FACILITY DESCRIPTION

RCRA PART B PERMIT APPLICATION
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Environmental Management Company of Ohio (WEMCO) resulted in the signing of the Consent Decree and its Stipulated Amendment (SACD) on January 22, 1993. These documents contain many requirements related to hazardous waste management. Specific provisions which were developed to address storage of hazardous wastes are included below:

Subsection 3.5.1(f) of the SACD:

"The FEMP shall, as soon as reasonably possible but no more than sixty days from a determination that any drummed materials are hazardous or mixed waste, move such materials to units that are identified in the FEMP Part A Permit Application submitted September 1989, or subsequent revisions. If storage space which meets RCRA and Ohio hazardous waste storage requirements is not available, the FEMP 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 not located under cover, and shall, within 60 days of the determination that sufficient hazardous waste storage space is not available, submit a plan and schedule for Ohio Environmental Protection Agency (OEPA) approval for short term storage of these wastes."

Backlog material which is being evaluated for the potential to be hazardous or mixed waste may be stored on the best available hard surface provided that leakage may be easily detected and that the required aisle spacing is maintained (as described in Section D).

Section 3.8 of the SACD:

Containers that are being evaluated under the Consent Decree and its Stipulated Amendment provisions must be stored in accordance with the Drum Management Plan as approved by OEPA.

In addition, Section 3.1 of the Consent Decree states that the FEMP 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. In these circumstances the FEMP will, in consultation with the OEPA, handle the hazardous or mixed waste in a manner as protective of human health and safety and the environment as if the hazardous waste requirement had been applied.

The FEMP is seeking a permit for on-site container storage units. The units are to be used for the storage of hazardous waste, generated both when the facility was in production and during remediation, and for the storage of remediation waste, and hazardous or mixed waste from off-site facilities with a hazardous or radionuclide content that originated from the FEMP. Because past operations at the facility involved uranium and thorium, much of the hazardous waste currently in storage is mixed waste. Only the

hazardous components of the mixed waste are subject to regulation under the Resource Conservation and Recovery Act (RCRA).

Table B-1 lists the name, location, and capacities for the seven container storage areas to be permitted for storage of hazardous waste. The locations of these units are identified on Figure B-2 (Section B).

B-1b CERCLA Activities

An individual Remedial Investigation/Feasibility Study (RI/FS) is being conducted for each of these operable units. Under this system, design and implementation work can begin on specific environmental concerns as soon as the alternatives are developed. The Remedial Investigation/Feasibility Study (RI/FS) is the blueprint for the cleanup at the FEMP. The objective of the Remedial Investigation (RI) is to develop a comprehensive understanding of the nature of the stored waste materials, the extent to which they have impacted the surrounding environment, and the potential threat that the materials and impacted media pose to human health and the environment. The Feasibility Study (FS) will utilize the data provided in the Remedial Investigation (RI) report to develop and evaluate alternatives for reducing risk to human health and the environment to an acceptable level.

To facilitate the implementation of CERCLA remedial actions, the Consent Agreement as amended on September 20, 1991, divided the FEMP into "operable units". An operable unit is a term used to identify a logical grouping of documentation, including RI and FS reports and Records of Decision (ROD), will be issued for each of the FEMP's operable units. Once the RI/FS is completed for each Operable Unit, the site remedy is selected and a Record of Decision is issued. The ROD is a legally binding decision which specifies the site remedy. A ROD will be prepared to specify the selected remedial alternative for each operable unit. DOE and U.S. EPA signed an Amended Consent Agreement in September 1991 which included new schedules for completion of the RI/FS work and acceleration of near-term remediation activities or Removal Actions. Under the amended agreement, the RODs are for sequentially scheduled for 1994 (Operable Units 4 and 1) followed by Operable Units 2 and 5 in 1995, and Operable Unit 3 in 1997. However, Operable Unit 3 has achieved an Interim ROD for the decontamination and decommission of all Operable Unit 3 structures. Note: These target schedules may be extended by the U.S. Environmental Protection Agency (USEPA) following public comment on the CERCLA documents.

To accomplish the remediation of the FEMP, remedial alternatives are being proposed and evaluated for effectiveness, according to CERCLA regulations and guidance. At this time, leading or preferred remedial alternatives have been selected and identified for each operable unit as follows:

OPERABLE UNIT 1

Operable Unit 1 consists of six low-level radioactive waste storage pits, a Burn Pit, the Clearwell, miscellaneous structures and facilities such as berms, liners, concrete pads, underground piping, utilities, railroad tracks, fencing; and soil within the Operable Unit 1 boundary. These areas were used for disposal of both liquid and solid form wastes generated by the various operations at the FEMP. The preferred remedial alternative for Operable Unit 1, as identified in the draft Operable Unit 1 Proposed Plan submitted to both the U.S. and Ohio EPA in March 1994, consists of excavating the waste pits, treating the waste materials through thermal drying, and shipping the waste by rail for disposal at a permitted commercial disposal facility. Controls and monitoring measures will be implemented as necessary, based on an integrated sitewide contaminated media control and monitoring program to be established by the Operable Unit 5 ROD.

OPERABLE UNIT 2

Operable Unit 2 includes a solid waste landfill, lime sludge ponds, two flyash piles and the South Field. These areas were used to dispose of flyash from the boiler plant, spent lime from water treatment activities, sanitary waste and construction rubble from past operations at the FEMP. The following are the preferred remedial alternatives for each subunit in Operable Unit 2 as identified in the draft Proposed Plan submitted to both U.S. and Ohio EPA in April, 1994:

Solid Waste Landfill

The contaminated material with concentrations above the Federal ownership scenario cleanup levels in the Solid Waste Landfill area would be consolidated and capped. Water generated during the remedial action would be pumped to the Advanced Waste Water Treatment (AWWT) facility. Institutional controls would include physical barriers and groundwater monitoring at the capped Solid Waste Landfill area.

Lime Sludge Ponds

The lime sludge and contaminated material above the Federal ownership scenario cleanup levels would be consolidated and capped. The K-65 Slurry Line trench would be relocated to allow construction of the cap. Debris from the K-65 Slurry Line (concrete and piping) will be crushed/shredded and placed in the Lime Sludge Ponds with the contaminated material for capping. Water generated during the remedial action would be pumped to the Advanced Waste Water Treatment (AWWT) facility. Institutional controls would include physical barriers and groundwater monitoring at the capped Lime Sludge Pond area.

Inactive Flyash Pile

Contaminated material with concentrations above the Federal ownership scenario cleanup levels in the Inactive Flyash Pile area would be excavated and consolidated in the northern portion of the subunit. A cap would then be constructed over the consolidated material. Water generated during the construction activities and perched groundwater collected during construction activities would then be pumped to the Advanced Waste Water Treatment (AWWT) facility. Institutional controls would include physical barriers, and groundwater monitoring in the capped area.

South Field

The contaminated material in the southern portion of the South Field with concentrations above the Federal ownership scenario cleanup levels would be excavated and consolidated in the northeastern portion of the subunit. Any soil from the former Firing Range that fail the RCRA Toxicity Characteristic Leaching Procedure (TCLP) test would be managed as a RCRA hazardous waste and disposed at an off-site commercially permitted disposal facility. The remaining portion of the South Field would be regraded to facilitate construction of a cap over the consolidated portion of the South Field area. Water generated during the construction activities and perched groundwater collected during would then be pumped to the Advance Waste Water Treatment (AWWT) facility. Institutional controls would include physical barriers.

Active Flyash Pile

Contaminated material with concentrations above the Federal ownership scenario cleanup levels in the Active Flyash Pile area would be consolidated in the norther portion of the area. A cap would then be constructed over the consolidated material. Water generated during the remedial action and

perched groundwater collected would be pumped to the Advance Waste Water Treatment (AWWT) facility. Institutional controls would include physical barriers and groundwater monitoring in the capped area.

OPERABLE UNIT 3

Operable Unit 3 includes the former production area and production-associated facilities and all above and below-grade improvements including, but limited to, all structures, equipment, utilities, drums, tanks, solid waste, waste product, thorium, effluent lines, K-65 transfer line, wastewater treatment facilities, fire training facilities, scrap metals piles, feedstocks, and a coal pile.

Under the Interim Remedial Action (i.e., Phase I of OU3 remediation) as identified in the Interim ROD signed by U.S. EPA and DOE in June 1994, the selected remedial action is to decontaminate and dismantle the structures, and remove storage pads, ponds, basins and underground utilities. The Interim Remedial Action would also allow the shipment, before the Final ROD, of some non-recoverable waste and debris (which does not require treatment) to an off-site commercially permitted disposal site. Wastes requiring treatment will be stored onsite until a decision concerning their treatment and disposal is made under the Operable Unit 3 Final ROD (Phase II). Note: Of all Hazardous Waste Management Units (HWMUs) onsite, 17 HWMUs are scheduled to be clean closed per RCRA requirements. All 17 HWMUs are located in OU3. All other remaining HWMU closures are in the process of being incorporated into CERCLA with the various RODs.

The Final ROD will address treatment and disposal of the inventory of material waste and debris, including those generated by the Interim Remedial Action.

OPERABLE UNIT 4

Operable Unit 4 consists of two earthen-bermed concrete silos containing K-65 residues, which are high-specific-activity, radium-bearing residues resulting from the pitchblende refining process; one concrete silo containing metal oxides; and one unused concrete silo. To address the overall remediation of Operable Unit 4, the preferred alternatives for each of the subunits are combined to form the preferred remedial alternative for Operable Unit 4. The preferred remedial alternative, as identified in the Proposed Plan submitted to the public for comment, is as follows:

The K-65 residues and cold metal oxides would be removed from Silos 1, 2, and 3 and treated in a newly constructed on-property vitrification facility. The sludge from the decant sump tank would also be removed and treated in the vitrification facility. Following treatment, the vitrified residues would be containerized and transported off site for disposal at the Nevada Test Site (NTS).

Following removal of the residues, the concrete silo structures would be demolished. Additionally, the existing radon treatment system and other miscellaneous structures within the Operable Unit 4 area would be demolished. Further, following completion of treatment, the newly constructed vitrification facility would be disassembled. Surface scrubbing, acid washing, and other standard decontamination technologies would be applied to the extent practical to minimize the volume of waste requiring disposal. Opportunities for recycling of generated materials would also be employed.

The decision regarding the final disposition of the Operable Unit 4 contaminated soil and debris would be placed in abeyance to take full advantage of planned and in progress waste minimization treatment processes. This strategy enables the proper integration of disposal decisions on a sitewide basis. As planned treatment facilities become available under Operable Unit 5 and 3 remedial actions, full consideration would be given to applying these systems to the inventoried contaminated materials from Operable Unit 4. Following the application of available waste minimization processes, the remaining Operable Unit 4 contaminated soil and debris would be disposed consistent with the selected remedies for Operable Unit 5 and 3.

OPERABLE UNIT 5

Operable Unit 5 (OU5) consists of the environmental media (groundwater, soil, sediments, surface water, air, vegetation, and wildlife). In brief, the remedial alternatives being evaluated in the Operable Unit 5 Feasibility Study include several components for remediating contaminated soil and groundwater. Contaminated soil will either be capped in place, or excavated for treatment and/or disposal. The disposal options include shipping the soil off site to a commercially permitted disposal facility, consolidation within the production area with a cap, and/or consolidation into an engineered disposal cell with a liner, cap, and leachate collection system. Perched contaminated groundwater within the till overlying the Great Miami Aquifer (GMA) will be extracted by pumping wells and treated in the Advance Waste

Water Treatment (AWT) facility. Contaminated groundwater from the GMA will be pumped and treated through the AWT, either to remediate the contaminated plume or to contain the contamination from further migration. Long-term groundwater monitoring will evaluate the effectiveness of the remedial action, with the actual number and depths of the wells determined after the chosen remedial alternative is underway.

B-1c Federal Facilities Compliance Act (FFCA)

Under Executive Order 12088 issued October 13, 1978, all DOE facilities were mandated to comply with existing environmental statutes and regulations. Consequently, on March 9, 1985, the U.S. EPA issued a Notice of Noncompliance to DOE, identifying U.S. EPA's major concerns over potential environmental impacts associated with the FEMP's past and on-going operations. Between April 1985 and July 1986, conferences were held between DOE and U.S. EPA representatives to discuss the issues and to identify the process DOE would implement to achieve and maintain environmental compliance.

On July 18, 1986, a Federal Facility Compliance Agreement (FFCA) pertaining to environmental impacts associated with the FEMP was signed by DOE and U.S. EPA. The FFCA was issued pursuant to Executive Order (43 Federal Register [FR] 47707), which would ensure compliance with existing environmental statutes and implementing regulations such as the Clean Air Act, Clean Water Act, RCRA, and CERCLA.

In addition, the Federal Facilities Compliance Act (FFCA) requires DOE to enter into a Compliance Order with the host state (in this case Ohio) which will outline the schedule for the treatment of mixed wastes stored or to be produced at the DOE sites. A Draft Site Treatment Plan will be submitted to OEPA for negotiation into a Final Site Treatment Plan and Compliance Order. The schedule of treatment for mixed waste streams will permit the FEMP to store and treat these mixed waste streams without being in non-compliance with RCRA.

To comply with Clean Water Act regulations, the FEMP must maintain continuous liquid discharge sample collectors at three discharge points; monitor and report results to the U.S. EPA, the OEPA, and the Ohio Department of Health; maintain administrative controls for liquid discharges sufficient to identify and deal with any unplanned release within a 24-hour period; and maintain sample collection analysis procedures along with a quality assurance plan for liquid samples.

To comply with the Clean Air Act, the FEMP is required to establish monitors, install emission controls, and develop administrative controls to ensure their proper operation and correct collection and analytical methodology. The administrative controls includes: installing real-time monitoring of radioactive material emissions, a yearly stack testing program, and development of administrative controls to minimize the unplanned release of radioactive and other hazardous materials.

To comply with RCRA regulations, the FEMP must conduct complete characterization of all generated waste streams, update closure plans for RCRA facilities, implement closure of inactive units in conjunction with CERCLA response actions, and implement a groundwater monitoring program.

B-2 TOPOGRAPHIC MAP

B-2a General Requirements

Several maps and drawings have been included in order to satisfy the requirements in OAC 3745-50-44(A)(19), OAC 3745-50-44(B)(3) and 40 CFR 270.14(b)(19). The site plan, former production facility boundaries, and locations of on-site buildings are shown in Figure B-2 (Sections A, B, and C).

Topography

Figure B-2 (Sections A, B, and C) shows the topography of the FEMP site and approximately 1000 feet beyond the property line. The elevations are defined by contour intervals of one foot. The topography was originally produced by stereographic mapping techniques from a flyover done on April 12, 1985. A new flyover was done on April 9, 1992. This stereographic mapping from this flyover is not complete at the time of this submittal but will be submitted as soon as it becomes available. This topographic map will include five foot contours to improve the clarity of the map. To improve the clarity of the previously submitted topography map, a new flyover was performed on April 9, 1992 and this topographic map (Figure B-2) includes only five foot contours. Note: previous map had one foot contours.

The former production facilities are located near the center of the site. Topographically, the former production area is on a relatively level plane at about 580 feet above mean sea level. North of the former production area at the northern boundary of the site the elevation rises to 698 feet above mean sea level. The western and southern edges of the site slope towards Paddy's Run to an elevation of approximately 551 feet.

One Hundred Year Floodplain Area

The 100-year floodplain areas are identified on Figure B-3 (Sections A, B, and C). Additional information concerning this floodplain area is presented in Section B-3b.

Surface Water

The surface water bodies within 1000 feet of the FEMP include Paddy's Run and its tributaries as shown on Figure B-4. Paddy's Run, a tributary to the Great Miami River, is a small intermittent creek that runs along the western boundary of the FEMP. The Great Miami River is located approximately 0.75 miles east of the FEMP.

Surrounding Land Uses

Figure B-3 (Sections A, B, and C) identifies the land usage within 1000 feet of the FEMP boundary. Area land uses include agricultural, residential, and light industrial. Included under the agricultural designation are farm crops and dairy farming.

Population distribution located within a ten five-mile radius of the FEMP is presented in Table B-2.

Wind Rose

A wind rose indicating the wind speed and direction is shown on Figure B-3 (Section C). The FEMP wind rose is based on data obtained from 1987 through 1990 from the on-site meteorological station. Approximately 83% of the possible observations at the 10 meter height are represented. Negligible winds comprise the remaining 17% of the possible observations. The predominant wind direction is from the southwest.

Map Orientation

The plant orientation as to grid north, true north and magnetic north is shown on Figure B-3 (Section C).

Legal Boundaries

The FEMP's legal boundaries are identified on Figure B-3 (Sections A, B, and C). The boundaries are defined by 36 segments. The coordinates of the points of intersection of these segments are presented in a table on Figure B-3 (Section C).

Operable Units

The locations of operable units within the facility where hazardous waste has been, is or will be stored, treated or disposed are identified on Figure B-7.

Access Control

Primary access to the facility located is at the southern end of the site from Willey Road. Willey Road connects to State Route 128 approximately 3300 feet southeast of the facility entrance. The main vehicle traffic entrance to the former production area is through a locked gate that is under 24 hour surveillance. A second access road to the facility connects to State Route 126 to the north. Truck access is available through a gate at the Receiving and Incoming Materials Inspection Area (RIMIA). Also located on the north side of the facility is a construction entrance through a locked gate. ~~This gate is used infrequently, but could be used if necessary.~~ When this gate is open, entrance to the former production area is only possible if other, internal gates are open. Both the facility perimeter and the former production area are surrounded by fencing. The facility perimeter is surrounded by ~~four~~ ~~eight~~ foot fencing with barbed wire and the former production area is surrounded by a double eight foot high ~~chain-link~~ fencing with barb wire, including a buffer area between the two fences. The personnel gate entrance and entrances through the administration office, the Traditional Additional Contractor Office Space (TACOS) trailer complex, and construction access gate located by Building 51 are located at the southern end of the former production area. Figure B-5 shows the various major roads and Interstates located in and around the FEMP.

Injection and Withdrawal Wells

There are no injection wells located at the FEMP. There are three withdrawal (production) wells located in the southwest quadrant of the former production facility shown on Figure B-4. The depth of each of the wells is 210 feet and the depth to the surface of the regional aquifer water table ranges between 50 and 60 feet. Water used at the FEMP is supplied by these production wells. However, ~~the FEMP plans to tie-in to the Public Water Supply in the future and eliminate portable water usage from these wells.~~

Several private wells are located within 1000 feet of the property boundary. These wells are identified on Figure B-4. No private injection wells are known to be located within the vicinity of the FEMP.

Buildings and Structures

Figure B-6 locates and identifies the major buildings and structures within the FEMP former production area.

Sewer Systems (Sanitary, Storm, and Process)

The FEMP former production area has separate sanitary, storm, and process sewer systems. Attachment B-1 includes drawings identifying the underground storm sewer systems for the entire facility.

Loading and Unloading Areas

The two primary loading and unloading areas for the permitted storage units are identified on Figure B-8. Of the permitted units, only the Plant 6 Warehouse (Building 79) and the Plant 1 Pad have designated loading and unloading areas. An additional loading/unloading area for hazardous and mixed waste is the Receiving and Incoming Materials Inspection Area (RIMIA), also identified on Figure B-8. Additional and temporary loading/unloading areas are located at various locations throughout the former production area. Section D, Process Information, includes more detailed information concerning loading and unloading areas at the FEMP.

Fire Control Facilities

The fire control facilities are identified on Figure B-3 (Sections B and C). Vehicles that contain emergency response and fire protection equipment are stored in Building 31 and Building 46. Water supply storage at the FEMP consists of several ground level and elevated storage tanks supplied by the three on site production wells. Underground water main systems supply water to hydrants, sprinkler systems, and standpipes at the major buildings and processing areas. Additional information about the FEMP's fire control facilities, including fire equipment, hydrants, and fire extinguishers is discussed in Section G, Contingency Plan.

Runoff and Drainage Control Systems

The storm sewer system currently collects stormwater runoff from the former production area, the administrative support area, and much of the parking lot area. Site drainage from the OU1 and OU4 areas is also is partially controlled by curbs, and modified topography as a result of removal actions that capture potentially radioactively contaminated runoff. The controlled stormwater runoff and drainage areas located within the FEMP boundaries are indicated by the shaded areas on Figure B-4.

B-2b Additional Requirements for Land Disposal Facilities

This section is not applicable. The FEMP is not seeking a permit to operate a land disposal facility.

B-3 LOCATION INFORMATION

B-3a Seismic Standard

The FEMP is not required to address this section in accordance with OAC 3745 50-44, 40 CFR 270.14(b)(11), 40 CFR 264.28(a) and 40 CFR 264 Appendix VI.

B-3b Floodplain Standard

The cross-hatched areas of the map, shown in Figure B-3 (Sections A, B, and C), are those within the 100 year floodplain (Zone A). The narrow band along the western boundary is within the any 100 year floodplain of Paddy's Run. The remainder of the site is located in Zone C (areas of minimal flooding). This information is taken from the 1973 US Geological Survey, and the Flood Insurance Rate Map (FIRM), Panel 10 of 105 (Community Pane), Number 390204 0010 B, effective date June 1, 1982.

The FEMP is built on an upland till plain above the Great Miami River 100 year floodplain. The eastern boundary of the site is located approximately 0.75 miles west of the Great Miami River. The 100 year floodplain elevation of the Great Miami River nearest the FEMP is approximately 548 feet above mean sea level. The former production and hazardous waste storage areas rest on a relatively level plain at an approximate elevation of 580 feet. The plain slopes from 600 feet along the eastern boundary of the FEMP to 570 feet at the K-65 silos, and then drops off towards Paddy's Run at an elevation of 550 feet. The maximum elevation at the FEMP is located along the northern boundary and is approximately 700 feet above sea level.

B-3b(1) Demonstration of Compliance

The FEMP hazardous waste management units are located above the Great Miami River floodplain and Paddy's Run floodplain, therefore this section is not applicable.

B-3b(2) Plan for Future Compliance with Floodplain Standard

The FEMP hazardous waste management units are located above the Great Miami River floodplain and Paddy's Run floodplain, therefore this section is not applicable.

B-3b(3) Waiver for Land Storage and Disposal Facilities

The FEMP hazardous waste management units are located above the Great Miami River floodplain and Paddy's Run floodplain, and the FEMP is not seeking a permit for land storage or disposal units, therefore this section is not applicable.

B-4 TRAFFIC INFORMATION

Primary vehicle access to the former production area of the FEMP is located at the southern end of the site from Willey Road. Willey Road connects to State Route 128 approximately 3300 feet southeast of the FEMP. Plant personnel, contractors, visitors, and some shipments are received through an entrance located at the southeast corner of the former production area. A secondary entrance to the former production area is located on the east side of the facility on an access road between the primary entrance and State Route 126. The secondary entrance is identified as the Receiving and Incoming Materials Inspection Area (RIMIA) for a majority of materials deliveries. A third entrance, located at the north end of the facility, is currently not used. This entrance is accessed from State Route 126. State Route 126 intersects with State Route 128 at Ross, Ohio, northeast of the facility.

Access to the former production area of the facility is limited by perimeter fences and gates under continuous 24 hour, seven days per week control by security patrolmen as described in Section F-1, Security.

Traffic control signals within the FEMP boundaries consist of stop signs, yield signs, and speed limit signs (Figure B-8). The FEMP main roads are two-way. There are no stacking or turning lanes within the former production area. Within the former production area, vehicles consist primarily of trucks, four wheel trailers, other company personnel transport vehicles, and industrial equipment. Employee vehicles are confined to the parking lots and entrance roads located outside of the former production area. The number of vehicles on plant roads is generally light. The two heaviest time periods for traffic are between 6:30 and 7:30 AM, and 3:30 and 4:30 PM.

The FEMP bases its selection of on-site hazardous waste movement routes on the shortest route, the best road, and the least congested area, when possible. Since most of the former production area roadways are used for pedestrian traffic, utmost caution is used in the movement of hazardous or mixed wastes to ensure the loads are secured and do not endanger pedestrians.

Existing paved on-site roads at the FEMP consist of two inches of bituminous concrete pavement (blacktop) overlaid on a six to eighth inch reinforced concrete slab pavement. Below the concrete slab pavement is six to twelve inches of compacted aggregate base. New major roads are

constructed of a similar cross section as the existing roads, generally a ~~an asphaltic~~ concrete surface wearing course ~~are~~ overlaid on a stabilized aggregate base.

Maintenance of the road system is conducted under the FEMP's yearly program of road upgrading and consists of repaving or replacement as needed.

Paved on-site roads are capable of bearing loads up to allowable state highway limitations of 80,000 pounds. Various equipment including forklifts, small trailers, and trucks may be used to transport containers within the FEMP.

Off-site shipments are loaded into tractor trailers at the storage areas or one of the loading docks. These tractor trailers normally weigh up to 32,000 pounds and are loaded with approximately 43,000 pounds or less of hazardous wastes when transporting off site. Under the CERCLA Program, the FEMP may utilize the use of transporting waste offsite by railway.

The FEMP utilizes containers for shipment of hazardous waste that conform with current Department of Transportation (DOT) regulations. The specific container types used at the FEMP are discussed in Section D, Process Information. These include 55 and 85 gallon metal drums, strong tight metal boxes and steel sea/land cargo containers. The FEMP also uses Department of Transportation (DOT) specification MC307/312 tankers for the transport of liquid hazardous wastes.

Transporters routinely used by the FEMP include, but not limited to, Environmental Transportation Service based in Oklahoma City, OK, Custom Environmental Transport (CET) from Houston, TX, and Tri-State Transit Co. based in Joplin, MO. For informational purposes, in CY 1993 the FEMP shipped 126,634 pounds of generally waste solvents and flammable liquids (118,780 pounds) off site in twelve shipments. Future quantities and frequencies of off-site waste shipments are expected to increase as additional mixed waste treatment and disposal capacity becomes available.

SECTION B -
TABLE B-1

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TABLE B-1

CONTAINER STORAGE AREAS TO BE PERMITTED AT THE FEMP

HAZARDOUS WASTE MANAGEMENT UNIT	LOCATION OF HWMU	MAXIMUM UNIT CAPACITY
CP Storage Warehouse (Building 56, Butler Building)	Northwest corner of production area on 3rd Street	116,160 gallons
KC-2 Warehouse (Building 63)	North end of production area, east of B Street and North of RR tracks	200,640 gallons
Pilot Plant Warehouse (Building 68)	Southwest corner of production area	13,200 gallons
Plant 1 Pad	Northwest section of production area, north of 2nd Street and west of E Street	10,892,200 11,222,200 gallons
Plant 6 Warehouse (Building 79)	Western section of production area, north of 1st Street and east of E Street	230,780 gallons
Plant 8 Warehouse (Building 80)	Western section of production area, north of 1st Street and west of B Street	139,260 gallons
Plant 9 Warehouse (Building 81)	Northwest section of production area, north of 2nd Street and east of D Street	86,240 gallons

SECTION B -
TABLE B-2

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TABLE B-2

DAYTIME RESIDENTIAL/BUSINESS POPULATION DISTRIBUTION WITHIN
 A FIVE-MILE RADIUS OF THE FEMP, BY DISTANCE AND DIRECTION, 1990

DIRECTION	DISTANCE					Total
	0 - 1 Miles	1 - 2 Miles	2 - 3 Miles	3 - 4 Miles	4 - 5 Miles	
North	11	7	48	68	87	221
North-northeast	7	0	48	68	76	199
Northeast	0	197	668	69	93	1027
Northwest	0	16	119	202	251	588
North-northwest	7	11	121	204	144	487
East	2	152	698	1058	98	2008
East-northeast	0	6	274	933	943	2156
East-southeast	2	25	274	1039	1193	2553
South	5	84	93	618	739	1539
South-southeast	0	383	87	626	721	1817
Southeast	9	264	102	1039	1289	2703
Southwest	53	19	106	307	612	1097
South-southwest	91	34	102	31	35	293
West	2	4	73	118	212	409
West-southwest	1	3	35	49	402	490
West-northwest	17	3	79	111	144	354
Total ^a	206	1209	2927	6540	7039	17,921
Cum. Total	206	1415	4342	10,882	1076	17,921

^a School enrollment can be added to the following segments:

SW - 3 miles = 338;

NW - 4 miles = 566;

ENE - 4 miles = 579;

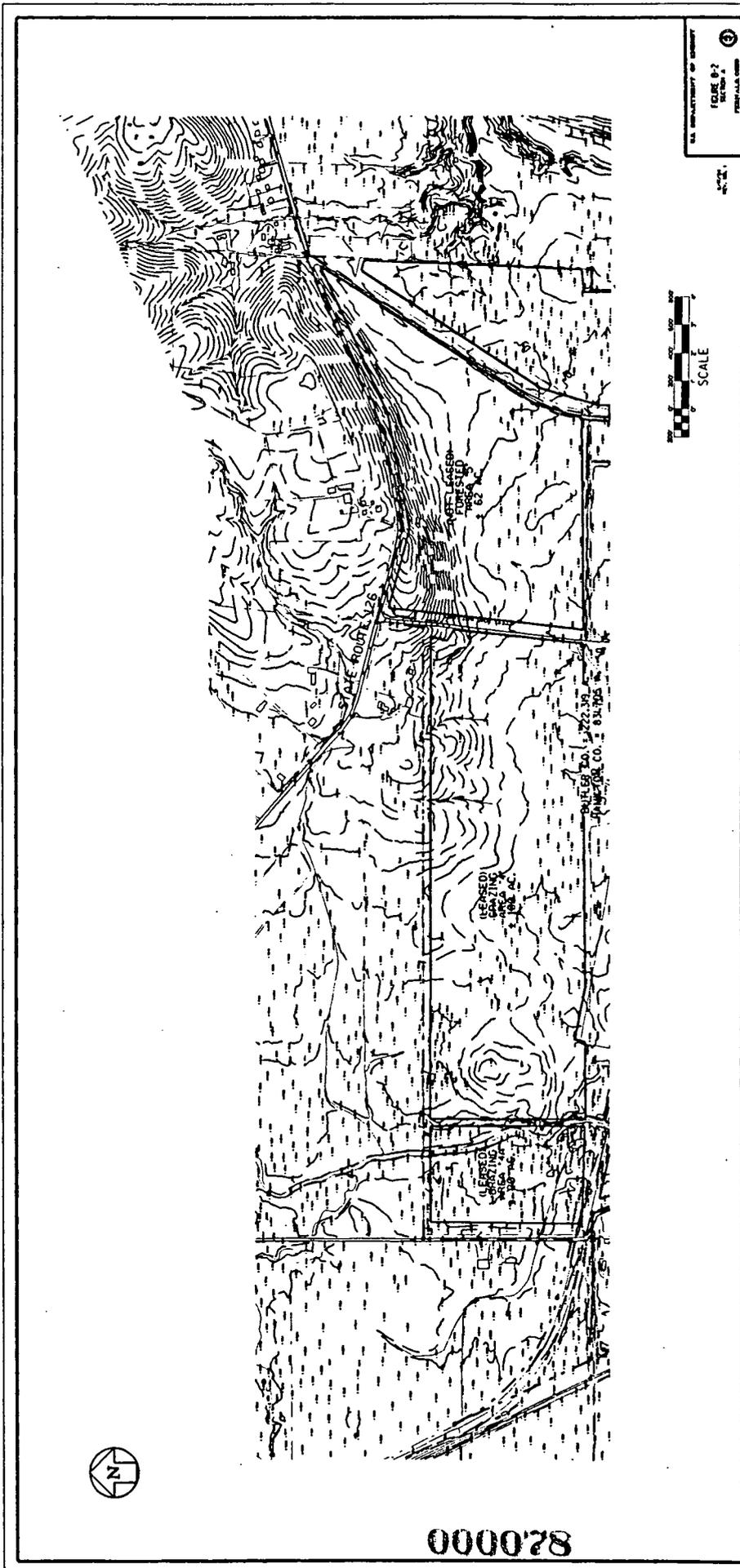
SE - 5 miles = 387;

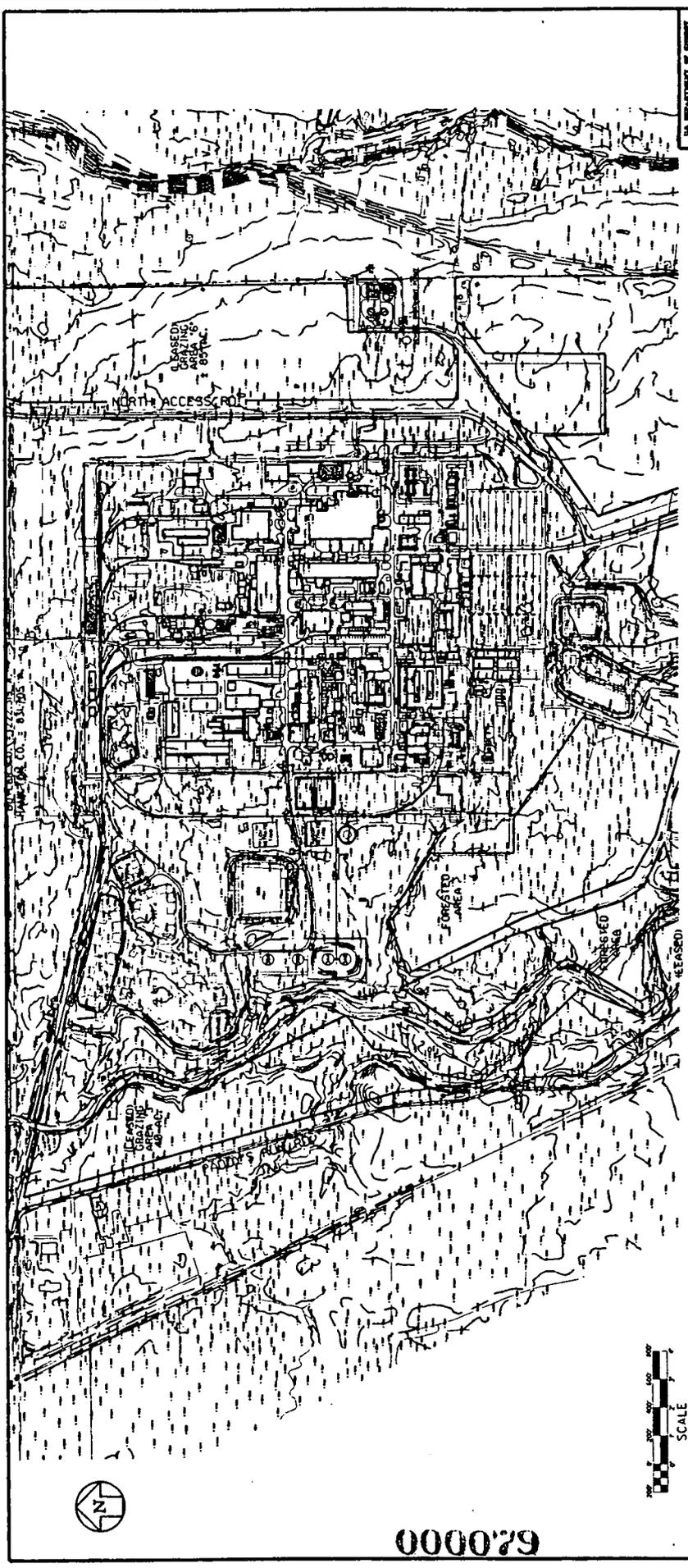
NE - 5 miles = 1421;

Adjusted daytime residential employment population = 21,212

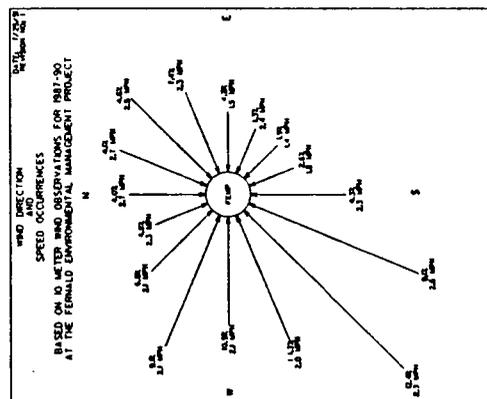
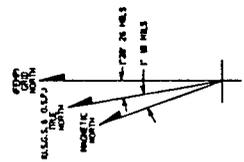
SOURCE: "Ohio Population by Government Unit, 1960-1990," Ohio Data Users Center, Development of Development, 1991;

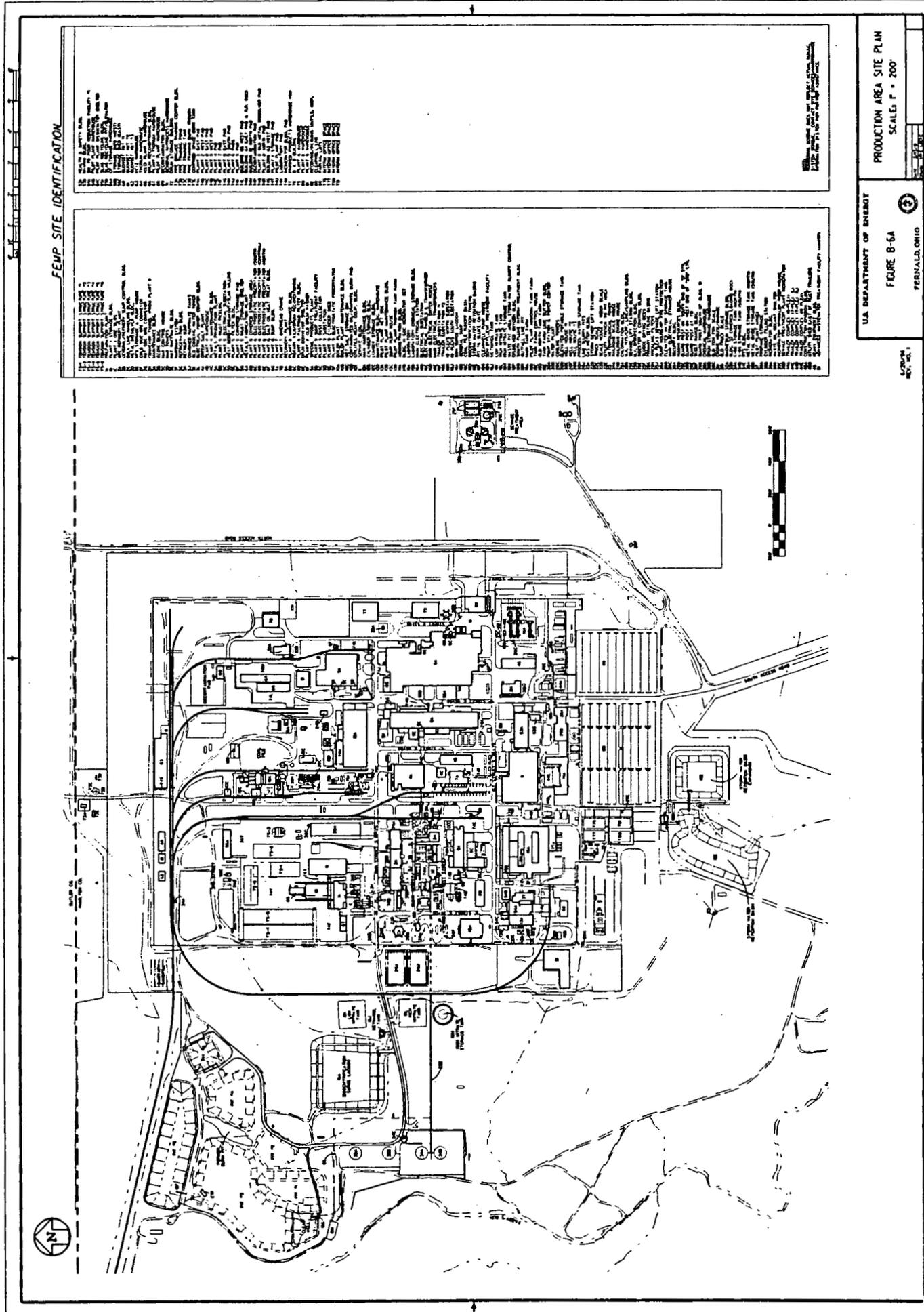
"Transportation Analysis Zone Projections, to the Year 2010," Ohio-Kentucky-Indiana Regional Council of Governments, 1989;





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SECTION C - WASTE CHARACTERISTICS

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FERNALD, OHIO
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SECTION C - WASTE CHARACTERISTICS

C-1.0 INTRODUCTION

This section of the RCRA Part B Permit Application describes the Waste Characteristics of the FEMP's 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)).

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, and Section C-3 provides the Waste Acceptance Criteria for laboratory wastes generated off-site and treatability study material. 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.

Sections C-2 and C-3 are each divided into five subsections, as shown below.

- **Procedures** - Identify the operational procedures used to manage 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 Environmental Management Project (FEMP), 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 FEMP ceased production in September 1989. The FEMP's primary function was changed in August 1990 from uranium metal production to environmental restoration and site clean-up activities.

A table of RCRA waste codes and basis for listing for wastes managed at the FEMP is shown in Table C-1. A table showing the correlation between the RCRA waste codes and the twenty-one DOE categories, which are used by DOE to manage the wastes is presented in Table C-2. Correlations are divided into three categories: Typical codes (indicated by an "X" on the table); Possible codes (indicated by an "M" on the table); and Remotely possible codes (indicated by an "R" on the table). Table C-3 provides an in-depth description of each of the twenty-one DOE categories, including the category description, material requirements summary, waste codes, characterization requirements, and fingerprint analysis requirements (for waste acceptance from off-site). Immediately following a description of the main DOE category (ex. organic liquid) subcategories have been developed to further subdivide the category into potential treatment categories which tie into the Conceptual Site Treatment Plan being developed under the Federal Facility Compliance Act (FFCA). These subcategories still follow the same characterization, fingerprint, and analysis requirements as the main DOE category and will be identified on Table C-4.

C-1.3 REGULATORY COMPLIANCE

The FEMP currently stores wastes generated from inactive on-site production processes, restoration activities, ongoing site maintenance and construction, and material received during the production years from off-site DOE facilities. Most hazardous waste stored at the FEMP 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 FEMP is included for information purposes only, and is not intended to be part of the FEMP's RCRA Part B Permit Application. Because there are limited treatment/disposal facilities permitted for mixed wastes, the FEMP is required to store the mixed waste on-site until treatment/disposal facilities become available.

The FEMP is operating under a Consent Decree and its Stipulated Amendment. Under this legal agreement, the parties have agreed to a schedule for RCRA characterization of waste materials stored on site. ~~Wastes have been divided into two groups, based on the following definitions:~~

- ~~● Backlog Waste: Any waste generated on or before June 30, 1990. Backlog hazardous wastes were generated when the FEMP was operating to produce uranium metal. These processes included metals production and fabrication, maintenance, and general degreasing operations. Hazardous wastes generated during this time were predominantly spent solvents. Hazardous wastes received from off site DOE facilities that are part of the backlog inventory include spent solvents and barium chloride salts.~~
- ~~● Newly Generated Waste: Any waste generated after June 30, 1990.~~

~~{The June 30, 1990 date was set in the Consent Decree and its Stipulated Amendment. It is an arbitrary date that delineates how waste will be managed at FEMP. Waste generated before June 30, 1990 has been that date were characterized under the Consent Decree schedules (See Attachment C-2). 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.~~

RCRA characterizations were completed according to the schedule agreed upon in the Consent Decree and its Stipulated Amendment. A Consent Decree Progress Report is submitted quarterly to the Ohio Environmental Protection Agency (OEPA) and includes hazardous waste streams identified during routine RCRA determinations.

C-2.0 WASTE DETERMINATION

Hazardous wastes or mixed wastes currently generated at the FEMP result from activities such as RCRA closures, CERCLA response actions, underground storage tank removals, construction and maintenance, and miscellaneous activities. The FEMP uses process knowledge and/or analytical data to characterize waste as described in this section and the

FEMP Waste Determination Plan., ~~as approved by OEPA (Attachment C-1).~~ 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: CERCLA removal actions will be characterized in accordance with each Record of Decision (ROD) for each CERCLA/RCRA unit (CRU).

The Waste Characterization group is designed to 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 hazardous waste characterizations at the facility. This group is 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 characterizations from construction projects, maintenance projects, CERCLA removal actions, RCRA corrective actions, Safe Shutdown program, newly identified waste materials, and laboratory programs are conducted by this organization.

In accordance with OAC 3745-52-11 and 40 CFR 262.11, the FEMP 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 FEMP will not commingle waste streams for purposes of this evaluation.

The FEMP will then determine if the solid waste is excluded from regulation. If the waste is not excluded, the FEMP, 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 listed as a hazardous waste, the FEMP will determine if the waste is a characteristic hazardous waste as indicated in OAC 3745-51-10 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 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 FEMP 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 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. ~~DEPA will be notified when changes in the MEF form are proposed. A permit change request will be issued when a proposed revision is finalized.~~

Once completed, the MEF is reviewed by FEMP personnel ~~in the waste characterization group~~. FEMP 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 FEMP processes;
- Conversations with personnel familiar with the process or location;
- Text books which describe the processes;
- Material Safety Data Sheets; and
- Vendor Specification information.

~~When Documentation of process knowledge, and is used to determine that a waste is non-hazardous,~~ supporting documentation is maintained in the ~~waste characterization facility's~~ 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. After adequate information is gathered for the waste, results are evaluated 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 the waste characterization group 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 FEMP, the results are reviewed by FEMP personnel in the waste characterization group. A determination is then made based on the statistical analysis of the results and available process knowledge. Examples of waste categories and the analysis rationale are shown in Table C-3. 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.

Soil and Debris

Management of debris is covered by existing ("standing") MEFs; to aid in the waste determination process, checklists have been developed to make an assessment of debris (See Figure C-3). This assessment will be performed prior to initiating work activities. This subsection addresses the approach that will be utilized to determine the appropriate management and segregation requirements.

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 obtain the information needed to complete the contamination assessment. ~~If the waste to be generated is non hazardous, no further documentation should be required to ship it to the waste disposal site or to store it on-site.~~ If the waste to be generated is determined to be hazardous, the waste ~~is~~ will be stored ~~at~~ 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. ~~containers used at the FEMP include mild steel containers.~~

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 stenciling the Reactivity Group Code (RGC) on the container.~~ The current Reactivity Group Codes in use at the FEMP is included as Figure C-4. These Reactivity Group Codes will be modified as additional hazardous wastes are identified at the FEMP.

Waste Determination

Following completion of the MEF, a waste determination is made. Table C-4 presents the ~~hazardous~~ waste determinations made to date. The table shows the FEMP 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. ~~Routinely generated wastes are identified by an asterisk.~~

~~The FEMP waste identification numbers shown on correspond to the assigned MEF identification numbers. MEF/waste identification numbers 10,000 and larger have been assigned to wastes covered under the consent decree (the old production wastes). MEF/waste identification numbers less than 10,000 are assigned to newly generated wastes.~~

Table C-5 presents Example Analytical Results for some various waste streams at the FEMP. A description for each DOE waste category and subcategory may be found in Table C-3. Analytical test methods which will be used for fingerprint acceptance/rejection listed for each major category may be found in Table C-3.

Container Labelling

The FEMP has developed and implemented a procedure 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 or received by the FEMP. Waste streams generated by the FEMP 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 FEMP to ~~characterize~~ manage waste; the plan has three objectives:

- ~~To accurately characterize~~ 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; and;
- 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 analyzed 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 FEMP 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 as non-hazardous, analytical methods are used to supplement the existing process knowledge. The test methods employed for the analytical parameters chosen to characterize and monitor the FEMP waste streams are listed in Table C-6. All methods reference the Sitewide CERCLA Quality Project Plan (SCQ), unless otherwise noted. When a waste stream has the potential to have several waste codes, the applicable 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 listed in Table C-6, 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 have 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.

~~For those waste streams that are generated in a solid matrix, sample preparation is needed prior to analysis. The extraction methods for solid matrix wastes are also provided in Table C-6.~~

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 FEMP'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 FEMP must maintain the flexibility to select contract laboratories on a competitive basis.

TCLP Metals Analysis

Normally, ~~trace~~RCRA metals and organics will be measured using the TCLP methods 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 or ~~constituent regimes~~ are not suspected in the waste under evaluation, totals analyses may be used to confirm that the individual constituents are not present in the waste at levels that could cause the waste to fail the TCLP. The FEMP 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. ~~If total metals concentrations do not exceed twenty times (20x) the TC, then the waste cannot possibly fail the TC. If the total metals concentrations exceed twenty times (20x) the TC criteria, then the material must be measured using the TCLP analysis.~~ This exception 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 January 12, 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, FEMP 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 FEMP. 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 FEMP has developed site specific sampling procedures, which incorporate the sampling methods in SCQ including Section C 3.1 and C 4.1, Sampling Considerations; Chapter 9, Sampling Plan; and Chapter 10, Sampling Methods and Samplers and Sampling Procedures for Hazardous Waste Streams (USEPA 600/2-80-018).~~

The FEMP has prepared a prototype containerized waste sampling and analysis plan for sampling waste materials for characterization which are stored in cans, pails, drums, white 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 FEMP SCQ which is designed to meet the data quality objectives associated with FEMP 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 FEMP vary in types of matrices, the sampling methods and equipment used by the facility depend on the individual waste stream matrix. The types of equipment used to sample specific waste types are summarized in Table C-7.

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 groups 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 FEMP 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 FEMP 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 approval number and date sample was taken.

Number of Samples

Sampling procedures used for waste characterization at the FEMP are designed to ensure representative and random sampling. Sampling plans at the FEMP are prepared following the Prototype Sampling and Analysis Plan for Containerized Wastes at the FEMP (SAP). 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:

$$\text{Minimum number of samples required} \\ \# \text{ of Samples} = \frac{100 \times \text{Drums}}{(1 - R)}$$

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 FEMP, 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 FEMP 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 white 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 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 each white 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 following 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
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, Seal/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.

~~Two general procedures based on the use of random number tables have been developed to ensure representative and random sampling based on the type of container used to store the waste.~~

~~When a waste is stored in drums or containers of 55 gallons or less, the number of representative samples collected is based on the number of containers holding the waste from a generating source. Homogeneity of the waste being sampled is determined by evaluation of information on the Material Evaluation Form and the material type and source code. The following is provided as a general guideline for the number of representative samples required for a given waste stream container population:~~

Number of Containers	Number of Samples for Analysis
1	2
2	2
3 to 15	3
16 to 40	4
41 to 50	5
over 50	10 percent

~~In order to randomly select containers for sampling, the lot group of containers holding the same waste is sequentially numbered. After the containers are numbered, a random number table is used to select containers for sampling to minimize the possibility of introducing bias into the process.~~

~~Samples collected from containers with volumes of 20 cubic yards or larger are composited. A representative number of grab samples is based on the construction of the container. The following equation is used to develop the number of representative samples for each container:~~

$$n = \frac{A^2}{GL \times 0.3}$$

~~Where n is the number of samples;
A is the area at the top of the container, and
GL is the greatest length of the container (Base units for A and GL must be identical, e.g., feet feet, inches inches, etc.).~~

~~In order to determine the sampling location within the container, the container is schematically divided into cubes with dimensions of one foot. Each cube is sequentially numbered. After the cubes are numbered, a random number table is used to select the cube designated for sampling. During actual sampling, if interference is encountered, such as a stone or piece of wood, another location is selected using the random number table and sampled.~~

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 FEMP 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 and analyzed as they are generated. Wastes that are generated by continuous processes are sampled and analyzed evaluated annually, unless there is reason to believe that the waste has changed. If there is reason to believe the waste has changed, the waste is sampled and analyzed immediately.

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 FEMP is required to determine whether its hazardous waste is restricted from land disposal and to properly manage the hazardous mixed waste in accordance with the Federal Facility Compliance Act (FFCA). Section C-2.3 has been prepared in accordance with the requirements of OAC 3745-59 (40 CFR Part 268). With the exception of newly listed wastes such as D018-D043, all hazardous wastes generated and received are subject to the Land Disposal Restriction (LDR) OAC 3745-59-01 to 3745-59-50 (40 CFR 268). Figure C-5 is an example of the type of form used to document the information used to complete the LDR waste characterization. Table C-10 lists the various waste codes currently stored at the FEMP and their LDR treatment standards.

USEPA has recognized that sufficient treatment technologies are capacity for mixed waste is not currently available, but believes that technologies may become available in the future. The FFCA has provided relief to the U.S. DOE from the requirements of 40 CFR 268.750, which specifies that hazardous wastes will not be stored more than one year. The current USEPA enforcement policy is discussed in Section C 4.0.

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. ~~For hazardous wastes that carry more than one hazardous waste code, subcategories and treatability groups are determined for each hazardous waste code. Each hazardous waste code is evaluated for possible subcategories under OAC 3745-59 and 40 CFR 268. Each waste stream is also assigned a DOE waste category to identify the treatability group for the material.~~ The FEMP 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).

When process knowledge is not adequate to determine a hazardous waste's subcategory and treatability group, 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 and Dioxin-Containing Wastes

The FEMP does not accept, generate or store any dioxin-containing wastes identified as F020-F023 or F026-F028. Therefore, the land disposal restrictions for dioxin-containing waste are not applicable to hazardous wastes generated at the FEMP.

Hazardous wastes containing spent solvents may meet treatment standards in some instances. In these cases, the FEMP 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 FEMP compares the results to the treatment standards in OAC 3745-59-41 and -59-43 (40 CFR 268.41 and 268.43). If the results show that the treatment standards have been met, the FEMP certifies that the hazardous waste meets treatment standards.

Waste Characteristics: California List Wastes

With the promulgation of the Third-third rule, most of the treatment standards or statutory prohibition levels associated with the California list were superseded by more stringent, waste-specific treatment standards. California list restrictions still apply, however, for hazardous wastes subject to a National Capacity Variance.

Acid Wastes

Treatment standards have been promulgated for acidic hazardous wastes under the Third-third rule, therefore the California list restrictions for acidic hazardous wastes have been superseded, except as they apply to Third-third mixed waste under the National Capacity Variance. Acidic hazardous wastes are tested in accordance with the procedures and methods discussed in Section C-2.2.

Halogenated Organic Compounds (HOCs)

California list restrictions apply to hazardous wastes which contain over 1,000 milligrams per liter (mg/l) of Halogenated Organic Compounds (HOCs) as defined in OAC 3745-59 Appendix III (40 CFR 268 Appendix III). Many of the compounds identified in the HOC list are also listed hazardous wastes and therefore the treatment standard for the listed waste may take precedence. Solid and liquid hazardous wastes suspected of containing HOCs are tested in accordance with the procedures and methods discussed in Section C-2.2.

Aqueous wastes with less than 10,000 mg/l of HOCs must be treated to a concentration of less than 1,000 mg/l HOCs prior to land disposal. No treatment method is specified. The following wastes must be destroyed in a RCRA-regulated incinerator or treated by an alternate approved method:

- Aqueous wastes with 10,000 mg/l or more of HOCs;
- Non-aqueous liquid wastes with 1,000 mg/l or more HOCs;
- Sludges or solids with 1,000 mg/kg or more HOCs.

PCBs

Liquid PCB wastes may become subject to the land disposal restrictions if they are mixed with listed hazardous waste, or if they exhibit a hazardous waste characteristic (except for Toxicity Characteristic wastes D018-D043 which are excluded from regulation under OAC 3745-51-08 (40 CFR 261.8)). Hazardous wastes suspected of containing PCBs are tested in accordance with the procedures and methods discussed in Section C-2.2.

PCBs that are subject to the California list restrictions are treated by the following specific methods:

- Liquids with 50 parts per million (ppm) or more PCBs but less than 500 ppm must be incinerated or burned in high efficiency boilers;
- Liquids with 500 ppm or more PCBs must be incinerated.

Liquid PCB wastes (concentrations greater than 50 ppm) on site are stored in indoor hazardous waste storage areas. These storage areas are designed and constructed to meet the facility standards established in 40 CFR 761.65(b). As discussed in Section C-4-02.3, the FEMP may be required to store the mixed TSCA/RCRA/radioactive waste on site for greater than one year because of the lack of treatment or disposal facilities for mixed waste.

Cyanide Wastes

Specific standards have been issued for cyanide wastes (D003, K-, F-, P-, and U-list wastes). Therefore, the California list standards for liquid hazardous waste containing cyanide have been generally superseded. Hazardous wastes suspected of containing cyanide are tested in accordance with the procedures and methods discussed in Section C-2.2.

Heavy Metals

The California list restrictions applicable to liquid hazardous wastes that contain specified concentrations of the eight heavy metals that are toxicity characteristic waste have been superseded by the Third-~~t~~Third rule, except as they apply to Third-~~t~~Third mixed waste under a National Capacity Variance. California list standards for nickel and thallium are still applicable to all liquid hazardous waste. Liquid hazardous wastes suspected to contain California list heavy metals are tested in accordance with the procedures and methods discussed in Section C-2.2.

Waste Characteristics: First-Third Waste With Treatment Standards

The FEMP uses process knowledge and/or supplemental analytical data to determine whether First-~~Third~~ hazardous wastes meet applicable treatment standards. Where analysis is required, representative samples are collected and analyzed using the procedures described in Section C-2.2.

In most cases, process knowledge is used to determine that hazardous wastes do not meet treatment standards and to determine treatability groups and subcategories. However, when process knowledge is not adequate or when the FEMP believes that the hazardous waste does meet treatment standards, the hazardous waste is analyzed to determine LDR treatability groups and subcategories, and to confirm whether the hazardous waste meets treatment standards.

Waste Characteristics: Second-Third Wastes With Treatment Standards

The FEMP uses process knowledge and/or analytical data to determine whether Second-~~Third~~ hazardous wastes meet applicable treatment standards. Where analysis is required, representative samples are collected and analyzed using the procedures described in Section C-2.2.

In most cases, process knowledge is used to determine that hazardous wastes do not meet treatment standards and to determine treatability groups and subcategories. However, when process knowledge is not adequate or when the FEMP believes that the hazardous waste does meet treatment standards, the hazardous waste is analyzed to determine treatability groups and subcategories, and to determine if the hazardous waste meets treatment standards.

Waste Characteristics: Third-Third Wastes

Treatment standards for all Third-~~Third~~ hazardous wastes, including any First- and Second-Third hazardous wastes rescheduled to the Third-third, were promulgated on May 8, 1990. The FEMP uses process knowledge and/or analytical data to determine whether Third-~~Third~~ hazardous wastes meet applicable treatment standards. Where analysis is required, representative samples are collected and analyzed using the procedures described in Section C-2.2.

In most cases, process knowledge is used to determine that hazardous wastes do not meet treatment standards and to determine treatability groups and subcategories. However, when process knowledge is not adequate or when the FEMP believes that the hazardous waste does meet treatment standards, the hazardous waste is analyzed to determine treatability groups and subcategories, and to determine if 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 USEPA 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 FEMP. 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 for is performed every 20 samples unless noted otherwise in the table. For waste characterization and confirmatory testing, Analytical Laboratory Support level B (ALS-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 FEMP uses several established procedures to preserve the integrity of the samples during collection and shipment. These procedures include:

- sampling plans,
- field logs,
- 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;
- 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 Table C-8.

Frequency of Analysis

The majority of waste generating activities at the FEMP 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 and analyzed as they are generated. Wastes that are generated by continuous processes are sampled and analyzed annually, unless there is reason to believe that the waste has changed. If there is reason to believe the waste has changed, the waste is sampled and analyzed immediately.

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 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 sampler~~ is rinsed several times with tap water to remove detergent residues.
- 3) The ~~sampling equipment sampler~~ is then rinsed with distilled water and the excess water is drained into the drum.
- 4) The ~~sampling equipment sampler~~ is then air dried or rinsed with isopropanol and allowed to dry.
- 5) The clean ~~sampling equipment sampler~~ 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 FEMP 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 FEMP 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 FEMP in the areas audited at the facility. Before a laboratory handles samples from FEMP, audit team documentation is required specifying that performance in areas related to analysis of FEMP 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 FEMP as part of the RCRA Operating Record.

Prior to shipment of any hazardous waste from the FEMP to an off-site facility, the FEMP completes a notification/certification form in accordance with the requirements for generators in OAC 3745-59-07 (40 CFR 268.7) as discussed in Section C-2.3. The completed notification/certification form is retained for a minimum of five years. This period is extended indefinitely in the case of unresolved enforcement actions. A copy of any exemptions from land disposal restrictions must be attached to the MEF file, when appropriate. A copy of all analysis performed on a waste stream will be maintained on file at FEMP for a minimum of five years. Chain of custody forms and other documentation are maintained on site for five years.

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 FEMP 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 [FEMP] 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 [FEMP] without the prior approval of the State of Ohio."

The FEMP may accept samples for treatability studies on occasion from other off-site DOE facilities. The treatability samples involved are managed to meet the requirements of the exclusion as set fourth in OAC 3745-51-04(F) and 40 CFR 261.4(f). Upon conclusion of the treatability study, any unused material will be returned to the original sample collector off-site following the exclusion requirements referenced above. Any residuals generated during the treatability study will be dispositioned as waste and returned to the off-site generator from which the treatability study material was obtained. An exception will be made for: 1) process wastewater which may be discharged under the sites NPDES permit, and 2) small amounts of contact waste such as gloves, rags, etc., that in the discretion of the project manager can be handled within established FEMP procedures, available manpower, and storage capacity. Acceptance of this material will only undergo a piece count verification due to the limited amount of material involved in a treatability study. All information gained concerning the properties of the material which were evaluated to determine a treatability study workup will be available and maintained on file. Prior to accepting material for the purposes of conducting a treatability study, the FEMP will provide a 45 day notice to OEPA in accordance with OAC 3745--51-04(F)(1) and (9) and 40 CFR 261.4(f)(1) and (9).

The State of Ohio has been notified that the FEMP accepts mixed wastes (with a radionuclide content that originated from the FEMP) from laboratories that are performing chemical and geotechnical analysis of samples collected from the FEMP. This notice includes waste samples sent to laboratories for treatability studies. All sample materials returning to the FEMP are being returned to the original sample collector (the FEMP) and managed under the exclusion as set forth in OAC 3745-51-04 and 40 CFR 261.4. Upon receipt at the FEMP, returned samples are verified against an inventory list. Any discrepancies will be resolved with the off-site laboratory. No additional confirmatory sampling is required.

Laboratory waste created during the processing of samples at off-site laboratories is returned to the FEMP as a solid or hazardous waste when necessary. The FEMP follows acceptance procedures as outlined in this section regarding this material. This material is managed by the FEMP due to the limited treatment and storage capacity available to off-site

Laboratories. Once such capacity becomes available, the FEMP may require off-site laboratories to make the necessary arrangements to properly manage and dispose of this type of waste without returning the material to the FEMP.

A decision diagram of the pre-acceptance phase for wastes shipped/received from off-site is shown in Figure C-8. A copy of the Waste Characterization Process for off-site Receipts is shown in Figure C-11. ~~A copy of the Hazardous Waste Receipt Procedure is shown in Attachment C-3.~~

C-3.1 OPERATIONS

Generators of lab waste will provide the FEMP with waste characterization data for each waste stream shipped to the FEMP from an off-site facility as detailed in the ~~Off-site Material Evaluation Form in Figure C-92~~. Off-site generators of lab waste will provide the same types of data and level of detail that is required to characterize waste generated at the FEMP. Additional data required by the FEMP that is not included on the Material Evaluation Form is submitted to the FEMP as an attachment to the form, including a Waste Analysis Certification/Request for Transfer Form (See Figure C-10). This data precedes actual shipment of the waste so that FEMP personnel can review the data and confirm that the waste can be stored at the FEMP. The generator will furnish information for each waste stream such as:

- Physical parameters such as pH, color, physical state, flashpoint, particle size, specific gravity, density, viscosity, liquid content, compatibility;
- TCLP analytical results for toxicity characteristic constituents;
- RCRA waste code(s) with analytical data if the codes have been determined on the basis of analytical information;
- Land disposal restriction information such as total organic carbon, total suspended solids, constituent specific organic scans as necessary; and
- Generator certifications that the information for each waste stream is complete and accurate.

Receipt of Laboratory Waste

Waste characterization data is reviewed by the Waste Characterization Section at the FEMP. After ~~if~~ it is determined that the waste is ~~from can be stored at~~ the FEMP, the generator is

notified to schedule shipment of the waste. ~~The following types of waste cannot be accepted at FEMP:~~

- ~~RCRA Hazardous Waste as defined by OAC 3745 51 03 (40 CFR 261.3) that are not also defined as Low Level Radioactive Waste (LLRW).~~
- ~~RCRA Hazardous Waste as defined by OAC 3745 51 31 (40 CFR 261.31) for the following hazardous waste numbers, regardless of mixed waste status: Dioxin wastes (F020 through F023 and F026 through F028) and cyanide bearing wastes (F006 through F011).~~
- ~~RCRA Hazardous Waste, D003 regardless of mixed waste status. This waste is defined in OAC 3745 51 23 (40 CFR 261.23) as waste that exhibits one of more of the following properties:~~
 - ~~it is normally unstable and readily undergoes violent change without detonating;~~
 - ~~it reacts violently with water;~~
 - ~~it forms potentially explosive mixtures with water;~~
 - ~~when mixed with water, it generates toxic gases, vapors, or fumes in quantities sufficient to present a danger to human health or the environment;~~
 - ~~it is readily capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement;~~
 - ~~it is capable of detonation or explosive decomposition or reaction at standard temperature and pressure; or~~
 - ~~it is forbidden explosive as defined in 49 CFR 173.51 or a "Class A" explosive as defined in 49 CFR 173.53 or a "Class B" explosive as defined in 49 CFR 173.88.~~
- ~~TSCA PCB Waste (Not fulfilling definition of LLRW) TSCA waste that is not considered a LLRW will not be accepted.~~
- ~~Regulated Infectious Waste Waste as defined in OAC 3745 27-01, regardless of mixed waste status.~~
- ~~Greater than Class C Waste Greater than Class C waste is defined as waste with long lived radionuclide concentrations greater than those specified in 10 CFR 61.55.~~

- ~~Compressed Gas Cylinders~~ A compressed gas is described as: any material or mixture having in the container, an absolute pressure exceeding 40 pounds per square inch (psi) at 70°F; or regardless of the pressure at 70°F, having an absolute pressure exceeding 104 psi at 130°F; or any liquid flammable material having a vapor pressure exceeding 40 psi absolute at 100°F, as determined by test method ASTM Test D 323. ~~Expended (empty) compressed gas cylinders will not be accepted either.~~
- ~~Refrigerant Gas or Dispersant Gas~~ Applies to all flammable or non flammable, nonpoisonous refrigerant gases, dispersant gases (fluorocarbons), or any other compressed gas listed in the regulations which meet the following criteria:
 - ~~has a vapor pressure not exceeding 260 psi at 130°F, and~~
 - ~~is a flammable mixture an contains 50% or greater fluorocarbon content, less than 40% by weight or a flammable component, and has a vapor pressure not exceeding 260 psi, at 130°F.~~
- ~~Aerosol Cans~~ All cans that have not been punctured such that the puncture disfigurement is not readily recognizable by Real Time Radiography (RTR).
- ~~High Vapor Pressure Liquid~~ Liquid waste with high vapor pressure requiring special handling to prevent significant evaporation loss (e.g., CFCs like Freon 12).

When hazardous waste from off-site laboratories arrives at the FEMP, acceptance verification is initiated by facility personnel. The following areas are examined prior to acceptance of the waste:

- Documentation;
- Manifest and land disposal notification/certification;
- Verification of manifest information; container count, weight, waste codes, etc.;
- Container condition and labelling; and
- Fingerprint analysis of the waste.

Designated personnel examine the hazardous waste manifest and land disposal restriction notification and certifications. Absent or incomplete receiving/shipping documentation such as an incomplete

hazardous waste manifest or incomplete or missing land disposal restriction information are corrected or completed prior to acceptance of the hazardous waste shipment.

After verification of container condition and proper labeling, contents of the containers are examined to verify the physical state of the waste. Wastes are sampled and analyzed according to the procedures described in Section C-2.2. The sample undergoes a fingerprint analysis which includes pH, physical state, flashpoint, specific gravity, and reactivity. This ensures that: 1) laboratory waste matches the MEF which has been completed prior to shipment and 2) safe storage is achieved based on the materials characteristics. Table C-4 outlines rationale for preacceptance and fingerprint acceptance/rejection based on analytical tests for a particular waste category.

Between receipt of the hazardous waste and verification, the hazardous waste is segregated from other hazardous waste stored at the FEMP or other hazardous waste undergoing acceptance verification. The FEMP does not sign the manifest and formally accept the hazardous waste until fingerprint analysis of the hazardous waste is complete and verified to be within the acceptance criteria described in Table C-9.

The generator is contacted immediately by phone if any discrepancies or other problems are discovered in documentation, condition of containers, or identification of the hazardous waste. If discrepancies cannot be resolved, the generator is informed that the hazardous waste shipment has been rejected. The FEMP will send a letter describing the discrepancy and the attempts to resolve the discrepancy to OEPA and USEPA if the discrepancy is not resolved within 15 days of hazardous waste receipt.

Compatibility

Upon evaluation of the waste analysis data a Reactivity Group Code is stenciled onto the container. Each drum/container is assigned a storage location based on the physical state and its Reactivity Group Code, ~~compatibility and flammability of the waste.~~ Any subsequent movement of the hazardous waste at the FEMP is recorded in the hazardous waste tracking system. Procedures are outlined in Section C-2.2.

C-3.2 ANALYSIS

Analytical procedures described in Section C-2.2 will also be applicable for wastes accepted from off-site. Analysis will be performed and repeated for wastes to be received from off-site generators under any of these conditions:

- Before the first shipment, and at least annually thereafter;
- Whenever the process generating the waste changes; or
- Fingerprinting results do not match the manifested waste preacceptance ranges and the discrepancy cannot be resolved with the generator.

C-3.3 LAND DISPOSAL RESTRICTIONS

Land Disposal Restrictions applicable for FEMP hazardous or mixed wastes shall be applicable for other hazardous or mixed wastes received from off-site. FEMP waste procedures are outlined in Section C-2.

C-3.4 QUALITY ASSURANCE/QUALITY CONTROL

The quality assurance and quality control provisions for the waste acceptance 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. Additional QA/QC provisions are discussed in Section C-2.4.

C-3.5 RECORDS

As discussed in Section 3.1, submission of a completed off-site MEF (Figure C-92) and WAC Certification/Request for Transfer form (Figure C-10) is required prior to acceptance of any hazardous waste from off-site sources. If visual inspection of the hazardous waste and fingerprint analyses lead the FEMP to suspect that the notification/certification form is incorrect, issues are resolved prior to acceptance of the hazardous waste.

A Land Disposal Restrictions Notification must accompany each shipment of land disposal-restricted waste received by FEMP. The Notification must be signed and dated by the generator. Completed LDR notification/certification forms from off-site generators are filed upon receipt as part of the FEMP RCRA Operating Record.

A copy of all hazardous waste manifests will be maintained on file for at least three years. A copy of all analysis performed on a waste stream will be maintained on file at FEMP for a minimum of five years. A copy of the Ohio Consent-to-Service notices required will be maintained on file at the FEMP. All LDR forms will be maintained for the life of the facility, per OAC 3745-54-73 and 40 CFR 264.73 (g)(15) and (16).

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 FEMP.

Consolidation of Wastes

When two or more wastes are consolidated, a review shall be conducted to ensure that the ~~all~~ wastes to be consolidated are compatible. The review consists of evaluating the known characteristics of the material. After review of analytical data or other supporting documentation, but prior to consolidating material together from different waste streams, aliquots representing the materials are 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. This review will be waived when the same waste from two containers is consolidated. 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 not covered by this RCRA Part B Permit Application. A one-time notification/certification to OEPA must be on file in the operating record for waste sent to a wastewater treatment system.

Additional Requirements Pertaining to Storage of Restricted Wastes

Hazardous waste stored in areas without secondary containment is limited to solids only. These materials are evaluated for the presence of free liquids using SW-846 method 9095, Paint Filter Liquids Test when the materials are not visually noted to be a dry/granular solid. Section D further explains which areas are designated for the storage of wastes without free liquids.

~~The FEMP stores hazardous waste and mixed waste. Under the Land Disposal Restrictions, storage of hazardous waste is allowed "solely for the purpose of accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal (OAC 3745-59-50 (40 CFR 268.50))." As discussed previously, however, currently there are very few permitted facilities for the treatment or disposal of mixed wastes.~~

~~Mixed wastes were granted a National Capacity Variance to the effective date of the land disposal restrictions which expired May 8, 1992. This means that the storage prohibition became effective on that date. The USEPA provided the following guidance in the preamble to the Third third rule (55 FR 22673):~~

~~"No firm time limit is established pursuant to Section 268.50. Generators and owners and operators can store as long as necessary. The legislative history makes it clear that the intent of . . . Section 268.50 is to prohibit the use of long term storage to circumvent the treatment requirements imposed by the Land Disposal Restrictions. However, if prohibited wastes are stored beyond one year, the owner/operator has the burden of proving (in the event of an enforcement action) that such storage is for the allowable reason; prior to one year, USEPA maintains the burden of proving that storage has occurred for the wrong reason."~~

~~The DOE is exploring options and methods for treatment/disposal of mixed waste. Until additional facilities are permitted to receive mixed waste, however, there are very limited options for removal of the waste to off site facilities. See section C 2.3 for additional discussion.~~

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 FEMP are discussed below. The FEMP 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 is accompanied by the appropriate notification/certification shown in Figure C-6. The notification/certification includes the Manifest Number, Hazardous Waste No., the Subcategory if applicable, the Treatability Group, the regulatory reference for the treatment standard, and the five letter code where the treatment standard is a specified technology. In addition, for F001 F005 spent solvents and F039 multi source leachate the concentration based treatment standards are provided for each hazardous waste constituent identified. 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 (see sample form in Figure C-5). The notification includes the Manifest Number, Hazardous Waste No., the Subcategory if applicable, the Treatability Group, the regulatory reference for the treatment standard, and the five letter code where the treatment standard is a specified technology. For F001 F005 spent solvents and F039 multi source leachate the concentration based treatment standards are provided for each hazardous waste constituent identified. All applicable California list restrictions under RCRA Section 3004(d) are also identified. 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, Hazardous Waste No., the Subcategory if applicable, the Treatability Group, the regulatory reference for the treatment standard, and the five letter code where the treatment standard is a specified technology. For F001 F005 spent solvents and F039 multi source leachate the concentration based treatment standards are provided for each hazardous waste constituent identified. In addition, all applicable California list restrictions under RCRA Section 3004(d) are identified. The notification also identifies the specific exemption that applies to the hazardous waste.

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 (Some states require use of their own form; for this reason, a copy of the manifest has not been included). In addition to the manifest, the receiving facility's LDR notification/certification form shall be included with the shipment.

Lab Packs

The FEMP completes specific notification/certification forms when shipping hazardous waste organo-metallic or organic lab packs to off-site facilities. The notification includes the Manifest Number, Hazardous Waste No., the Subcategory if applicable, the Treatability Group, the regulatory citation for the treatment standard, and the five-letter code where the treatment standard is a specified technology. In addition, for F001-F005 spent solvents and F039 multi-source leachate, the concentration based treatment standards are provided for each hazardous waste constituent identified. 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 FEMP to an off-site facility, the FEMP completes a notification/certification form in accordance with the requirements for generators in OAC 3745-59-07 and 40 CFR 268.7 as discussed in Section C-3 below. The completed notification/certification form is retained for a minimum of five 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 FEMP are discussed below. The FEMP 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 is accompanied by the appropriate notification/certification certification shown in Figure C-6. The notification certification includes the Manifest Number, Hazardous Waste No., the Subcategory if applicable, the Treatability Group, the regulatory reference for the treatment standard, and the five-letter code where the treatment standard is a specified technology. In addition, for F001-F005 spent solvents and F039 multi-source leachate the concentration based

treatment standards are provided for each hazardous waste constituent identified. 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 (see sample form in Figure C-5). The notification includes the Manifest Number, Hazardous Waste No., the Subcategory if applicable, the Treatability Group, the regulatory reference for the treatment standard, and the five-letter code where the treatment standard is a specified technology. For F001-F005 spent solvents and F039 multi-source leachate the concentration based treatment standards are provided for each hazardous waste constituent identified. All applicable California list restrictions under RCRA Section 3004(d) are also identified. 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, Hazardous Waste No., the Subcategory if applicable, the Treatability Group, the regulatory reference for the treatment standard, and the five-letter code where the treatment standard is a specified technology. For F001-F005 spent solvents and F039 multi-source leachate the concentration based treatment standards are provided for each hazardous waste constituent identified. In addition, all applicable California list restrictions under RCRA Section 3004(d) are identified. The notification also identifies the specific exemption that applies to the hazardous waste.

Instructions to Generators for Completing the Material Evaluation Form (MEF), Requestor Section

The Waste Characterization Section is responsible for providing characterization for all wastes generated by FEMP personnel/activities. However, it is the individual generator's responsibility to ensure that his/her waste is properly characterized in its present form.

The Material Evaluation Form (MEF) is the document by which generator identify material which requires characterization and on which the Waste Characterization group summarizes the results of the characterization effort. The MEF does not delineate specific waste as identified in the site inventory system, but refers only to the characteristics of a particular waste stream (identified by MEF #). Specific inventoried material is assigned to a particular using the MEF Verification Request Form Inventory Identification Attachment.

The following directions have been developed to assist in the completion of the generator's section of the MEF. Each block of the form must be completed for MEF to be accepted. Use of 'None' or 'N/A' is acceptable when appropriate. Checkbox items shown with a "○" require attached documentation. Upon completion of this form submit to Waste Characterization at MS # 46. [Note MEFs will not be accepted with incomplete information or lacking documentation (e.g. MSDS, release report, etc)].

PART A: GENERATOR/WASTE STREAM IDENTIFICATION

1. **MEF #:** Enter number of the form as received from Waste Characterization (x9353). Check whether this submittal is original or a revision to an existing MEF as appropriate.
2. **Date Submitted:** Enter the date the form is submitted to Waste Characterization.
3. **Lot Marking Code:** Enter first the Material Type then the Source Code assigned to the waste if this information is known. Contact Materials Control and Accountability (MC&A), x6275, for assistance in determining this information. Enter "Unknown" if applicable.
4. **Generator Name:** provide First Name, Last Name and Middle Initial.
- 5-6. **Badge No./Co. Name/Phone No:** Self Explanatory

PART B: GENERATION INFORMATION

1. **Name:** Provide the best descriptive name for the material (e.g. spent acetone, dust collector residues, soil borings, purge water etc.)
2. **HWMU:** If the material originates from a Hazardous Waste Management Unit please provide unit name and #. If you are unsure please consult your supervisor, Waste Characterization or cognizant CRU representative for assistance.
3. **Self-explanatory.**
4. **Self-explanatory.** Always provide at least an estimate. If the waste is "backlogged" or has otherwise already been generated, provide the historical date of generation as an actual date. This information may usually be obtained from existing records or from MC&A. "Unknown" is not acceptable.
5. **Generation Quantity:** Enter the amount and unit of waste to be generated (i.e. 50 gal). This is generally the amount of waste in a container (or a multiple thereof). If the generation event is one-time only, enter the total amount of waste.
6. **Quantity/Frequency:** Enter a time period (week, year etc.) during which the amount specified in item 5 will be generated, or "one-time" as appropriate.
7. **Similar waste stream:** Enter MEF # or Material Type/Source Code for a similar waste stream if known. Otherwise "N/A".
8. **Description:** Provide a clear concise description of what the waste stream actually is (e.g., residues from dust collector servicing). Include all components of the waste stream and any relevant information concerning packaging, absorbents etc. Be as detailed as possible. **DO NOT REPEAT THE DESCRIPTION CORRESPONDING TO THE MATERIAL TYPE CODE.**
9. **Description of Generation:** Provide a detailed description of how the waste stream is/will be generated. Include specific process involved, history of waste etc. For containerized wastes include packaging information (e.g. labpacked, packed with absorbent materials) Check and include all relevant supporting documentation (e.g. MSDS, SOP, Manufacturing Specification, Release Reports etc.).

PART C: PHYSICAL CHARACTERISTICS

1. **Color/Appearance:** Be as detailed as space will allow. What does the waste look like?
2. **Phases:** Check all that are present in the waste.
3. **Free Liquids:** If yes, check a "based on" criteria.
4. **Odor:** DO NOT SMELL THE WASTE! If the waste has a known incidental odor, then describe the odor (e.g., acrid, pungent, solvent, sweet).
5. **Layers:** Check appropriate box. Single layer means the waste has no distinct separation or layers (e.g., water, or oil, or semi-solid). Bi-layered means the waste is comprised of two distinct layers (e.g., water/dirt or oil/solids). Multilayered means more than two distinct layers (e.g., oil/water/semi-solid).
6. **pH:** If the waste contains aqueous free liquids, list the range of pH if known. If the pH is not known mark "not known" in the blank. If a pH range is entered, check the basis for the range. Documentation may consist of analytical data, MSDS, or pH paper results. For non-aqueous wastes enter N/A.
7. **Flash Point:** If the waste contains free liquids list the range of its flash point if known, if the flash point is not known, mark "not known" in the blank. If a flash point range is entered, check the basis for the range. Documentation may consist of analytical data or MSDS.

PART D: MATERIAL COMPOSITION

1. **Composition:** List all components which make up the waste stream along with the range of the approximate volume in percent or parts per million. Circle the unit (% or ppm) used for each component. Use ppm only if less than 10,000. Assume a value of 1% for any component given in ppm when calculating the "Total Maximum". If only partial knowledge of the components in the waste stream is available, list those components and provide the approximate percentage of the waste which is unknown. Provide basis for the components in this section.
2. **Waste Characteristics:** Check each box which applies to the waste. Circle items as appropriate. Do not document items "suspected" of being present in the waste. These should be noted in block B8.
None of the above - Check this when no entries above apply.
Not Known - Check this when adequate information is not available to answer the questions above.
Basis - Check the appropriate box when specific items above are checked.
3. **Radionuclide contamination:** Indicate radionuclide contamination status of the material. If analytical data is available please attach to form. Contact IRS for information on radionuclide contamination of materials onsite. Indicate the basis for the checked item. Material Accounting information may be attached analytical data.

Instructions to Generators for Completing the Material Evaluation Form (MEF), Requestor Section

The Waste Characterization Section is responsible for providing characterization for all wastes generated by FEMP personnel/activities. However, it is the individual generator's responsibility to ensure that his/her waste is properly characterized in its present form.

The Material Evaluation Form (MEF) is the document by which generator identify material which requires characterization and on which the Waste Characterization group summarizes the results of the characterization effort. The MEF does not delineate specific waste as identified in the site inventory system, but refers only to the characteristics of a particular waste stream (identified by MEF #). Specific inventoried material is assigned to a particular using the MEF Verification Request Form Inventory Identification Attachment.

The following directions have been developed to assist in the completion of the generator's section of the MEF. Each block of the form must be completed for MEF to be accepted. Use of 'None' or 'N/A' is acceptable when appropriate. Checkbox items shown with a "O" require attached documentation. Upon completion of this form submit to Waste Characterization at MS # 46. [Note MEFs will not be accepted with incomplete information or lacking documentation (e.g. MSDS, release report, etc)].

PART A: GENERATOR/WASTE STREAM IDENTIFICATION

1. **MEF #:** Enter number of the form as received from Waste Characterization (x9353). Check whether this submittal is original or a revision to an existing MEF as appropriate.
2. **Date Submitted:** Enter the date the form is submitted to Waste Characterization.
3. **Lot Marking Code:** Enter first the Material Type then the Source Code assigned to the waste if this information is known. Contact Materials Control and Accountability (MC&A), x6275, for assistance in determining this information. Enter "Unknown" if applicable.
4. **Generator Name:** provide First Name, Last Name and Middle Initial.
- 5-6. **Badge No./Co. Name/Phone No:** Self Explanatory

PART B: GENERATION INFORMATION

1. **Name:** Provide the best descriptive name for the material (e.g. spent acetone, dust collector residues, soil borings, purge water etc.)
2. **HWMU:** If the material originates from a Hazardous Waste Management Unit please provide unit name and #. If you are unsure please consult your supervisor, Waste Characterization or cognizant CRU representative for assistance.
3. **Self-explanatory.**
4. **Self-explanatory.** Always provide at least an estimate. If the waste is "backlogged" or has otherwise already been generated, provide the historical date of generation as an actual date. This information may usually be obtained from existing records or from MC&A. "Unknown" is not acceptable.
5. **Generation Quantity:** Enter the amount and unit of waste to be generated (i.e. 50 gal). This is generally the amount of waste in a container (or a multiple thereof). If the generation event is one-time only, enter the total amount of waste.
6. **Quantity/Frequency:** Enter a time period (week, year etc.) during which the amount specified in item 5 will be generated, or "one-time" as appropriate.
7. **Similar waste stream:** Enter MEF # or Material Type/Source Code for a similar waste stream if known. Otherwise "N/A".
8. **Description:** Provide a clear concise description of what the waste stream actually is (e.g., residues from dust collector servicing). Include all components of the waste stream and any relevant information concerning packaging, absorbents etc. Be as detailed as possible. **DO NOT REPEAT THE DESCRIPTION CORRESPONDING TO THE MATERIAL TYPE CODE.**
9. **Description of Generation:** Provide a detailed description of how the waste stream is/will be generated. Include specific process involved, history of waste etc. For containerized wastes include packaging information (e.g. labpacked, packed with absorbent materials) Check and include all relevant supporting documentation (e.g. MSDS, SOP, Manufacturing Specification, Release Reports etc.).

PART C: PHYSICAL CHARACTERISTICS

1. **Color/Appearance:** Be as detailed as space will allow. What does the waste look like?
2. **Phases:** Check all that are present in the waste.
3. **Free Liquids:** If yes, check a "based on" criteria.
4. **Odor:** DO NOT SMELL THE WASTE! If the waste has a known incidental odor, then describe the odor (e.g., acrid, pungent, solvent, sweet).
5. **Layers:** Check appropriate box. Single layer means the waste has no distinct separation or layers (e.g., water, or oil, or semi-solid). Bi-layered means the waste is comprised of two distinct layers (e.g., water/dirt or oil/solids). Multilayered means more than two distinct layers (e.g., oil/water/semi-solid).
6. **pH:** If the waste contains aqueous free liquids, list the range of pH if known. If the pH is not known mark "not known" in the blank. If a pH range is entered, check the basis for the range. Documentation may consist of analytical data, MSDS, or pH paper results. For non-aqueous wastes enter N/A.
7. **Flash Point:** If the waste contains free liquids list the range of its flash point if known, if the flash point is not known, mark "not known" in the blank. If a flash point range is entered, check the basis for the range. Documentation may consist of analytical data or MSDS.

PART D: MATERIAL COMPOSITION

1. **Composition:** List all components which make up the waste stream along with the range of the approximate volume in percent or parts per million. Circle the unit (% or ppm) used for each component. Use ppm only if less than 10,000. Assume a value of 1% for any component given in ppm when calculating the "Total Maximum". If only partial knowledge of the components in the waste stream is available, list those components and provide the approximate percentage of the waste which is unknown. Provide basis for the components in this section.
2. **Waste Characteristics:** Check each box which applies to the waste. Circle items as appropriate. Do not document items "suspected" of being present in the waste. These should be noted in block B8.
None of the above - Check this when no entries above apply.
Not Known - Check this when adequate information is not available to answer the questions above.
Basis - Check the appropriate box when specific items above are checked.
3. **Radionuclide contamination:** Indicate radionuclide contamination status of the material. If analytical data is available please attach to form. Contact IR for information on radionuclide contamination of materials onsite. Indicate the basis for the checked item. Material Accounting information may be attached analytical data.

The Waste Characterization Section is responsible for providing characterization for all wastes generated by FEMP personnel/activities. However, it is the individual generator's responsibility to ensure that his/her waste is properly characterized in its present form.

MEF Inventory Attachment (this form) is submitted in conjunction with the MEF Verification Form. These documents are used whenever there exists quantifiable material which must be associated with a particular waste stream profile documented on an MEF (see section 7.3 of SSOP-0002 for applications). When completed by both the requestor and Waste Characterization, this form serves as the documentation by which the waste is received at a site waste management unit (including the controlled holding area). It also serves as the means for inputting the status of characterization (documented on the MEF) into the site's waste inventory system.

The following directions have been developed to assist in the completion this form by generators. Attach this form to the completed MEF Verification Form and forward to Waste Characterization at MS # 46.

PART A: GENERAL INFORMATION

Upper
right

Page __ of __: Complete as appropriate.

1. **MEF #:** Enter the MEF number from the MEF Verification Form
Serial Number: Enter the Verification serial number from Block 1 of the associated Verification Form. Contact WCS at x9353 to obtain this number
2. **Date Completed:** Self-explanatory.
3. **Completed by:** The name of the person completing Parts "A" and "D" of this form.
4. **Special Notes:** Note any special identifying information. Material being received from offsite should be noted here.

PARTS B AND C: FOR USE BY WASTE CHARACTERIZATION ONLY

PART D: INVENTORY COUNT BY CONTAINER

Item No. This is a line item number. Start with "1" and number consecutively for each line completed.

Lot Code Information: Enter the 15 digit lot code obtained from MC&A (see section 4.0 of SSOP-0002). Do not enter only a material type and source code.

Total Number of Containers: Enter either the total number of containers in the lot or "1" as appropriate. The use of "1" signifies that not all containers in the lot are applicable. A "1" requires an entry in the "Individual Container Identification" column.

Type of Container: Enter the appropriate code from block A-5.

Individual Container ID: Enter the drum number, inventory number, or container serial number if the "Total Number of Containers" is 1. Otherwise enter "Note 4a" to signify that the total represents all containers in the lot.

FIGURE C-4
 HAZARDOUS WASTE COMPATIBILITY CHART

REACTIVITY GROUP DESCRIPTION	RGC	A	B	C	D	E	F	G	H	I	J	K	L	M
HALOGENATED ORGANICS AND PCBs	A	X	X	0	0	X	X	X	0	0	0	X	0	0
ALCOHOLS AND COMBUSTIBLES	B	X	X	0	0	X	X	X	X	0	0	X	0	0
MINERAL ACIDS AND CORROSIVES	C	0	0	X	0	0	0	0	0	0	0	0	0	0
CAUSTICS	D	0	0	0	X	0	0	0	0	0	0	0	0	0
TOXICS AND TCLP METALS	E	X	X	0	0	X	X	X	X	0	0	X	0	0
FLUORIDES	F	X	X	0	0	X	X	X	X	0	0	X	0	0
WATER MIXTURES	G	X	X	0	0	X	X	X	X	0	0	X	0	0
CYANIDES	H	0	X	0	0	X	X	X	X	0	0	X	0	0
OXIDIZERS	I	0	0	0	0	0	0	0	0	X	0	0	0	0
REACTIVES	J	0	0	0	0	0	0	0	0	0	X	0	0	0
IGNITABLES	K	X	X	0	0	X	X	X	X	0	0	X	0	0
PEROXIDES	L	0	0	0	0	0	0	0	0	0	0	0	X	0
EXPLOSIVES	M	0	0	0	0	0	0	0	0	0	0	0	0	X

(1) An "X" indicates a compatible combination, and an "0" indicates an incompatible combination.

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

ORGANIC LIQUIDS

Description

This category includes liquids/slurries with a total organic carbon (TOC) greater than, or equal to 1%. Slurries must be pumpable (e.g., suspended/settled solids can be up to approximately 35-40%). Only liquids/slurries packaged/stored in bulk form (i.e., tank stored, drummed bulk free liquids) are included in this category. Liquids packed in lab pack-type configuration are categorized as labpacks.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Having a total organic carbon (TOC) greater than or equal to 1%.
- Must be a pumpable liquid.
- Free of large objects or items.

Typical Waste Codes

D001 (ignitable liquids)
D018, D019, D021, D022, D026, D028, D029, D035, D039, D040, D043
(materials which contain these chemicals)
F001, F002, F003, F005 (spent solvents)

Other Possible Waste Codes

D002 (corrosive liquids)
D003 (reactive cyanides/sulfides)
D004, D005, D006, D007, D008, D009, D010, D011 (metal containing waste)

Remotely Possible Waste Codes

U019, U044, U075, U080, U107, U108, U117, U121, U134, U151, U159, U161,
U210, U211, U213, U220, U226, U228, U239, U359 (contaminated organic spill
residue or off-spec commercial product not suitable for recovery)

Characterization (Analysis) Requirements

Flash Point, pH, Physical State, Specific Gravity, Color, Metals and
Organic Analysis, % Ash (optional)

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

Off-site Acceptance (Fingerprint) Analysis

Flash Point, pH, Physical State, Specific Gravity, Color

(SUBCATEGORIES FOR ORGANIC LIQUID)

ORGANIC LIQUID, TOXIC ORGANICS

Description: This category includes liquids/slurries with total organic carbon (TOC) greater than, or equal to 1%. Slurries must be pumpable (e.g. suspended/settled solids can be up to approximately 35-40%). TCLP organics and F-listed solvents are the primary contaminants present although ignitable (D001) and corrosive (D002) wastes with toxic organics are also included in this grouping. All liquids/slurries are packaged/stored in bulk form (i.e. tank stored, drummed bulk free liquids). Liquids packed in lab pack-type configuration are categorized as lab packs.

ORGANIC LIQUID, TOXIC METALS W/O MERCURY

Description: This category includes liquids/slurries with total organic carbon (TOC) greater than, or equal to 1%. Slurries must be pumpable (e.g. suspended/settled solids can be up to approximately 35-40%). TCLP metals are the primary contaminants present although ignitable (D001) and corrosive (D002) wastes with toxic metals are also included in this grouping. These wastestreams do not contain mercury. All liquids/slurries are packaged/stored in bulk form (i.e. tank stored, drummed bulk free liquids). Liquids packed in lab pack-type configuration are categorized as lab packs.

ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/ MERCURY

Description: This category includes liquids/slurries with total organic carbon (TOC) greater than, or equal to 1%. Slurries must be pumpable (e.g. suspended/settled solids can be up to approximately 35-40%). TCLP metals and organics and F-listed solvents are the primary contaminants present although ignitable (D001) and corrosive (D002) wastes with toxic organics and metals are also included in this grouping. These wastestreams do not contain mercury. All liquids/slurries are packaged/stored in bulk form (i.e. tank stored, drummed bulk free liquids). Liquids packed in lab pack-type configuration are categorized as lab packs.

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

(SUBCATEGORIES FOR ORGANIC LIQUID CONT'D)

ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/ MERCURY

Description: This category includes liquids/slurries with total organic carbon (TOC) greater than, or equal to 1%. Slurries must be pumpable (e.g. suspended/settled solids can be up to approximately 35-40%). TCLP metals and organics and F-listed solvents are the primary contaminants present although ignitable (D001) and corrosive (D002) wastes with toxic organics and metals are also included in this grouping. These wastestreams contain mercury. All liquids/slurries are packaged/stored in bulk form (i.e. tank stored, drummed bulk free liquids). Liquids packed in lab pack-type configuration are categorized as lab packs.

ORGANIC LIQUID, IGNITABLE, REACTIVE OR CORROSIVE ONLY

Description: This category includes liquids/slurries with total organic carbon (TOC) greater than, or equal to 1%. Slurries must be pumpable (e.g. suspended/settled solids can be up to approximately 35-40%). Only wastes that are corrosive (D002), reactive (D003) or ignitable (D001) (as defined in 40 CFR Part 261) and do not contain toxic metals or organics are included in this grouping. All liquids/slurries are packaged/stored in bulk form (i.e. tank stored, drummed bulk free liquids). Liquids packed in lab pack-type configuration are categorized as lab packs.

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

AQUEOUS LIQUIDS

Description

This category includes liquids/slurries with a total organic carbon (TOC) less than 1%. Slurries must be pumpable (e.g., suspended/settled solids can be up to approximately 35-40%). Only liquids/slurries packaged/stored in bulk form (i.e. tank stored, drummed bulk free liquids) are included in this category. Liquids packed in lab pack-type configuration are categorized as lab packs.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Having a total organic carbon (TOC) less than 1%.
- Must be a pumpable liquid.
- Free of large objects or items.

Typical Waste Codes

D004, D005, D006, D007, D008, D009, D010, D011 (metal containing waste)
D018, D019, D021, D022, D026, D028, D029, D035, D039, D040, D043
(materials which contain these chemicals)

Other Possible Waste Codes

D001 (ignitable liquids)
D001 (oxidizer)
D002 (corrosive liquids)
D003 (reactive cyanides/sulfides)
F001, F002, F003, F005 (spent solvents)

Remotely Possible Waste Codes

U019, U044, U075, U080, U107, U108, U117, U121, U134, U151, U159, U161,
U210, U211, U213, U220, U226,, U228, U239, U359 (contaminated organic
spill residue or off-spec commercial product not suitable for recovery)

Characterization (Analysis) Requirements

Flash Point, pH, Physical State, Specific Gravity, Color, Metals and
Organic Analysis, TOC

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

Off-site Acceptance (Fingerprint) Analysis

Flash Point, pH, Physical State, Specific Gravity, Color

(SUBCATEGORIES FOR AQUEOUS LIQUID)

AQUEOUS LIQUID, TOXIC ORGANICS

Description: This category includes liquids/slurries with total organic carbon (TOC) less than 1%. Slurries must be pumpable (e.g., suspended/settled solids can be up to approximately 35-40%). Toxic Characteristics Leaching Procedure (TCLP) organics and F-listed solvents are the primary contaminants present although corrosive (D002) wastes with toxic organics are also included in this grouping. All liquids/slurries are packaged/stored in bulk form (i.e. tank stored, drummed bulk free liquids). Liquids packed in lab pack-type configuration are categorized as lab packs.

AQUEOUS LIQUID, TOXIC METALS W/O MERCURY

Description: This category includes liquids/slurries with total organic carbon (TOC) less than 1%. Slurries must be pumpable (e.g., suspended /settled solids can be up to approximately 35-40%). TCLP metals are the primary contaminants present although corrosive (D002) wastes with toxic metals are also included in this grouping. These wastestreams do not contain mercury. All liquids/slurries are packaged/stored in bulk form (i.e. tank stored, drummed bulk free liquids). Liquids packed in lab pack-type configuration are categorized as lab packs.

AQUEOUS LIQUID, TOXIC ORGANICS, TOXIC METALS WO/ MERCURY

Description: This category includes liquids/slurries with total organic carbon (TOC) less than 1%. Slurries must be pumpable (e.g., suspended /settled solids can be up to approximately 35-40%). TCLP metals and organics and F-listed solvents are the primary contaminants present although ignitable (D001) and corrosive (D002) wastes with toxic organics and metals are also included in this grouping. These wastestreams do not contain mercury. All liquids/slurries are packaged/stored in bulk form (i.e. tank stored, drummed bulk free liquids). Liquids packed in lab pack-type configuration are categorized as lab packs.

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

AQUEOUS LIQUID, IGNITABLE, REACTIVE, OR CORROSIVE ONLY

Description: This category includes liquids/slurries with total organic carbon (TOC) less than 1%. Slurries must be pumpable (e.g., suspended /settled solids can be up to approximately 35-40%). Only wastes that are corrosive (D001), reactive (D003) or ignitable (D001) (as defined in 40 CFR Part 261) and do not contain toxic metals or organics are included in this grouping. All liquids/slurries are packaged/stored in bulk form (i.e. tank stored, drummed bulk free liquids). Liquids packed in lab pack-type configuration are categorized as lab packs.

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

ORGANIC SLUDGES/PARTICULATES

Description

This category includes solid process residues with an organic matrix. Solid process residues are solids that do not fit the definition of debris. Typically, these solids are sludge or particulate materials. Waste in this category may also contain some debris materials provided the amount of debris is less than 50% (Note: Based on LDR debris rule). As opposed to Inorganic Sludges/Particulates, wastes in this category would not leave a large residue when thermally treated.

Example waste materials on this category are:

- organic sludges (e.g., sewage sludges), activated carbon, organic resins, absorbed liquids (organic particulate absorbents)

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Composed of less than 50% debris based on LDR debris rule.

Typical Waste Codes

D018, D019, D021, D022, D026, D028, D029, D035, D037, D039, D040, D043
 (materials which contain these chemicals)
 F001, F002, F003, F005 (spent solvents)

Other Possible Waste Codes

D003 (reactive cyanides/sulfides)
 D004, D005, D006, D007, D008, D009, D010, D011 (metal containing waste)

Remotely Possible Waste Codes

U019, U044, U075, U080, U107, U108, U117, U121, U134, U151, U159, U161,
 U210, U211, U213, U220, U226,, U228, U239, U359 (contaminated organic
 spill residue or off-spec commercial product not suitable for recovery)

Characterization (Analysis) Requirements

Flash Point, pH, Physical State, Specific Gravity, Color, Metals and
 Organic Analysis, Visual verification for size/percentage of debris

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

Off-site Acceptance (Fingerprint) Analysis

Flash Point, pH, Physical State, Specific Gravity, Color, Visual
verification for size/percentage of debris

(SUBCATEGORIES FOR ORGANIC SLUDGES/PARTICULATES)

ORGANIC SLUDGES/PARTICULATES, TOXIC ORGANICS

Description: This category includes solid process residues with an organic matrix. Solid process residues are solids that do not fit the definition of debris. Typically, these solids are sludge or particulate materials. Waste in this category may also contain some debris material provided the amount of debris is less than 50% (Note: based on LDR debris rule). As opposed to Inorganic Sludges/Particulates, wastes in this category would not leave a large residue when thermally treated. TCLP organics and F-listed solvents are the primary contaminants present although ignitable (D001) and corrosive (D002) wastes with toxic organics are also included in this category.

ORGANIC SLUDGES/PARTICULATES, TOXIC METALS W/O MERCURY

Description: This category includes solid process residues with an organic matrix. Solid process residues are solids that do not fit the definition of debris. Typically, these solids are sludge or particulate materials. Waste in this category may also contain some debris material provided the amount of debris is less than 50% (Note: based on LDR debris rule). As opposed to Inorganic Sludges/Particulates, wastes in this category would not leave a large residue when thermally treated. TCLP metals are the primary contaminants present although ignitable (D001) and corrosive (D002) wastes with toxic metals are also included in this category. These wastestreams do not contain mercury.

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

(SUBCATEGORIES FOR ORGANIC SLUDGES/PARTICULATES CONT'D)

ORGANIC SLUDGES/PARTICULATES, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

Description: This category includes solid process residues with an organic matrix. Solid process residues are solids that do not fit the definition of debris. Typically, these solids are sludge or particulate materials. Waste in this category may also contain some debris material provided the amount of debris is less than 50% (Note: based on LDR debris rule). As opposed to Inorganic Sludges/Particulates, wastes in this category would not leave a large residue when thermally treated. TCLP metals and organics and F-listed solvents are the primary contaminants present although ignitable (D001) and corrosive (D002) wastes with toxic organics and metals are also included in this category. These wastestreams do not contain mercury.

ORGANIC SLUDGES/PARTICULATES, IGNITABLE, REACTIVE OR CORROSIVE ONLY

Description: This category includes solid process residues with an organic matrix. Solid process residues are solids that do not fit the definition of debris. Typically, these solids are sludge or particulate materials. Waste in this category may also contain some debris material provided the amount of debris is less than 50% (Note: based on LDR debris rule). As opposed to Inorganic Sludges/Particulates, wastes in this category would not leave a large residue when thermally treated. Only wastes that are corrosive (D002), reactive (D003) or ignitable (D001) (as defined in 40 CFR Part 261) and do not contain toxic metals or organics are included in this category.

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

INORGANIC SLUDGES/PARTICULATES

Description

This category includes solid process residues with a predominantly inorganic matrix. Solid process residues are solids that do not fit the definition of debris. Typically these solids are sludge or particulate materials. Waste in this category may also contain some debris materials provided the amount of debris is less than 50%. (Note: Based on LDR debris rule).

The solids in this category may be contaminated with, or contain organics, such that thermal treatment is required. However, the matrices are predominantly inorganic such that thermal treatment would result in a high residue. Example waste materials in this category are:

- sludges, ashes, sand blasting media, absorbed aqueous or organic liquids (on inorganic particulate absorbents), ion exchange resins, and paint chips/residues

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Composed of less than 50% debris based on LDR debris rule.

Typical Waste Codes

D001 (ignitable liquids)
D001 (oxidizer)

Other Possible Waste Codes

None Expected

Remotely Possible Waste Codes

None Expected

Characterization (Analysis) Requirements

Flash Point, pH, Physical State, Specific Gravity, Color, Metals and Organic Analysis.

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

Off-site Acceptance (Fingerprint) Analysis

Flash Point, pH, Physical State, Specific Gravity, Color, Visual verification for size/percentage of debris

(SUBCATEGORIES FOR INORGANIC SLUDGES/PARTICULATES)

INORGANIC SLUDGES/PARTICULATES, TOXIC ORGANICS

Description: This category includes solid process residues with an inorganic matrix. Solid process residues are solids that do not fit the definition of debris. Typically, these solids are sludge or particulate materials. Waste in this category may also contain some debris material provided the amount of debris is less than 50% (Note: based on LDR debris rule). The solids in this category may be contaminated with, or contain organics, such that thermal treatment is required. However, the matrices are predominantly inorganic such that thermal treatment would result in a high residue. Example waste materials in this category are: sludges, absorbed aqueous or organic liquids (on inorganic particulate absorbents), ion exchange resins, and paint chips/residues. TCLP organics and F-listed solvents are the primary contaminants present although ignitable (D001) and corrosive (D002) wastes with toxic organics are also included in this category.

INORGANIC SLUDGES/PARTICULATES, TOXIC METALS W/O MERCURY

Description: This category includes solid process residues with an inorganic matrix. Solid process residues are solids that do not fit the definition of debris. Typically, these solids are sludge or particulate materials. Waste in this category may also contain some debris material provided the amount of debris is less than 50% (Note: based on LDR debris rule). The solids in this category may be contaminated with, or contain organics, such that thermal treatment is required. However, the matrices are predominantly inorganic such that thermal treatment would result in a high residue. Example waste materials in this category are: sludges, absorbed aqueous or organic liquids (on inorganic particulate absorbents), ion exchange resins, and paint chips/residues. TCLP metals are the primary contaminants present although ignitable (D001) wastes with toxic metals are also included in this category. These wastestreams do not contain mercury.

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

(SUBCATEGORIES FOR INORGANIC SLUDGES/PARTICULATES CONT'D)

INORGANIC SLUDGES/PARTICULATES, TOXIC METALS W/ MERCURY

Description: This category includes solid process residues with an inorganic matrix. Solid process residues are solids that do not fit the definition of debris. Typically, these solids are sludge or particulate materials. Waste in this category may also contain some debris material provided the amount of debris is less than 50% (Note: based on LDR debris rule). The solids in this category may be contaminated with, or contain organics, such that thermal treatment is required. However, the matrices are predominantly inorganic such that thermal treatment would result in a high residue. Example waste materials in this category are: sludges, absorbed aqueous or organic liquids (on inorganic particulate absorbents), ion exchange resins, and paint chips/residues. TCLP metals are the primary contaminants present although corrosive (D002) wastes with toxic metals are included in this category. These wastestreams also contain mercury.

INORGANIC SLUDGES/PARTICULATES, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

Description: This category includes solid process residues with an inorganic matrix. Solid process residues are solids that do not fit the definition of debris. Typically, these solids are sludge or particulate materials. Waste in this category may also contain some debris material provided the amount of debris is less than 50% (Note: based on LDR debris rule). The solids in this category may be contaminated with, or contain organics, such that thermal treatment is required. However, the matrices are predominantly inorganic such that thermal treatment would result in a high residue. Example waste materials in this category are: sludges, absorbed aqueous or organic liquids (on inorganic particulate absorbents), ion exchange resins, and paint chips/residues. TCLP metals and organics and F-listed solvents are the primary contaminants present. These wastestreams do not contain mercury.

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

CEMENTED SOLIDS

Description

This category includes sludges or solids (e.g., particulates, etc.) that have been solidified/stabilized with cement or other solidifying agents but do not meet LDR treatment standards. These wastes may require pretreatment (e.g., crushing/grinding) prior to subsequent LDR treatment.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Composed of less than 50% debris based on LDR debris rule.

Typical Waste Codes

D004, D005, D006, D007, D008, D009 (metal containing waste)

Other Possible Waste Codes

D010, D011 (metal containing waste)
D018, D019, D021, D022, D026, D028, D029, D035, D037, D039, D040, D043
(materials which contain these chemicals)

Remotely Possible Waste Codes

F001, F002, F003, F005 (spent solvents)
U210 (contaminated organic spill residue or off-spec commercial product)

Characterization (Analysis) Requirements

Physical Description, Material Safety Data Sheet (MSDS) or metal analysis.

Off-site Acceptance (Fingerprint) Analysis

Physical inspection of container contents.

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

ORGANIC DEBRIS

Description

This category includes wastes with matrices meeting the definition of debris per the 8/19/92 LDR debris rulemaking (57 FR 37194, 8/18/92). More specifically this category is defined for wastes that contain >90% organic debris.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Composed of greater than or equal to 50% debris based on LDR debris rule.
- Composed of greater than 90% organic debris.

Typical Waste Codes

D018, D019, D021, D022, D026, D028, D029, D035, D037, D039, D040, D043
(materials which contain these chemicals)

Other Possible Waste Codes

D004, D005, D006, D007, D008, D009 (metal containing waste)
D037 (materials which contains this chemical)
F001, F002, F003, F005 (spent solvents)
U210 (contaminated organic spill residue or off-spec commercial product not suitable for recovery)

Remotely Possible Waste Codes

None Expected

Characterization (Analysis) Requirements

Flash Point, pH, Physical State, Visual verification for size/percentage of debris, Metals and Organic Analysis, Color

Off-site Acceptance (Fingerprint) Analysis

Flash Point, pH, Physical State, Visual verification for size/percentage of debris, Color,

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

(SUBCATEGORIES FOR ORGANIC DEBRIS)

ORGANIC DEBRIS, TOXIC ORGANICS

Description: This category includes wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194, 8/18/92). More specifically, this category is defined for wastes that contain >90% organic debris. TCLP organics and F-listed solvents are the primary contaminants present although ignitable (D001) wastes with toxic organics are also included in this category.

ORGANIC DEBRIS, TOXIC METALS W/O MERCURY

Description: This category includes wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194, 8/18/92). More specifically, this category is defined for wastes that contain >90% organic debris. TCLP metals are the primary contaminants present. These wastestreams do not contain mercury.

ORGANIC DEBRIS, TOXIC METALS W/ MERCURY

Description: This category includes wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194, 8/18/92). More specifically, this category is defined for wastes that contain >90% organic debris. TCLP metals are the primary contaminants present. These wastestreams contain mercury.

ORGANIC DEBRIS, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

Description: This category includes wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194, 8/18/92). More specifically, this category is defined for wastes that contain >90% organic debris. TCLP metals and organics and F-listed solvents are the primary contaminants present. These wastestreams do not contain mercury.

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

INORGANIC DEBRIS

Description

This category includes wastes with matrices meeting the definition of debris per the 8/19/92 LDR debris rulemaking (57 FR 37194, 8/18/92). More specifically this category is defined for wastes that contain >90% organic debris.

Example inorganic debris materials are:

- metal shapes (e.g. equipment, scrap), metal turnings, glass (e.g., light tubes, leaded glass, etc.), ceramic materials, concrete, rocks

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Composed of greater than or equal to 50% debris based on LDR debris rule.
- Composed of greater than 90% organic debris.

Typical Waste Codes

D004, D005, D006, D007, D008, D009 (metal containing waste)

Other Possible Waste Codes

D018, D019, D021, D022, D026, D028, D029, D035, D037, D039, D040, D043
(materials which contain these chemicals)
F001, F002, F003, F005 (spent solvents)
U210 (contaminated organic spill residue or off-spec commercial product not suitable for recovery)

Remotely Possible Waste Codes

None Expected

Characterization (Analysis) Requirements

Flash Point, pH, Physical State, Visual verification for size/percentage of debris, Metals and Organic Analysis, Color

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

Off-site Acceptance (Fingerprint) Analysis

Flash Point, pH, Physical State, Visual verification for size/percentage of debris, Color,

(SUBCATEGORIES FOR INORGANIC DEBRIS)

INORGANIC DEBRIS, TOXIC ORGANICS

Description: This category includes wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194, 8/18/92). More specifically, this category is defined for wastes that contain >90% inorganic debris. TCLP organics and F-listed solvents are the primary contaminants present.

INORGANIC DEBRIS, TOXIC METALS W/O MERCURY

Description: This category includes wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194, 8/18/92). More specifically, this category is defined for wastes that contain >90% inorganic debris. TCLP metals are the primary contaminants present. These wastestreams do not contain mercury.

INORGANIC DEBRIS, TOXIC METALS W/ MERCURY

Description: This category includes wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194, 8/18/92). More specifically, this category is defined for wastes that contain >90% inorganic debris. TCLP metals are the primary contaminants present. These wastestreams also contain mercury.

INORGANIC DEBRIS, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

Description: This category includes wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194, 8/18/92). More specifically, this category is defined for wastes that contain >90% inorganic debris. TCLP metals and organics and F-listed solvents are the primary contaminants present. These wastestreams do not contain mercury.

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

INORGANIC DEBRIS, IGNITABLE, REACTIVE, OR CORROSIVE ONLY

Description: This category includes wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194, 8/18/92). More specifically, this category is defined for wastes that contain >90% inorganic debris. Only wastes that are corrosive (D002), reactive (D003) or ignitable (D001) (as defined in 40 CFR Part 261) and do not contain toxic metals or organics are included in this category.

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

HETEROGENEOUS DEBRIS

Description

This category includes wastes with matrices meeting the definition of debris per the 8/19/92 LDR debris rulemaking (57FR37194, 8/18/92). This category includes debris that do not meet the criteria for categorization as either Organic or Inorganic Debris. This category also includes mixtures of debris and solid process residues or soil, provided debris comprises more than 50% of the waste

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Composed of greater than or equal to 50% debris based on LDR debris rule.
- Composed of a mixture of inorganic and organic debris.

Typical Waste Codes

D004, D005, D006, D007, D008, D009 (metal containing waste)
D018, D019, D021, D022, D026, D028, D029, D035, D037, D039, D040, D043
(materials which contain these chemicals)

Other Possible Waste Codes

D037 (materials which contain this chemical)
F001, F002, F003, F005 (spent solvents)
U210 (contaminated organic spill residue or off-spec commercial product not suitable for recovery)

Remotely Possible Waste Codes

None Expected

Characterization (Analysis) Requirements

Flash Point, pH, Physical State, Visual verification for size/percentage of debris, Metals and Organic Analysis, Color

Off-site Acceptance (Fingerprint) Analysis

Flash Point, pH, Physical State, Visual verification for size/percentage of debris, Color

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

(SUBCATEGORIES FOR HETEROGENOUS DEBRIS)

HETEROGENOUS DEBRIS, TOXIC ORGANICS

Description: This category includes wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194 8/18/92). This category includes debris that do not meet the criteria for categorization as either Organic Debris or Inorganic Debris. This category also includes mixtures of debris and solid process residues or soil, provided debris comprises more than 50% of the waste. TCLP organics and F-listed solvents are the primary contaminants present.

HETEROGENOUS DEBRIS, TOXIC METALS W/O MERCURY

Description: This category includes wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194 8/18/92). This category includes debris that do not meet the criteria for categorization as either Organic Debris or Inorganic Debris. This category also includes mixtures of debris and solid process residues or soil, provided debris comprises more than 50% of the waste. TCLP metals are the primary contaminants present. These wastestreams do not contain mercury. category.

HETEROGENOUS DEBRIS, TOXIC METALS W/ MERCURY

Description: This category includes wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194 8/18/92). This category includes debris that do not meet the criteria for categorization as either Organic Debris or Inorganic Debris. This category also includes mixtures of debris and solid process residues or soil, provided debris comprises more than 50% of the waste. TCLP metals are the primary contaminants present. These wastestreams also contain mercury.

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

(SUBCATEGORIES FOR HETEROGENEOUS DEBRIS CONT'D)

HETEROGENOUS DEBRIS, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

Description: This category includes wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194 8/18/92). This category includes debris that do not meet the criteria for categorization as either Organic Debris or Inorganic Debris. This category also includes mixtures of debris and solid process residues or soil, provided debris comprises more than 50% of the waste. TCLP metals and organics and F-listed solvents are the primary contaminants present. These wastestreams do not contain mercury.

HETEROGENOUS DEBRIS, IGNITABLE, REACTIVE, OR CORROSIVE ONLY

Description: This category includes wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194 8/18/92). This category includes debris that do not meet the criteria for categorization as either Organic Debris or Inorganic Debris. This category also includes mixtures of debris and solid process residues or soil, provided debris comprises more than 50% of the waste. Only wastes that are corrosive (D002), reactive (D003) or ignitable (D001) (as defined in 40 CFR Part 261) and do not contain toxic metals or organics are included in this category.

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

SOILS WITH ORGANICS

Description

Soils contaminated with hazardous constituents that are stored in waste containers. Includes soils contaminated primarily with organics, but may include inorganics.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Free of large objects or items
- Composed of greater than or equal to 50% debris based on LDR debris rule.
- Contaminated primarily with organics.

Typical Waste Codes

D018, D019, D021, D022, D026, D028, D029, D035, D037, D039, D040, D043
(materials which contain these chemicals)

Other Possible Waste Codes

D004, D005, D006, D007, D008, D009 (metal containing waste)
F001, F002, F003, F005 (spent solvents)

Remotely Possible Waste Codes

U019, U044, U075, U080, U107, U108, U117, U121, U134, U151, U159, U161, U210, U211, U213, U220, U226,, U228, U239, U359 (contaminated organic spill residue or off-spec commercial product not suitable for recovery)

Characterization (Analysis) Requirements

Flash Point, pH, Physical State, Visual verification for size/percentage of debris, Metals and Organic Analysis, Color

Off-site Acceptance (Fingerprint) Analysis

Flash Point, pH, Physical State, Visual verification for size/percentage of debris, Color

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

SOILS WITH INORGANICS

Description

Soils contaminated with hazardous constituents that are stored in waste containers. Includes soils contaminated primarily with inorganics, but may include organics.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Free of large objects or items
- Composed of greater than or equal to 50% debris based on LDR debris rule.
- Contaminated primarily with inorganics.

Typical Waste Codes

D004, D005, D006, D007, D008, D009 (metal containing waste)

Other Possible Waste Codes

None Expected

Remotely Possible Waste Codes

P098

Characterization (Analysis) Requirements

Flash Point, pH, Physical State, Visual verification for size/percentage of debris, Metals and Organic Analysis, Color

Off-site Acceptance (Fingerprint) Analysis

Flash Point, pH, Physical State, Visual verification for size/percentage of debris, Color

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

SOILS WITH ORGANICS AND INORGANICS

Description

Soils contaminated with hazardous constituents that are stored in waste containers. Includes soils contaminated primarily with organics and inorganics. Waste in this category may include debris, provided it is less than 50% of the waste.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Composed of greater than or equal to 50% debris based on LDR debris rule.
- Free of large objects or items

Typical Waste Codes

D004, D005, D006, D007, D008, D009 (metal containing waste)
D018, D019, D021, D022, D026, D028, D029, D035, D037, D039, D040, D043
(materials which contain these chemicals)

Other Possible Waste Codes

F001, F002, F003, F005 (spent solvents)
U134, U210, U226, U228 (contaminated organic spill residue or off-spec commercial product not suitable for recovery)

Remotely Possible Waste Codes

None Expected

Characterization (Analysis) Requirements

Flash Point, pH, Physical State, Visual verification for size/percentage of debris, Metals and Organic Analysis, Color

Off-site Acceptance (Fingerprint) Analysis

Flash Point, pH, Physical State, Visual verification for size/percentage of debris, Color

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

LAB PACKS WITH ORGANICS

Description

This category include wastes with one or more small containers of free liquids or solids surrounded by solid materials (virgin or waste materials) within a larger container. These categories include scintillation fluids that are packaged with vials.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Name of Product or Material must be known.
- A material Safety Data Sheet (MSDS) must be provided for all commercial products for which chemical composition is not readily known.
- Maximum individual package size of 5 gallons.
- Must be shipped with a detailed Inventory List signed and certified by the person or persons who prepared the shipment.

Typical Waste Codes

D001 (ignitable; flash point)
D002 (corrosivity; pH)
D003 (reactivity; unstable, violent change)
D018, D019, D021, D022, D026, D028, D029, D035, D037, D039, D040, D043
(materials which contain these chemicals)
U019, U044, U075, U080, U107, U108, U117, U121, U134, U159, U161, U210,
U211, U213, U220, U226, U228, U239, U359 (contaminated organic spill
residue or off-spec commercial product not suitable for recovery)

Other Possible Waste Codes

D001 (compressed gas)
D002 (corrosivity; liquid corrodes steel)
D003 (reactivity; cyanide or sulfide @ pH)
D004, D005, D006, D007, D008, D009, D010, D011 (metal containing waste)

Remotely Possible Waste Codes

None Expected

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

Characterization (Analysis) Requirements

Physical Description, Copy of Material Safety data Sheet (MSDS) and additional chemical information as available.

Off-site Acceptance (Fingerprint) Analysis

Physical inspection of container contents.

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

LAB PACKS WITHOUT ORGANICS (METALS/WITHOUT METALS)

Description

The matrices of wastes within these two categories are the same. Both categories include wastes with one or more small containers of free liquids or solids surrounded by solid materials (virgin or waste materials) within a larger container. These categories include scintillation fluids that are packaged with vials.

The difference between wastes within these categories is contaminants. Lab packed wastes contaminated with TC metals are categorized as "lab packs - With Metals". Lab packs wastes that are not contaminated with TC metals are categorized as "Lab packs - Without Metals".

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Name of Product or Material must be known.
- A Material Safety Data Sheet (MSDS) must be provided for all commercial products for which chemical composition is not readily known.
- Maximum individual package size of 5 gallons.
- Must be shipped with a detailed Inventory List signed and certified by the person or persons who prepared the shipment.

Typical Waste Codes

D002 (corrosivity; pH)
D003 (reactivity; unstable, violent change)
D004, D005, D006, D007, D008, D009, D010, D011 (metal containing waste)
P098, U151 (unused or off-spec commercial product)

Other Possible Waste Codes

D001 (oxidizer)
D002 (corrosivity; liquid corrodes steel)
D003 (reactivity; cyanide or sulfide @ pH)

Remotely Possible Waste Codes

D001 (ignitable; solid burns vigorously)

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

Characterization (Analysis) Requirements

Physical Description, Copy of Material Safety data Sheet (MSDS) and additional chemical information as available.

Off-site Acceptance (Fingerprint) Analysis

Physical verification of container contents.

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

REACTIVE METALS

Description

This category includes bulk reactive metals and equipment contaminated with reactive metals. Bulk reactive metals include sodium, alkali metal alloys, aluminum fines, zirconium fines, or pyrophoric materials. Contaminated equipment includes piping, pumps, and other materials with a residue of reactive metals that cannot be separated from the equipment medium.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Name of Product or Material must be known.
- A Material Safety Data Sheet (MSDS) must be provided for all commercial products for which chemical composition is not readily known.

Typical Waste Codes

D003 (waste reactive)
D004, D005, D006, D007, D008, D009, D010, D011 (metal containing waste)

Other Possible Waste Codes

D001 (ignitable solid)

Remotely Possible Waste Codes

None Expected

Characterization (Analysis) Requirements

Flash Point, Physical State, Color, Material Safety Data Sheet (MSDS) and additional chemical data as available.

Off-site Acceptance (Fingerprint) Analysis

Physical inspection of container contents.

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

EXPLOSIVES

Description

This category includes waste materials that may explode during normal or extreme handling. This includes devices such as explosive switches and activators used in fire/explosion suppression systems. This category may remotely include rags that have been soaked in nitric acid and subsequently stored in containers.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Name of Product or Material must be known.
- A Material Safety Data Sheet (MSDS) must be provided for all commercial products for which chemical composition is not readily known.
- Terminals if present must be protected from making electrical contact.

Typical Waste Codes

D003 (capable of detonation with initiating source)
D004, D005, D006, D007, D008, D009, D010, D011 (metal containing waste)

Other Possible Waste Codes

Non Expected

Remotely Possible Waste Codes

None Expected

Characterization (Analysis) Requirements

Physical Description, Material Safety Data Sheet (MSDS) and additional chemical data as available.

Off-site Acceptance (Fingerprint) Analysis

Physical inspection of container contents.

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

COMPRESSED GASES

Description

This category includes pressurized aerosol cans and gas cylinders of any gas composition. Non-pressurized aerosol cans and gas cylinders would be classified as debris.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Name of Product or Material must be known.
- A Material Safety Data Sheet (MSDS) must be provided for all commercial products for which chemical composition is not readily known.
- Valves must be secure and protected to ensure contents are not released.

Typical Waste Codes

D001 (ignitable liquid; flash point)
D001 (ignitable; compressed gas)

Other Possible Waste Codes

D002 (Corrosivity)
D004, D005, D006, D007, D008, D009, D010, D011 (metal containing waste)
D019, D035, D039, D040 (Material which contain these)

Remotely Possible Waste Codes

None Expected

Characterization (Analysis) Requirements

Physical Description, Material Safety Data Sheet (MSDS) and additional chemical data as available.

Off-site Acceptance (Fingerprint) Analysis

Physical inspection of container contents.

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

LIQUID MERCURY

Description

This category includes any wastes containing bulk volumes of elemental liquid mercury. The category includes labpacks of strictly liquid mercury or other containers containing bulk mercury.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- A Material Safety Data Sheet (MSDS) must be provided for all commercial products for which chemical composition is not readily known.

Typical Waste Codes

D009 (spent mercury)
U151 (mercury; unused or off-spec commercial product)

Other Possible Waste Codes

None Expected

Remotely Possible Waste Codes

None Expected

Characterization (Analysis) Requirements

Physical Description, Material Safety Data Sheet (MSDS) and additional chemical data as available.

Off-site Acceptance (Fingerprint) Analysis

Physical inspection of container contents.

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

ELEMENTAL LEAD (ACTIVATED AND NON-ACTIVATED)

Description

This category includes both surface contaminated and activated elemental lead. Surface contaminated lead materials include bricks, counterweights, shipping casks, and other shielding materials. Remotely possible for activated lead which includes lead from accelerators or other neutron sources that may result in irradiation.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- A Material Safety Data Sheet (MSDS) must be provided for all commercial products for which chemical composition is not readily known.

Typical Waste Codes

D008 (lead; TCLP waste)

Other Possible Waste Codes

F001, F002, F003, F005 (spent solvents via mixture rule)

Remotely Possible Waste Codes

D009 (metal contamination)

Characterization (Analysis) Requirements

Physical Description, Material Safety Data Sheet (MSDS) or metal analysis.

Off-site Acceptance (Fingerprint) Analysis

Physical inspection of container contents.

TABLE C-3 DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONAL

BATTERIES (LEAD ACID, CADMIUM)

Description

This category includes lead acid, cadmium, and miscellaneous batteries.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Terminals must be protected from making electrical contact (e.g., taped).

Typical Waste Codes

D002 corrosivity (liquid electrolyte only)
D006 TCLP Cadmium
D008 TCLP Lead
D009 TCLP Mercury

Other Possible Waste Codes

D003 (reactive sulfide found in lithium sulfide batteries)
D011 (metal constituent)

Remotely Possible Waste Codes

D004, D010 (Metal Constituents)

Characterization (Analysis) Requirements

Physical Description, Material Safety Data Sheet (MSDS) if available.

Off-site Acceptance (Fingerprint) Analysis

Physical inspection of container contents.

**TABLE C-3
DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

OTHER

Description

Explain

Material Requirements

Typical Waste Codes

D004, D005, D006, D007, D008, D009, D010, D011 (metal containing waste)
D018, D019, D021, D022, D026, D028, D029, D035, D039, D040, D043
(materials which contain these chemicals)

Other Possible Waste Codes

D001 (ignitable liquids)
D001 (oxidizer)
D002 (corrosive liquids)
D003 (reactive cyanides/sulfides)
F001, F002, F003, F005 (spent solvents)

Remotely Possible Waste Codes

U019, U044, U075, U080, U107, U108, U117, U121, U134, U151, U159, U161,
U210, U211, U213, U220, U226,, U228, U239, U359 (contaminated organic
spill residue or off-spec commercial product not suitable for recovery)

Characterization (Analysis) Requirements

Flash Point, pH, Physical State, Specific Gravity, Color, Metals and
Organic Analysis, % Ash (optional)

Off-site Acceptance (Fingerprint) Analysis

Flash Point, pH, Physical State, Specific Gravity, Color

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REVISED: 01-Jul-94

RCRA REGULATED HAZARDOUS WASTE STREAMS

WASTE ID #	WASTE NAME	U.S. EPA HAZARDOUS WASTE #	DETERMINATION BASIS
12	AEROSOL PAINT CANS	D001	PK
46	BARIUM CHLORIDE LIQUID HEAT 980	D005	PK
47	BARIUM CHLORIDE (LIQUID HEAT 800)	D005	PK
89	BORING #1412	F002	PK
119	BARIUM CHLORIDE SOLUTION	D005	PK
157	WD-40 SPRAY CAN	D001	MSDS
160	SPEED E NAMEL SPRAY PAINT	D001	MSDS
162	KRYLON CAR COLOR SPRAY PAINT	D001	MSDS
163	AEROSOL PAINT	D001	MSDS
177	RAGS, GLOVES, PROTECTIVE COVERALLS, DOP, FORMULA 401	U107	MSDS
180	RAGS SOLVENT	F002	PK,8
183	WATER/GAS MIXTURE TANK #8	D001 D008 D018	PK
201	CRANKCASE OIL	D018	MSDS, PK
344	ITEK DEVELOPER (LIQUID)	D011	MSDS
345	KEROSENE FROM ABANDONED UNDERGROUND STORAGE TANKS 11 & 13	D001 D018	PK,MSDS,1,3,8,9
358	CAUSTIC SOLUTION (NaOH) FROM PLANT 8 RAFFINATE PROCESSING	D002 D019	PK,1,3,5,7,8,9
376	OILY RAGS, ABSORBENT PADS	F002	PK,1,3,5,9
379	SPENT 1,1,1-TRICHLOROETHANE	D008 D018 F001 F002	MSDS, PK
380	ABSORBENT PADS, RAGS AND GLOVES	D039 F002 F003	PK,1,3,5,8,9
381	AEROSOL PAINT CANS	D001	MSDS
383	X-RAY FIXER & DEVELOPER, CLEAR LIQUID MODERATE ACIDIC SOL	D011	MSDS
385	SPENT SOLVENTS	D018 F001 F002	PK,MSDS,7,8
386	FLOOR SUMP CLEANOUT SLUDGE	D019 D039 F001 F002	PK,1,3,7,8
387	OIL SOAKED RAGS	D010 D018 F002	MSDS, PK
388	USED OIL	D010 D018 F002	MSDS, PK
	OILY RAGS FROM WATER TREATMENT AREA	D008 D009 D010	PK,1,3,5,9
	OILY SEMI-SOLID	D005 D008 F001 F002	PK,1,4,7,8,9
391	WASTE AEROSOL PAINT CANS	D001	MSDS
392	DRY CELL ELECTRONIC STORAGE BATTERIES	D002 D006 D009	PK
393	LUBRICATING OIL FROM REDUCTION REMELT.	D008	1,3,8,9
395	PAINT THINNERS AND PAINT RESIDUES	D001 F002 F003 F005	PK
396	PAINT THINNER RAGS	F002 F003 F005	PK
397	1,1,1-TRICHLOROETHANE (CLEANING SOLVENT)	D018 F001 F002	MSDS, PK
398	NON-RECOVERABLE TRASH CONTAMINATED ABSORBANT PADS	D008 D009 F001	PK,MSDS,1,3,5,9
399	OILY RAGS, PADS AND TRASH FROM BOILER PLANT MACHINERY	D008 D039 F001	PK,1,3,5,9
400	USED OIL FROM MAINTENANCE	D001 D008 F001	PK,MSDS,1,4,8,9
402	USED OIL	D008 D018 F001 F002	PK
403	1,1,1-TRICHLOROETHANE RAGS	D018 F001 F002	PK
404	OILY RAGS	D008 D018 F002	PK
405	DRY CELL BATTERIES	D002 D009	PK
406	AEROSOL CANS	D001	MSDS
408	USED OIL FROM GEAR BOXES, LATHES, AND MOTORS	D005 D006 D008 F001	PK,1,3,7,8,9
410	OILY RAGS	F001 F002	PK,1,3,5,9
412	1,1,1-TRICHLOROETHANE	D001 D006 F001 F002	PK,MSDS,1,3,8,9
413	SPENT SOLVENT CONTAMINATED RAGS	D008 D039 F002	PK,1,3,5,9
414	USED OIL	D001 D006 D008 D009 D039 F001 F002	PK,1,3,8,9
415	OILY RAGS AND ABSORBENTS WD-40 AND VARIOUS OILS	D008 D018 F002	PK
418	SPENT ACETONE	D001 F003	PK,MSDS
419	XYLENE	D001 F003	MSDS, PK
421	METHANOL	D001 F003	PK,MSDS
422	SPENT METHYLENE CHLORIDE	F002	PK,MSDS
423	ELEMENTAL MERCURY	D009	MSDS
425	LABORATORY ACIDS (NITRIC AND CYCLOHEXANE)	D001 D002	PK
426	METHANOL AND CYCLOHEXANE MIXTURE	D001	PK
427	NICKEL-CADMIUM BATTERIES	D002 D006	PK
428	ACETONITRILE IN WATER	D001	MSDS
	HG BATTERIES	D002 D009	PK
	MERCURY THERMOMETER SPILL CLEAN-UP MATERIALS FROM LAB	D006 D008 D009	MSDS,PK,4,5,9
433	AEROSOL SPRAY CANS PROPELLANT	D001	MSDS

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RCRA REGULATED HAZARDOUS WASTE STREAMS

WASTE ID #	WASTE NAME	U.S. EPA HAZARDOUS WASTE #	DETERMINATION BASIS
434	SOLIDS CONTAMINATED BY LAB SAMPLES & MATERIALS	D004 D005 D006 D007 D008 D022 F002 F003	PK
435	PAINT HYPALON COATING	D001	MSDS,PK
436	SEALANT POLYCHLOROPENE SOLUTION	D001	MSDS,PK
438	HYDRAULIC OIL FROM BALER IN DRUM RECONDITIONING	D018	PK,1,3,4,7,8,9
455	UNLABELED DRUM CONTAINING 1,1,1 TRICHLOROETHANE.	D001 F001	MSDS,PK,1,3,7,8,9
456	SOLVENT WASTES STORED ON PLANT 1 PAD	D007 D039 D040 F001 F002	PK,1,3,4,7,8,9
459	PAINT	D001 F001 F002	PK,1,4,8,9
460	LIQUID & SOLID WASTE SAMPLES	D004 D005 D006 D007 D008 D010 D018 F002	PK,1,3,7,8,9
468	OIL AND SOLVENTS W/ ANALYSIS	D001 D007 D008 D010 D018 F002	PK,1,3,7,8,9
473	ANTI-C PAPER COVERALLS & BOOTIES W/ LIME SLURRY	F001 F005	PK
476	LAB PACKED WATER AND RESIDUE SAMPLES	D007	PK,2,4
479	USED PAINT THINNER	D001 D008 D009 D035 F003 F005	PK,1,3,8,9
480	USED OIL	D018 F002	PK,1,3,7,9
485	KEROSENE	D001	MSDS,PK,1,3,7,8,9
486	TETRACHLOROETHYLENE SPILL CLEANUP	U210	MSDS
487	RAIN WATER FROM UST #8 FORMERLY STORING GASOLINE	D008 D018	PK
507	CONTAMINATED SOLVENT GENERATED IN THE PILOT PLANT. (MEK)	D001 D035 F005	MSDS,PK,1,3,7,8,9
508	UNUSED PAINT THINNER	D001 D035	PK,1,4,7,8,9
514	PAINT WASTE FROM PAINTING BOOTH	D001 D007 D008 F002 F003 F005	PK,1,4,7,8,9
517	OIL DRY CONTAMINATED WITH OIL FROM BALER	D007 D008	PK,1,3,4,6,7,8,9
520	PETROLEUM PRODUCT WITH RAIN WATER	D018	MSDS, PK
524	IGNITIBLE LIQUID, UNKNOWN ORIGIN	D001	1,4,7,8,9
526	CONTAMINATED SOIL FROM PIT 5 HWMU AREA	F001 F002	PK,1,4,8,9
533	PAINT: GRAY EPOXY	D001 D006	PK,1,3,8,9
534	MEK MARKED ON DRUM BLUEDRUM FLAMMABLE	U159	MSDS, PK
538	BORING # 1508	D006 D007 D008	2,6,10,11,12
539	BORING # 1509	D004 D006 D007 D008	2,6,10,11,12
540	BORING # 1512	D004 D005 D006 D007 D008 D011	2,6,10,11,12
541	BORING # 1513	D005 D006 D007 D008	2,6,10,11,12
542	BORING # 1514	D004 D005 D006 D007 D008	2,6,10,11,12
543	BORING #1515, FROM THE FIRE TRAINING GROUNDS	D004 D005 D006 D007 D008	2,6,10,11,12
545	BORING # 1511	D004 D005 D006 D007	2,6,10,11,12
547	MISCELLANEOUS LEAD TOOLS PIPING, ETC...	D008	PK
548	LEAD - COUNTERWEIGHTS, BEARINGS	D008	PK
584	KEROSENE (DIESEL FUEL)/SLUDGE/WATER FROM PUMP UST #3	D018	PK
585	ZINC COMPOUND (AEROSOL)	D001	MSDS
587	GREASE AND WATER	D001	1,3,7,8,9
588	MERCO DRY AND OILY MERCO DRY	F002	PK,1,2,4,9
627	5-GAL CAN W/ SPILL CLEANOUT MATERIAL	F001	PK
628	SPILL CLEAN-UP MATERIALS	F001	PK
633	OIL FROM UNKNOWN GENERATION SOURCE	D007 D008 D009	PK,1,3,4,7,8,9
634	BUFFERED KCN SOLUTION (ABOUT 2 LITERS @ 30 G PER LITER)	P098	PK
635	MERCURY SPILL CLEAN-UP AND SPENT MERCURY BATTERIES	D009	PK
638	USED OIL	D018	PK
644	TRASH, PADS, RAGS, WATER	D008 D010	PK,1,3,5,7,8,9
658	CODED AS OIL - STRONG SOLVENT ODOR	D018	PK
659	LEAD AND WOOD SHAVINGS - UNKNOWN ORIGIN	D008	PK
661	BORING # 1594 - FROM NORTHWEST CORNER BLDG. 12	F001	PK,2,4,9,12
675	NON-EMPTY AEROSOL CANS, BUILDING 11	D001	MSDS
677	NON-EMPTY AEROSOL CANS, BUILDING 12	D001	MSDS
696	KODAK ROYALPRINT ACTIVATOR	D002	MSDS,PK
697	ROYALPRINT STOP BATH	D002	MSDS,PK
700	MAGNESIUM FLAKE AND OILY RAGS	D003	PK
720	BORING #1261	F001	PK,2,4,9,12
743	CONTAINER OF PUMP OIL AND RAGS	F001	PK
757	BROWN PARTICULATE SOLID (DIRT AND RUBBLE)	D004 D007 D008 D010 D011	PK,1,4,9,11
768	DAAP/SOLVESCO MIXTURE	D001	PK,1,4,8
769	PAINT	D001	MSDS
772	RESPIRATOR CANISTER	D007 D011	MSDS

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REVISED: 01-JUL-94

RCRA REGULATED HAZARDOUS WASTE STREAMS

WASTE ID #	WASTE NAME	U.S. EPA HAZARDOUS WASTE #	DETERMINATION BASIS
776	BORING #1674, LOCATED INSIDE PILOT PLT ON NORTHWEST SIDE OF	F001	PK,2,4,9,12
777	USED AGITENE	D001 D008 F001 F002	PK,MSDS,1,4,7,8,9
817	PAINT CHIPS FROM SAND FILTERS AT WATER PLANT	D008	MSDS,4,9
818	OIL AND WATER FROM DRUM DECON. PAD	D001 D008	PK,1,3,7,8,9
819	BORING #1251	F001	PK,2,4,9,11,12
820	LEAD ACID BATTERIES	D002 D004 D008	MSDS
826	METHYL ISOBUTYL KETONE, LABPACKED	D001 U161	PK
827	SODIUM AMIDE, STABILIZED AND LABPACKED	D003	PK
828	1,4-DIOXANE, STABILIZED, LABPACKED	D001 U108	PK
844	URANYL NITRATE SOLUTION IN TANKS	D002 D005 D007	PK
850	PAINT WASTE FROM TANK FARM	D001 D035 F002 F003	PK,1,3,4,7,8,9
854	NI CD BATTERIES	D006	MSDS
855	MERCURY BATTERY	D009	MSDS
868	OILY WASTE AND SOLIDS, POSSIBLY FROM DRUM RECONDITIONING	D039	PK,1,3,4,7,8,9
870	VARNISH - UNUSED	D001	MSDS
873	SPENT FIXER	D011	MSDS
874	LEAD BRICKS, LEAD WINDOW SASHINGS, BABBIT HAMMER	D008	PK
876	METAL FRAMES FROM HEPA FILTERS	D008	PK
1058	DECANT WATER FROM NPR/AAF PRIMARY SEPARATOR	D001 D009	PK,1,3,7,8,9
1080	CADMIUM SPRINGS	D006	4
1081	CADMIUM SPRINGS	D006	PK
1178	GROUNDWATER FROM WELL #2649	D007 F002	PK,2,4,7,9
1182	CLEAR DISPERSANT, TYPE (H) PREMIX-BLACK,CYAN,YELLOW & MAGENTA	D001	MSDS
1183	CLEAR DISPERSANT, TYPE (H) PREMIX, TYPE (H) CONCENTRATE	D001	MSDS
1184	CLEAR DISPERSANT, TYPE (H) PREMIX, TYPE (H) CONCENTRATE	D001	MSDS
	TYPE 028 FIX; CD-5 DEVELOPER	D011	MSDS
	SPENT ACTIVATED CARBON, FROM PERCHED WATER PROJECT	D040	PK,MSDS
1199	MERCURY CONTAMINATED FLOOR TILE & PIPE INSULATION	D009	PK,MSDS
1229	CONTAMINATED SUMP WATER	D001 D008 D018 D019 D039 D040 F002 F003	PK,2,4,7,8,9,11
1251	FREON 11	U121	PK,MSDS,5
1271	LEAD SOLDER JOINTS	D008	PK
1272	MERCURY CONTAMINATED MATERIALS FROM SINK TRAPS IN LAB	D007 D008 D009	PK,1,4,7,8,9,13
1273	CONTAMINATED WATER	D007 D008 D009	PK,1,3,7,8,9
1279	PLUTONIUM 239 SOLUTION	D002	PK,9
1281	LEAD BRICKS	D008	PK
1297	PC 49906 ITEK UNIVERSAL DEVELOPER	D011	MSDS,4
1298	ITEK PC 49907 ITEK INSTACOLOR ACTIVATOR	D002 D011	MSDS
1306	SPILL CLEAN-UP FROM K-65 AREA.	D001 D008	PK,1,3,5,7,8,9
1337	UNSPECIFIED IGNITIBLE LIQUID	D001	1,3,7,8,9
1363	OILY SLUDGES FROM WWTS AREA	D005 D006 D007 D008 D009	PK,1,4,5,7,8,9
1380	NON OILY SUMP CLEANOUT MATERIAL FROM PLANT 8 OPERATIONS	D007 D008	PK,1,3,4,5,7,8,9
1389	SCRAP U308 FROM OXIDATION FURNACE #1	F002	PK,1,4,5,9
1404	EXCAVATED SOIL FROM SPILL UNDER BLDG 64 LATHES	D008	MSDS,PK,1,4,5,9
1405	CLEANING AND WASH BATH WASTE FROM DECON. PAD	D008	MSDS,PK,1,3,7,8,9
1411	CONTAMINATED SOLVENT FROM PAINT SHOP	D001 D005 D007 D008 D009 D010 D011 D019 F002 F003 F005	PK,1,3,6,7,8,9
1412	USED SOLVENT; 1,1,1 TRICHLOROETHANE	D001 D008 D008 F001 F002	1,3,8,9
1414	OIL AND FUEL FROM GARAGE AREA	D001 D008	PK,1,3,8,9
1415	CONTAMINATED INSOLUBLE OIL	D001 F001 F002	PK,1,3,7,8,9
1421	OILY RAGS, PADS, GLOVES AND PLASTIC WITH GREASE	D008	PK,1,4,6,9
1423	CONTAMINATED INSOLUBLE OIL	D008 D009 D039 D040 F001 F002 F003 F005	PK,1,3,7,8,9
1425	CONTAMINATED RAGS PAPER POLYETHYLENE FROM RMI	D005 F001	PK,1,4,5,9
1427	MOP HEADS AND PADS CONTAMINATED WITH 1,1,1 - TRICHLOROETHANE	F002	PK,1,4,5,9
1428	SPILL CLEANUP MATERIAL FROM BLDG 79 RCRA STORAGE PAD	F001 F002	PK
1429	CONTAMINATED ORGANIC CHEMICAL SOLVENT	D001 D008 D018 D028 D035	PK,1,3,7,8,9
1430	PLASTIC SHEETING, GLOVES, FLOOR SWEEPINGS	D010	PK,1,3,4,5,7,8,9
1432	NON-CHLORIDE CONTAMINATED SUMP LIQUOR (KEROSENE)	D001	1,3,7,8,9
1433	NON-OILY CLEANOUT SLUDGES FOR ROASTING	D039	PK,1,3,4,7,8,9
1434	SUMP WASTE FROM PLT 1 PAINTING BOOTH	D001 D008 F003 F005	PK,1,3,7,8,9
1462	CONTAMINATED WATER FROM CHEMICAL PIT #2 SURFACE CAP	D002	PK,1,3,7,8,9

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RCRA REGULATED HAZARDOUS WASTE STREAMS

WASTE ID #	WASTE NAME	U.S. EPA HAZARDOUS WASTE #	DETERMINATION BASIS
1501	SPILL CLEANUPS OF OIL AND GAS FROM GASOLINE ENGINES	D018	MSDS
1504	FLAMMABLE PAINTS AND PAINT RELATED PRODUCTS	D001	MSDS
1532	BIODENITRIFICATION SURGE LAGOON SLUDGE	D018 D039	PK,2,4,7,9,11
1536	RAINWATER FROM WASTE PIT AREA	F001 F002	PK
1537	FILTER MATERIAL - SAND, GRAVEL, FLYASH	F001 F002	PK
1544	MAGNESIUM	D001 D003	PK
1550	URANIUM HEXAFLUORIDE AND URANIUM TETRAFLUORIDE	D003	MSDS
1560	BLACK OXIDE FROM CRUCIBLE BURNOUT	D004	MSDS
1575	URANYL NITRATE (UNH)	D001	PK
1585	LEAD ACID BATTERY (BROKEN)	D002 D008	MSDS
1589	RAFFINATES - NON-NEUTRALIZED	D001 D002	MSDS
1613	123 PROCESSOR CLEANER	D002	MSDS
1617	CONTAMINATED PPE, PLASTIC, TRASH (CONTACT WASTE)	F001 F003 F005	PK
1620	VEGETATION FROM THE ETF CLOSURE	F001 F002	PK
1621	HYDROCHLORIC ACID	D002 D006 D007 D008	PK,4,7
1622	NITRIC ACID	D002 D006 D007 D008	4
1665	ELECTROSTATIC MASTER LIQUID DEVELOPER	D001	MSDS
1667	ISOPROPYL ALCOHOL	D001	MSDS
1691	HYDROFLUORIC ACID	D002 U134	MSDS
1692	NITRIC ACID	D002 D007	PK,MSDS
1694	QC WATER BLANKS	D006 D009 D010 D011 D018 D039 D040	1,4,9
1705	LAB GENERATED WASTE, OIL FROM TCLP EXTRACTS	D001 D004 D006 D008 D010	1,3,7,8,9
1706	LAB WASTE, TCLP EXTRACT	D018 D021 D035 D038 D039 D040 D043 F002 F005	PK,1,4,7,8,9
1707	LAB GENERATED WASTE, ACID DIGESTATES	D002 D007 D008 D019 D028 D039 F001 F002	PK,2,4,7,8,9,11,12
1708	LAB GENERATED WASTE, METHYLENE CHLORIDE EXTRACTS	F002	PK,2,4,7,8,9
1709	LAB GENERATED WASTE FLAMMABLE ORGANIC EXTRACTS	D001 D002	PK,2,4,7,8,9
1710	ORGANIC LIQUID WASTE	D001 D010 F002	PK,1,3,7,8,11,12
1711	METALS EXTRACTS AND DIGESTS	D002 D008 D009 D010 F001 F002 F005	PK,1,3,7,8,11,12
1712	DIGEST FROM MERCURY LAB WASTE	D002 D008 D010	1,3,7,8,11,12
1713	OIL FROM TCLP EXTRACTS	D040 F001 F002 F005	PK,1,3,8,11,12
1714	VOLATILE SOLID WASTE	D010	2,4,11,12
1715	CONTACT WASTE (LAB GENERATED WASTE)	D004 D008 D010 F001 F002 F005	2,4,7,11,12
1716	LAB GENERATED WASTE, CONTACT WASTE SOLID	F001 F002 F005	PK,1,4,11,12
1725	LUBRICATING OIL FROM GASOLINE ENGINES	D018	MSDS
1728	CRANKCASE OIL	D018	MSDS
1729	GASOLINE	D001 D008 D018	1,3,5-9
1731	LEAD	D008	PK
1737	HARDENER	D002	MSDS
1740	(DOP) DI OCTYL PHTHALATE	U107	PK
1751	SPENT FIXER	D011	MSDS
1764	MULTILITH BLANKROLA SOLVENT	D039	MSDS
1773	CONCENTRATE FIXER	D011	PK
1775	DEGLAZING SOLVENT	F002	PK,MSDS
1789	UNH	D004 D006 D007 D008 D010	4,7,9,13
1799	USED MINERAL SPIRITS	D001 D018	MSDS
1815	SPENT FUELS	D001 D018	MSDS
1819	WHATMAN RAD-CON	D001	MSDS
1822	SPRAY ADHESIVE	D001	MSDS
1829	AEROSOL PAINT	D001	MSDS
1841	SOIL	F001 F002	PK,1,9,11
1842	GRASS ON THE SOIL	F001 F002	PK,1,9,11
1849	BUFFER SOLUTIONS PH 1 & 2	D002	MSDS
1856	SOLVENT CONTAINING MATERIAL, NON-SPECIFIC ORIGIN	F001 F002	PK,1,4,9
1895	PAINT BRUSHES WITH DRIED PAINT	D007 D008	PK
1904	CENOLLO E100 OVERNIGHT SPRAY	D001	MSDS
1906	HF-TANK CLEAN-OUT MATERIAL	U134	PK,MSDS,5
1922	LEAD SHIELDING FROM X-RAY SYSTEM	D008	PK
1927	METALS EXTRACTS AND DIGESTS (IGNITABLE)(LAB GENERATED WASTE)	D001 D002 D008 D009 D010 F001 F002 F003 F005	PK,1,3,7,8,11,12
1928	COMPUBLEND CLEANING LIQUID (IGNITIBLE)	D001	MSDS

NOTE: SEE FINAL PAGE FOR KEY TO DETERMINATION BASIS CODES

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RCRA REGULATED HAZARDOUS WASTE STREAMS

WASTE ID #	WASTE NAME	U.S. EPA HAZARDOUS WASTE #	DETERMINATION BASIS
1937	COMPUBLEND CLEANING LIQUID (CORROSIVE)	D002	MSDS
1938	LIQUID SOLVENT WASTE FROM PAINT BOOTH SUMP	D007 D008 D010 F005	PK,1,3,7,8,9
1946	SOIL CUTTINGS FROM OUTDOOR FIRING RANGE	D008	1,4,9,11
1949	DRAW TEMP 275	D001	PK,MSDS,5
1952	TBP & KEROSENE DAAP & SOLVLESSO	D001 D008	1,4,8
1969	FLAMMABLE AEROSOLS	D001 D007 D008 D018 D019 D035 D039	MSDS
1973	ETHOXYETHANEL, MIBK, METHOXYETHONAL 1,4 DIOXANE, ETHYL ETHER	D001 U108 U117 U181 U213 U359	PK
1974	ANYDROUS ETHER, STABILIZED	D001 U117	PK
1975	PVC PIPING FROM PLT 6 PERCHED WATER EXTRACTION PROJECT	F001	PK,2,4,9,10,11,12
1987	LEAD & DEBRIS	D008	PK
1998	METHANOL AND CYCLOHEXANE	D001 F003	PK,MSDS
1999	NESSLER, REAGENT, COD DIGESTION SOLUTION ROCHELLE SALT	D002 D007 D009 D011	PK,MSDS
2006	CURING COMPOUND	D001	MSDS
2014	EPOXY-PRIME COAT LDC-1000	D001 D035	MSDS
2016	PAINT BITUMASTIC 300 M A & B COLD TAR COATING	D001 D018 D026	MSDS
2021	BARIUM CARBONATE	D005	MSDS
2024	PAINT	D005	MSDS
2036	SAVIN PRODUCT CODE 4537 T-D PAK 4522 SAVIN 765 DISPERSANT	D001	MSDS
2037	SAVIN PRODUCT CODE 4536	D001	MSDS
2048	SOLIDIFIED LAB WASTE	F001 F002 F005	PK
2053	SILVER THIOSULFATE	D011	MSDS,PK
2063	TEXO CORP. TEXOL-7	D001	MSDS
2064	DIVERSEY SUPER MUL SOLVENT CLEANER	D001	MSDS
2066	VESTAL DOUBLE BARREL CLEANER	D002	MSDS
2067	STATE ACIDINE ACID SCALE AND RUST REMOVER	D002	PK,MSDS
	STATE NO. 810 ALUMINUM BRIGHTENER	D002	MSDS
	SKC OXIDIZER TUBES	D007	PK,MSDS
2090	VARIOUS AA LAMPS	D005 D006 D008	PK,4
2120	LITHIUM BATTERIES	D003	PK,MSDS
2210	HYDROGEN PEROXIDE SOLUTION	D001	PK,MSDS
2211	USED MERCURY FROM MISC. EQUIPMENT	D009	PK,MSDS
2224	FLOOR COATING BASE	D001	PK,MSDS
2235	LAB GENERATED WASTE ORGANIC LIQUID WASTE	D010 F002	PK,1,3,7,8
2257	TCLP EXTRACTS LAB GENERATED WASTE	D002	PK,3,7,8
2259	TCLP LEACHATE	D009 F001 F002	PK,5
2362	RADIOACTIVE ACIDIC LAB WASTE FROM THE ANALYSIS OF SAMPLES	D002 D007 D008 D018 D035 D039 D040	PK,1,3,7,8,9,11
2363	RADIOACTIVE CAUSTIC LAB WASTE FROM THE ANALYSIS OF SAMPLES	D001 D002 D006 D008 D009 D018 D035 D038 D039 D040	PK,1,3,7,8,9,11
2364	RADIOACTIVE NEUTRAL LAB WASTE FROM THE ANALYSIS OF SAMPLES	D001 D006 D007 D008 D018 D035 D039 D040	PK,1,3,7,8,9,11
2395	CONTACT WASTE FROM CTC LAB	D007 D008 D009 D039 F001 F002 F005	PK
2401	CONTACT WASTE FROM PACD SAMPLING	F001 F002 F003 F005	PK
2402	WATER USED TO CLEAN SAMPLING EQUIPMENT	F001 F002 F005	PK
2403	DIRT, ROCKS, AND WOOD WITH LIQUID; UNKNOWN SOURCE	D001	PK,1,3,4,5,7,8,9
2418	BROKEN GLASS AND OLD FLOURESCENT LIGHT BULBS	D009	PK,MSDS,5
2425	CTC CORROSIVE WASTE	D002 F001 F002 F005	PK
2443	TRASH AND DEBRIS FROM UNKNOWN SOURCE	D008	PK,1,4,5,9
2465	CONTAMINATED WATER/SUMP LIQUOR FROM UNKNOWN SOURCE	D001 D007 D008 D010	PK,1,3,7,8,9
2489	LAB PACK	PLCS	PK
2498	SUMP LIQUOR	D008 D012 D039 F002 F003	MSDS,PK,1,3,7,8,9,12
2499	CONCRETE ABANDONED PILOT PLANT SUMP	F002 F003	PK,1,4,9,13
2500	METAL TANK ABANDONED PILOT PLANT SUMP	F002 F003	PK
2501	SOILS ABANDONED PILOT PLANT SUMP	F002 F003	1,3,4,12
2507	PILOT PLANT SUMP (HWMU) BOTTOMS/SEDIMENT	D007 D008 D009 D039 F002 F003	MSDS,PK,1,4,9
2524	ALKALINE CONTAMINATED SUMP WATER FROM DECON. PAD	D002	PK,1,3,4,7,8
2527	PAPER, PLASTIC, PPE (TYVEK, SARANEX) ABSORBENT PADS	F002 F003	PK
2530	MAGNAFLUX CLEANER	F002	MSDS,PK
	GASOLINE/DIESEL FUEL FILTERS	D018	PK,MSDS
	LAB PACKS	PLCS	PK
	CONTAMINATED PALLETS	D039	MSDS,PK
2599	LAB PACKS, NON-RAD CONTAMINATED	PLC	PK,MSDS

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WASTE ID #	WASTE NAME	U.S. EPA HAZARDOUS WASTE #	DETERMINATION BASIS
10002	SCRAP SALTS	D005 D008	1,4,9
10003	OILY OXIDATION SLUDGES WITH HIGH FREE METAL	D001 D039 F001	1,4,7,8,9
10004	CONTAMINATED SOLVENT - TRICHLOR, PERCHLOR	D007 D018 D019 D021 D029 D039 D040 F001	PK,1,4,7,8,9
10005	CONTAMINATED SOIL, ROCKS, BRICKS AND CERAMICS	D008	1,4,9
10006	CONTAMINATED OIL - INSOLUBLE	D008 D009 D039 F002 F003 F005	PK,1,2,4,7,8,9
10007	OILY SLUDGES	D007 F001	1,4,7,8,9
10009	SLUDGES - SOLVENT (TRICHLOR, PERCHLOR, ETC.)	D001 D008 D035 F005	1,4,7,8,9
10010	SLUDGES, OILY	D029 D039 D040 F001	PK,1,4,7,8,9
10011	CONTAMINATED BURNABLES	D005	PK,1,4,9
10012	CONTAMINATED BURNABLES	D029 D039 D040 F001	PK,1,4,9
10013	SUMP CAKE	D005 D007	1,4,9
10014	U-CONTAMINATED WATER	D039	1,4,9
10015	U-CONTAMINATED WATER FROM PILOT PLANT EXTRACTION AREA	D039	1,4,7,8,9
10016	OILY SLUDGE	D010 D035 F001	PK,1,4,7,8,9
10021	SLUDGES, OILY	D008 D039 D040 F001	PK,1,4,7,8,9
10022	GRIT-BLAST	D008	3,4,9
10023	NON-RECOVERABLE TRASH	D008 F001	PK,1,3,10
10024	TRASH CONT. TO SOLVENT	D018 F001	PK,1,4,5,9
10025	CONTAMINATED SOIL AND ROCKS	D005	PK
10026	1,1,1-TRICHLOROETHANE STILL BOTTOMS	D001 F001	PK,2,4,7,8,9
10027	CONTAMINATED OIL, INSOLUBLE	D039 D040 F001	MSDS,PK,1,4,7,8,9
10028	SLUDGES, OILY	D008 F001	PK,2,4
10029	CONTAMINATED INSOLUBLE OIL	D006 D007 D008 D019 D029 D040 F001	PK,1,4,7,8,9
10030	CONTAMINATED SOLVENTS (METHANOL)	D001 F003	PK
10031	FLOOR SUMP CLEANOUT SLUDGE	D029 D039 F001	PK,1,4,7,8,9
10032	CONTAMINATED OIL, INSOLUBLE	F001	PK,2,4
10034	BENZENE (LABPACKED)	D001 D018 U019	PK
10035	CARBON TETRACHLORIDE (LABPACKED)	D019 U211	PK
10036	ETHYL ETHER (LABPACKED)	D001 U117	PK
20003	DEGREASING SOLVENT	D001 D019 D022 D028 D029 D035 D039 D040 F001 F003 F005	PK,1,2,9,11
20006	OIL CONTAMINATED WET SUMP OR FILTER CAKE	F002	1,4,7,8,9
20007	OIL CONTAMINATED WET SUMP OR FILTER CAKE	D011	1,4,7,8,9
20015	SCRAP SALTS AND FLOOR SWEEPINGS - LOW FLUORIDE	D007	PK,1,4,5,9
20021	CONTAMINATED INSOLUBLE OIL	D019 D029 D039 D040 F001	PK,1,2,4,7,8,9
20024	SCRAP SALTS AND FLOOR SWEEPINGS - HIGH FLUORIDE	D007 D008	1,4,9
20027	DUST COLLECTOR RESIDUES - HIGH FLUORIDE	D004 D011	2,4,9,11
20028	CONTAMINATED OIL - INSOLUBLE	D039 D040 F001	1,2,4,7,8,9
20031	CONTAMINATED OIL, INSOLUBLE GEAR OIL, LUBRICATING OIL	D008 D018 D019 D028 D029 D039 D040 F002	1,2,4,7,8,9
20033	DRY DUST COLLECTOR POWDER	D008	1,4,9,11
20035	DUST COLLECTOR RESIDUES - HIGH FLUORIDE	D007	4,9
20036	SCRAP SALTS AND FLOOR SWEEPINGS - LOW FLUORIDE	F001	PK,2,4,9,11
20037	PROCESS RESIDUES, TRAILER CAKES, SLURRIES, RAFFINATES	D029	2,4,9,11
20038	CONTAMINATED OIL - INSOLUBLE	D006 D008 D018 D019 D028 D029 D039 D040 F002 F005	PK,1,2,4,7,8,9,11
20045	CONTAMINATED TBP AND/OR KEROSENE MIXTURES AND SLUDGES	D019 D022 D039 F002	PK,1,2,4,7,8,9,11
20046	NON-METALLIC MISCELLANEOUS SAMPLES	D007	3,9
20047	SCRAP SALTS AND FLOOR SWEEPINGS - LOW FLUORIDE	D004 D008	2,4,9,11
20048	PROCESS RESIDUES, TRAILER CAKES, SLURRIES, RAFFINATES	F005	PK,1,4,9
20054	CONTAMINATED SOLVENT - TRICHLOR, PERCHLOR	D019 D022 D028 D029 D039 F001 F005	PK,1,2,4,7,8,9
20055	CONTAMINATED OIL - INSOLUBLE	D029 D039 F002	PK,1,2,4,7,8,9,11
20058	DUST COLLECTOR RESIDUES - HIGH FLUORIDE	D008 D008	1,4,9
20092	CONTAMINATED BURNABLES	F001 F005	PK,1,4,9
20094	CONTAMINATED BURNABLES, RAGS, FILTER, CLOTH	D008 D011 F001	PK,1,4,7,8,9
20095	RAGS CONTAMINATED, TETRACHLOROETHYLENE SILVER	D011 D039	PK,1,4,9
20107	GRIT-BLAST RESIDUE FROM LEAD PAINT REMOVAL ON EAST TOWER	D008	PK,1,4,5,9
20109	DUST COLLECTOR BAGS	D004 D006 D008	1,4,9
20114	CONTAMINATED BURNABLES	F001	PK,1,4,7,8,9
20120	DUST COLLECTOR BAGS	D007	4,9
20139	SAMPLES, NON-METALLIC	D005	1,4,7,8,9
20142	CONTAMINATED TBP-KEROSENE	D001 D019 D022 D039 F002 F003	PK,1,2,4,7,8,9,11

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RCRA REGULATED HAZARDOUS WASTE STREAMS

WASTE ID #	WASTE NAME	U.S. EPA HAZARDOUS WASTE #	DETERMINATION BASIS
20143	NON-RECOVERABLE TRASH	D011	1,4,5,7,8,9
20145	DECANTED WATER FROM SUMP/FILTER CAKES	D002 D007	PK,1,3,4,7,8,9
30004	INCINERATOR CINDERS	F001	1,4,9
30005	OILY SLUDGES	D001 D019 D039 D040 F001 F003 F005	PK,1,4,7,8,9
30009	SCRAP SALTS AND FLOOR SWEEPINGS - HIGH FLUORIDE	D008	4,9
30010	WET SUMP OR FILTER CAKE - OIL CONTAMINATED	D039 D040 F002	PK,1,7,8,9
30018	WET SUMP OR FILTER CAKE - NON-OILY, NON-HALIDE	D039 F002	PK,1,4,7,9
30026	NON-OILY CLEANOUT SLUDGES FOR ROASTING	D039 F002	PK,1,4,7,8,9
30027	CONTAMINATED SOIL, ROCKS, BRICKS AND CERAMICS	D004 D005 D007 D008 D010 D011	1,2,4,5,7,8,9
30033	CONTAMINATED SOLVENT - TRICHLOR, PERCHLOR	D001 D039 F003 F005	PK,1,4,5,7,8,9
30034	OIL CONTAMINATED WITH SOLVENTS (TANK 5)	D018 F001	PK,2,4,7,8,9
30036	DUST COLLECTOR RESIDUES - HIGH FLUORIDE	D006 D008	1,4,9
30037	PROCESS RESIDUES, TRAILER CAKES, SLURRIES, RAFFINATES	D039 F002	PK,1,4,9
30039	CONTAMINATED ROCKS, SOIL, ETC., WITH NO FREE LIQUIDS	D011	1,2,4,7,8,9
30042	WET SUMP OR FILTER CAKE - NON-OILY, NON-HALIDE	D039 F002	PK,1,4,9
30045	OILY SLUDGES, HIGH FREE METAL	D001	1,4,7,8,9
30046	NON-OILY CLEANOUT SLUDGES FOR ROASTING	D019 F001	1,4,7,8,9
30047	SOLVENT SLUDGE, TRICHLOR, PERCHLOR, ETC...	D007 D011	1,4,9
30051	MAGNESIUM FLUORIDE SAMPLES	D001 D003	PK,5
30053	PROCESS RESIDUES, TRAILER CAKES, SLURRIES, RAFFINATES	D006 D007 D008 D018 D040 F002 F005	PK,1,4,9
30060	WET SUMP OR FILTER CAKE - NON-OILY, NON-HALIDE	D005	1,4,9
30065	CONTAMINATED NON-BURNABLES	D008	4,9
30074	CONTAMINATED NON-BURNABLES	F002	PK,1,4,5,9
30075	CONTAMINATED NON-BURNABLES	F002	PK,1,4,5,9
30080	CONTAMINATED SOIL, ROCKS, DEBRIS, W/ FREE LIQUIDS	D002 D004 D007 D008 D011	1,2,4,7,8,9
40122	DISCARD PROCESS RESIDUES, TRAILER CAKES, SLURRIES, RAFFINATES	D002	1,4,7,8,9
40122	CONTAMINATED NON-BURNABLES	D004 D008 D011 F005	PK,1,4,5,6,9
40122	THORIUM TRAILER CAKES, WASTE SLURRIES	D002 D005 D009	1,3,8
40137	UNFIRED REDUCTION CHARGES PLUS CaF2	D001	PK,MSDS
40152	SCRAP THO2 -HIGH F	D005	4,5
40181	THORIUM NITRATE SOLUTION	D002 D007 D008	PK
40182	THORIUM NITRATE SOLUTION	D002 D007 D008	PK
40185	IMPURE THORIUM NITRATE (SOLID)	D001 D007 D008	PK
40186	IMPURE THORIUM NITRATE (SOLID)	D001 D007 D008	PK
40187	IMPURE THORIUM NITRATE (SOLID)	D001 D007 D008	PK
40188	IMPURE THORIUM NITRATE (SOLID)	D001 D007 D008	PK
40189	IMPURE THORIUM NITRATE (SOLID)	D001 D007 D008	PK
40192	THO2 POWDER REFINERY FEED	D008	7
50002	NON-RECOVERABLE TRASH	D001 F003 F005	PK,1,4,7,8,9
50006	SUMP CAKE - COPPER CONTAMINATED	D001	1,4,7,8,9
50010	NON-RECOVERABLE TRASH	F002 F005	PK,1,4,5,7,8,9
50014	NON-RECOVERABLE TRASH	D019 F002	PK,1,4,5,7,8,9
50022	CONTAMINATED WATER	D001 F003	PK,1,4,7,8,9
50025	CONTAMINATED GRAPHITE	F001 F002	PK,9
50031	CONTAMINATED METALLIC FILTER ELEMENTS AND OIL	D008 D010	1,4,5,8,9
50036	CONTAMINATED BURNABLE	D007 F002	PK,1,4,9
50058	DUST COLLECTOR BAGS	D007	PK,1,4,9
50063	ROASTED MG F2/OTHER MATERIAL	D004 D008	4,9
50068	NON-OILY SLUDGE FOR ROASTING	D001	1,4,7,8,9
50070	NON-OILY SLUDGE FOR ROASTING	D008 F001 F002	PK,1,4,7,8,9
50071	SOLVENT SLUDGE	D001 D007	1,4,8,9
50072	CONTAMINATED SUMP WATER AND HYDRAULIC OIL	D001 D008 D019 D039 D040 F002 F003 F005	PK,1,4,7,8,9
50079	INCINERATOR CINDERS	F002	5
50085	WET CAKE, NON-OILY/HALIDE	D001 F002 F003 F005	PK,1,4,7,8,9
50089	CONTAMINATED MAGNESIUM	D001 D003	PK,9
50090	CONTAMINATED MAGNESIUM	D001 D003	PK,9
50091	DUST COLLECTOR RESIDUES -	D004 D008	4,9
50092	CONTAMINATED INSOLUBLE OIL	D007	1,4,7,8,9
50096	CONTAMINATED SOLVENTS FROM WATER TREATMENT	D001 D007 F003	PK,1,4,7,8,9

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WASTE ID #	WASTE NAME	U.S. EPA HAZARDOUS WASTE #	DETERMINATION BASIS
50102	PROCESS RESIDUES, TRAILER CAKES, SLURRIES, RAFFINATES	D006 D008	1,4,9
50113	ROASTED CALCIUM-PRECIPITATED SUMP AND FILTER CAKES	F001	PK,1,4,9
50129	SCRAP U3O8 - LOW F	F001	PK,4,9
50131	SCRAP U3O8 - LOW F	F002	PK,9
50139	U3O8, +8MESH, LOW F	D039	1,4,5,9
50148	SCRAP U3O8 HIGH F	D004	1,4,6,7,8,9
50152	SCRAP U3O8 OR ThO2, HIGH FLUORIDE	F002	PK,9
50154	ROASTED CALCIUM-PRECIPITATED SUMP OR FILTER CAKES	F001	PK,1,4,9
50165	ROASTED OFF-SITE SUMP CAKE	D007	4,9
50169	NON-OILY SLUDGE FOR ROASTING	D007	1,4,9
50170	SALT SLUDGE FOR PLANT 8	D004 D019 D039 F002	PK,1,4,9
50173	SALT SLUDGE, CHLORIDE	D007	1,4,7,8,9
50174	SALT SLUDGE, CHLORIDE	D007	PK,MSDS,4,6,7,8,9
50175	SALT SLUDGE, CHLORIDE	F002	PK,1,4,7,8,9
50177	FURNACE SALT, NON CHLORIDE	D001 D004 D008	4,7,8,9
50178	FURNACE SALT, NON-CHLORIDE	D001	4,7,8,9
50180	FURNACE SALT, NON-CHLORIDE	D007 D008 D010	1,4,9
50183	SCRAP SALTS, LOW F	F001	PK,1,4,9
50185	SCRAP SALT, HIGH F	D009	4,5,9
50188	SCRAP SALTS, HIGH F	D004 D007 D008 D010	1,4,9
50197	SLUDGES FOR BLENDING	D007	1,2,6,7,8,9
50200	OILY SLUDGE FOR OXIDATION	D001 F001	1,4,7,8,9
50202	OILY SLUDGE FOR OXIDATION	D001 D010	1,4,7,8,9
50203	OILY SLUDGE FOR OXIDATION	D008	1,4,9
50204	OILY SLUDGE FOR OXIDATION	D001 D010	1,4,7,8,9
50293	U3O8 FOR REOXIDATION	D004	4,9
50314	SCRAP SALTS AND FLOOR SWEEPINGS - HIGH FLUORIDE	D010	1,4,9
50323	SOLIDIFIED FURNACE SALTS - NON-CHLORIDE	D004	4,7,8,9
50339	SLUDGES, OILY, FOR OXIDATION, HIGH FREE METAL	F002	PK,1,4,7,8,9
50346	OILY SLUDGE FOR OXIDATION	D001	1,4,7,8,9
50347	DISCARD PROCESS RESIDUE	D001	1,4,7,8,9
50349	DUST COLLECTOR RESIDUES - HIGH FLORIDE	D008	PK,1,4,9
50351	DUST COLLECTOR RESIDUES-HIGH FLOURIDE	D004 D008	4,7,8,9
50355	DISCARD PROCESS RESIDUE	D001	1,4,7,8,9
50358	CONTAMINATED NON-BURNABLE	D001	1,4,7,8,9
50359	NON-RECOVERABLE TRASH	F002	PK,1,4,6,9
50361	NON-RECOVERABLE TRASH	D009	5
50364	U3O8, +8MESH, LOW F	D007 F001 F002	PK,4,5,9
50367	NON-RECOVERABLE TRASH	D008	PK,9
50387	SALT SLUDGE, CHLORIDE	D005	PK,4,9
50405	NON-RECOVERABLE TRASH	D006 D007	4,5,7,8,9
50406	FURNACE SALT, CHLORIDE	D004 D011	4,5,9
50407	NON-RECOVERABLE TRASH	D001	1,3,5,6,8,9
50408	FURNACE SALT NON-CHLORIDE	D008 D010	4,7,8,9
60017	OILY RAGS AND CLOTHING	D039	PK,2,3,4,9
60055	LEADED GASOLINE FROM TANK # 12	D001 D008 D018	PK,MSDS,1,3,8,9
60056	USED CHLORINATED SOLVENT MIXTURE	D001 D007 D008 D009 D039 F002	PK,MSDS,1,3,7,8,9
60059	USED 1,1,1 TRICHLOROETHANE MIXTURE	D001 D008 F002	PK,MSDS,1,3,6,9
60062	CONTAMINATED INSOLUBLE OIL	D001 D008 D009 F002	PK,1,3,7,8,9
60067	USED OIL WITH 1,1,1 TRICHLOROETHANE	D008 F002	PK,1,4,7,8,9
60068	CONTAMINATED INSOLUBLE OIL	D008 F001	1,4,7,8,9
60069	CONTAMINATED INSOLUBLE OIL	D008 F001	1,4,7,8,9
60072	SOLVENT CONTAMINATED WASTE OIL	D008 F002	PK,1,4,7,8,9
60083	CONTAMINATED INSOLUBLE OIL	D001 D008 D019 F002	1,4,7,8,9
60085	CONTAMINATED INSOLUBLE OIL	D001 D005 D006 D007 D008 D010 F002	1,3,4,7,8,9
60087	USED OIL CONTAMINATED WITH SOLVENTS	D001 D008 D039 F002	PK,1,3,8,9
60099	RAGS, SCREEN, PLASTIC AND PAPER	D008	PK,1,2,3,4,6,9
60100	CONTAMINATED BURNABLE TRASH	D039 U210	PK,MSDS,5
60105	CONTAMINATED BURNABLE TRASH	D006 D007	PK,4,6,9

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REVISED: 01-Jul-94

RCRA REGULATED HAZARDOUS WASTE STREAMS

WASTE ID #	WASTE NAME	U.S. EPA HAZARDOUS WASTE #	DETERMINATION BASIS
60119	SLUDGES, OILY, FOR OXIDATION HIGH FREE METAL	D001 F001 F002	PK,1,2,4,5,6,7,8,9
60123	SOLVENT SEMISOLID	D039 F002	PK,1,2,4,5,6,7,8,9
60140	STEEL SHOT	D010	PK,MSDS,1,4,9
60149	U3O8 FROM BOX FURNACE	F001 F002	PK,1,4,9
60152	U3O8 ROTEXED PLANT 8 FURNACE PRODUCT	F001	PK,1,4,9
60160	IMPURE UNH	D001	PK,MSDS
60193	PURE UNH SOLUTION	D001 D002	PK,MSDS
60307	FURNACE SALT, SOLIDIFIED, CHLORIDE (PLANT 8 RECOVERY)	D005 D008	PK
60331	WATER\GAS MIXTURE TANK #9	D001 D018	1,4,7,8,9
60450	CRUCIBLE COATING POWERS	D007	PK,MSDS

Key to "Determination Basis" Codes :

PK Process Knowledge
 MSDS Material Safety Data Sheet

ANALYSES:

- | | |
|------------------------------------|-------------------------------|
| 1 Total Volatile Organic | 8 Flash Point |
| 2 TCLP Volatile Organic | 9 U-Total, % U235 |
| 3 Total (TC) Metals | 10 PCBs |
| 4 TCLP Metals | 11 Total Semivolatile Organic |
| 5 Visual Inspection of Waste | 12 Total Pesticides |
| 6 Paint Filter Liquids Test (PFLT) | 13 Total Thorium |
| 7 pH | |

TABLE C-6
TEST METHODS

Analyte or Class of Anilities	Analytical Method(s) [wastewater]	Analytical Methods(s) [nonwastewater]
Volatile Organic Compounds	SW-846 8240, SW-846 8260, or EPA 524.2	SW-846 8240, SW-846 8260, or EPA 524.2
Semi-Volatile Organic Compounds	SW-846 8270	SW-846 8270
Chlorinated Pesticides and PCBs	SW-846 8080	SW-846 8080
Organophosphorus Pesticides	SW-846 8140	SW-846 8140
Herbicides	SW-846 8150	SW-846 8150
Aromatic Volatile Organics	SW-846 8020	SW-846 8020
Halogenated Volatile Organics	SW-846 8010	SW-846 8010
Purgable Organic Halogens	SW-846 9021	SW-846 9021
Metals by GFAA	SW-846 7000 series or SW-846 3500 series	SW-846 7000 series or SW-846 3500 series
Metals by AAS (Flame)	SW-846 7000 series or SW-846 3500 series	SW-846 7000 series or SW-846 3500 series
Metals by ICP	SW-846 6010 series or SW-846 3500 series	SW-846 6010 series or SW-846 3500 series
Mercury by Cold Vapor AAS	SW-846 7470	SW-846 7471
Paint Filter Test	SW-846 9095	SW-846 9095
Corrosivity	SW-846 9040	SW-846 9040
Soil pH		SW-846 9045
Ignitability	SW-846 1010	SW-846 1010
Color	ASTM D4979-89	ASTM D4979-89
Physical State	ASTM D4979-89	ASTM D4979-89
Specific Gravity	ASTM D5057-90	ASTM D5057-90
Oxidizer Screen	ASTM D4981-89	ASTM D4981-89

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ATTACHMENT C-1

WASTE DETERMINATION PLAN

This document remains attached and applicable although not mentioned in the text of this submittal. Upon OEPA finding the waste analysis plan (Section C) technically adequate, but prior to finalizing the RCRA Part B Permit, this attachment will be removed. The waste analysis plan will supersede the waste determination plan. A letter will be drafted from DOE-FN to the appropriate parties involved at that time.

Outline ID No.	Description	Location in Text
C-1	Chemical and physical analyses	p. 8, 31
C-1a	Containerized wastes	p. 8, 31
C-1b	Waste in tank systems	NA
C-1c	Waste in piles	NA
C-1d	Landfilled wastes	NA
C-1e	Wastes incinerated and wastes used in performance	NA
C-1f	Wastes to be land treated	NA
C-1g	Wastes in miscellaneous treatment units	NA
C-2	Waste analysis plan	p. 8
C-2a	Parameters and rationale	p. 8/ Table C-3
C-2b	Test methods	p. 9/ Table C-6
C-2c	Sampling methods	p. 12/ Table C-8
C-2d	Frequency of analyses	p. 24
C-2e	Additional requirements for wastes generated off-site	p. 26
C-2f	Additional requirements for ignitable, reactive or incompatible wastes	p. 11
C-3	Waste analysis requirements pertaining to land disposal restrictions	p. 8
C-3a	Waste characterization	p. 3, 7, 18 Attachment C-4
C-3a(1)	Waste characteristics: solvent wastes and dioxin containing wastes	p. 18
C-3a(2)	Waste characteristics: California list wastes	p. 19
C-3a(3)	Waste characteristics: First third wastes with treatment standards	p. 21

Outline ID No.	Description	Location in Text
C-3a(4)	Waste characteristics: second third wastes with treatment standards	p. 21
C-3a(5)	Waste characteristics: Soft hammer wastes	NA
C-3a(5)(a)	Soft hammer wastes: California list wastes with treatment standards	NA
C-3a(5)(b)	Soft hammer wastes: California list wastes without treatment standards	NA
C-3b	Notification and certification requirements	p. 35
C-3b(1)	Retention of generator notices and certifications	p. 25
C-3b(2)	Notification and certification for wastes to be further managed	p. 35
C-3b(3)	Notification and certification for soft hammer wastes not subject to California list prohibitions	NA
C-3b(4)	Additional notification and certification requirements for treatment facilities	NA
C-3b(4)(a)	Wastes with treatment standards expressed as concentrations	NA
C-3b(4)(b)	Wastes with treatment standards expressed as technologies	NA
C-3b(4)(c)	California list wastes not subject to treatment standards	NA
C-3b(4)(d)	Recyclable materials used in a manner constituting disposal	NA
C-3b(5)	Additional notification and certification requirements for disposal facilities	NA
C-3b(6)	Notification and certification requirements pertaining to landfill and surface impoundment disposal restrictions	NA

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Outline ID No.	Description	Location in Text
C-3b(6)(a)	Requirements for treatment storage, and recovery facilities	NA
C-3b(6)(b)	Requirements for treatment and recovery facilities	NA
C-3b(6)(c)	Requirements for disposal facilities	NA
C-3c	Additional requirements pertaining to storage of restricted wastes	p. 33
C-3c(1)	Restricted wastes stored in containers	p. 33
C-3c(2)	Restricted wastes stored in tanks	NA
C-3c(3)	Storage of liquid PCB wastes	p. 20
C-3d	Additional requirements for treatment facilities	NA
C-3d(1)	Wastes with treatment standards expressed as concentrations in the waste	NA
C-3d(2)	Wastes with treatment standards expressed as concentrations in the waste extract	NA
C-3d(3)	California list wastes not subject to treatment standards	NA
C-3e	Additional requirements for land disposal facilities	NA
C-3f	Exemptions from and extensions to land disposal restrictions	p. 36
C-3f(1)	Case-by-case extensions to an effective date	NA
C-3f(2)	Exemption from a prohibition	NA
C-3f(3)	Variance from a treatment standard	NA
C-3f(4)	Additional requirements for surface impoundments exempted from land disposal restrictions	NA
C-3f(4)(a)	Treatment of wastes	NA
C-3f(4)(b)	Sampling and testing	NA

Outline ID No.	Description	Location in Text
C-3f(4)(c)	Annual removal of residues	NA
C-3f(4)(d)	Design requirements	NA
C-3g	Requirements for land disposal facilities with an approved exemption or extension	NA

MEMORANDUM # 36

DATE: January 12, 1993
SUBJECT: Notes on RCRA Methods and QA Activities
From: Gail Hansen, Chief
Methods Section (OS-331)

This memo addresses the following topics:

- o 1992 Symposium on Waste Testing and Quality Assurance
- o Issue Discussion Groups
- o Inorganic Methods Workgroup Meeting
- o Organic Methods Workgroup Meeting
- o QA Workgroup Meeting
- o Miscellaneous Methods Workgroup Meeting
- o ICP Discussion Group
- o HPLC Methods Discussion Group
- o SPA Methods Discussion Group
- o SFE Methods Discussion Group
- o SW-846 Update and TCLP Spike Recovery Correction Removal Notice Update
- o Total Analysis Versus TCLP.

The instrument manufacturers are working with the Agency to determine the optimum SFE conditions for the major classes of semivolatile analytes. This input will help expedite development of a broader scope for Method 3560.

For further information on SFE topics, please contact Barry Lesnik at (202) 260-7459.

SW-846 and TCLP Spike Recovery Correction Removal Notice

The final SW-846 Update I rule and the proposed Update II rule packages are both currently at the Office of Management and Budget (OMB) review step in the regulatory process. It is not known how long this review step will take. Once the review by OMB is complete, it is expected that the promulgation of Update I and the proposal of Update II will take at least 2 months.

The rule to delete the matrix spike correction requirement from the TCLP which was finalized on June 29, 1990, has been published (57 FR 55114-56117, November 24, 1992). This rule withdraws the spike recovery correction requirements from the TCLP and, except for a few technical and format changes made in the June 29, 1990 rule revising the TCLP, returns the QA provisions of the TCLP to those promulgated on March 29, 1990 (55 FR 11796). Specifically, this rule requires the method of standard additions as the quantitation method for metallic contaminants when appropriate as specified in the method.

For further information on SW-846 updates or the TCLP rule, please give Kim Kirkland a call at (202) 260-6722.

Totals Analysis Versus TCLP

Over the past year, the Agency has received a number of questions concerning the issue of total constituent analysis with respect to the TCLP. Section 1.2 of the TCLP allows for a compositional (total) analysis in lieu of the TCLP when the constituent of concern is absent from the waste, or if present, is at such a low concentration that the appropriate regulatory level could not be exceeded. A number of persons have contacted the MICE Service and have requested clarification on this issue with respect to a number of waste testing scenarios.

Wastes that contain less than 0.5% dry solids do not require extraction. The waste, after filtration, is defined as the TCLP extract. The filtered extract is then analyzed and the resulting concentrations are compared directly to the appropriate regulatory concentration.

For wastes that are 100% solid as defined by the TCLP, the maximum theoretical leachate concentration can be calculated by dividing the total concentration of the constituent by 20. The dilution factor of 20 reflects the liquid to solid ratio employed in the extraction procedure. This value then can be compared to the appropriate regulatory concentration. If this value is below the regulatory concentration, the TCLP need not be performed. If the value is above the regulatory concentration, the waste may then be subjected to the TCLP to determine its regulatory status.

The same principal applies to wastes that are less than 100% solid (i.e., wastes that have filterable liquid). In this case however, both the liquid and solid portion of the waste are analyzed for total constituency and the results are combined to determine the maximum leachable concentration of the waste. The following equation may be used to calculate this value.

$$\frac{[A \times B] + [C \times D]}{B + \left[20 \frac{L}{kg} \times D\right]} = E$$

- where:
- A = concentration of the analyte in liquid portion of the sample (mg/L)
 - B = Volume of the liquid portion of the sample (L)
 - C = Concentration of analyte in the solid portion of the sample (mg/kg)
 - D = Weight of the solid portion of the sample (kg)
 - E = Maximum theoretical concentration in leachate (mg/L)

To illustrate this point, the following example is provided:

An analyst wishes to determine if a lead processing sludge could fail the TC for lead. The sludge is reported to have a low concentration of lead, and the analyst decides to perform a compositional analysis of the waste instead of a full TCLP evaluation. A representative sample of waste is subjected to a preliminary percent solids determination as described in the TCLP. The percent solids is found to be 75%. Thus, for each 100 grams of this waste filtered, 25 grams of liquid and 75 grams of solid are obtained. It is assumed for the purpose of this calculation that the density of the filterable liquid is equal to one. The liquid and solid portion of the sample are then analyzed for total lead. The following data are generated:

Percent solids = 75%

Concentration of lead in the liquid phase = 0.023 mg/l

Volume of filtered liquid = 0.025 L

Concentration of lead in the solid phase = 85 mg/kg (wet weight)

Weight of the solid phase = 0.075 kg.

The calculated concentration is as follows:

$$\frac{[0.023 \frac{\text{mg}}{\text{L}} \times 0.025\text{L}] + [85 \frac{\text{mg}}{\text{kg}} \times 0.075\text{kg}]}{0.025 \text{ L} + [20 \frac{\text{L}}{\text{kg}} \times 0.075\text{kg}]} = 4.18 \frac{\text{mg}}{\text{L}}$$

In this case, the maximum leachable concentration is below the 5 mg/l regulatory concentration for lead, and the TCLP need not be performed.

Non-aqueous based wastes (i.e., oily wastes) may be calculated in the same manner as described above, except the concentration of constituents from the liquid portion of the waste (A in the above formula) are expressed in mg/kg units. Volumes also would be converted to weight units (kg). The final leachate concentration is expressed in mg/kg units.

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SECTION D - PROCESS INFORMATION

RCRA Part B Permit Application Fernald Environmental Management 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 Environmental Management Project (FEMP). The units to be permitted for container storage of hazardous waste for more than ninety (90) days are:

- CP Storage Warehouse - Building 56 (Butler Building)
- Plant 1 Pad
- Plant 8 Warehouse - Building 80 *
- Pilot Plant Warehouse - Building 68
- KC-2 Warehouse - Building 63 **
- Plant 9 Warehouse - Building 81
- Plant 6 Warehouse - Building 79

* Storage limited to hazardous waste containers without free liquids

** Bay 2 is not used for the storage of hazardous wastes

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) Department maintains surveillance over the storage, movement, measurement, and identification of nuclear materials at the FEMP. Its mission is to control and account for nuclear materials and radioactive wastes in accordance with the Resource Conservation and Recovery Act (RCRA) and Toxic Substances Control Act (TSCA).

Materials accountability records begin with the proper identification of the material. The materials databases are organized by lot and item number to record information about the material and its location. The FEMP lot marking system is used to assign a unique code to each item of material. Materials are grouped by material type 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 Reporting system maintains a perpetual inventory of all materials on site. Input to the MC&A system from the Materials Reporting System consists of the following material transactions: beginning inventory, additions, removals, adjustments, and transfer data. Source records that are generated by operations personnel are entered by Materials Inventory and Reporting Department personnel into databases.

An accurate inventory of all material in storage at the FEMP is an important part of the material control and accountability program. A physical inventory sheet is used by the inventory teams to record all materials. Copies of the completed sheets are forwarded to Materials Inventory and Reporting personnel in their respective areas for review and verification with their internal records. On the first working day of a month when no physical inventory is taken, a book inventory is recorded. All nuclear material shipments, receipts, additions to and removals from inventory are reconciled to generate the month-end book inventory. A book inventory can be obtained after all transactions for the day are entered.

Generators are initially responsible for marking and labeling their hazardous waste containers (See Section C, Waste Characterization, 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 the Waste Characterization Group. When waste characterization conducts the RCRA characterization of a material, a report is submitted to materials inventory and reporting personnel. This information is matched up with current material records as indicated in the database. The new information is keyed into the 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 FEMP'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 used at the facility and their Department of Transportation (DOT) specification are shown in Table D-2.

~~Purchase of hazardous waste storage containers~~ purchased for use at the FEMP meet the DOT specifications (HM-181 standards). The HM-181 standards are performance-oriented standards for container usage, thus the type of container purchased will depend on the type of waste to be stored. The FEMP uses mostly mild steel drums and ~~purchases of those containers will~~ must conform to the standards for steel drums under the HM-181 standards. Each of the other types of

containers purchased for use at the facility will also meet the HM-181 standards. The FEMP has some containers that pre-date before the DOT specification requirements. These pre-DOT containers are inspected on the same schedule as all other containers meeting the DOT requirements to ensure their integrity.

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 shall not be render the container non-acceptable. Bulges that exceed outward from the original surface more than one-inch shall not be acceptable. ~~Drums lids 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 marked 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 Waste Number hazardous waste code, the accumulation start date, and/or hazardous waste determination date. ~~Although not required by RCRA, the~~ The facility lot number, inventory number, drum number, and the gross, net and tare weight are also attached to the drum for internal tracking and inventory purposes. Also, a storage compatibility/Reactivity Group Code (RGC) is marked 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 of tuggers, trailers, forklifts, 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. The riding hand-stacker is used for small movements within the individual unit. All larger drum movements (i.e., from one unit to another or across the site) are accomplished by forklifts ~~(an 8,000 lb. unit)~~ and the tuggers and trailers. ~~Three (3) spark proof riding hand stackers exist on site, one each in the KC 2 Warehouse, the CP Storage Warehouse, and the Plant 6 Warehouse. All other riding hand stackers are 4,000 lb. units with the exception of the 6,000 lb. unit located in the Plant 6 Warehouse.~~

The integrity of the A containers is inspected for dents, leaks, holes, loose dirt, rocks or pebbles, corrosion or rust, and bulges both during storage and prior to transport. Containers are also inspected to ensure they are closed, non-leaking, have proper container labels and markings, and are strapped down for transport. Also, all necessary documentation indicating the contents of the container(s) and records for inventory control are attached to the lid and inspected before movement. Figure D-2 details the steps taken prior to the transport 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 transportation 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 dispatcher or transportation supervisor must be notified by the MVO before movement of any containers occurs.

Containers are placed on 6-inch high pallets during storage. ~~to elevate the containers in order to protect them from sitting in accumulated liquids within the container storage area. to provide protection from possible spillage.~~ The containers are stored with markings and labels visible and legible from the aisle.

In accordance with the Revised Drum Management Plan, a minimum aisle spacing of 24 inches will be maintained at the Plant 1 Pad and a minimum of 22 inches for all other storage units. The purpose of the Revised Drum Management Plan is to implement a program to minimize the environmental impact of stored, containerized materials on-site. The Plan documents the drum management activities consistent with the commitments in the Consent Decree and its Stipulated Amendment entered December 2, 1988.

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 ~~is~~ must not to 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 delivered to the hazardous waste storage units are inspected according to the FEMP Hazardous Waste Container Prestorage Checklist Standard Operating Procedure (SOP) 20-C-630 to document that the containers are acceptable for storage. This An example FEMP Hazardous Waste Container Prestorage Checklist is included as Figure D-3. Once the container is acceptable, the container is logged into the FEMP RCRA Hazardous Waste Material Movement and

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Overpack Log and the RCRA New Drum Assignment Log. These logs record the container number, contents, Reactivity Group Code, and date of storage. Figures D-4 and D-5 provide copies of sample pages from 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 not simultaneously stored in the same area. Section F, Procedures to Prevent Hazards, provides more information on the procedures used to ensure that incompatible hazardous wastes are not stored in the same area.

Individual drums removed or shipped from the storage unit are logged out of the Hazardous Waste Log. Containers remain closed except when a sample must be obtained, for visual inspections as a part of the waste characterization, or during addition or removal of hazardous waste. Some containers are equipped with filtered vents plugs to prevent the build-up of pressure within the container. Vent plugs are not used when drums contain RCRA organics. These filters vent plugs are installed to provide ventilation to containers of wastes containing free reactive uranium metal that has the potential to generate hydrogen gas. The 3/4-inch filter vent plug is composed of a carbon-carbon composite high efficiency particulate air (HEPA) filter. The filter vent plug is inserted into the smaller bung opening of the drum lid. The plugs are installed also on all outer containers if the containers are overpacked. Approximately 3 percent of all RCRA containers in storage are currently equipped with vent plugs.

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

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, of 10 percent of the maximum storage capacity volume.

Plant 1 Pad

The Plant 1 Pad is being renovated in accordance with the Removal Action 7 Work Plan approved by the Ohio EPA on April 3, 1991, and approved by the U.S. EPA on August 19, 1991. The existing pad and catch basins will be upgraded in the following manner:

- Following removal of dust, loose material and other debris, the existing pad will be coated with a polyethylene surface sealant/barrier prior to installing a new layer of concrete;
- A six inch concrete curb will be installed as shown in Figure D-6 to provide containment as well as run on and run-off control;
- New wearing surfaces will be covered with 86 mils of chemically resistant polyurethane; and,
- The trenches and sumps in the controlled areas will be coated with an epoxy sealant.

The current as-built/design drawings for the Plant 1 Pad renovation are provided as Figures D-7 through D-15. A current photograph of the Plant 1 Pad is provided as Figure D-16.

In addition to the waste storage areas which are not covered, a total of three (3) structures (TS-4, TS-5 and TS-6) will be used to provide covered storage on the Plant 1 Pad, in addition to the waste storage areas which are not covered. Diked areas within the three (3) structures will provide concrete curb secondary containment for storage of liquids. These areas will be erected with concrete curbs for containment. The location of the three (3) structures is shown in Figure D-6. Nomenclature for the three structures has not been established. The three structures are labeled Structure 1, Structure 2, and Structure 3 in the Figures D-7 through D-15. However, these three structures 1, 2 and 3 are represented in the Section D text and in the secondary containment calculations by as Tension Structure 4 (TS-4), and Tension Structure 5 (TS-5) and Tension Structure 6 (TS-6), respectively. Structure 3 is not listed in Attachment D-2 since this structure has not been completed to date. An estimated containment volume is provided in Section D-1a(3)(c). The two (2) larger structures (TS-4 and TS-5) have been completed and provide 70,000 square feet of storage area. Figures D-17 and D-18 provide a drum layout of the storage capacity and secondary containment dimensions of the TS-4 and TS-5 units. The third structure (TS-6) will provide 22,500 square feet of storage. Figure D-7 shows the engineering details for the covered structures. The containment for each structure includes a centrally located trench drain which will lead to a head end sump. These

drains and sumps have no connection to site drainage systems and are intended to locally collect accumulated liquid from a leak or spill. The trench drains and sumps are sealed with a chemically resistant epoxy coating. The new concrete bases for the first two Tension Structures, TS 4 and TS 5, have been sealed with an 86 mil chemically resistant polyurethane wearing surface.

KC-2 Warehouse

The KC-2 Warehouse is subdivided into eight containment areas (Bays 1 through 8) by eight inch load bearing walls (the east and west walls of each containment area). The KC-2 Warehouse is constructed of concrete block and sheet metal and is fully enclosed. A photograph of the KC-2 Warehouse is provided as Figure D-19. The detailed design drawings for the base of the storage unit is are provided in Figures D-20 and D-21.

Bays 5, 6, and 7 have six-inch by six-inch concrete containment dikes overlain with an eight-foot wide access ramp for storage of containers with free liquids. The bays are equipped with sprinkler systems and meet the standards for storage of ignitable liquids. Construction details for the ramps are provided in Figure D-22. The concrete floor and dikes are coated with an durable epoxy to create an impermeable surface.

A project to upgrade Bays 1, 2, 3, 4, and 8 was completed in January 1993 for storage of liquid ignitable wastes. However, due to the discovery of an old groundwater monitoring well in Bay 2, the bay will is not be used for storage of hazardous waste at this time. Bay 2 may be used considered for storage of hazardous waste without free liquids in the future. The upgrade project included installing six-inch by six-inch concrete curbing in each bay and coating the base of each bay with a chemical resistant coating. Bays 1, 2, 3, 4, and 8 are equipped with a sprinkler system.

Figures D-23 through D-36 provide the drum layouts and the secondary containment dimensions of the bays.

Plant 9 Warehouse (Building 81)

A photograph of the Plant 9 Warehouse is shown in Figure D-37. Detailed design parameters, dimensions and materials of construction for the Plant 9 Warehouse are provided in Figure D-38. The warehouse is a steel framed, enclosed, metal building. The base is constructed of six-inch concrete with number 3 reinforcement rods at twelve (12) inch intervals. The interior is subdivided by dikes into three (3) containment areas (Bays A, B, and C). Each of the three bays have a secondary containment system constructed with a six-inch by six-inch concrete dike. The concrete curbs were installed in 1990. Ramps are used at the entrances allowing access

to the completely enclosed perimeter. Figures D-39 and D-41 provide the drum layout for the Plant 9 Warehouse and the secondary containment dimensions.

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 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.

CP Storage Warehouse (Building 56)

The Warehouse is a pre-engineered building with ribbed metal siding and metal roofing. The upgrade project for the storage of wastes with free liquids in this storage unit was completed in January 1993. The upgrade project included the installation of six-inch by six-inch concrete dikes around the perimeter of the unit. A ramp allows access to the containment area. The secondary containment dimensions are detailed in Figure D-44. A drum layout is provided in Figure D-45. A photograph of the CP Storage Warehouse is provided in Figure D-46.

Pilot Plant Warehouse (Building 68)

The Pilot Plant Warehouse is a pre-engineered metal fabricated building which is completely enclosed and covered by metal roofing. A photograph of the Pilot Plant Warehouse is provided in Figure D-47. The base of the warehouse is constructed of eight-inch thick concrete with wire mesh fabric reinforcement as indicated in Figure D-48.

The RCRA storage area is 69 feet X 7 feet located in the center of the building. The storage area consists of a U-shaped concrete dike with the end of the U-shaped dike enclosed by a smaller U-shaped temporary Herculite containment structure to form an impermeable barrier to contain spills of hazardous waste with and without free liquids. A layout drawing of the Pilot Plant Warehouse is provided as Figure D-49. The secondary containment dimensions are included in Figure D-50.

Thorium containers designated as mixed waste under implementation plans resulting from the 1991 ~~Proposed-Amended~~ Consent Decree and ~~its Stipulated Amendment~~ are stored in the diked area of the Pilot Plant Warehouse which has been determined to be the most appropriate storage location. ~~The FEMP RCRA Part B Permit Applications prior to 1993 had~~ ~~has~~ not previously identified the Pilot Plant Warehouse as for storage of materials with free liquids. However, the Pilot Plant Warehouse was recommended for storage of these wastes based upon ALARA concerns. Storing the thorium mixed waste elsewhere would constitute an unacceptable radiological exposure to FEMP personnel. To address this ALARA concern, the thorium waste must be stored within a radiologically monitored and restricted area. The Pilot Plant Warehouse is radiologically monitored and restricted, thus storage of the thorium in the Pilot Plant Warehouse is appropriate and acceptable under the Consent Decree and its Stipulated Amendment entered ~~December 2, 1988.~~

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

The concrete floors of the following storage units are inspected for cracks and gaps weekly. The inspector checks the building/pad for any structural failure of the pad surface and curbing. The surrounding area is checked for signs of a release such as pooled liquids. The condition of the secondary containment is checked to ensure that all portions of the system are sealed, and free of any cracks or gaps. All drainage features including sumps, drains, and troughs are inspected to ensure there are no standing liquids. Standing liquids must be removed within 24 hours 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.

Plant 1 Pad

Under the approved ~~Removal Action 7~~ Work Plan as explained in D-1a(3) above, the base, catch basins, and sumps in the covered structures of the Plant 1 Pad will be covered with a chemically resistant coating. ~~Coating of the three~~ ~~The first two~~ ~~structures (TS-4, TS-5 and TS-56) have~~ ~~has~~ been completed. The coating applied to the base of each of the structures is a polyurethane called Auto-gard II. Attachment D-1 provides information on the coating. The coating is compatible with, and impervious to, the hazardous wastes stored at the Plant 1 Pad. A twelve (12) inch concrete curb has been constructed around the perimeter of each secondary containment area for TS-4 and TS-5 and ~~the TS-6 secondary containment area.~~ TS-4 and TS-5 have two secondary

containment areas designated as North and South ~~for~~ within each structure. TS-6 has one secondary containment area within the structure.

KC-2 Warehouse

The floor and curbs are coated with a chemically resistant coating to create an impermeable surface. The bases of Bays 1, 2, 3, 4, and 8 of the KC-2 Warehouse were re-coated as part of a RCRA Warehouse conversion project. The re-coating started in November 1992 and was completed in January 1993. The RCRA Warehouse re-coatings were part of a project to upgrade the KC-2 Warehouse for liquid RCRA ignitable waste storage capabilities. The coating, Vulkem, was used for Bays 1, 2, 3, 4, and 8. Bays 5, 6, and 7 were re-coated during October 1989 and January 1990 with Stonhard. The vendor's specifications for both Vulkem and Stonhard are provided in Attachment D-1.

Plant 9 Warehouse (Building 81)

The floor and curbs are coated with a chemically resistant coating to create an impermeable surface. The concrete surface was coated with Surtreat. Surtreat is a silicon coating and is designed to protect concrete surfaces from penetration of inorganic and organic liquids. The base of the Plant 9 Warehouse is designed to contain, at a minimum, of 10 percent of the maximum storage capacity of free liquids in each bay of the Plant 9 Warehouse. Precipitation is not a factor of influence since the storage unit is completely enclosed. The vendor's specifications for Surtreat are provided in Attachment D-1.

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.

CP Storage Warehouse (Building 56)

The base of the unit is constructed of six inch-thick concrete with 6-6-6/6 wire fabric reinforcement as shown in Figure D-51. The base and the curbs of the CP Storage Warehouse were coated with Vulkem between October 1992 and January 1993. The vendor's specifications for Vulkem are provided in Attachment D-1.

Pilot Plant Warehouse (Building 68)

The containers are stored within a U-shaped concrete containment area which is enclosed at the open end of the U-shaped concrete dike with a smaller U-shaped temporary Herculite containment structure. The temporary Herculite system consists of Herculite sheeting laid on the floor. A frame is constructed of four-inch PVC piping with slip fitted joints. The Herculite sheeting is rolled over the pipe frame to form the containment dike. The seams are heat sealed.

D-1a(3)(b) Containment System Drainage

Plant 1 Pad

Precipitation will, for the most part, not affect hazardous waste containers in the Structures because they are enclosed structures. The covered storage area floors are and will be sloped toward dedicated sumps which are isolated from the site stormwater and wastewater systems and are intended to collect any released hazardous waste and rinseate in the event of a leak or spill. Containers stored at the Plant 1 Pad are elevated (placed on pallets) during storage to eliminate the potential of spilled liquids coming into contact with the containers.

KC-2 Warehouse

Containers stored in the KC-2 Warehouse are elevated (placed 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-1a(3)(e). Precipitation is not a factor of influence since the storage unit is completely enclosed.

Plant 9 Warehouse (Building 81)

Containers stored in the Plant 9 Warehouse are placed 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-1a(3)(e). Precipitation is not a factor of influence since the storage unit is completely enclosed.

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 of influence since the storage unit is completely enclosed.

CP Storage Warehouse (Building 56)

The CP Storage Warehouse is a completely enclosed structure, thus precipitation is not a factor. Containers are elevated on pallets during storage. Any accumulated liquids would be contained in the secondary containment system until removed as described in Section D-1a(3)(e).

Pilot Plant Warehouse (Building 68)

The Pilot Plant Warehouse is a pre-engineered metal fabricated building which is completely enclosed and covered by metal roofing, thus precipitation is not a factor. Any liquids would accumulate in the temporary secondary containment system until the material is removed as described in D-1a(3)(e).

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

Containers stored in the following warehouses are stored on pallets to elevate the containers to prevent them from sitting in accumulated liquids in the event of a leak or spill. All pallets used are at least 6 inches high and provide sufficient height to protect the container if the secondary capacity is reached.

Plant 1 Pad

The as-built/design drawings for the Plant 1 Pad renovation are provided as Figures D-7 through D-15. The location of the three covered storage areas is shown in Figure D-6. The construction drawing for the Plant 1 Pad covered structures is provided as Figure D-7. Structures 1 and 2 are divided into containment areas shown in Figures D-17 and D-18. Each containment area is 220 feet X 80 feet with a twelve (12) inch concrete dike constructed around the perimeter. The maximum storage capacity for TS-4 is 653,840 gallons (11,888 55-gallon drum equivalents) and 657,360 gallons (12,052 55-gallon drum equivalents) for TS-5. The secondary containment system is capable of holding at least 10 percent of the of the maximum hazardous waste storage volume for the area. The capacity of

the secondary containment areas in TS-4 is 8,815-84 ft³ for the North bay and 8,304-06 ft³ for the South bay. The secondary containment capacity for the North Bay in TS-5 is 8,507-92 ft³ and 8,723-4 ft³ for the South Bay. The containment calculations are provided in Attachment D-2.

Structure 3 will be ~~is~~ constructed similar to Structures 1 and 2, but with a single containment area. The containment area will be ~~is~~ 22,500 square feet ft² with a twelve (12) inch concrete dike constructed around the perimeter. Its estimated maximum storage capacity will be ~~is~~ 330,000 gallons (6,000 55-gallon drum equivalents). The containment system capacity must be capable of holding at least 10 percent (or 4,411-0 ft³ of liquid volume) of the maximum hazardous waste storage volume of the area. The capacity of the secondary containment area in Structure 3 will be ~~is~~ about 11,250 ft³.

KC-2 Warehouse

Hazardous waste containers stored in the KC-2 Warehouse storage bays are placed on 6-inch high pallets during storage to protect the containers from ~~sitting in~~ contacting accumulated liquids. The storage and containment system capacities for Bays 1, 3, 4, 5, 6, 7, and 8 of the KC-2 Warehouse storage unit are discussed separately below. Bay 2 will only provide container storage for wastes without free liquids in the future ~~is not used for the storage of hazardous wastes~~ due to the discovery of an old groundwater monitoring well in the bay. The secondary containment capacity calculations are provided in Attachment II.

- Bay 1 - The maximum storage capacity is 32,120 gallons (584 55-gallon drum equivalents). The minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 429-41 ft³. The secondary containment capacity is 1,857-98 ft³.
- Bay 3 - The maximum storage capacity is 33,440 gallons (608 55-gallon drum equivalents). A minimum capacity must equal or exceed 10 percent of the maximum storage volume or 447-06 ft³. The secondary containment capacity is 1,594-98 ft³.
- Bay 4 - The maximum storage capacity is 25,520 gallons (464 55-gallon drum equivalents). The minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 341-18 ft³. The secondary containment capacity is 1,287-02 ft³.

- Bay 5 - Bay 5 contains a smaller diked area within the larger area of Bay 5. The maximum storage capacity for the larger dike is 19,800 gallons (360 55-gallon drum equivalents). The minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or ~~264.71~~ ft^3 . The secondary containment capacity is ~~1,051.12~~ ft^3 . The maximum storage capacity for the smaller diked area is 3,960 gallons (72 55-gallon drum equivalents). The minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or ~~52.94~~ ft^3 . The secondary containment capacity is ~~115.16~~ ft^3 .
- Bay 6 - The maximum storage capacity is 25,520 gallons (464 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or ~~341.18~~ ft^3 . The secondary containment capacity is ~~1,045.35~~ ft^3 .
- Bay 7 - The maximum storage capacity is 11,440 gallons (208 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or ~~152.94~~ ft^3 . The secondary containment capacity is ~~647.87~~ ft^3 .
- Bay 8 - The maximum storage capacity is 5,280 gallons (96 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or ~~70.59~~ ft^3 . The secondary containment capacity is ~~440.77~~ ft^3 .

Plant 9 Warehouse (Building 81)

Hazardous waste containers stored in the Plant 9 Warehouse storage bays are elevated on pallets during storage. The storage and containment system capacities for each bay of the Plant 9 Warehouse storage unit are discussed separately below. The secondary containment capacity calculations are provided in Attachment II.

- Bay A - The maximum storage capacity for Bay A is 37,620 gallons (684 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or ~~502.94~~ ft^3 . The secondary containment capacity is ~~1,116.69~~ ft^3 .

- Bay B - The maximum storage capacity for Bay B is 45,320 gallons (824 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 605.8 ft^3 . The secondary containment capacity is $1,563.0 \text{ ft}^3$.
- Bay C - The maximum storage capacity for Bay C is 3,300 gallons (60 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 44.12 ft^3 . The secondary containment capacity is 140.2 ft^3 .

Plant 6 Warehouse (Building 79)

Hazardous waste containers stored in the Plant 6 Warehouse storage bays are placed on pallets to elevate the containers 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 II.

- Bay A - The maximum storage capacity for Bay A is $82,060.0$ gallons (1,492 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or $1,097.06 \text{ ft}^3$. The secondary containment capacity is $1,928.04 \text{ ft}^3$.
- Bay B - The maximum storage capacity for Bay B is $79,640.0$ gallons (1,448 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or $1,064.7 \text{ ft}^3$. The secondary containment capacity is $2,061.49 \text{ ft}^3$.
- Bay C - The maximum storage capacity for Bay C is $69,080.0$ gallons (1,256 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 923.53 ft^3 . The secondary containment capacity is $1,940.15 \text{ ft}^3$.

CP Storage Warehouse (Building 56)

Containers of hazardous waste stored in the CP Storage Warehouse are elevated (placed on pallets) during storage. The maximum storage capacity is 116,160 gallons (2,112 55-gallon drum equivalents). The minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or $1,552.94 \text{ ft}^3$. The secondary containment capacity is $3,499.82 \text{ ft}^3$.

Pilot Plant Warehouse (Building 68)

Containers of hazardous waste stored in the Pilot Plant Warehouse are elevated during storage. The drummed containers are placed on pallets and the white metal boxes are stored on cross-sections of 4-inch by 4-inch wood beams. The maximum storage capacity of the warehouse storage area is 13,200 gallons (240 55-gallon drum equivalents). The minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 176.47 ft³. The secondary containment capacity is 197.34 ft³.

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

Plant 1 Pad

The covered structures will provide run-on control for the storage of containers with free liquids. The ~~first two~~ covered structures are constructed upon a 12 inch concrete dike to prevent run-on from entering the storage areas. ~~The third covered structure will also be constructed upon a 12 inch concrete dike to control run-on.~~

KC-2 Warehouse

The KC-2 Warehouse bays are covered to prevent precipitation from entering the storage areas. The area around the warehouse is sloped away from the building to prevent run-on. Bays 1, 2, 3, 4, 5, 6, 7, and 8 are also constructed with diking to further prevent run-on.

Plant 9 Warehouse (Building 81)

Precipitation is prevented from entering the Plant 9 Warehouse since this area is completely covered and enclosed on all sides. The area around the warehouse is sloped away from the building to further prevent run-on.

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.

CP Storage Warehouse (Building 56)

The storage unit is a pre-engineered, ribbed building covered by metal roofing as shown in Figure D-46. The topography around the building is sloped away from the building to prevent run-on and a ramp is used to access the building.

Pilot Plant Warehouse (Building 68)

The storage area is confined to the middle of an entirely covered and enclosed structure. The drummed containers are stored on pallets and the white metal box containers are stored on wooden beams. The topography around the building is sloped away from the building to prevent run-on.

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 within 24 hours from discovery of the incident.

Vermiculite, diatomaceous earth, sand, sorbent "pigs", or equivalent, are used to contain and/or adsorb 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. A pumping system may be used to remove larger spills. 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.

If spilled material is not identifiable, samples are analyzed for hazardous characteristics in accordance with the FEMP Waste Analysis Plan and the Waste Determination Plan. The container is properly labelled. Storage and disposal is performed in accordance with applicable regulatory requirements. Equipment and materials used is are decontaminated or disposed of properly.

Liquids within the covered structures of the Plant 1 Pad will be collected by the catch basins and removed by pumps. The sumps will be inspected routinely daily for the presence of liquids and collected liquids will be removed from the sumps as required.

D-1b Containers Without Free Liquids

The Plant 1 Pad Tension Structures as ~~included~~ described in the Removal Action 7 Work Plan are designed to store hazardous waste with or without free liquids. The other areas of the Plant 1 Pad will provide storage for hazardous waste without free liquids. Also, Bays 1, 3, 4, 5, 6, 7, and 8 of the KC-2 Warehouse, the Plant 6 Warehouse, the Plant 9 Warehouse, the CP Storage Warehouse, and the Pilot Plant Warehouse are designed for the storage of hazardous waste with and without free liquids. The Plant 8 Warehouse and ~~Bay 2 of the KC-2 Warehouse~~ are is used only for the storage of hazardous waste without free liquids. ~~Bay 2 of the KC-2 Warehouse is not used for the storage of hazardous waste.~~

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

The containers in each of the following RCRA storage units are elevated (placed on pallets) during storage to eliminate the potential of spilled liquids coming into contact with the containers.

Plant 1 Pad

The base of the Plant 1 Pad is sloped toward catch basins to remove precipitation. The Plant 1 Pad drainage is shown in Figure D-15. The catch basins (manholes) in the uncovered areas of Plant 1 Pad are connected with ~~to~~ the stormwater management system. The covered structures will be equipped with dedicated sumps.

CP Storage Warehouse (Building 56)

The CP Storage Warehouse is a completely enclosed structure. Therefore, precipitation ~~is not a factor~~ cannot enter this building. The topography around the storage unit slopes away from the building to prevent run-on. Containers stored in the CP Storage Warehouse are elevated to prevent contact with any accumulated liquids.

Plant 8 Warehouse (Building 80)

A photograph of the Plant 8 Warehouse is provided as Figure D-52. Figure D-53 shows the plan view of the Plant 8 Warehouse with construction details. The base of the unit is constructed of eight inch thick concrete with number 4 reinforcement rods at twelve inch intervals as shown in Figure D-56. Since the Plant 8 Warehouse is a completely enclosed structure, run-on and precipitation is not a concern.

Pilot Plant Warehouse (Building 68)

The Pilot Plant Warehouse is a pre-engineered metal fabricated building which is completely enclosed and covered by metal roofing. Thus, precipitation and run-on is not a factor.

The RCRA storage area is 69 feet X 7 feet located in the center of the building. The storage area consists of a U-shaped concrete dike with the end of the U-shaped dike enclosed by a smaller U-shaped temporary Herculite containment structure to form an impermeable barrier to contain spills of hazardous waste with and without free liquids. A layout drawing of the Pilot Plant Warehouse is provided as Figure D-49.

Thorium containers ~~designated as~~ storing mixed waste under implementation plans resulting from the 1991 Consent Decree and its Stipulated Amendment are stored in the Pilot Plant Warehouse which has been determined to be the most appropriate storage location. The FEMP RCRA Part B Permit Application has not previously identified the Pilot Plant Warehouse as storage of materials with free liquids. However, the Pilot Plant Warehouse was recommended for storage of these wastes based upon ALARA concerns. Storing the thorium mixed waste elsewhere would constitute an unacceptable radiological exposure to FEMP personnel. To address this ALARA concern, the thorium waste must be stored within a radiologically monitored and restricted area. The Pilot Plant Warehouse is radiologically monitored and restricted, thus storage of the thorium in the Pilot Plant Warehouse is appropriate and acceptable under the Consent Decree and its Stipulated Amendment entered December 2, 1988.

KC-2 Warehouse

The KC-2 Warehouse is a completely enclosed structure, therefore, precipitation is not a factor. Containers stored in the warehouse bays are elevated (placed on pallets) during storage, to eliminate the potential of spilled liquids coming into contact with the containers.

Plant 9 Warehouse (Building 81)

The Plant 9 Warehouse may be used for the storage of hazardous waste with and without free liquid. Figure D-37 provides a photograph of the Plant 9 Warehouse. The structure is an 80 foot by 100 foot single story, pre-engineered, ribbed, metal building covered with metal roofing. Concrete curbs and dikes were installed in 1990. The original stormwater drains and sumps were sealed. A detailed construction drawing of the Plant 9 Warehouse is shown in Figure D-38.

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 rods at 12 inch intervals. Containers stored in the Plant 6 Warehouse are elevated (placed on pallets) during storage to eliminate the potential of spilled liquids coming into contact with the containers.

D-2 TANKS SYSTEMS

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

D-3 WASTE PILES

The FEMP is not seeking a permit for a waste piles, therefore, this section is not applicable.

D-4 SURFACE IMPOUNDMENTS

The FEMP is not seeking a permit for a surface impoundments, therefore, this section is not applicable.

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D-5 TRIAL-BURN INCINERATORS

The FEMP is not seeking a permit for ~~trial-burns~~ an incinerator, therefore, this section is not applicable.

D-6 LANDFILLS

The FEMP is not seeking a permit for a landfills, therefore, this section is not applicable.

D-7 LAND TREATMENT

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

D-8 MISCELLANEOUS UNITS

The FEMP is not seeking a permit for a miscellaneous units, 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 ~~this rule at this time~~ 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 ~~this rule at this time~~ the requirements of this subpart.

SECTION D - PROCESS INFORMATION
 RCRA STORAGE UNITS
 Page 1 of 3

TABLE D-1

RCRA STORAGE UNIT	MAXIMUM CAPACITY IN GALLONS (55-gallon drum equivalents)	PERCENTAGE OF TOTAL MAXIMUM CAPACITY USED (AS OF 3/15/93)	WITH FREE LIQUIDS OR WITHOUT FREE LIQUIDS	STORAGE OF IGNITABLE WASTE	STACKING HEIGHT	AISLE SPACING
1. CP STORAGE WAREHOUSE - Bldg. 56	116,160	40%	With or Without free liquids	Yes	Three High	Minimum of 22 inches
2. Plant 1 Pad	40,892,200 - 11,222,200 Total	3% Total for Plant 1 Pad	With or Without free liquids	No	Four High	Minimum of 24 inches
Structure 418-4	657,360		With or Without free liquids	No	Four High	Minimum of 24 inches
Structure 213-5	653,840		With or Without free liquids	No	Four High	Minimum of 24 inches
Structure 318-6	Yet-to-be constructed. Estimated capacity of 330,000		With or Without free liquids	No	Four High	Minimum of 24 inches
Area Outside of Structures	9,581,000		Without free liquids	No	Four High	Minimum of 24 inches
3. Plant 8 Warehouse - Bldg. 80	139,260	77%	Without free liquids	No	Four High	Minimum of 22 inches
4. Pilot Plant Warehouse - Bldg. 68	13,200	37%	With or Without free liquids	No	Three High	Minimum of 22 inches
5. KC-2 Warehouse - Bldg. 63	200,640 Total	27% Total for KC-2 Warehouse	With or Without free liquids	Yes	Two High	Minimum of 22 inches

SECTION D - PROCESS INFORMATION
RCRA STORAGE UNITS
 Page 2 of 3

**TABLE D-1
(cont.)**

RCRA STORAGE UNIT	MAXIMUM CAPACITY IN GALLONS (55-gallon drum equivalents)	PERCENTAGE OF TOTAL MAXIMUM CAPACITY USED (AS OF 3/15/93)	WITH FREE LIQUIDS OR WITHOUT FREE LIQUIDS	STORAGE OF IGNITABLE WASTE	STACKING HEIGHT	AISLE SPACING
Bay 1	32,120		With or Without free liquids	Yes	Two High	Minimum of 22 inches
Bay 2	43,560		Without free liquids	No	Two High	Minimum of 22 inches
Bay 3	33,440		With or Without free liquids	Yes	Two High	Minimum of 22 inches
Bay 4	25,520		With or Without free liquids	Yes	Two High	Minimum of 22 inches
Bay 5-Large Diked Area	19,800		With or Without free liquids	Yes	Two High	Minimum of 22 inches
Small Diked Area	3,960		With or Without free liquids	Yes	Two High	Minimum of 22 inches
Bay 6	25,520		With or Without free liquids	Yes	Two High	Minimum of 22 inches
Bay 7	11,440		With or Without free liquids	Yes	Two High	Minimum of 22 inches
Bay 8	5,280		With or Without free liquids	Yes	Two High	Minimum of 22 inches
6. Plant 9 Warehouse - Bldg. 81	86,240	56% Total for All Bays in Plant 9 Warehouse	With or Without free liquids	No	Four High	Minimum of 22 inches

TABLE D-1
 (cont.)

RCRA STORAGE UNIT	MAXIMUM CAPACITY IN GALLONS (55-gallon drum equivalents)	PERCENTAGE OF TOTAL MAXIMUM CAPACITY USED (AS OF 3/15/93)	WITH FREE LIQUIDS OR WITHOUT FREE LIQUIDS	STORAGE OF IGNITABLE WASTE	STACKING HEIGHT	aisle SPACING
Bay A	37,620		With or Without free liquids	No	Four High	Minimum of 22 inches
Bay B	45,320		With or Without free liquids	No	Four High	Minimum of 22 inches
Bay C	3300		With or Without free liquids	No	Four High	Minimum of 22 inches
7. Plant 6 Warehouse - Bldg. 79	230,780	41% Total for All Bays in Plant 6 Warehouse	With or Without free liquids	No	Four High	Minimum of 22 inches
	82,060		With or Without free liquids	No	Four High	Minimum of 22 inches
	79,640		With or Without free liquids	No	Four High	Minimum of 22 inches
Bay C	69,080		With or Without free liquids	No	Four High	Minimum of 22 inches

FEMP RCRA NEW DRUM ASSIGNMENT

DATE:	INVENTORY NO.	DATE:	INVENTORY NO.	DATE:	INVENTORY NO.
P.O. NO.					
SOURCE	SOURCE	SOURCE	SOURCE	SOURCE	SOURCE
MATERIAL CLASS					
MATERIAL TYPE					
LOT SEQUENCE					
DRUM NO.					
DRUM SIZE					
GROSS WGT.					
TARE WGT.					
NET WGT.					
MBA	MBA	MBA	MBA	MBA	MBA
ACCUM. DATE					
EPA ID NO.					
UN/NA NO					
LOCATION	LOCATION	LOCATION	LOCATION	LOCATION	LOCATION
ROW	ROW	ROW	ROW	ROW	ROW
STACK	STACK	STACK	STACK	STACK	STACK
LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL
HAND CODE	S01	S01	S01	S01	S01
CODE	CODE	CODE	CODE	CODE	CODE
AREA	AREA	AREA	AREA	AREA	AREA
LAND BAN					
RGC	RGC	RGC	RGC	RGC	RGC
PHYS. STATE					
MEF	MEF	MEF	MEF	MEF	MEF
MATL. DESC.					
HAZARD CLASS					
PR. SHIP. NM					
Comments:	Comments:	Comments:	Comments:	Comments:	Comments:

6518

COOR 12

NOTES

- 1 PHASES A & B HAVE BEEN COMPLETED.
- 2 STRUCTURE 3 WAS PURCHASED UNDER THE CONTRACT FOR PHASE B BUT WILL BE ERECTED IN PHASE C.
- 3 PHASE C WILL BE ERECTED IN PHASE 0.
- 4 THE SCHEDULE OF THIS PROJECT IS AS FOLLOWS:
 PHASE C 6 MONTHS
 PHASE B 6 MONTHS
 PHASE A 6 MONTHS
- 5 THE SUBCONTRACTOR'S SCHEDULE IS SUBJECT TO THE SCHEDULE OF THE CONTRACTOR. THE CONTRACTOR'S SCHEDULE IS SUBJECT TO THE SCHEDULE OF THE OWNER. THE OWNER'S SCHEDULE IS SUBJECT TO THE SCHEDULE OF THE FEDERAL GOVERNMENT.

TO COMPLETE THE PROJECT, THE FOLLOWING CONTRACTS MUST BE AWARDED:

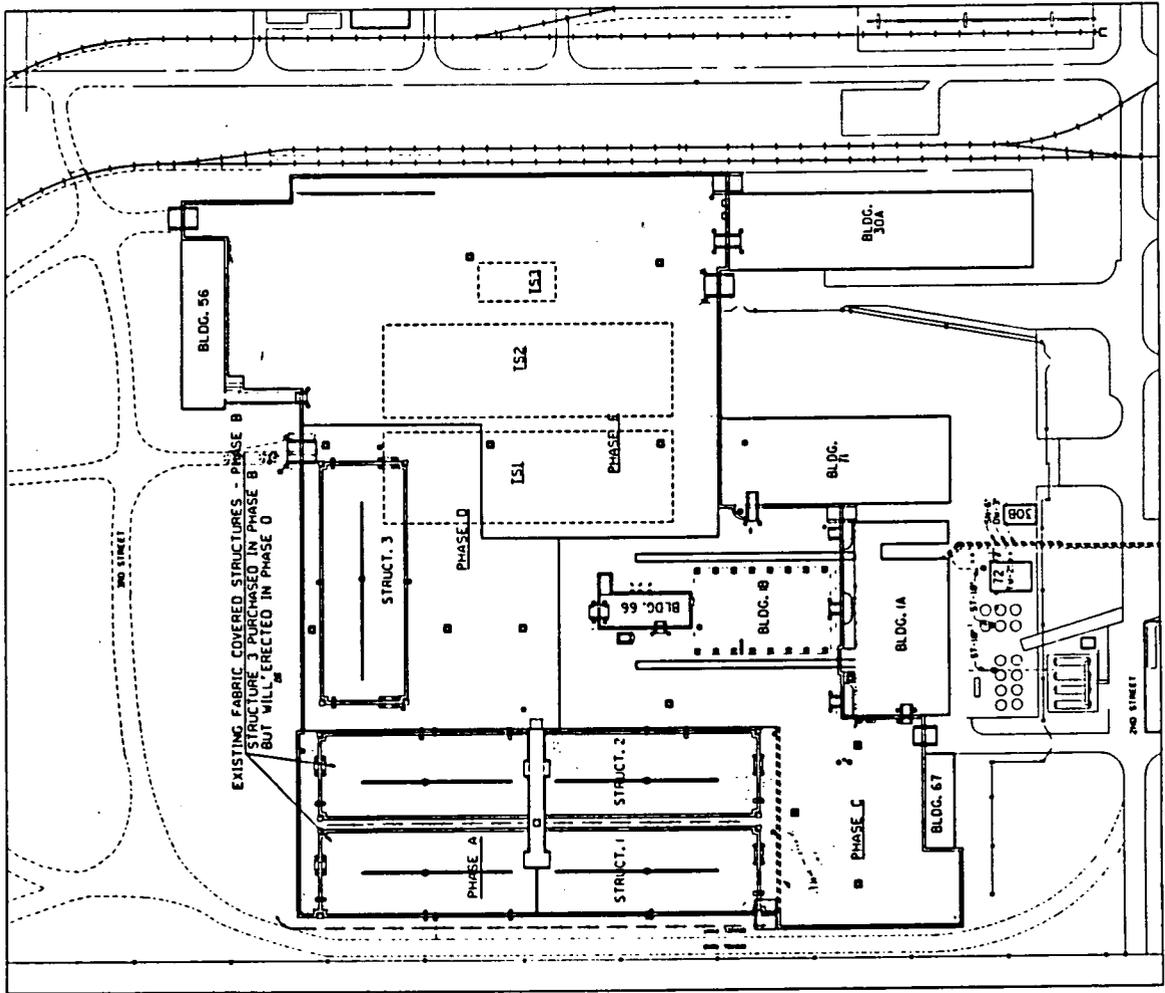
NO.	DESCRIPTION	DATE	STATUS
1	PHASE A	1967-09-01	COMPLETED
2	PHASE B	1967-09-01	COMPLETED
3	PHASE C	1967-09-01	PENDING

UNITED STATES DEPARTMENT OF ENERGY
FEDERAL ENVIRONMENTAL MANAGEMENT PROJECT

A. M. STEINBERG, INC.
 GENERAL CONTRACTOR

ENVIRONMENTAL, HEALTH & SAFETY IMPROVEMENTS
 COVERED CONTROLLED AREA BLDG. - PLANT 1
 CONSTRUCTION PHASE BOUNDARIES

DATE: 1967-09-01
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 SCALE: AS SHOWN



SITE PLAN
 SCALE: AS SHOWN

ELECTRICAL DEMOLITION NOTES

- 1 REMOVE WOOD POLE & L.T.
- 2 CUT OFF EXIST. CONDUIT W/IN 1' BELOW TOP OF EXIST. PAD
- 3 REMOVE REMAINS OF EXIST. LOC. FOR PHASE E W/IN 1' OF DEMOLITION
- 4 REMOVE EXIST. WASTE PILE, SEC. W/ING AT EXIST. LOCATION. COMPLETE THRESH.

LEGEND

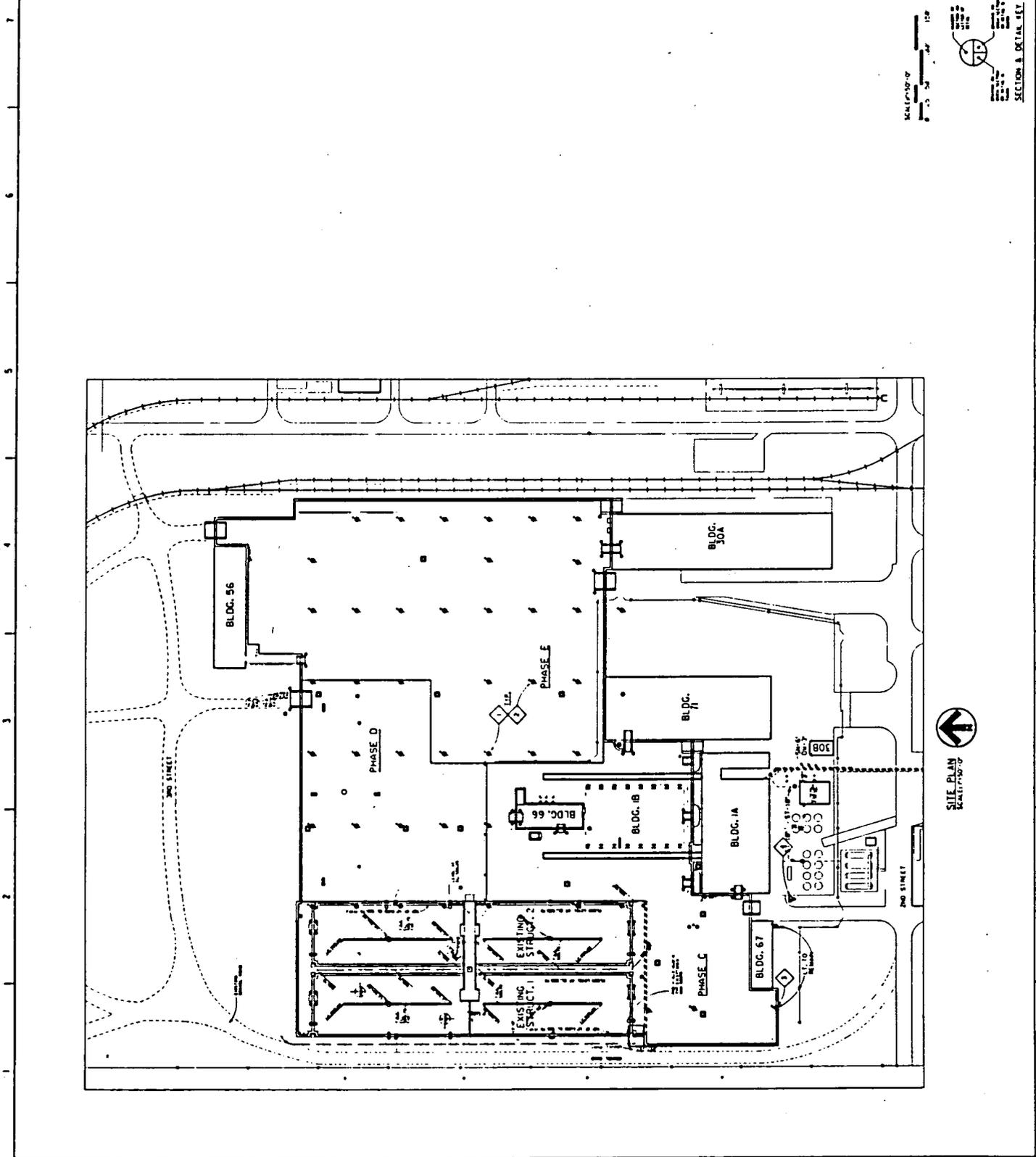
- 1 EXIST. WOOD POLE & L.T. TO BE REMOVED
- 2 EXIST. WOOD POLE TO REMAIN. L.T. TO BE REMOVED, EXCEPT AS NOTED.
- 3 EXIST. CONDUIT CURRENT TRAYS, TO REMAIN

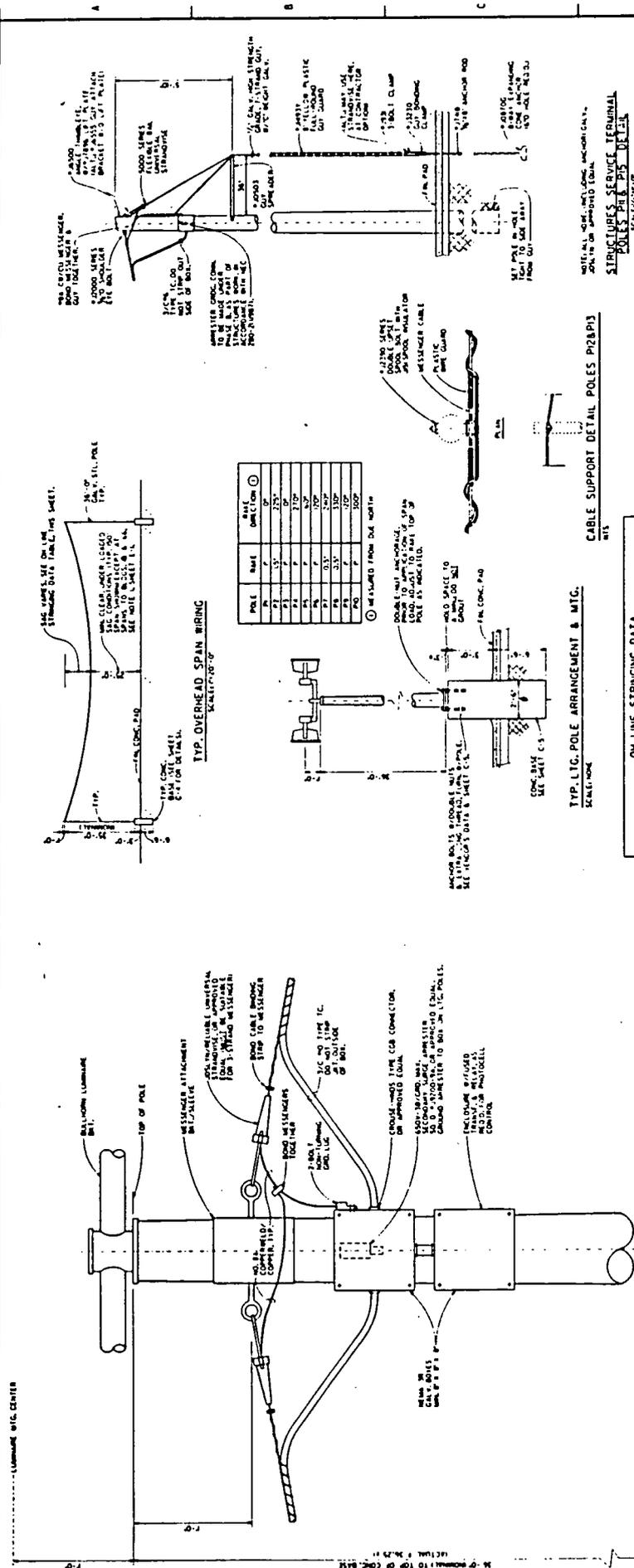
TO COMPLETE REFER TO - SEE SHEET NO. 1 TO 15 FOR DRAWING NUMBER, SEE TRIP DRAWING NO. 780-14451-00001

1	DEMOLITION	1	1
2	DEMOLITION	2	1
3	DEMOLITION	3	1
4	DEMOLITION	4	1
5	DEMOLITION	5	1
6	DEMOLITION	6	1
7	DEMOLITION	7	1
8	DEMOLITION	8	1
9	DEMOLITION	9	1
10	DEMOLITION	10	1
11	DEMOLITION	11	1
12	DEMOLITION	12	1
13	DEMOLITION	13	1
14	DEMOLITION	14	1
15	DEMOLITION	15	1

UNITED STATES
DEPARTMENT OF ENERGY
PERMITS AND ENVIRONMENTAL MANAGEMENT PROJECT
A. M. KIRNEY, INC.
ENVIRONMENTAL, HEALTH & SAFETY IMPROVEMENTS
COVERED CONTROLLED STORAGE PAD - PLANT 1
ELECTRICAL DEMOLITION

81-0-93 0007502 1748-4445-E-00010 [2]





POLE	SIZE	SECTION
P1	15"	275'
P2	15"	275'
P3	15"	275'
P4	15"	275'
P5	15"	275'
P6	15"	275'
P7	15"	275'
P8	15"	275'
P9	15"	275'
P10	15"	275'

SPAN	OH LINE STRINGING DATA						MAX. STRINGING TENSION (LB)
	DT	DT	DT	DT	DT	DT	
P1-P2	100	100	100	100	100	100	500
P2-P3	100	100	100	100	100	100	500
P3-P4	100	100	100	100	100	100	500
P4-P5	100	100	100	100	100	100	500
P5-P6	100	100	100	100	100	100	500
P6-P7	100	100	100	100	100	100	500
P7-P8	100	100	100	100	100	100	500
P8-P9	100	100	100	100	100	100	500
P9-P10	100	100	100	100	100	100	500

PAD L.T.C. - AMMING TABLE	USE OF L.T.C. AMMING PLAN	
	POLE NO.	SECTION
P1	15"	275'
P2	15"	275'
P3	15"	275'
P4	15"	275'
P5	15"	275'
P6	15"	275'
P7	15"	275'
P8	15"	275'
P9	15"	275'
P10	15"	275'

UNITED STATES DEPARTMENT OF ENERGY
PERMANENT ENVIRONMENTAL MANAGEMENT PROJECT
A. M. KINNEY, INC.
 ENVIRONMENTAL, HEALTH & SAFETY IMPROVEMENTS
 COVERED CONTROLLED STORAGE PAD - PLANT 1
 ELECTRICAL DETAILS

DATE: 11/15/88
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 SCALE: AS SHOWN

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
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SECTION D - PROCESS INFORMATION

ATTACHMENT D-1

RCRA STORAGE UNIT	FLOOR COATING
1. Building 56 (CP Storage Warehouse)	Vulkem
2. Building 81 (Plant 9)	Surtreat
3. Pilot Plant Warehouse (Building 68)	Herculite sheeting
4. Building 79 (Plant 6)	Surtreat
5. KC-2 Warehouse:	
Bays 1-4, & 8	Vulkem
Bays 5, 6, & 7	Stonhard
6. Plant 1 Pad:	
2-450' X 90' Tension Support Structures (TS-4, TS-5 and TS-6) and (TS 5)	Auto-gard II

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
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Fernald Environmental Management Project (FEMP)
Fernald, Ohio

SECTION E - GROUNDWATER MONITORING

Ohio Administrative Code (OAC) 3745-54-90 through 99, OAC 3745-50-44(B) and Title 40 of the Code of Federal Regulations (CFR) 270.14(c)(1) and 40 CFR 264 Subpart F require the FEMP to provide groundwater monitoring information on land based units. The FEMP is only seeking a permit for container storage. Therefore, groundwater requirements for land based units are not addressed in this section. Groundwater monitoring requirements for those land based units the FEMP will close are presented under a separate cover in accordance with the Consent Decree and its Stipulated Amendment. For informational purposes, supplemental information describing the FEMP Groundwater Monitoring Plan, Director's Final Finding and Orders (DF&Os), and FEMP groundwater contamination are as follows:

RCRA Groundwater Monitoring Plan (GMP)

The disposal of barium chloride during past operations in Waste Pit 4 from 1980 to 1983 necessitated groundwater monitoring under RCRA at the FEMP. The RCRA Groundwater Monitoring Plan (GMP) brings the FEMP into compliance with the State of Ohio Subpart F Hazardous Waste Rules (Ohio Administrative Code [OAC] 3745-65-90 through 94) by providing the required groundwater monitoring for seven RCRA regulated units identified in the FEMP's RCRA Part A permit application submitted in June 1991. However, implementation of the RCRA Ground Monitoring Program was resulting in considerable duplication of effort and competition for resources with reporting activities and field investigations being conducted through the CERCLA process. The RCRA monitoring program, as defined in the RCRA Ground Monitoring Program, created a field investigation program with similar objectives to the CERCLA Remedial Investigation (RI). Thus, the RCRA field program is conducted in parallel to the CERCLA field activities. In order to resolve this lack of integration between the RCRA Ground Monitoring Program and the CERCLA investigative process, DOE proposed an Alternate Monitoring Program as described in OAC 3745-65-90(D) in May 1993.

Director's Final Finding and Orders (DF&Os)

On September 10, 1993, following negotiations with the DOE, OEPA issued the Director's Final Finding and Orders (DF&O) in response to DOE's proposed Alternate Monitoring Program. The DF&O defined the requirements for the Alternate Monitoring Program and detailed the items to be included in the groundwater section of the RCRA Annual Report.

The Alternate Monitoring Program is comprised of two components as described below:

- Conducting groundwater characterization activities under CERCLA as defined by the Operable Unit 5 (OU5) RI/FS Work Plan and Addenda.
- Providing quarterly groundwater monitoring of the downgradient property boundary under the Routine Monitoring Program as defined in the "Project Specific Plan (PSP) for the Routine Groundwater Monitoring Program Along the Downgradient Boundary of the FEMP".

The Routine Monitoring Program consists of quarterly sampling of 33 wells installed within the Great Miami Aquifer and located along the FEMP facility property boundary. The purpose of the program is to assess the magnitude of groundwater contamination migrating beyond the FEMP property boundary.

The OU5 Work Plan and Addenda defines a program for characterization of the nature and extent of contaminant migration sufficient to select a remedial alternative. This information will be provided to the OEPA and U.S. EPA in the OU5 Remedial Investigation report consistent with the schedule detailed in the 1991 Amended Consent Agreement.

FEMP Groundwater Contamination

Groundwater samples are collected and analyzed quarterly from three depths in the aquifer. Wells used to sample the upper layer of the aquifer are designated as 2000 Series wells, while the middle and lower portions of the aquifer are monitored with 3000 Series and 4000 Series wells, respectively.

Total uranium concentrations in groundwater samples from 2000 Series wells range from undetected at a minimum detection limit of 1 ug/L to 907 ug/L. Average total uranium concentrations of greater than 100 ug/L were observed at several 2000 Series wells in an area extending from the South Field area off-property to the south of the FEMP. This area is called the South Plume.

Total uranium concentrations exceeding 10 ug/L were found beneath the Waste Storage Area, the southeast corner of the former Production Area, along and immediately east of Paddy's Run, and a large area extending off-property in the South Plume.

In addition to uranium, recurrent detections of statistically elevated concentrations of thorium isotopes, radium isotopes (Strontium-90, and Technetium-99) were detected in only a few 2000 Series wells. The detections of radium and thorium isotopes were low-level and only slightly above the method detection level.

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Elevated concentrations of major dissolved species (e.g., calcium, magnesium, potassium, sodium, chloride, sulfate, nitrate and alkalinity) were also detected in wells beneath and directly east of the Waste Storage Area. Statistically elevated levels of several heavy metals and low-level detections of volatile and semivolatile compounds were also found in the same vicinity and are attributable to the same source.

The former Production Area also appears to be a source of contamination to the 2000 Series wells. Statistically elevated levels of uranium, the major ionic species, and several heavy metals were detected in wells beneath this area.

Statistically elevated concentrations of a number heavy metal is associated with industrial facilities located south of the FEMP along Paddy's Run Road. Elevated levels of volatile and semivolatile organics are also found in wells in the vicinity of the industries. This contamination does not appear related to the South Plume.

Statistically elevated uranium was detected in fewer than half the well samples for the isotope. Concentrations ranged from 0.1 ug/L to 490 ug/L. Concentrations greater than 10 ug/L were observed in wells in the vicinity of the Waste Storage Area, near the confluence of the storm sewer outfall ditch and Paddy's Run and also in the South Plume area. Recurrent, low-level detections of total thorium, thorium-230, and the isotopes of radium were found in 6 wells.

As in the 2000 Series wells, some of the deeper wells in the vicinity of the Waste Storage and former Production areas exhibited elevated levels of the major anionic and cationic species, and in some cases, heavy metal.

Wells located at or near the southwestern part of the FEMP exhibit recurrent, statistically elevated levels of mercury.

Concentrations of uranium ranged from 0.1 ug/L to 5 ug/L in 4000 Series wells. Repeated detections occurred at only 4 wells. The only other radionuclides detected were the isotopes of radium and thorium. Detections were all low-level, non-recurrent and most likely naturally occurring.

Statistically elevated concentrations of sodium, magnesium and calcium were observed in 4 wells located in the vicinity of the Waste Storage and former Production Areas.

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RCRA Part B Permit Application
Fernald Environmental Management Project
Fernald, Ohio

SECTION F - PROCEDURES TO PREVENT HAZARDS

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 FEMP 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 FEMP 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, as monitored by Site Standard Operating Procedure (SSOP) 1038, "Security Inspections", at the Fernald Environmental Management Project (FEMP) 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 buildings and the entire facility:

- Ample lighting is provided throughout the site.
- Two-way radios (which can be used to report abnormal conditions to the Communications Center immediately) are required for operations personnel when entering a RCRA storage unit to perform work or inspections. A telephone system is also available for both internal and external communications.
- 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 a department manager.

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

The FEMP is under 24 hour surveillance by security officers on mobile and foot patrols. Entry into the facility is monitored through four controlled entry points: the main gate, turnstiles, the Transitional Additional Contractor Office Space (TACOS) complex (an entry point adjacent to the TACOS trailer complex between Trailer 81 and the parking lot) and the administration building, during ingress/egress directed by normal first shift working hours. Access is only permitted through the main gate during non-working hours other than those hours directed by the normal first shift.

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

F-1a(2)(a) Barrier

The former FEMP production area, which includes the active hazardous waste management areas, is completely surrounded by a seven foot chain-link fence topped by barbed wire.

The facility's primary vehicular access to the former production area is through the main gate located at the southern end of the facility, as described in Section B-4 and shown on Figure B-14.

Personnel access is limited to the main gate, turnstiles, the TACOS complex and administration building during ingress/egress directed by normal first shift working hours. The main gate is manned 24 hours a day to control access. The turnstile, the TACOS complex, and administration entrances are manned during normal working hours and are locked during non-working hours other than those hours directed by the first shift.

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

The primary vehicular entrance to the former production area of the facility is the main gate, as discussed in Section F-1a(2)(a). This entry is controlled by a guard 24 hours a day. Personnel access is controlled through the main gate, turnstiles, the TACOS complex and administration building during ingress/egress directed by normal first shift 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 only if escorted by facility personnel. These practices restrict unauthorized visitors are restricted from entering the main facility, and consequently the active RCRA storage areas, by these practices.

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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.

Additional signs are posted on the entrances and/or gates into the former production area of the facility.

F-1b Waiver

A waiver of the security procedures and equipment requirements is not requested by the FEMP 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 FEMP 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 FEMP 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 FEMP conducts inspections of safety and emergency equipment, operating equipment, and general conditions of the structures. An informational example copy of the current FEMP Inspection Schedule is provided as Attachment F-1. The Inspection Schedule is updated as needed and maintained in the FEMP'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 "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 FEMP's RCRA Operating Record.

F-2a(1) Types of Problems

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 FEMP 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 FEMP 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.

Until the containers on Plant 1 Pad have been determined not to contain hazardous or mixed waste and/or the containers are placed in a covered/diked storage area, the FEMP will perform daily leakage inspections on these containers on Plant 1 Pad, and will perform weekly inspections in accordance with OAC 3745-65-15 and 3745-66-74 and 40 CFR 265.15 and 265.174 as stated in the Consent Decree and its Stipulated Amendment.

F-2b Specific Process Inspection Requirements

F-2b(1) Container Inspection

Storage Area Inspections

The container storage areas are inspected weekly for the items identified in as per the Facility Inspection Schedule (Attachment F-1). Each storage area is inspected for proper aisle spacing, stacking, pallet condition, evidence of leaks or spills and condition of the floor and dikes. 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 FEMP's RCRA Operating Record. Examples of RCRA Container Storage Area Inspection Forms are provided in Attachment F-2 and are subject to change.

Container Inspection

The containers are inspected weekly for evidence of damage or deterioration, and container labels. An example of the current RCRA Container Storage Inspection Form is provided in Attachment F-2 and is subject to change.

F-2b(2) Tank System Inspection

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

F-2b(3) Waste Pile Inspection

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

F-2b(4) Surface Impoundment Inspection

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

F-2b(5) Incinerator Inspection

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

F-2b(6) Landfill Inspection

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

F-2b(7) Land Treatment Facility Inspection

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

F-2b(8) Miscellaneous Unit Inspection

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

F-2b(9) Subpart AA Inspection

The FEMP 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 FEMP is not subject to ~~this rule at this time~~ the requirements of this subpart.

F-2b(10) Subpart BB Inspection

The FEMP 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 FEMP is not subject to ~~this rule at this time~~ the requirements of this subpart.

F-2c Remedial Action

Repairs or other actions taken to remediate problems identified during an inspection are recorded on the inspection log 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. 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 overpacked or redrummed. Drums are overpacked by placing the leaking container into a larger-size container. Redrumming is accomplished by transferring the contents of the damaged drum into a different container.

F-2d Inspection Log Forms

Attachment F-2 (RCRA Container Storage Inspection Form and 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 the following information:

- Date of inspection
- Time of inspection
- Name of the inspector
- Notation of the observation(s) made
- Corrective action(s) taken
- Date corrected.

F-3 PREPAREDNESS AND PREVENTION REQUIREMENTS

The FEMP 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 FEMP 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 of the building because of the sizes and open configurations of the storage units.

Communications to the Communications Center

Hand-held, two-way radios are immediately available and are required for personnel who work in the RCRA storage units. Additionally, internal telephones are immediately available to personnel working at the RCRA storage units. The two-way radios or internal telephones 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 operating units throughout the facility are automatically transmitted to the Communications Center.

On-site Emergency Warning System

The FEMP 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 alarm system is controlled in the Communications Center, which operates 24 hours per day. The facility alarm system, which includes 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 FEMP 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 a special phone connected to the National Warning System (NAWAS); portable cellular phones and wired phones connected to the local telephone company and a mobile radio telephone in the Site Security Truck.
- Two-way radios capable of internal communications and direct contact with the Hamilton and Butler County Dispatch Centers and the Ohio State Highway Patrol headquarters near Hamilton, Ohio.
- High-frequency single-sideband emergency radio capable of communication directly with the Department of Energy Office in Oak Ridge, Tennessee.
- All-band short wave radio capable of contacting the Amateur Emergency Warning Network.

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(3) Emergency Equipment

Each of the FEMP hazardous waste container storage areas is equipped with supplies, materials, and equipment for responding to emergencies. The fire protection, spill control, and decontamination equipment in each storage unit is inspected at least weekly. ~~This information is discussed further in~~ See Section F-2 for further inspection information.

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

Portable Fire Extinguishers

Portable fire extinguishers are located at the hazardous waste storage units.

Fire Control Equipment

All buildings storing ignitable hazardous wastes (KC-2 Warehouse [Building 63], and CP Storage Warehouse [Building 56]) are protected with a sprinkler system, in addition to portable fire extinguishers. Fire hydrants are located outside of each storage unit. The FEMP also maintains on-site a fully equipped Emergency Response Team, described in Section G, Contingency Plan.

Spill Control Equipment

Protective clothing, boots, gloves, respirators, and face shields are stored in each storage unit for spill removal and cleanup. Spill clean-up equipment and material such as overpack drums, shovels, brooms, rags, and absorbent materials dedicated for hazardous spill cleanup are also stored in each unit.

Decontamination Equipment

A full complement of decontamination equipment is maintained by the site Emergency Response Team, in addition to the spill equipment. This equipment is described in detail in Section G, Contingency Plan. The Emergency Response Team can mobilize, as needed, with the Spill Response Vehicle - Unit 328. The Spill Response Vehicle can pull a trailer which carries supplies used in decontamination of personnel and equipment. In addition, the trailer has equipment to contain the rinse water used in decontamination.

Alarm Systems

The facility alarm and communications horn system is tested weekly on a site-wide basis. 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(4) Water for Fire Control

Water for fire protection is available from the following sources:

Primary

Elevated Fire Water Tank	350,000 gallons
Ground Level Fire Water Tank	300,000 gallons

Backup

Domestic Raw Water Tank	700,000 750,000 gallons
Elevated Potable Water Tank	250,000 200,000 gallons
Production Wells	3 wells at 900 gallons per minute (gpm) for 2700 gpm

Treated Water from Production Well(s)* Approximately 340 gpm of treated water can supply the 750,000 gallon Domestic Raw Water Tank

* It is anticipated the FEMP will receive all of its water supply from the proposed Public Water Supply (PWS) system by September 1995. The production wells will be taken out of service at that time (excepting one which will be modified and maintained for extreme emergency fire protection purposes).

Water for fire control is distributed through two systems, as 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. The locations of the high pressure hydrants are described in Section G, Contingency Plan. A static pressure of 114 psi (~~guage~~) (gauge) is maintained in the system by the elevated water tower. The fire pump system is activated when the pressure in the system drops. The fire pump system consists of one electric and two diesel powered pumps, each rated at 2,000 gallons per minute (gpm) (at 285 feet of head). The electric pump and the first diesel pump start automatically as the result of low water pressure. The second diesel pump is started manually by the equipment operator, if the system pressure continues to fall. The fire pumps initially obtain their water from the ground level tank, cutting off flow from the elevated water tank. This system is capable of providing sufficient water at sufficient volume and pressure for sprinkler systems.

Low Pressure Distribution System

The low pressure distribution system provides water to low pressure hydrants. This water is provided by the potable water system. The water in this system can be drawn upon by responding fire departments for additional fire fighting needs. The location of the low pressure hydrants is described in Section G, Contingency Plan.

Fire Department Emergency Response Equipment

The facility maintains an on-site Emergency Response Team capable of responding to emergency conditions. The Emergency Response Team can respond with a fully equipped fire engine, an ambulance, a spill response unit and a rescue truck as needed. The full capabilities of the Emergency Response Team are described in Section G, Contingency Plan.

F-3b Aisle Space Requirements

An aisle space of a minimum of 22 inches is maintained between rows of containers. A four foot main aisle is also provided in each area to allow the unobstructed movement of personnel, fire protection equipment, and spill control equipment.

The 22 inch minimum inspection aisle space is adequate because:

- the aisles are adequate for personnel to inspect drums for leaks and deterioration;
- a manually operated gantry crane can be used to remove and move drums. Motorized equipment is not required to move up and down the inspection aisles; and
- a main equipment aisle is provided in each area to allow for unobstructed movement of emergency equipment.

F-4 PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT

F-4a Prevent Hazards in 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.

The containers can be unloaded and moved into storage using ramps and forklifts. Containers can be unloaded directly from tractor trailers using an adjustable dock and/or unloaded from small dolly trailers via fork lift equipment.

Plant 1 Pad, Plant 6 Warehouse - (Building 79), and the Receiving and Incoming Materials Inspection Area (RIMIA) Building (Building 82) have loading docks for receiving and shipping hazardous waste. Hazardous waste may be loaded onto or unloaded from transportation vehicles, using the loading docks. A mobile dock is also available for use in loading or unloading in other areas of the facility without a dock. Hazardous waste to be shipped off-site may be staged and loaded from any of the hazardous waste storage units. The Plant 1 Pad, Plant 6 Warehouse - (Building 79), and the RIMIA Building (Building 82) loading docks serve as the main areas for any receipt of material from off-site.

Traffic information and sample traffic patterns for the FEMP are discussed in Section B, Facility Description. Facility personnel have been instructed to notify the area supervisor and/or Communications Center, in

the event of an accidental spill of hazardous waste in transport or during loading/unloading operations. Section G, Contingency Plan, provides specific emergency notification and response procedures.

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

Hazardous Wastes With Free Liquids

Hazardous wastes with free liquids are stored in diked areas capable of holding a minimum of 10 percent of the maximum storage capacity of the unit. Storage areas for hazardous waste containing free liquids are enclosed within structures or buildings preventing accumulation of precipitation within the dikes diked areas. In accordance with the provisions of the Consent Decree and its Stipulated Amendment, and the FEMP Revised FMPC Drum Management Plan, if storage space which meets RCRA and Ohio hazardous waste storage requirements is not available, the FEMP will store such wastes in a manner as protective of human health and the environment as possible, will perform daily leakage inspections on these containers that are not located under cover, and will, within sixty (60) days of a determination that sufficient RCRA storage space is not available, submit a plan and schedule for OEPA approval for short-term storage of such wastes.

Hazardous Wastes Without Free Liquids

Hazardous wastes without free liquids are stored (as described in Section D) inside structures or buildings or on the Plant 1 Pad. Indoor storage areas are not subject to precipitation and therefore do not produce precipitation runoff.

Precipitation run-off which contacts containers not located under cover on Plant 1 Pad is directed into the stormwater collection system. The storm water from Plant 1 Pad passes through a continuous pH monitor before entering the stormwater retention basin.

Stormwater can be diverted to the General Sump System if deemed necessary due to unacceptable pH or hazardous waste releases. The General Sump can process the storm water prior to discharge.

Prevention of Flooding

Flooding created by run-on from other areas is prevented from entering the structures, buildings and concrete pads by using concrete slabs and topography which slope 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, in buildings, or on concrete pads 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

Electrical power is used primarily for lighting in the storage units. Battery powered lighting can be used if needed during a power failure. Powered equipment involved in handling materials includes 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 sitewide 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 a large operating supply. The portable gantry crane is manually operated and not susceptible to power failure, but if mechanical failure occurs, the crane is repaired.

Normal operations at the RCRA storage units are suspended if there is a sitewide power outage. 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, stored in each warehouse, as well as by safe handling practices. The protective equipment appropriate for employees working in the storage building is specified by the area supervisor and health and safety personnel at the FEMP. 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 FEMP 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 FEMP has no equipment that is subject to these rules.

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 for 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 to prevent the build-up of pressure within the container. An example of a RCRA Container Storage Inspection Form is provided in Attachment F-2 and is subject to change. This form serves to guide hazardous waste handlers in the proper acceptance and storage criteria for waste containers. Hazardous wastes are acceptable if placed in compatible drums meeting DOT specifications. The FEMP has some containers that date before the DOT specification requirements. These pre-DOT containers are inspected on the same schedule as all other containers meeting the DOT requirements to ensure their integrity.

The hazardous waste container storage areas are inspected at least weekly as 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 are overpacked 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 containers 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 Code (RGC) 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" and "NO OPEN FLAME" 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.
- Hand-held fire extinguishers are available to extinguish small fires. Sprinkler systems are installed in some areas to control the larger fires that cannot be extinguished by hand-held fire extinguishers.

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 FEMP 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 to prevent the build-up of pressure in the container. These vent plugs are installed to provide ventilation to drums of wastes containing free reactive uranium metal that has the potential to generate hydrogen gas. Vent plugs are not used when drums contain RCRA organics. Approximately 3% of all RCRA drums in storage are currently equipped with vent plugs. The 3/4-inch filter vent plug is composed of a carbon-carbon composite high efficiency particulate air (HEPA) filter. The filter vent plug is inserted into the smaller bung opening of the drum lid. The plugs are also installed on all outer drums if the drums are overpacked.

Accidental ignition or mixing of ignitable or incompatible hazardous waste types is unlikely. As discussed in the previous section, the FEMP uses a Reactivity Group Code (RGC) marking system to segregate incompatible

hazardous wastes. Incompatible hazardous wastes are separated by diked areas and/or stored in separate buildings. At the present time the FEMP 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 FEMP are listed below:

- Consolidation of the same or similar hazardous wastes into larger containers;
- Consolidation of lab samples into larger containers;
- ~~Packaging of newly generated hazardous wastes.~~

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 FEMP property line. Figure F-1 (Facility 50 Foot Boundary Line) shows the location of the FEMP hazardous waste storage areas relative to the property line.

The storage practices followed by the FEMP include the use of buildings, structures and pads with concrete bases. 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. FEMP container management practices are discussed further in Section D, Process Information.

Inspections are performed at least weekly as 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 curbed area. The system incorporates "letter code signs" in storage areas. Only drums with Reactivity Group Codes matching the "letter code signs" are permitted to be stored in that area.

F-5d Management of Incompatible Wastes in Containers

Facility personnel responsible for the management, transfer and storage of hazardous waste at the FEMP 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.

Individual storage areas are divided into separate curbed areas or bays. The types of hazardous waste to be stored in these areas are identified by RGC signs. These signs for proper placement of drums in compatible storage areas facilitate the weekly inspection process and eliminate storage of incompatible hazardous wastes within the same areas. Separation of the storage areas by curbs prevents mixing incompatible hazardous wastes if a leak or spill occurs.

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

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

F-5f Management of Incompatible Wastes in Tank Systems

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

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

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

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

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

F-5l Management of Incompatible Wastes Placed in Landfills

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

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

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

SECTION F - PROCEDURES TO PREVENT HAZARDS

FIGURE F-2

HAZARDOUS WASTE COMPATIBILITY CHART

REACTIVITY GROUP DESCRIPTION	RGC CODE (1)	A	B	C	D	E	F	G	H	I	J	K	L	M
HALOGENATED ORGANICS & PCBs*	A	X	X	0	0	X	X	X	0	0	0	X	0	0
ALCOHOLS & COMBUSTIBLES	B	X	X	0	0	X	X	X	X	0	0	X	0	0
MINERAL ACIDS AND CORROSIVES	C	0	0	X	0	0	0	0	0	0	0	0	0	0
CAUSTICS	D	0	0	0	X	0	0	0	0	0	0	0	0	0
TOXICS & TCLP METALS	E	X	X	0	0	X	X	X	X	0	0	X	0	0
FLUORIDES	F	X	X	0	0	X	X	X	X	0	0	X	0	0
WATER MIXTURES	G	X	X	0	0	X	X	X	X	0	0	X	0	0
CYANIDES	H	0	X	0	0	X	X	X	X	0	0	X	0	0
OXIDIZERS	I	0	0	0	0	0	0	0	0	X	0	0	0	0
REACTIVES	J	0	0	0	0	0	0	0	0	0	X	0	0	0
IGNITABLES	K	X	X	0	0	X	X	X	X	0	0	X	0	0
PEROXIDES	L	0	0	0	0	0	0	0	0	0	0	0	X	0
EXPLOSIVES	M	0	0	0	0	0	0	0	0	0	0	0	0	X

(1) An "X" indicates a compatible Reactivity Group Code (RGC) combination, and an "0" indicates an incompatible RGC combination.

* PCB compatibility included for RGC evaluations.

6518

HWMU 37
Plant 6 Warehouse (Bldg 79)

Active Container
Storage

Inspector's Name:					Date:	Time:
Facility Owner's Signature:					Date:	Time:
Item No.	Item Description	Acceptable	Unacceptable	Observations/Corrective Actions To Be Completed	Date Action Completed	
1	Signs: Danger-Authorized Personnel Only					
2	No Smoking or Open Flame					
3	Emergency & Prior To Entry Contact					
4	Building Condition					
5	Condition Of Secondary Containment					
6	Emergency & Spill Response Equipment					
7	Compatibility Codes					
8	Container Management					
9	Conditions Of Drums (Evidence Of Leaks/Spills)					

Comments: _____

Distribution:
 Facility Owner: Facility owner reviews, signs and distributes log to:
 RCRA Field Implementation

RCRA Field Implementation Signature:	Date:
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6518

Active Container Storage

**HWMU 34
KC-2 Warehouse (Bldg 63)**

Inspector's Name:	Date:	Time:
Facility Owner's Signature:	Date:	Time:

Item No.	Item Description	Acceptable	Unacceptable	Observations/Corrective Actions To Be Completed	Date Action Completed
1	Signs: Danger-Authorized Personnel Only				
2	No Smoking or Open Flame				
3	Emergency & Prior To Entry Contact				
4	Building Condition				
5	Condition Of Secondary Containment				
6	Emergency & Spill Response Equipment				
7	Compatibility Codes				
8	Container Management				
9	Conditions Of Drums (Evidence Of Leaks/Spills)				

Comments: _____

Distribution:
 Facility Owner: Facility owner reviews, signs and distributes log to:
 RCRA Field Implementation

RCRA Field Implementation Signature:	Date:
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HWMU 29
Plant 8 Warehouse (Bldg 80)

Active Container
Storage

Inspector's Name:	Date:	Time:
Facility Owner's Signature:	Date:	Time:

Item No.	Item Description	Acceptable	Unacceptable	Observations/Corrective Actions To Be Completed	Date Action Completed
1	Signs: Danger-Authorized Personnel Only				
2	No Smoking or Open Flame				
3	Emergency & Prior To Entry Contact				
4	Building Condition				
5	Condition Of Secondary Containment				
6	Emergency & Spill Response Equipment				
7	Compatibility Codes				
8	Container Management				
9	Conditions Of Drums (Evidence Of Leaks/Spills)				

Comments: _____

Distribution:
 Facility Owner; Facility owner reviews, signs and distributes log to:
 RCRA Field Implementation

RCRA Field Implementation Signature:	Date:
---	-------

6518

HWMU 33
Pilot Pit Warehouse (Bldg 68)

Active Container
Storage

Inspector's Name:		Date:	Time:		
Facility Owner's Signature:		Date:	Time:		
Item No.	Item Description	Acceptable	Unacceptable	Observations/Corrective Actions To Be Completed	Date Action Completed
1	Signs: Danger-Authorized Personnel Only				
2	No Smoking or Open Flame				
3	Emergency & Prior To Entry Contact				
4	Building Condition				
5	Condition Of Secondary Containment				
6	Emergency & Spill Response Equipment				
	Compatibility Codes				
8	Container Management				
9	Conditions Of Drums (Evidence Of Leaks/Spills)				

Comments: _____

Distribution:
 Facility Owner: Facility owner reviews, signs and distributes log to:
 RCRA Field Implementation

RCRA Field Implementation Signature:	Date:
---	-------

6518

HWMU 35
Plant 9 Warehouse (Bldg 81)

Active Container

Storage

Inspector's Name:				Date:	Time:
Facility Owner's Signature:				Date:	Time:
Item No.	Item Description	Acceptable	Unacceptable	Observations/Corrective Actions To Be Completed	Date Action Completed
1	Signs: Danger-Authorized Personnel Only				
2	No Smoking or Open Flame				
3	Emergency & Prior To Entry Contact				
4	Building Condition				
5	Condition Of Secondary Containment				
6	Emergency & Spill Response Equipment				
	Compatibility Codes				
8	Container Management				
9	Conditions Of Drums (Evidence Of Leaks/Spills)				

Comments: _____

Distribution:

Facility Owner; Facility owner reviews, signs and distributes log to:
 RCRA Field Implementation

RCRA Field Implementation Signature:	Date:
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HWMU 35
 PLANT 9 WAREHOUSE (Bldg 81)
 Figure 34

000250

6518

HWMU 20
Plant 1 Pad

Active Container
Storage

Inspector's Name:		Date:	Time:		
Facility Owner's Signature:		Date:	Time:		
Item No.	Item Description	Acceptable	Unacceptable	Observations/Corrective Actions To Be Completed	Date Action Completed
1	Signs: Danger-Authorized Personnel Only				
2	No Smoking or Open Flame				
3	Emergency & Prior To Entry Contact				
4	Building Condition				
5	Condition Of Secondary Containment				
6	Emergency & Spill Response Equipment				
7	Compatibility Codes				
8	Container Management				
9	Conditions Of Drums (Evidence Of Leaks/Spills)				
10	Boundary Markers (Chains, Rope, etc.)				

Comments: _____

Distribution:
 Facility Owner: Facility owner reviews, signs and distributes log to:
 RCRA Field Implementation

RCRA Field Implementation Signature:	Date:
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6518

HWMU 19
CP Storage Warehouse (Bldg 66)

Active Container
Storage

Inspector's Name:				Date:	Time:
Facility Owner's Signature:				Date:	Time:
Item No.	Item Description	Acceptable	Unacceptable	Observations/Corrective Actions To Be Completed	Date Action Completed
1	Signs: Danger-Authorized Personnel Only				
2	No Smoking or Open Flame				
3	Emergency & Prior To Entry Contact				
4	Building Condition				
5	Condition Of Secondary Containment				
6	Emergency & Spill Response Equipment				
7	Compatibility Codes				
8	Container Management				
9	Conditions Of Drums (Evidence Of Leaks or Spills)				

Comments: _____

Distribution:
 Facility Owner; Facility owner reviews, signs and distributes log to:
 RCRA Field Implementation

RCRA Field Implementation Signature:	Date:
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SECTION G - CONTINGENCY PLAN

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 Environmental Management Project (FEMP), 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 FEMP 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 FEMP is included for informational purposes only and is not intended to be part of the facility's RCRA permit.

G-1 GENERAL INFORMATION

The FEMP is a large scale integrated production facility which formerly 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, remedial investigation, environmental response actions, nuclear materials disposition, and miscellaneous operations such as wastewater treatment. More specifically, waste storage operations are allocated as follows:

HWMU No.19 (CP Storage Warehouse/Bldg 56)

Location: B Street - North of 2nd Street
Maximum Capacity: 116,160 gallons / 2,112 drums
Waste Types: Various hazard classes EXCEPT ignitables.

HWMU No.20 (Plant 1 Pad)

Location: North of 2nd Street; West of B Street
Maximum Capacity: ~~10,890,000~~ 11,222,200 gallons / 198,000 drums
Waste Types: Various hazard classes;

HWMU No.29 (Plant 8 Warehouse/Bldg 80)

Location: Corner of A Street and 1st Street
Maximum Capacity: 139,260 gallons / 2532 drums
Waste Types: Combustible solids

HWMU No.33 (Pilot Plant Warehouse /Bldg 68)

Location: Southwest corner of production area
Maximum Capacity: 13,200 gallons / 240 drums
Waste Types: Ignitable dry wastes, metals, metal salts and oxides

HWMU No.34 (KC-2 Warehouse/Bldg 63)

Location: B Street - North of 2nd Street
Maximum Capacity: 200,640 gallons / 3,648 drums
Waste Types: Combustible and flammable liquids

HWMU No.35 (Plant 9 Warehouse/Bldg 81)

Location: D Street - North of 2nd Street
Maximum Capacity: 86,240 gallons / 1,568 drums
Waste Types: Combustible liquids and solids, corrosives, PCBs

HWMU No.37 (Plant 6 Warehouse/Bldg 80 79)

Location: E Street between 1st and 2nd Street
Maximum Capacity: 230,780 gallons / 4,196 drums
Waste Types: Combustible and flammable liquids, solids, trash

The FEMP site and mailing addresses are:

Fernald Environmental Management Project - Site Address
7400 Willey Road
Fernald, Ohio 45030
(513) 738-6200

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Fernald Office - Mailing Address
U. S. Department of Energy
P.O. Box 538705
Cincinnati, Ohio 45253-8705
(513) 738-6200

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

U. S. Department of Energy
Office of Environmental Restoration and Waste 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. This plan applies to all areas of the facility where hazardous waste is being handled or stored. Therefore, in addition to the seven storage units the FEMP is seeking to permit, all hazardous waste management units are discussed in this plan. The location of the active hazardous waste management units (HWMUs) which the FEMP is seeking to permit as RCRA storage facilities are shown in Figure G-1. A copy of this contingency plan is located at each such unit. The location of all other HWMUs is shown within Attachment G-1 on the inserted map "Evacuation Routes", located between pages 9 and 10; specific route maps are posted at these units. Since a potential incident could occur at any HWMU, Attachment G-1 describes evacuation routes and fire and safety equipment available for all HWMUs.

G-1a Emergency Organization

The Emergency Coordinator 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 FEMP Emergency Organization. Figure G-2 provides an organizational chart of the FEMP Emergency Response Organization.

Fernald Environmental Management Project

Emergency Management

The Emergency Director (the operating contractor President or his designee) has designated an Assistant Emergency Duty Officer (AEDO) who is responsible for emergency responses at the FEMP. The AEDO is the primary Emergency Coordinator.

The Emergency Coordinator (AEDO) manages and controls the response to any event at the FEMP. A minimum of one Emergency Coordinator (AEDO) is present onsite at all times. Through an extensive Emergency Duty Officer

training program assembled by the Training Division, the Emergency Coordinator (AEDO) is knowledgeable of this Contingency Plan, operations and activities at the FEMP, the locations and characteristics of hazardous waste at the facility, the location of records within the FEMP, and the facility layout. Figure G-3.1 illustrates the range of training requirements for the AEDO.

The Emergency Coordinator (AEDO) can activate the FEMP emergency response organizations including, but not limited to, the Emergency Response Team, Monitoring Team, medical staff, security personnel, the Emergency Operations Center, the Joint Public Information Center, the Triage Center, and the Staging Area. Additional support and mutual aid may be summoned at any time by the Emergency Coordinator (AEDO). The Emergency Coordinator (AEDO) establishes a field command post to manage and control all response actions at the incident scene.

Emergency Response Team

The Emergency Response Team is responsible for on-scene event mitigation, rescue, damage control, firefighting, environmental monitoring, and medical assistance.

Security Response Organization

The Security Response Organization maintains the security and integrity of the FEMP. The FEMP 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 Administration Building, 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

Public information spokespersons representing the FEMP, Butler and Hamilton counties, and the State of Ohio assemble at the Joint Public Information Center (JPIC). The FEMP provides administrative support and a technical advisor to the JPIC Team. Technical advisors from other organizations can be summoned as needed.

Medical Response Organization

The Medical Response Organization provides treatment and stabilization for injuries. At least two state certified Emergency Medical Technicians are on duty at all times as members of the Emergency Response Team.

Communications Center Staff

Site-based communications are operated by security personnel. The security staff also dispatches ambulance service in response to ambulance calls on-site. 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 FEMP monitoring organization consists of Radiological Safety and Industrial Hygiene Technicians for on-site and off-site monitoring of chemicals and radiological materials. 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 Office (DOE-FN)

The DOE Fernald Office (DOE-FN) 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-FN 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 Restoration and Waste Management has overall responsibility for emergency operations at the FEMP and designates response authority to the AEDO to act as the primary Emergency Coordinator. The FEMP 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.

Butler and Hamilton Counties

Butler and Hamilton counties may activate their respective Emergency Operations Centers 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 FEMP EOC 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
- Hamilton County Sheriff
- Mercy Hospital
- Ohio Emergency Management Agency
- Ohio Highway Patrol, Post 9
- Providence Hospital
- American Red Cross Disaster Services
- Butler County Emergency Management Agency
- Butler County Sheriff
- Colerain Township Fire Department
- Ross Township Fire Department
- Ross Township Police Department
- University Hospital
- Ohio EPA
- US EPA

G-2 EMERGENCY COORDINATION

The FEMP Emergency Preparedness staff, headed by the Emergency Coordinator (AEDO), is in charge of the preparation for and response to an emergency at the FEMP. Figure G-3 depicts the relationships between the key FEMP Emergency Preparedness 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.

FEMP Emergency Preparedness Staff

Emergency Coordinator (AEDO)

The Assistant Emergency Duty Officer (AEDO) has been designated as the primary onsite Emergency Coordinator. 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 five personnel assigned to the position of Utility Engineer. This group works a five-person rotating shift schedule. A status board which lists the Emergency Coordinator (AEDO) and Emergency Chief is established for each shift at the Communications Center. At least one Emergency Coordinator

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(Utility Engineer) is on site at all times, who can be reached by pager. If the shift AEDO should be unavailable for duty, an Alternate AEDO will be summoned. The Emergency Chief will act as AEDO until the Alternate AEDO arrives. Table G-1 lists the pertinent contact information for the designated Emergency Coordinators (AEDOs).

As stated in section G-1, the Emergency Coordinator (AEDO) is fully knowledgeable of this Contingency Plan, operations and activities at the FEMP, the locations and characteristics of hazardous waste at the facility, the location of records within the FEMP, and the facility layout. In addition to the training listed in table G-3.1 and in Section H, the Utility Engineering job description requires a BS degree in a related field plus five years of related experience.

The Emergency Coordinator (AEDO) has the authority to activate the FEMP 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 all emergencies. All EOC staff members are supplied with personal pagers that can be activated by a group page. Off-duty Utility Engineers, Security Lieutenants, Safety and Fire Inspectors, 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 AEDO. The Emergency Duty Officer is responsible for proper notification of off-site response organizations.

The Emergency Duty Officer is in control of response operations until the Deputy Emergency Director approves and assumes control of the response organization. The Emergency Duty Officer remains part of the Emergency Operations Center staff providing management oversight to the Emergency Coordinator (AEDO). Designated senior staff managers rotate as the Emergency Duty Officer.

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

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

In addition to the training listed in Table G-3.1 and Section H, the job description for the Emergency Duty Officer requires a BS degree in a related field plus eight years of related experience that includes three years of management responsibilities.

Emergency Chief (EC)

The Emergency Chief directs the Emergency Response Team's remedial activities. The Emergency Chief reports directly to the Emergency Coordinator (AEDO). The Emergency Chief is the Safety and Fire Inspector on shift. At least one Safety and Fire Inspector is on site at all times.

The Safety and Fire Inspector on duty may be reached in the following ways:

- via radio through the 24-hour-staffed
FEMP Communications Center 513-738-6295
- office 513-738-6235
- mobile vehicle cellular telephone 513-535-1367
- by personal digital display pager

In addition to the training listed in table G-3.1 and in Section H, the job description for the Safety and Fire Inspector requires two years of post high school studies in a related field plus three years of related experience in fire inspection/code enforcement.

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 defined in Figure G-5.1:

- 1) LOGGABLE EVENT
- 2) OFF-NORMAL EVENT
- 3) UNUSUAL OCCURRENCE
- 4) EMERGENCY

An event greatest in magnitude is categorized as an Emergency, and determines if the event requires assistance beyond the capabilities of the Emergency Response Team (ERT). Categorization of a hazardous waste incident as an 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 diagrammed in Figure G-4 and are summarized in Figure G-5.1, the Emergency Categorization Level Guide.

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This Guide lists actions for events involving hazardous waste and radioactive material and includes numerical values to assist in evaluating and classifying the event. 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 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 emergencies are:

- 4a) ALERT
- 4b) SITE AREA EMERGENCY
- 4c) GENERAL EMERGENCY

The Emergency Coordinator (~~AEDO~~) or the Emergency Duty Officer (as directed by the Emergency Coordinator) 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 Emergency Coordinator (~~AEDO~~) retains 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 mutual aid assistance such as rescue and fire fighting equipment and crews.

Assistance may be requested from:

Crosby Township Volunteer Fire Department
Telephone: 911 or 825-2260 (Hamilton County Communications Center)

Colerain Township Volunteer Fire Department
Telephone: 911 or 825-2260 (Hamilton County Communications Center)

Ross (Venice) Volunteer Fire Department
Telephone: 911 or 844-1515 (Butler County Sheriff's Dispatcher)

- 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 as a hazardous waste ALERT, SITE AREA EMERGENCY, or GENERAL EMERGENCY.
- 2) The Communications Center (or Emergency Coordinator (AEDO)) notifies Emergency Chief (EC) and Emergency Duty Officer (EDO) of the event categorization.
- 3) The Emergency Duty Officer notifies Emergency Director (ED) and DOE Site Manager of the event categorization.
- 4) The Communications Center completes County Event Report¹ as directed by the Emergency Coordinator (AEDO).

¹ The County Event Report is an emergency event report form used for making notifications to both Butler and Hamilton Counties for events categorized as Alert or higher.

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- 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.
- 6) The Emergency Coordinator (AEDO) begins identification of the character, source, amount, and extent of any released materials by observation, for example hazardous waste labels on the container, review of facility records, interaction with facility personnel, and if necessary, by chemical analyses.
- 7) Concurrently, the Emergency Coordinator (AEDO) assesses possible hazards to human health and/or the environment that may result from the release, fire, or explosion. This assessment will consider both direct and indirect effects of the event.
- 8) 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,
 - Director, Ohio Environmental Protection Agency
 - FEMP Release Evaluator,
 - DOE-FN 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.

- 9) The DOE-FN Duty Officer provides FEMP Communications Center, as soon as possible, with a written record documenting that the appropriate regulatory agencies have been verbally contacted.
- 10) The DOE-FN Duty Officer is responsible for making and verifying any follow-up notifications communicated to them by the FEMP, 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 DOE-HQ when the facility has had a release, fire, or explosion which could threaten human health or the environment.

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

The verbal report will contain the following information²:

- 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.

Local Evacuation Notices

Local agencies are responsible for protective actions required for the population surrounding the FEMP. The FEMP Communications Center will activate the Off-site Emergency Warning System for emergency events that could have significant off-site impact. The FEMP Off-Site Emergency Warning System is utilized to inform the population within a two-mile radius of the FEMP 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 DOE 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;

²

Form A (Ohio Hazardous Waste Release Fire, Explosion Report to Ohio EPA) may be used as a guideline to facilitate this verbal reporting.

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- 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 hazardous waste log sheets 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 Materials Control and Accountability (MC&A) inventory records.
- 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 FEMP 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

As previously noted in Section G-3, the four major event categories, in order of increasing severity, are: Loggable Event, Off-Normal Event, Unusual Occurrence, and Emergency. Events are categorized using the criteria defined in Figure G-5.1, Event Categorization Level Guide. The categorization of a hazardous waste incident as an Emergency activates the Emergency Operations Center (EOC) and implements the contingency plan. Emergency levels are further classified, using the criteria in Figure G-5.2, Emergency Action Level Guide, as General Emergency (most severe), Site Area Emergency, or Alert (least severe) as defined below.

General Emergency

A General Emergency at a non-reactor facility such as the FEMP is declared when an event occurs which involves actual or imminent catastrophic reduction of facility safety systems with potential for loss of containment or confinement integrity. A General Emergency may involve a release of large quantities of hazardous waste to the environment and/or a release of hazardous waste (radiological or non-radiological) that can reasonably be expected to exceed appropriate Protective Action Guide or Emergency Response Planning Guideline exposure levels off-site.

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A General Emergency is declared during a transportation incident when an actual or imminent catastrophic reduction in the safety of the shipment has occurred, any release of hazardous waste is expected to exceed appropriate Protective Action Guide or Emergency Response Planning Guideline exposure levels in a general public area, or if the event has occurred on a DOE site and the release is expected to exceed appropriate Protective Action Guide or Emergency Response Planning Guideline exposure levels off-site.

If a General Emergency is declared, the Emergency Coordinator (AEDO) immediately directs the Communication Operator to activate the EOC, the FEMP Off-site Emergency Warning System, the Sitewide Alarm System, and the Joint Public Information Center (JPIC), to make the required announcements for site protective actions. Emergency Response Team assistance will be required and notification shall be made as described in Section G-4a. Off-site response assistance and/or response may be required.

Site Area Emergency

A Site Area Emergency at a non-reactor facility such as the FEMP is declared when events are in progress or have occurred which involve actual or likely major failures of facility functions needed for protection of workers and the public. A Site Area Emergency is also declared when a transportation incident has occurred which involves an actual or potential major reduction in the safety of the shipment. Any release of hazardous waste is expected to exceed appropriate Protective Action Guide or Emergency Response Planning Guideline exposure levels onsite or in the immediate vicinity of the transportation incident, but is not expected to exceed the appropriate Protective Action Guide or Emergency Response Planning Guidelines off-site, or in a general public area.

If a Site Area Emergency is declared, the Emergency Coordinator (AEDO) immediately directs the Communication Operator to activate the EOC, the Sitewide Alarm System and to make the required announcements for information and for local or site protective actions. Full activation of the EOC is required. The Joint Public Information Center (JPIC) may also be activated. ERT assistance will be required and notifications shall be made as described in Section G-4a. Off-site response assistance and/or response may be required.

Alert

An Alert is declared at a non-reactor facility such as the FEMP when events are in progress or have occurred which involve an actual or potential substantial impact on the safety of the facility.

An Alert is also declared when a transportation incident has occurred which involves an actual or potential substantial impact on the safety of the shipment. An event is classified as an Alert if any release of

hazardous waste is expected to be limited to small fractions of the appropriate Protective Action Guide or Emergency Response Planning Guidelines exposure levels, both onsite or in the immediate vicinity of the transportation incident.

If an Alert is declared, the Emergency Coordinator (AEDO) immediately directs the Communication Center Operator to activate the EOC, the Sitewide Alarm System and to make the required announcements for local protective actions. The Joint Public Information Center (JPIC) may also be activated. ERT assistance will be required and notifications shall be made as described in Section G-4a. Off-site response assistance and/or response may be required.

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 FEMP Emergency Response Team is prepared for immediate response to fires, explosions, and spills at all times. Personal protective clothing, pumps, generators, and respiratory equipment are noted in Section G-5; containment supplies and procedures 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 Chief with Fire & Rescue service vehicle
- Emergency Coordinator (AEDO) with vehicle
- Industrial Mechanics from Garage driving pumper truck and ambulance if requested.
- Security Officer with vehicle
- Emergency Coordinator (AEDO) or Emergency Chief, if required, will request Security to transport a driver from the fire scene to the heavy equipment building to obtain additional equipment (i.e., a second pumper truck).

Rescue of persons from an evacuated building or area will be undertaken only by the Emergency Response Team under the direction of the Emergency Chief.

Response procedures for the Emergency Response Team and other 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 6511, 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 6511, pulling manual fire alarms, or relaying the information to the Communications Center via the FM radio network.
- 6) Shut off all operation equipment, air, water, steam, gas, and electricity.
- 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.
- 8) Unlock all doors.
- 9) Evacuate all personnel in the vicinity of the incident not actively involved in responding to the emergency.
- 10) Account for all personnel at location or at the Rally Point.
- 11) Assist the Emergency Coordinator (AEDO) if called upon.

- 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;
- 13) Assess the emergency and establish the initial event categorization;
- 14) Authorize the request for mutual aid;
- 15) Notify the EDO of significant actions prior to EOC being declared operational;
- 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.
- 17) Initiate the "All Clear" signal when the emergency is under control and/or resolved;
- 18) Initiate necessary precautions to ensure that further fires, explosions and releases do not occur, recur or spread to other hazardous waste or materials;
- 19) Initiate appropriate monitoring for leaks, pressure build up, gas generation or rupture in valves, pipes, or other equipment;
- 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;
- 21) Ensure that all emergency equipment is returned to normal status when the event has been terminated.

Should the EC or Emergency Coordinator (AEDO) determine that a fire is out of control and additional personnel are required, the Emergency Coordinator (AEDO) will direct the Communications Operator to initiate the call-in for additional FEMP fire response personnel by activating the Group C pagers.

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

The personnel responding from off-site departments will be under FEMP 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 and storage bays are marked with Reactivity Group Codes (RGCs) based upon the results of waste characterizations. The RGC chart is readily available in all 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 stored in separately bermed areas or in separate 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 AEDO can ensure against the mixing of incompatible substances by maintaining the integrity of the berms, or by creating temporary dikes to divert flow. 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 FEMP. 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 Emergency Coordinator (AEDO) will be contacted immediately, if inspectors during the scheduled weekly container inspections or other FEMP personnel observe spills and/or leakage. The Emergency Coordinator (AEDO) will then determine which types of industrial absorbents may be used (if necessary) to stop the spread of the leak or spill. Cleanup residues, along with the original drum's contents, will be overpacked and stored in the same area. For cleanup residues where the identity or waste status is in doubt, all absorbents, washings, etc., will be drummed and transferred to an appropriate temporary holding area, pending analysis, relabeling, and re-storing in accordance with hazardous waste regulations.

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

G-4j(1) Stopping Waste Addition

Addition of hazardous waste into a tank system or secondary containment system will be stopped immediately once a leak or spill is detected in that system. The system will be inspected to determine the cause of release.

G-4j(2) Removing Waste

Hazardous wastes are removed from a tank system by pumping, vacuuming (using a HEPA filter), or absorption using methods and spill response equipment in accordance with documented Emergency Response Team Manual Procedures. The method of removal is determined by the type and amount of hazardous waste spilled, or as directed by the Emergency Coordinator (AEDO). Removal of hazardous waste will be accomplished within 24 hours or as quickly as possible.

G-4j(3) Containment of Visible Releases

Suitable spill cleanup materials are designated for each applicable area. The material used for diking the spill is selected to be compatible with the released hazardous waste. In addition, many large tank systems are located within berms sufficient to contain most of the tanks' contents, and thus allow time for diversion of the spill, or repair and refilling of the tank. Visual examination of the spilled waste will be performed immediately. Based on results of the inspection, the appropriate methods will be selected to prevent further migration of the leak or spill. Visible contamination of soil or surface water will be cleaned up and disposed of in accordance with all applicable regulatory requirements.

G-4j(4) Notifications, Reports

All events are properly documented as directed by the Emergency Coordinator (AEDO), and/or Release Evaluator. Further information is provided in Section G-4a. Any release to the environment (except a leak or spill that is less than or equal to one pound and is immediately contained and cleaned up) will be reported to the Director of the Ohio EPA and the Regional Administrator within 24 hours of detection.

G-4j(5) Provision of Secondary Containment, Repair or Closure

Spilled hazardous wastes are prevented from entering floor drains or storm sewers by damming the spill. Released waste will be removed and repairs made as necessary before returning the system to service. The material used for diking the spill is selected to be compatible with the released material. The compatibility of the patching material with the waste will be evaluated before patching dikes or tanks.

Secondary containment will be provided if the area is designated as a storage area for hazardous waste with free liquids. Temporary diked areas constructed of Herculite material spread over plastic pipes can be used to form an impervious diked area when necessary.

If a leak to the secondary containment system is detected, the primary tank system will be repaired before returning the primary system to service. The released waste will be cleaned up and removed.

If the source of the release was a leak to the environment from a component of a tank system without secondary containment, secondary containment will be provided, unless the leak source is from an aboveground component of the tank that can be visually inspected on a daily basis.

An aboveground component leak source, which can be inspected visually, will not be returned to service without certification by an ~~independent, qualified,~~ registered professional engineer that the repaired component will safely handle hazardous wastes without release for the intended life of the system.

Components replaced to comply with this subparagraph will satisfy requirements for new tank systems or components specified in 40 CFR 264.192, 264.193, OAC 3745-55-92, and OAC 3745-55-93. In addition, any portion of a component from which a leak has occurred and is not accessible for visual inspection will be provided with secondary containment for the entire component prior to return to service.

G-4k Surface Impoundment Spills, and Leakage

G-4k(1) Emergency Repairs

Inspections of hazardous waste surface impoundments are conducted weekly and after storms to detect evidence of deterioration, malfunctions, or improper operation of run-on and run-off control systems, adequate free-board, and sudden drops in levels.

Inspection is increased to a daily inspection if evidence of malfunction or deterioration is observed. Inspections, sampling and analysis, and remedial actions will be performed, as necessary, to ensure the safe operation and maintenance of these units that is protective of human health and the environment.

Immediate remedial action is taken where a hazard is recognized as imminent.

G-4k(1)(a) Stopping Waste Addition

In the event of impoundment liner leakage or wall-deterioration, activities which generate wastes to that impoundment will be stopped, or those wastes will be diverted to another holding facility.

G-4k(1)(b) Containing Leaks

Surface run-on and run-off and adequate free-board will be maintained at levels to preclude further deterioration or exposure to the environment. Large leaks, from surface impoundments or from overrunning berms surrounding large tank systems, can be pumped to intact surface impoundments or portable tanks, respectively, or through the stormwater drains directly to the general sump or biosurge lagoon. In extreme cases, including during periods of heavy rainfall, the spill can flow into the stormwater drains and be routed to the dual Storm Water Retention Basins (capacity of greater than 10 million gallons), where further appropriate action can be taken.

G-4k(1)(c) Stopping Leaks

Appropriate earth-moving equipment and/or construction materials will be used to repair leaks from impoundments; in many cases, the waste within the impoundment will be reduced to a level below the failure point, prior to the repair. All repairs of a permanent nature will be certified by a registered professional engineer as meeting the appropriate design specifications.

G-4k(1)(d) Preventing Catastrophic Failure

The performance of periodic inspections, followed by appropriate maintenance or repair are the control methods used to prevent the possibility of catastrophic failure of the hazardous waste surface impoundments. All repairs of a permanent nature will be certified by a registered professional engineer as meeting the appropriate design specifications.

G-4k(1)(e) Emptying the Impoundment

If situations arise such as a leak, an impending repair, or heavy rains, the contents of the impaired surface impoundment can be pumped through a large diameter hose or pipe to another holding facility; the stormwater retention basin can be emptied via bottom drains.

G-4k(2) Certification

Dike structural integrity will be certified by an ~~independent~~, registered professional engineer in the event that a hazardous waste surface impoundment has been removed from service due to actual or imminent dike failure.

G-4k(3) Repairs as a Result of Sudden Drop

For a hazardous waste surface impoundment that has been emptied and removed from service, an immediate structural remedial investigation will be implemented to determine the appropriate remedial actions to repair the unit. All repairs of a permanent nature will be certified by a professional engineer as meeting the appropriate design specifications.

G-4k(3)(a) Existing Portions of Hazardous Waste Surface Impoundments

If a hazardous waste surface impoundment has been emptied and removed from service, response actions will be consistent with the CERCLA Consent Agreement and the Consent Decree and its Stipulated Amendment.

G-4k(3)(b) Liner Repairs to Hazardous Waste Surface Impoundments

For the liner portion of the surface impoundment, the repaired liner system must be certified by a qualified engineer as meeting the appropriate design specifications.

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 FEMP are the Emergency Operations Center (EOC), a Mobile Operations Center (MOC), the Joint Public Information Center (JPIC) in

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Fairfield, Ohio, 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 FEMP also maintains mutual aid agreements with local emergency response agencies as described in Section G-6. Copies of Mutual Aid Agreements are maintained as part of the FEMP Operating Records.

Emergency Operations Center (EOC)

The EOC is located in the FEMP Administration Building. EOC staffing and responsibilities are outlined in Section G-1b. Resources available in the EOC include maps, engineering drawings, and other emergency reference materials. The EOC is equipped with an air-purification system, which can sustain air quality and a backup power generator.

A comprehensive communications system in the EOC includes telephones, telefax, computers, portable radios and a control module for the radio equipment in the Communications Center. The EOC can monitor or augment the FEMP emergency communications control system in the Communications Center. Radio and cellular telephone communications can be utilized as backup communications if telephones are not available. A VHF radio is programmed for various DOE and FEMP frequencies, and an HF radio can be utilized for long distance communication. A paging system links response personnel with the Communications Center. All response personnel can be alerted simultaneously or individually, in case of an event.

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.

Mobile Operations Center

The Mobile Operations Center is designed and equipped to serve as a mobile command/communications post in the event that mobile communications are required at the site of an emergency or if the EOC is rendered unusable. The Mobile Operations Center can also be used by other organizations, such as Butler and Hamilton County officials or other DOE sites in the event they have a need for a portable command center.

The Mobile Operations Center is outfitted with similar capabilities as the FEMP-fixed EOC located in the Administrative Building.

The Mobile Operations Center is equipped with extensive communications capabilities as follows:

- A telephone key system capable of handling a maximum of twelve incoming/outgoing trunk lines and 24 extension lines. There are also provisions for a maximum of 8 external extensions.
- A VHF radio is programmed for various DOE and FEMP frequencies; an amateur band (144 MHz) radio for use with Civil Defense or for other civil emergency situations; and an HF radio for long distance communications capabilities.
- A CB radio in the cab intended for maintaining communications with any vehicles that may accompany the Mobile Operations Center during transportation.

The Mobile Operations Center, which seats 12 people, is also equipped with office supplies, computers, FAX machine, copier, refrigerator, respirators, maps, event status pads, white boards, markers, erasers, and other items required to support the personnel responding to an emergency situation. The computer hardware has the capability to allow the FEMP to analyze the plume direction of a chemical release and predict the expected exposure. The MOC is designed to be self-contained with an independent diesel generator, heat pump for heating and cooling and an internal lighting system.

Joint Public Information Center (JPIC)

The Joint Public Information Center serves services as a clearinghouse for information for the FEMP and would become the central contact point for information during an emergency. The Joint Public Information Center disseminates necessary and relevant information to the public via the news media. The Joint Public Information Center has a media briefing room, a telephone bank for media inquiries, a media monitoring room, a telephone bank for concerned citizens' inquiries, and clerical support areas. Telephone lines link the Joint Public Information Center with Butler County, Hamilton County, and the FEMP EOC.

Communications Center/Security

Security maintains the safeguard and integrity of the FEMP 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, a high-frequency single-sideband emergency radio, a shortwave receiver, special telephone system, and a paging system. Special monitoring systems include a computerized emergency monitoring system.

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On-site Security Inspectors are equipped with emergency vehicles with lights and siren, portable communications equipment, a mobile radio-telephone, and a bullhorn.

Warning Systems

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

Facility Alarm System

This system is centered in the Communications Center. Signals from manual fire alarm boxes and automatic fire monitoring and/or extinguishing systems located throughout the plant are transmitted to the Communications Center and monitored by a Honeywell Delta 1000 system. The Communications Operator, using the control panel, activates an alarm via bells and air horns located throughout the facility. This system is used for sounding special two-digit signals to provide warnings and other emergency information. The two-digit warning signals are detailed in Table G-5.

Each alarm system is tested by safety and fire personnel according to the following schedule, and the results are recorded.

Manual alarm boxes:	Every six months
Automatic systems:	Every two months
Bells and Horns:	Every week

Emergency Message System

The Emergency Message System is a one-way system used by the Communications Center to transmit verbal instructions and important information to facility personnel following the sounding of a warning signal.

Local Evacuation Alarm

All process areas are linked to a Honeywell Evacuation Alarm (loudspeaker) system. In the event of an emergency in any location, dialing 6511 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 ERT members are notified simultaneously from the Communications Center via special Alert Pagers. A manually operated alarm, activated from the Communications Center, alerts the garage that a call has been made for the ambulance.

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 FEMP. 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 eleven electronic sirens (seven offsite and four 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 at the FEMP includes several 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 FEMP includes building sprinkler systems (both wet-pipe and dry-pipe), fire and smoke alarm systems, hand-held fire extinguishers, and fire hydrants. Detailed information on fire and rescue equipment appears in Section G-5a(4).

Decontamination Equipment

Decontamination equipment is stored in the mobile emergency spill response vehicle and in Building 46. 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

Medical Services, located in Building 53A, is staffed by physicians, nurses, and technicians. Medical vehicles for emergency use include two fully-equipped ambulance vehicles. 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 (laboratory only), 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,

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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

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 (Draeger) 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

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 FEMP:

- Self-contained breathing apparatus (SCBA) and other respiratory equipment
- Chemically resistant clothing, boots, and gloves;
- Showers and eye wash stations in fixed locations 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 FEMP 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. A summary of FEMP Emergency Alarm Signals is provided in Table G-5.

G-5a Fire Protection Equipment

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

The FEMP water systems and related equipment provide the FEMP with the first line of defense in fighting fires and supply the primary means of fire extinguishment.

Water supply storage at the FEMP consists of several ground level and elevated water storage tanks for both fire protection and potable water supply. Potable water supply consists of one ground level storage tank with a capacity of 750,000 gallons and one elevated storage tank with a capacity of 200,000 gallons. Fire protection storage tanks consist of one ground level storage tank with a capacity of 300,000 gallons plus one elevated tank of 350,000 gallons, for a total fire protection storage capacity of 650,000 gallons.

Underground water main systems supply water to hydrants, sprinkler systems, and stand pipes at all major buildings and processing areas of the FEMP. The water main system is a loop therefore no building will have the water supply cut-off under any circumstances. If a leak or plug in a line occurs, the flow to that section of pipe will be cut-off by valves and the water flow to the area rerouted while repair work is in progress.

Low-pressure (60 psi) and high-pressure (120 psi) fire hydrants are located throughout the site; they are listed in Attachment G-2.

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. The Emergency Response Team will immediately proceed to the area where an automatic sprinkler system is activated and take appropriate actions.

The following building are fully sprinklered with dry pipe systems:

- KC-2 Warehouse
- Building 56 Warehouse
- Building 64 Warehouse
- Building 79 Warehouse
- Building 80 Warehouse
- Building 81 Warehouse
- Trane Thermal Liquid Incinerator

The Pilot Plant is a partially sprinklered building with a wet pipe sprinkler system in the extraction area.

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 five types of pressurized fire extinguishers used at the FEMP and lists typical applications and limitations for each type of extinguisher.

G-5a(4) FEMP Emergency Response Equipment

The facility also has emergency response vehicles and equipment in addition to the automatic fire protection already described. The fire trucks and equipment to be used by the Emergency Response Team are properly maintained at all times to ensure readiness in the event of a fire. The fire response vehicles are stocked with standard fire-fighting and fire-related safety equipment, and are equipped with all standard warning devices.

FIRE AND SAFETY VEHICLES

Fire vehicles are equipped with forcible entry tools, communications equipment, electric lights and generators, portable pumps and protective equipment for the fire fighters including breathing apparatus, resuscitators, smoke detectors, and protective clothing.

FIRE AND SAFETY RESCUE UNIT 301

This unit is a 1993 Ford F-350 service body equipped with a two-way two-channel radio, fire extinguishers, self-contained breathing apparatus, explosimeters, tools, protective clothing, and medical supplies. This vehicle is in daily use for routine purposes and is driven by emergency response personnel.

FIRE AND SAFETY SERVICE UNIT 300

This unit is a 1990 Ford Ranger equipped with manuals, SCBAs, preplans, explosimeters, and a two-way, seven-channel radio.

TANK TRUCK UNIT 322

One Mack 2,500-gallon tanker is available, equipped with a 500-gpm centrifugal pump, two-way six channel radio, protective clothing, tools, fire extinguishers, two SCBAs, and hose.

FIRE TRUCK - ENGINE NUMBER 311

This fire truck is fully equipped with a 1,000 gpm single-stage centrifugal water pump, 500-gallon booster tank, two-way six-channel radio, SCBAs, protective clothing, extension ladders, deluge gun, tools, and hose.

FIRE TRUCK - ENGINE NUMBER 312

This is a 1990 Pierce vehicle equipped with 1,250-gpm single-stage centrifugal pump, 500-gallon booster tank, 50-gallon foam tank, two-way six-channel radio, SCBAs, hose, ladders, and tools.

AMBULANCES

Two fully-equipped ambulances meeting federal specifications are operated and maintained onsite.

SPILL RESPONSE VEHICLE - UNIT 328 (1988)

This Chevrolet 30-Series van, parked at the rear of Building 53, is stocked with a full array of ERT Spill Response Equipment, an on-board communications system. Other types of emergency response equipment stored in this vehicle include:

Personal Protective Equipment: a full range of shoe covers, gloves (nitrile, neoprene, latex, leather, etc), chemically-resistant suits (Saranex, Tyvek, etc), cover suits, SCBAs, respirators (with all potentially needed cartridges), hard hats, boots, goggles, ear plugs, confined space entry hardware and supplies;

Environmental Monitoring Equipment: Combustible gas monitor, sampling containers, charcoal tubes, pH meter, flashlights;

Spill Control and Clean-up Materials: Absorbent pillows, pigs, and pads; wet vacuum, Spill-X spill guns (solvent, acid, caustic), waste storage drum, traffic cones, soap, small tool kit (hammers, wrenches, pliers, etc);

Communications: Computer and Printer, fax, cellular phone; and, a set of reference books (ACGIH, NIOSH, etc).

Additionally, the Spill Response Vehicle can pull a trailer, which is equipped with renewal supplies and additional equipment, such as: brushes, mops, shovels; spill stoppers, leak plugs, sponges; decon showers and stations; buckets, overpack drums.

MOBILE AIR UNIT

This unit consists of a trailer mounted 9-bottle, high pressure cascade system with air-line capability capable of filling up to 70 low pressure SCBA units.

HEAVY EQUIPMENT

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

- 2 flatbed trucks
- 2 dump trucks
- 4 tow tractors
- 6 semi-trailers
- 3 semi-tractors
- 1 tank truck
- 32 industrial trucks
- 45 industrial hand stackers
- 1 locomotive engine
- 2 front end loaders
- 4 bulldozers
- 1 road grader
- 2 cranes
- 1 back hoe
- 1 cement mixer
- 1 portable generator
- numerous tractors, pickup trucks, and small vehicles
- 1 vacuum tanker truck, "Super Sucker"

G-5b Spill Control and Monitoring Equipment

Spill Control and Emergency Spill Response Equipment

Spill response equipment is available for use at the FEMP. Stockpiles of absorbent material (such as clay absorbent and spill booms or absorbent pillows called "PIGS") along with shovels and brooms are located at each storage facility 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.

The FEMP also maintains a mobile emergency spill response vehicle, as described in Section G-5a(4). This vehicle is stocked with appropriate emergency absorbent material and protective equipment.

MONITORING EQUIPMENT

Equipment used to monitor for contamination, explosive atmospheres, and hazardous releases is located on various emergency vehicles and in Building 53. 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 HWMUs and the 90 Day Storage Area 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:
 - Alarm type
 - Signal number
 - Location
 - Action to be taken by Communications Center personnel
- (4) Alarm sensors monitor the following:
 - Fire alarms
 - Sprinkler system
 - Intrusion alarm
 - Smoke alarms
 - Radiation detection alarms
 - Supervisory alarms, including tampering, equipment malfunction, and pressure varieties
 - Process alarms for temperature and gas detection
 - Storm sewer pH monitors
 - Dust collector monitors

(B) Audible Alarm System

- (1) Activated by Communications Center.
- (2) Transmits a coded signal throughout the plant complex to activate vibrating and Kodaire type alarm horns.

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) Monitor readouts are received in digital readout and strip chart analog hard copy in Building 53A.
- (D) Communications Center personnel relay the information to the Emergency Coordinator (AEDO), Emergency Chief (EC) and/or Meteorologist.

G-5d Communication System

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

TWO-WAY RADIOS

The FEMP utilizes five separate high-band radio frequencies. A separate band can be used to communicate with other DOE facilities.

RADIO RECEIVERS

These include the following:

- Scanner - area police and fire departments, and
- All band short-wave receiver - 0.558 Mhz to 32 Mhz

SPECIAL TELEPHONES AND TELEPHONE SERVICE

These include the following:

- National Warning System (NAWAS) equipped with voice-activated recorder.
- Emergency telephone number 6511 (also 6512, which is an automatic switch over, when 6511 is busy).
- 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-5e First Aid and Medical Supplies

G-5e(1) Emergency Treatment

Personnel are provided first aid treatment in the emergency treatment room in Building 53A of Medical Services. 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 transport of ill or injured for treatment is provided at other times, by safety and fire personnel (who are state certified Emergency Medical Technicians). A minimum of two state certified Emergency Medical Technicians are onsite at all times. Safety and fire personnel may be summoned by calling the Communications Center in an emergency.

G-5e(2) Ambulance Service - General

Injured or ill employees will be transported by FEMP ambulance or through mutual aid equipment to pre-designated area hospitals.

G-5e(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

The FEMP participates in a mutual aid agreement with other emergency organizations within the FEMP site area and provides assistance to these organizations in the event of a major fire or other serious emergency.

Off-site emergency organizations have signed mutual aid agreements and/or have agreed to provide needed assistance to the FEMP at local, county, state and federal levels. All mutual aid agreements are maintained as part of the FEMP Operating Record. Copies of the current agreements are included as Attachment G-3. A list of participants in mutual aid agreements, prefixed by the acronym "MuAid", is provided in the list of Off-Site Organizations in Table G-1.

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 annual joint emergency exercises (more often if changing conditions warrant). Emergency Preparedness holds a monthly meeting to ensure an adequate level of integrated planning among the FEMP and the off-site emergency organizations.

The Emergency Coordinator (AEDO) will request the Communications Center Operator to initiate the call-in of additional mutual aid assistance if determines a fire or similar emergency is out of control and additional personnel are required. 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-7 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 AEDO, personnel may have to perform in-place accountability, or in the event evacuation is required, proceed to their rally point. The accountability procedures are shown in Figure G-8. 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 HWMU 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 in the Hazardous Waste Management Unit (HWMU) areas:

- (A) The Sitewide Alarm System will be activated at the Communications Center followed by an announcement over the emergency message system.
- (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.

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- (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 recordkeeping / reporting procedures are maintained in the Operating Record in Building 53a.

G-8a Required Written Reports

GENERAL INCIDENT REPORTING

The FEMP will note in its operating and event reporting records the time, date, and details of any incident that requires implementation of this Contingency Plan.

A written report within 15 days after the occurrence of an incident that requires implementation of the Contingency Plan, notifying Ohio EPA that this Contingency Plan has been implemented (Form B Notification to Ohio EPA of Implementation of Contingency Plan) shall be submitted to the Ohio EPA by DOE as outlined in Section G-4a. 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 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 regulatory compliance group has the responsibility for amending the plan, and distributing amended copies, when any of the following occur:

- a) The facility permit is revised; or,
- b) The plan fails in an emergency; or,
- c) The list of emergency coordinators changes; or,
- d) The list of emergency equipment changes; or,
- e) Changes in the facility increase the potential for fires, explosions, or releases of hazardous waste, or change the response necessary in an emergency.

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SECTION 6 -
TABLE G-1

Table G-1

Emergency Operation Personnel & Organizations

EMERGENCY COORDINATORS - ASSISTANT EMERGENCY DUTY OFFICERS
(Utility Engineers)

<u>NAME</u>	<u>HOME PAGER*</u>	<u>OFFICE</u>	<u>HOME ADDRESS</u>	<u>TELEPHONE</u>
Braun, F.	589-2620	6431 6295	[REDACTED]	[REDACTED]
Cleeter, M.**	589-2618	6431 6295	[REDACTED]	[REDACTED]
Duckworth, R.	589-2622	6431 6295	[REDACTED]	[REDACTED]
Meeks, J.	589-9329	6431 6295	[REDACTED]	[REDACTED]
Sparks, T.	589-5851	6431 6295	[REDACTED]	[REDACTED]

* The most effective means for reaching the on-site Emergency Coordinator (AEDO) is via pager, or Radio # 202. The on duty Emergency Coordinator may also be reached by:

- o radio through the 24-hour-staffed FEMP Communications Center, 513-738-6295,
- o office, 513-738-6431,
- o portable cellular telephone, 513-535-2197, or
- o mobile vehicle cellular telephone, 513-535-1365

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 Coordinators (AEDO)s (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.

** M. Cleeter has been designated the primary emergency coordinator in order to comply with OAC 3745-65-52. The on-site/on-duty Emergency Coordinator (AEDO) at the time of an incident will be the primary Emergency Coordinator (AEDO) for that incident.

Table G-1

OTHER

All Emergencies	738-6511
FEMP Communications Center	738-6295
Security Portable <u>kept in Communications Center</u>	535-7134
DOE Site Office	738-6319
	648-3155
Utility Engineer/Emergency Coordinator (AEDO) Vehicle	535-1365
Emergency Coordinator (AEDO) Portable	535-2197
	582-2584
Fire & Safety Vehicle #301	535-1367
Fire & Safety Portable	535-2917
Security Vehicle	535-1366
Security Portable	535-7133
	535-7134
Industrial Hygiene Vehicle	535-2198
	646-3367
Industrial Hygiene Portable	535-4734
Industrial Hygiene Portable	535-4735
Environment & Radiological Monitoring Techs Portable	535-2918
	646-5540
Medical Portable	543-0783
Release Evaluators (Office)	738-8462
Spradlin, T (Pager)	249-5016
Seifert, Caran (Pager)	249-5019
US EPA Region 5	312-353-2318
USEPA RCRA Hotline	800-424-9346

Table G-1

Off-Site Emergency Operation OrganizationsOFF-SITE NOTIFICATION

DEPARTMENT OF ENERGY

ORO Emergency Communications Center	FTS 626-1005 Commercial 615-576-1005
DOE Headquarters, Washington, D.C. (FAX)	FTS 896-0420 202-586-0420 FTS 896-8100 202-586-8100
DOE ORO Environmental Protection Branch	FTS 626-0846 Commercial 615-576-0846
DOE ORO Public Information Officer	FTS 626-0885 Commercial 615-576-0885
DOE Headquarters (Program Manager)	301 903-8141

STATE OF OHIO

Ohio Emergency Management Agency	614-889-7150
Ohio EPA Emergency Response Center	800-282-9378
Ohio EPA Columbus	614-244-0946
Ohio EPA Southwest District Office	513-285-6357
	or 800-686-8930
Ohio Department of Health	614-466-2596
Ohio State Highway Patrol	513-863-4606
ORSANCO	513-421-1151
Ohio State Fire Marshall	800-686-0736

HAMILTON COUNTY

Communications Center	513-825-2280
Civil Defense Local Emergency Planning Committee	513-851-7080
Hamilton Cty. Dept. of Environ. Svces., Air Quality Pgms.	513-651-9437
Southwest Local School District	513-367-4139
Sheriff's Department	513-825-1500

BUTLER COUNTY

Sheriff's Office	513-844-1515
Civil Defense	513-844-8020

Table G-1

Off-Site Emergency Operation Organizations

LOCAL FIRE DEPARTMENTS

<u>MuAid:</u> Crosby Township	911 or	513-825-2260
<u>MuAid:</u> Ross Township	911 or	513-844-1515
<u>MuAid:</u> Colerain Township	911 or	513-825-2260
		or 513-825-6143

LOCAL AMBULANCE

Butler County	911 or	513-844-1515
Hamilton County	911 or	513-825-2280
<u>MuAid:</u> Crosby Township Life Squad Mobile Telephone	911 or	513-977-6337

LOCAL HOSPITALS

<u>MuAid:</u> Providence Hospital--Emergency Room.....	513-853-5222
<u>MuAid:</u> Mercy Hospital--Emergency Room	513-867-6450
<u>MuAid:</u> University--Emergency Room	513-558-4571
Fort Hamilton Hughes--Emergency Room	513-867-2266

EMERGENCY CARE CENTER

Franciscan Ambulatory Care Unit (Harrison)	513-367-2222
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EMERGENCY HELICOPTER SERVICE

<u>MuAid:</u> University Air Care	800-826-8100
<u>Non-Emergency</u>	513-558-7522

Chemical Referral Center, CMA	800-262-8200
Coast Guard/DOT National Response Center	800-424-8802
National Weather Service (Cincinnati).....	513-283-3195
EPA Chemical Emergency Prep. Hotline	800-535-0202
American Red Cross.....	513-579-3000
Chemtrec.....	800-424-9300

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SECTION G -
ATTACHMENT G-1

ATTACHMENT G-1

Emergency Procedures, Site Layout and Equipment Information

Attachment G-1 contains the description of evacuation procedures, a listing of safety and emergency equipment and site layouts of the hazardous waste management units (HWMUs). Hazardous Waste Management Units for which information is presented are listed below. The listing is followed by a description of the general procedures to be implemented by FEMP personnel in the event of an explosion, fire or spill. The remainder of Attachment G-1 describes the evacuation routes from individual units to Rally Points, and safety and emergency equipment for each HWMU and the 90 Day Storage Area.

90 Day Storage Area

The 90 Day Storage Area is used to store hazardous wastes in containers 90 days or less. Fire and safety equipment allocated to this area is described in the following pages.

Hazardous Waste Management Units

The following HWMUs are storage units for which a permit is being applied for and that have fire and safety and emergency equipment provided at each unit:

- HWMU No. 19 - CP Storage Warehouse-Building 56 (Butler Building)
- HWMU No. 20 - Plant 1 Pad
- HWMU No. 29 - Plant 8 Warehouse (Building 80)
- HWMU No. 33 - Pilot Plant Warehouse
- HWMU No. 34 - KC-2 Warehouse (Building 63)
- HWMU No. 35 - Plant 9 Warehouse (Building 81)
- HWMU No. 37 - Plant 6 Warehouse (Building 79)

The following HWMUs are units for which a permit is not being sought. They are included here to present a complete picture of all HWMUs, as discussed on page G-3. Existing fire and safety equipment is listed as available but may not be applicable to each HWMU due to the lack of hazardous waste currently in the area:

- HWMU No. 1 - Fire Training Facility
- ~~HWMU No. 2 - Parts Cleaner in Welding Shop (Maintenance Bldg 12) (Removed)~~
- HWMU No. 3 - Waste Oil Storage in Garage
- HWMU No. 4 - Drum Storage Area Near Loading Dock (Lab Bldg)
- HWMU No. 5 - Drum Storage Area South of W-26 (Lab Bldg)
- HWMU No. 6 - Drummed HF Residue/Associated Storage Areas Inside Plant 4
- HWMU No. 7 - Drummed HF Residue/Associated Storage Areas Northwest of Plant 4
- HWMU No. 8 - Drummed HF Residue/Associated Storage Areas S. of Cooling Towers
- HWMU No. 9 - Nitric Acid Rail Car and Area
- HWMU No. 10 - NAR System Components
- HWMU No. 11 - Tank Farm Sump
- HWMU No. 12 - Wheelabrator (Building 66)
- HWMU No. 13 - Wheelabrator Dust Collector (Building 66)
- HWMU No. 14 - Box Furnace
- HWMU No. 15 - Oxidation Furnace #1
- HWMU No. 16 - Primary Calciner
- HWMU No. 17 - Plant 8 East Drum Storage Pad
- HWMU No. 18 - Plant 8 West Drum Storage Pad
- HWMU No. 21 - Hilco Oil Recovery
- HWMU No. 22 - Abandoned Sump West of Pilot Plant
- ~~HWMU No. 23 - Well Drilling Storage Area (Removed)~~
- ~~HWMU No. 24 - Equipment Storage Area (Removed)~~
- HWMU No. 25 - Plant 1 Storage Building (Building 67)
- HWMU No. 26 - Detrex Still
- HWMU No. 27 - Waste Pit No. 4

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- HWMU No. 28 - Trane Thermal Liquid Incinerator
- ~~HWMU No. 30 - Barium Chloride Salt Treatment Facility (Closed)~~
- HWMU No. 31 - Tank for Bulk Storage Solvents, T-5
- HWMU No. 32 - Tank for Bulk Storage Solvents, T-6
- HWMU No. 36 - Storage Pad North of Plant 6
- HWMU No. 38 - HF Tank Car
- ~~HWMU No. 39 - Clearwell (Removed)~~
- HWMU No. 40 - Bio-Surge Lagoon
- HWMU No. 41 - Sludge Drying Beds
- HWMU No. 42 - Waste Pit No. 5
- ~~HWMU No. 43 - Lime Sludge Ponds (Removed)~~
- ~~HWMU No. 44 - Coal Pile Runoff Basin (Removed)~~
- ~~HWMU No. 45 - UST No. 5 (Removed)~~
- HWMU No. 46 - Uranyl Nitrate Tanks (NFS Storage Area)
- HWMU No. 47 - Uranyl Nitrate Tanks (North of Plant 2)
- HWMU No. 48 - Uranyl Nitrate Tanks (Southeast of Plant 2)
- HWMU No. 49 - Uranyl Nitrate Tanks (Digestion Area)
- HWMU No. 50 - Uranyl Nitrate Tanks (Raffinate Building)
- HWMU No. 51 - Experimental Treatment Facility (ETF)
- HWMU No. 52 - North and South Solvent Tanks (Pilot Plant)
- HWMU No. 53 - Safe Geometry Digestion Sump (Plant 1)
- ~~HWMU No. 54 - Thorium Nitrate Storage Tank, T-2~~

General Information

Hazardous Waste Management Unit (HWMU) and the 90-Day Storage Area emergency procedures are described specifically in this section. Responses to an event are identical for each HWMU and the 90-Day Storage Area 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 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 Emergency Response Team 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 Emergency Response Team may, 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 FOR FEMP HAZARDOUS WASTE MANAGEMENT UNITS (HWMUs)

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 FEMP, 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. Report the exact location of the fire to the Communication Center by two-way radio or telephone, 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 (Figure G-1) before trying to make a radio report to summon the Emergency Response Team (ERT).
- 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 ERT.
- 2.1.6 Supervisor or senior person in charge should take account of all personnel and summon immediate medical attention to seriously injured personnel.
- 2.1.7 Continue evacuation to the next safe rally point before taking account of all personnel, if it is evident that the explosion poses a threat to the designated Rally Point or if this rally point is downwind in the path of smoke or vapors.
- 2.1.8 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 Building 53A immediately. Anyone who is aware of any exposure to a fellow worker should request immediate medical help 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. Report the exact location of the fire to the Communication Center by two-way radio or telephone, if an alarm box is not near.
- 2.2.3 Use available fire fighting equipment to fight the fire until the ERT arrives if there is no immediate danger involved and you have proper training and certification. Provide yourself with protection from fire, fumes, and smoke before using this equipment. Close any equipment (such as ventilation) that does not serve to control the fire in the building.
- 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.
- 2.2.6 Leave the building quickly and calmly by the least dangerous and most direct or designated route, if there are noticeable vapors, smoke, irritation, or other discernible imminent or immediate danger to your health.
- 2.2.7 Evacuate to the designated rally point, if there is an immediate danger or evidence that the fire cannot be controlled by local action. Supervisor or senior person in charge should take account of all personnel.

2.2.8 Continue evacuation to the next safe rally point, if 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 Building 53A 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.

2.3 HAZARDOUS WASTE SPILL

2.3.1 Any employee who detects an actual or potential hazardous waste spill situation in the vicinity should immediately alert all nearby workers.

2.3.2 Quickly leave the immediate area of the spill in the event of a spill or leak. Alert all other individuals in the area and summon the ERT by pulling the nearest fire alarm. Report the situation and details to the Communication Center by two-way radio or telephone, if an alarm box is not near.

2.3.3 Obtain protection from spills and vapors by using the appropriate, available emergency equipment. If no immediate danger is involved and you have proper hazardous waste training and certification, use available spill control material and equipment to contain the spill until the ERT arrives. Also shut off any equipment that does not serve to control the spill. Ventilation should be left on unless a fire or electrical sparking poses a fire hazard in the building.

NOTE: Only trained personnel equipped with proper respiratory

and skin/eye protection should attempt to contain extensive spills.

2.3.4 Immediately use available emergency equipment to provide first aid for bodily contact with leaked materials and minor injuries.

2.3.5 Supervisor or senior person in charge should take account of all personnel and summon immediate medical attention for seriously injured personnel.

2.3.6 Leave the area promptly by the least dangerous and most direct or designated route to the designated rally point, if there is an immediate danger involved or it is evident that the spill cannot be controlled by local action.

2.3.7 Continue evacuation to the next safe rally point before taking account of all personnel, if this rally point is in the path of spillage or downwind in the path of vapors.

2.3.8 Use any available and appropriate emergency equipment such as eyewash and shower, if exposed to contact with waste materials or other hazardous physical irritations. Notify supervisor and report to medical personnel in Building 53A as soon as possible. Anyone who is aware of any exposure to a fellow worker should see to it that medical help is provided to that person.

SAFETY EQUIPMENT

HWMUs 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 HWMU. 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.

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN - ATTACHMENT G-1

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90 DAY STORAGE AREA

The 90 Day Storage Area is a temporary container storage area in Building 64 (between columns 2 and 5).

Personnel should evacuate to Rally Point No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Streets. Movement is south on "D" Street to 2nd Street, then west on 2nd Street to the intersection of "C" Street.

The Alternate Rally Point is No. 5. Rally Point No. 5 is located at the intersection of 1st Street and "D" Streets. ~~Movement from Rally Point No. 3 is south on "C" Street and east on 1st Street to the intersection of "D" Street to~~ Rally Point No. 5 is south on "D" Street to the intersection with 1st Street.

The following is a list of safety equipment assigned to this area.

- Manual Fire Alarms
 - 1) On outside South wall of Building
- Fire Extinguishers
 - 1) 10# ABC On outside East wall
- Spill Cleanup Equipment
 - 1) At inside East wall of building
- Respirator Cabinet
 - 1) At East side of building
 - 2) In Building 64 Office ~~(Southeast corner of building)~~ at north end of building
- Eye Wash / Safety Shower
 - 1) Southwest corner of 90-day holding area, near truck entrance

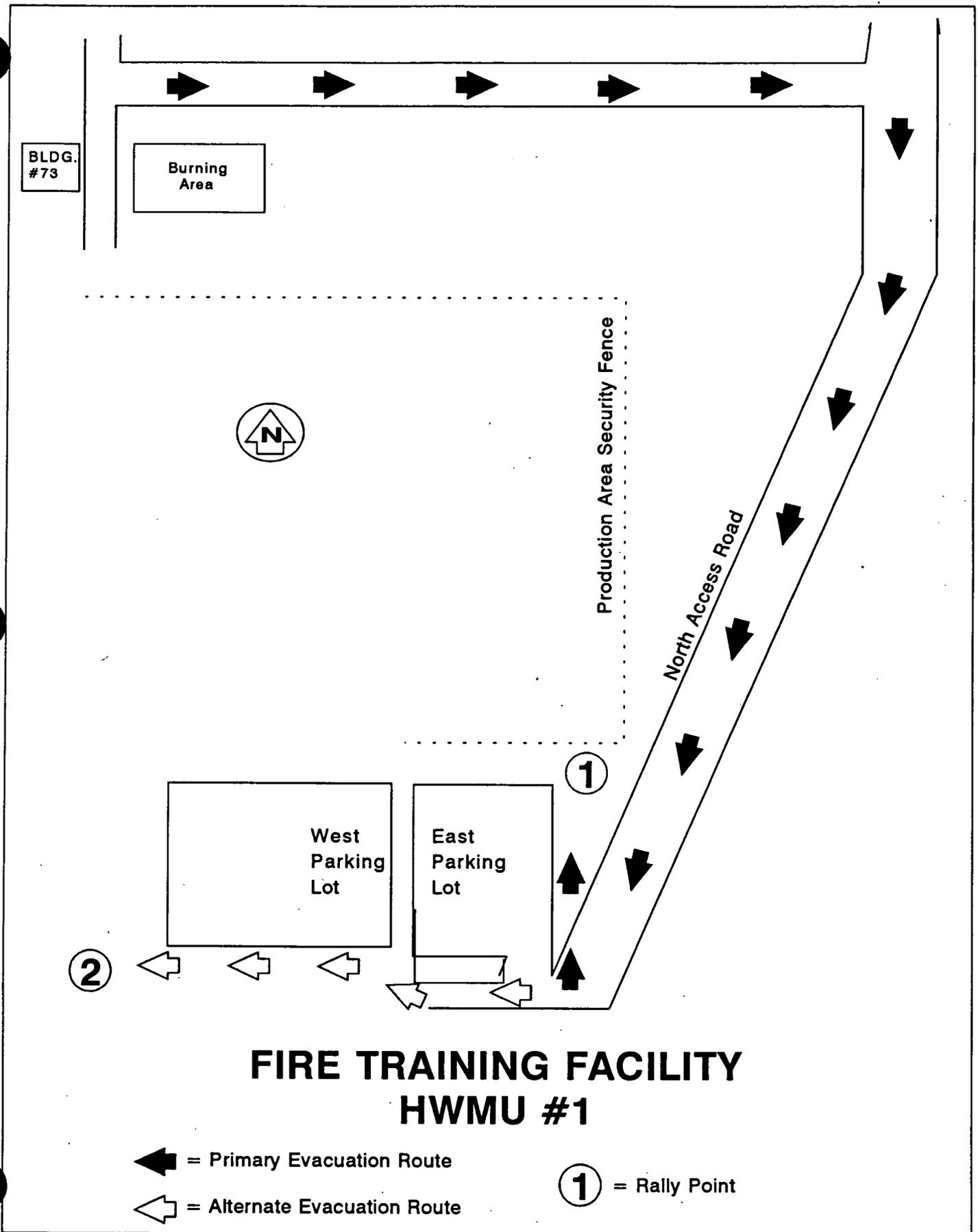
HWMU No. 1 - FIRE TRAINING FACILITY

This facility is located due north of the KC-2 Warehouse outside the perimeter fence.

Personnel should evacuate to Rally Point No. 7 1. Rally Point No. 7 1 is located on ~~"B" Street~~ at the Northeast corner of the ~~FEMP East Parking Lot Plant 1 Pad.~~ Movement is ~~east on the unnamed gravel road to south on the North Access Road "B" Street to the FEMP East Parking Lot, then north to Rally Point #1 at the Northeast corner of the Parking Lot. Plant 1 Pad.~~

The Alternate Rally Point is No. 3 2. Rally Point No. 3 2 is located at the ~~West side of the FEMP West Parking Lot, just north of the Stormwater Retention Basin. intersection of 2nd Street and "C" Streets.~~ Movement ~~from to Rally Point No. 7 2 is west through the parking lot to the rally point. south on "B" Street and east on 2nd Street until the intersection at "C" Street.~~

There is no safety equipment assigned to this unit. Those personnel desiring access to this HWMU are required to have a two-way radio for emergency notification purposes., ~~and a key which allows passage through a security fence in the event of an evacuation.~~



← = Primary Evacuation Route
⇐ = Alternate Evacuation Route

① = Rally Point

HWMU No. 2 - PARTS CLEANER IN WELDING SHOP (MAINTENANCE BLDG 12)

This unit consists of a chemical cleaner and vent hood and was used to clean tools and other items with 1,1,1-trichloroethane.

This has been removed from the HWMU list.

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HWMU No. 3 - WASTE OIL STORAGE IN GARAGE

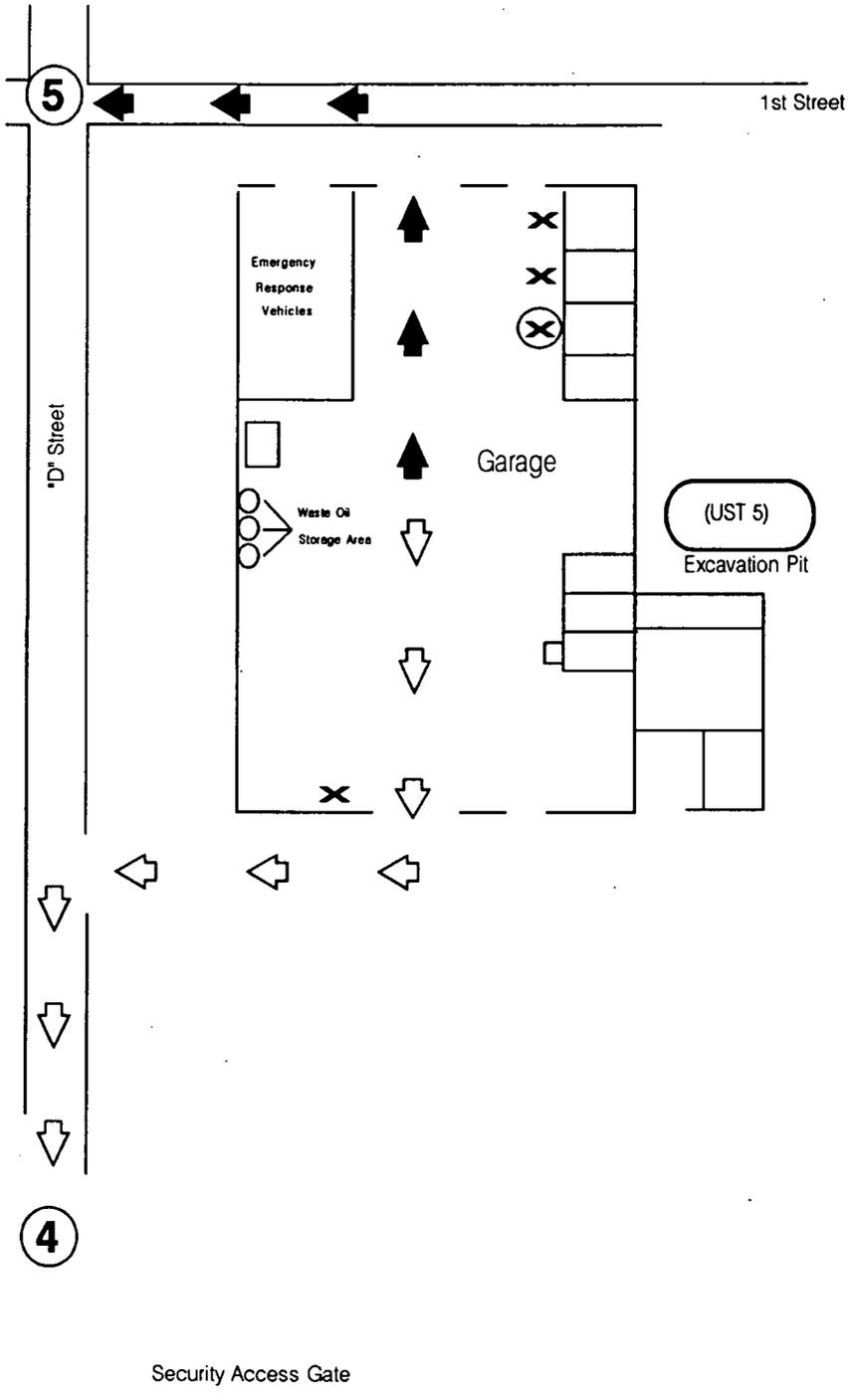
This area was located on the West wall of Building 31 (garage). The containers stored oil mixed with hazardous waste.

Personnel should evacuate to Rally Point No. 5. Rally Point No. 5 is located at the intersection of 1st Street and "D" Streets. Movement is north on "D" Street to the intersection of "D" Street and 1st Street.

The Alternate Rally Point is No. 4. Rally Point No. 4 is located on "D" Street East of the Security Building (Building 28A). Movement ~~from Rally Point No. 5~~ is directly south on "D" Street to the east end of the Security building.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) Located on East wall by Men's Restroom
- Fire Extinguishers
 - 1) 15# CO₂ North end by office on East wall
 - 2) 10# ABC North end by office on East wall
 - 3) 10# ABC South end by overhead door
- Eye Wash/Safety Shower Station
 - 1) Located on East wall of garage across from HWMU (Portable Unit)
- Spill Cleanup Equipment
 - 1) Outside by South truck door
- Respirator Cabinet
 - 1) Located outside Supervisor's Office on East wall



WASTE OIL STORAGE IN GARAGE HWMU #3

- ← = primary route
- ↩ = alternate route
- X = fire extinguisher
- ⊗ = manual fire alarm
- 5 = rally point

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HWMU No. 4 - DRUM STORAGE AREA NEAR LOADING DOCK (LAB BLDG.)

This was a container storage and waste transfer area which operated from 1952 to 1983. The area is presently covered with concrete due to loading expansion.

Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st and "B" Street. Movement is north to 1st Street, then east to "B" Street.

The Alternate Rally Point is No. 5 ~~6~~. Rally Point No. ~~6~~ is located north of the West Water Tower, at the Waste Pit Area access gate. Movement to Rally Point No. ~~6~~ is north to 1st Street, west to "A" Street, then north to 2nd Street and west to the rally point. ~~5 is located at the intersection of 1st and "D" Street. Movement from Rally Point No. 8 is East on 1st Street to the intersection of "D" Street.~~

There is no safety equipment assigned to this unit. Those personnel desiring access to this unit are required to have a two-way radio for emergency notification purposes.



Waste Pit
Security Fence

'A' Street

2nd Street

6

1st Street

'B' Street

8

Lab Building
(BLDG. 15A)

**DRUM STORAGE AREA NEAR
LOADING DOCK (LAB BLDG.)
HWMU #4**



= Primary Evacuation Route



= Alternate Evacuation Route



= Rally Point

000315

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HWMU No. 5 - DRUM STORAGE AREA SOUTH OF ROOM W-26 (LAB BLDG.)

This area was located in an unpaved area near Building 15 and operated from 1983 to 1989.

Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st and "B" Street. Movement is north to 1st Street, then east to "B" Street.

The Alternate Rally Point is No. 5 ~~6~~. Rally Point No. 6 is located north of the West Water Tower, at the Waste Pit Area access gate. Movement to Rally Point No. 6 is north to 1st Street, west to "A" Street, then north to 2nd Street and west to the rally point. ~~5 is located at the intersection of 1st and "D" Street. Movement from Rally Point No. 8 is East on 1st Street to the intersection of "D" Street.~~

The following is a list of safety equipment assigned to this unit.

- Manual Fire Alarm
 - 1) Located in South corridor by S-42
- Fire Extinguishers - West Corridor
 - 1) 5# CO₂ Southwest corner of W-26
 - 2) 5# CO₂ Southwest corner of W-26
 - 3) 5# CO₂ First Floor at West end of Room W-18
- Eye Wash Station
 - 1) In hallway by W-24
- Safety Shower
 - 1) Located in doorway to Room W-22A
- Spill Cleanup Equipment
 - 1) Located in Room W-22A

- Respirator Cabinet
 - 1) East wall Room W-28 by doorway to W-24



Waste Pit
Security Fence

'A' Street

2nd Street

6

1st Street

'B' Street

8

Lab Building
(BLDG. 15A)

Drum
Storage
Area

**DRUM STORAGE AREA SOUTH
OF ROOM W-26 (LAB BLDG.)
HWMU #5**



= Primary Evacuation Route



= Alternate Evacuation Route



= Rally Point

HWMU No. 6 - DRUMMED HF RESIDUE/ASSOCIATED STORAGE AREAS INSIDE PLANT 4

This unit is located in the North section of Plant 4 near the elevator.

Personnel should evacuate to Rally Point No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Streets. Movement is west to "B" Street, north on "B" Street, and east on 2nd Street to the intersection of "C" Street.

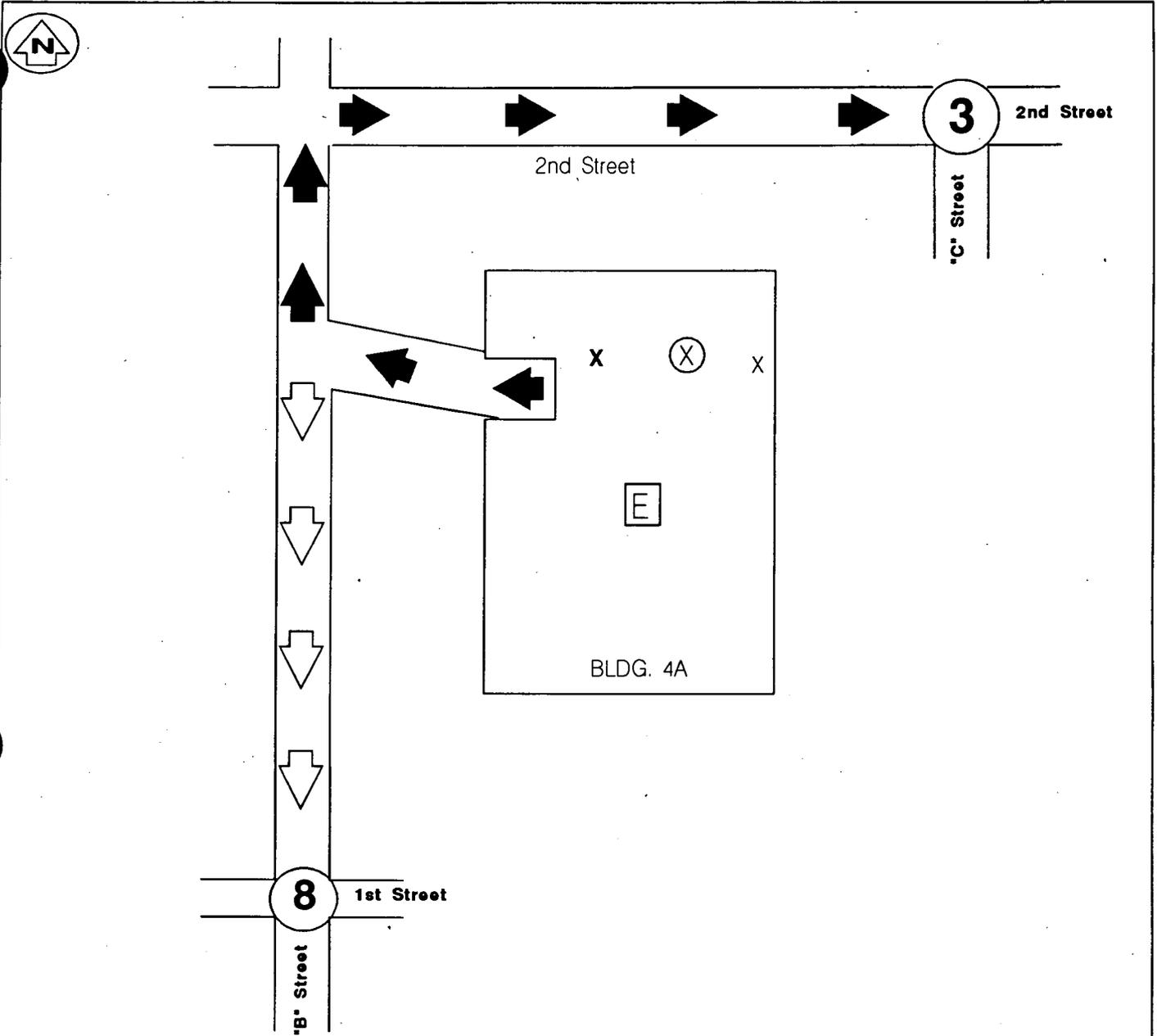
The Alternate Rally Point is No. 5. Rally Point No. 5 is located at the corner of 1st Street and "D" "B" Street. Movement from Rally Point No. 3 is south on "B" Street east on 2nd Street and south on "D" Street to the corner of 1st Street.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) First floor at column E-2

- Fire Extinguishers
 - 1) 15# CO₂ First floor North wall next to elevator
 - 2) 10# ABC First floor next to Northeast door

- Eye Wash/Safety Shower Station
 - 1) At column D-6



**DRUMMED HF RESIDUE/ASSOCIATED
STORAGE AREAS INSIDE PLANT 4
HWMU #6**

- X** = fire extinguisher
-  = alternate route
-  = primary route
-  = manual fire alarm
-  = eye wash/ safety shower
-  = rally point

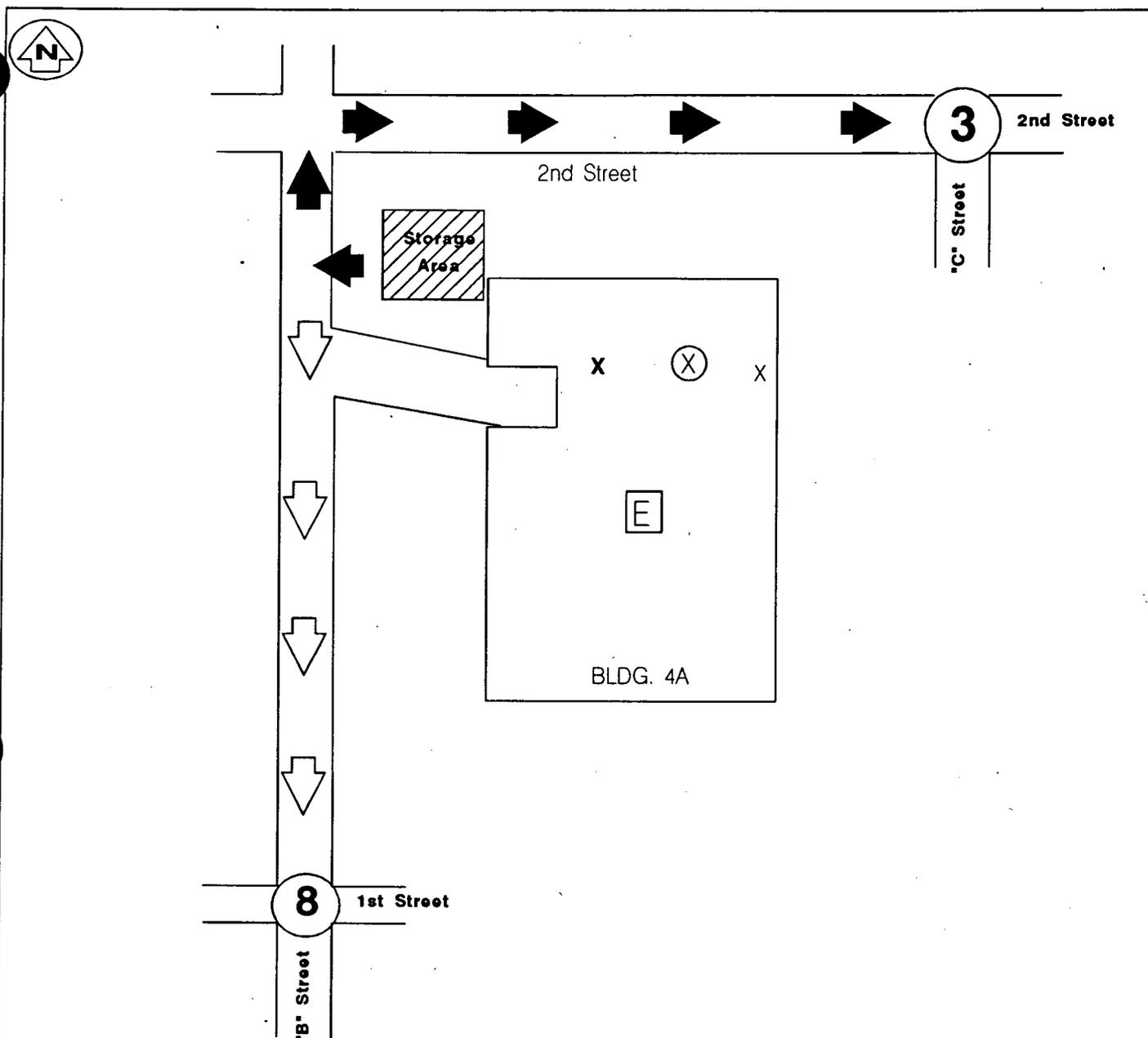
HWMU No. 7 - DRUMMED HF RESIDUE/ASSOCIATED STORAGE AREAS NORTHWEST OF PLANT 4

This container storage area was located on a graveled lot Northwest of Plant 4 and was operated from January 1990 to August 1990.

Personnel should evacuate to Rally Point No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is west to "B" Street, north on "B" Street, and east on 2nd Street to the intersection of "C" Street.

The Alternate Rally Point is No. 5. Rally Point No. 5 is located at the corner of 1st Street and "D" "B" Street. Movement from ~~to~~ Rally Point No. 3 is ~~east on 2nd Street~~ and south on "D" "B" Street to the corner of 1st Street.

There is no safety equipment assigned to this unit. Those personnel desiring access to this unit are required to have a two-way radio for emergency notification purposes.



**DRUMMED HF RESIDUE/ASSOCIATED
STORAGE AREAS NORTHWEST OF PLANT 4
HWMU #7**

- X** = fire extinguisher
- (X)** = manual fire alarm
- (E)** = eye wash/ safety shower
- (3)** = rally point
- ⇨** = alternate route
- ➡** = primary route

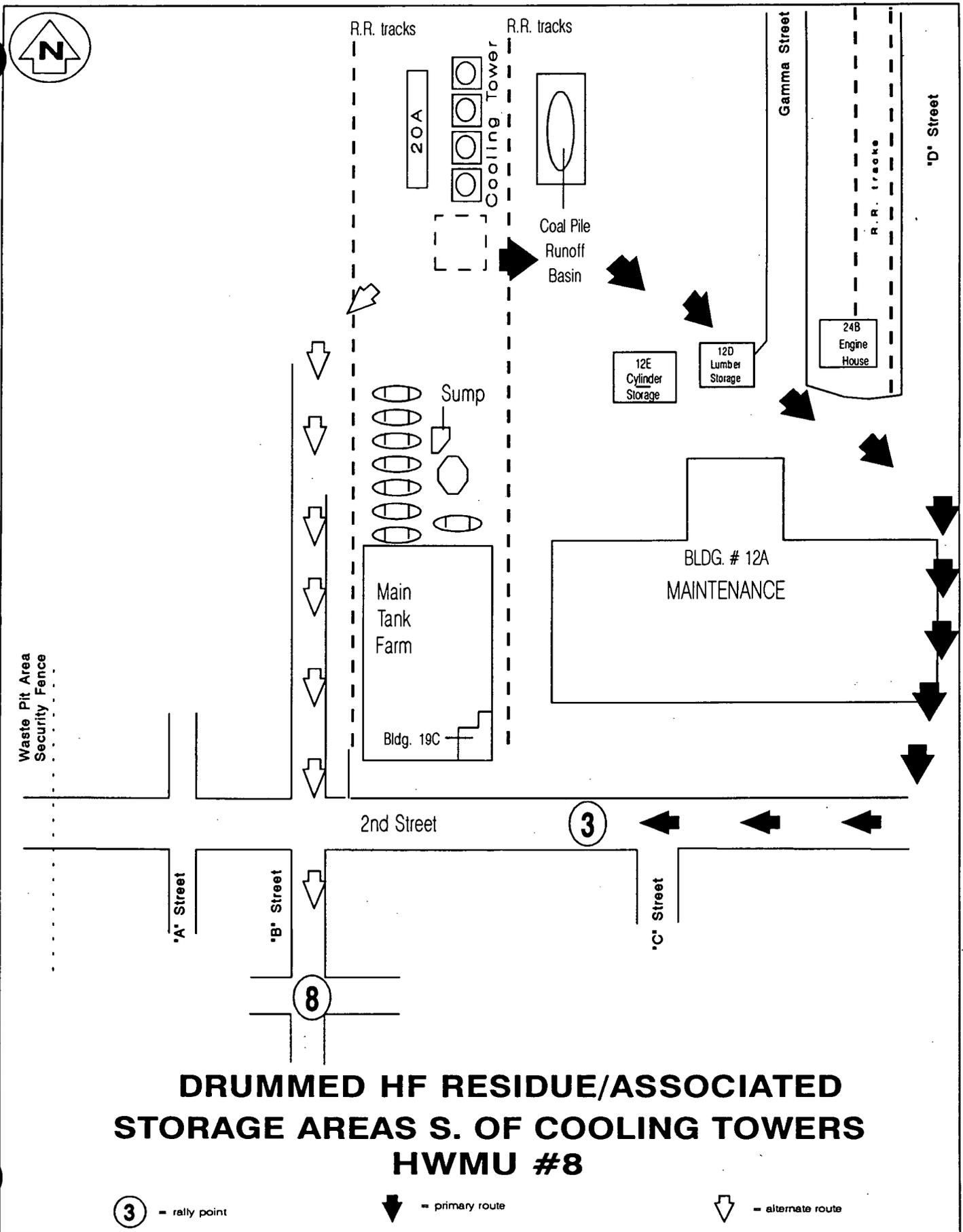
HWMU No. 8 - DRUMMED HF RESIDUE/ASSOCIATED STORAGE AREAS S. OF COOLING TOWERS

This unit is located in a graveled area South of the Cooling Towers.

Personnel should evacuate to Rally Point No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is southeast to "D" Street north of Building 12, south on "D" Street to 2nd Street and east west on 2nd Street to the intersection of "C" Street.

The Alternate Rally Point is No. 5 B. Rally Point No. 5 B is located at the intersection of 1st Street and "D" "B" Streets. Movement from to Rally Point No. 3 B is west to "B" Street, then east on 2nd Street and south on "D" "B" Street to the intersection of 1st Street.

There is no safety equipment assigned to this unit. Those personnel desiring access to this unit are required to have a two-way radio for emergency notification purposes.



**DRUMMED HF RESIDUE/ASSOCIATED
STORAGE AREAS S. OF COOLING TOWERS
HWMU #8**

③ - rally point

↓ - primary route

⇩ - alternate route

HWMU No. 9 - NITRIC ACID RAIL CAR AND AREA

The Nitric Acid Rail Car Area is located near the end of track #2, due East of Building 63 (KC-2 Warehouse). The tank car contains contained 50 to 100 gallons of waste nitric acid. The acid has been removed and treated and the tank car has been cut into small pieces for scrap.

Personnel should evacuate to Rally Point No. 7. Rally Point No. 7 is located on "B" Street at the Northeast corner of Plant 1 Pad. Movement is west to "B" Street and south on "B" Street to the Northeast corner of Plant 1 Pad.

The Alternate Rally Point is No. 3. Rally Point No. 3 is located at the corner of 2nd Street and "C" Street. Movement from Rally Point No. 7 is south on "B" Street to 2nd Street, then east on "D" Street, south on "D" Street to 2nd Street, then west on 2nd Street to the intersection at "C" Street.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) Outside on South wall of Building 63 (KC-2 Warehouse)
- Fire Extinguisher
 - 1) 20# ABC on South wall of Building 63 outside Bay 7
- Eye Wash/Safety Shower Stations
 - 1) Use portable eye washes at Bays 5, 6, and 7 of Building 63
- ~~Spill Cleanup Equipment~~
 - 1) ~~At Southwest corner of Rail Car~~ The spill cleanup equipment has been removed since the Rail Car has been removed and emptied.
- Respirator Cabinets
 - 1) Use respirators in cabinets in Bays 5, 6, and 7 of Building 63

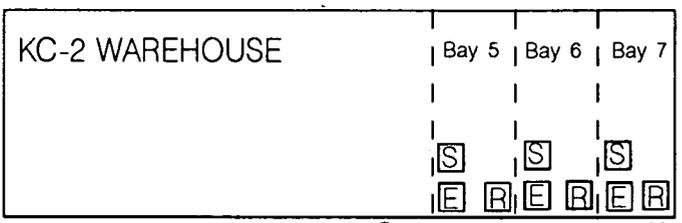
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Access to equipment inside Building 63 can be gained only by personnel having a key to Bays 5, 6, or 7. Those personnel desiring access to this unit are required to have a two-way radio to facilitate emergency notification purposes.

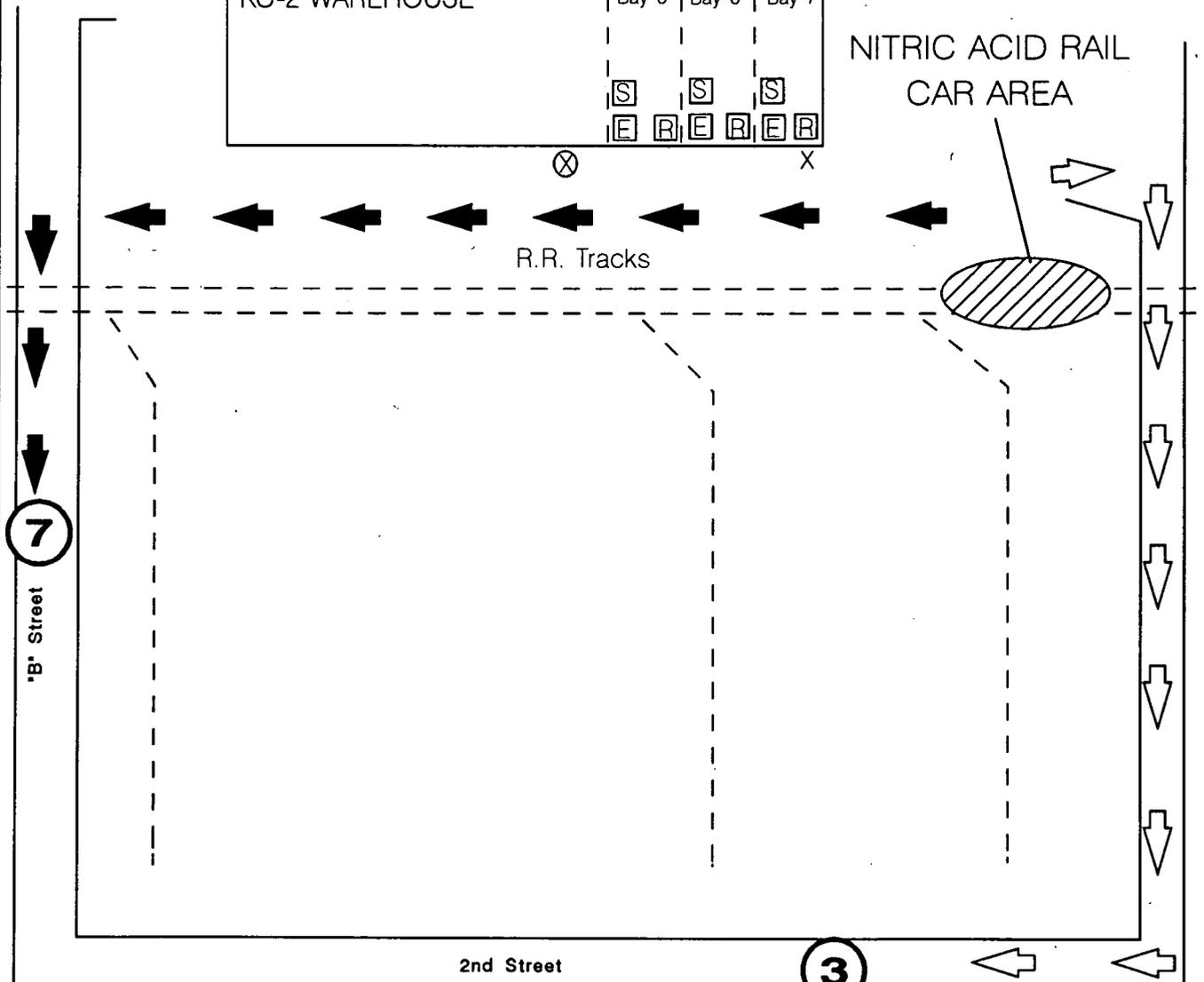
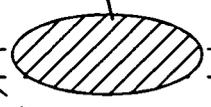


FENCE



NITRIC ACID RAIL CAR AREA

R.R. Tracks



NITRIC ACID RAIL CAR AREA
HWMU #9

- 7** = rally point
- S** = spill cleanup equipment
- R** = respirator cabinet
- E** = eye wash/safety shower

- = alternate route
- X** = manual fire alarm
- X** = fire extinguisher
- = primary evacuation route

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HWMU No. 10 - NAR SYSTEM COMPONENTS

This unit is located in the NAR Tank Farm and in the Denitrification Area which converted uranyl nitrate to uranium oxide.

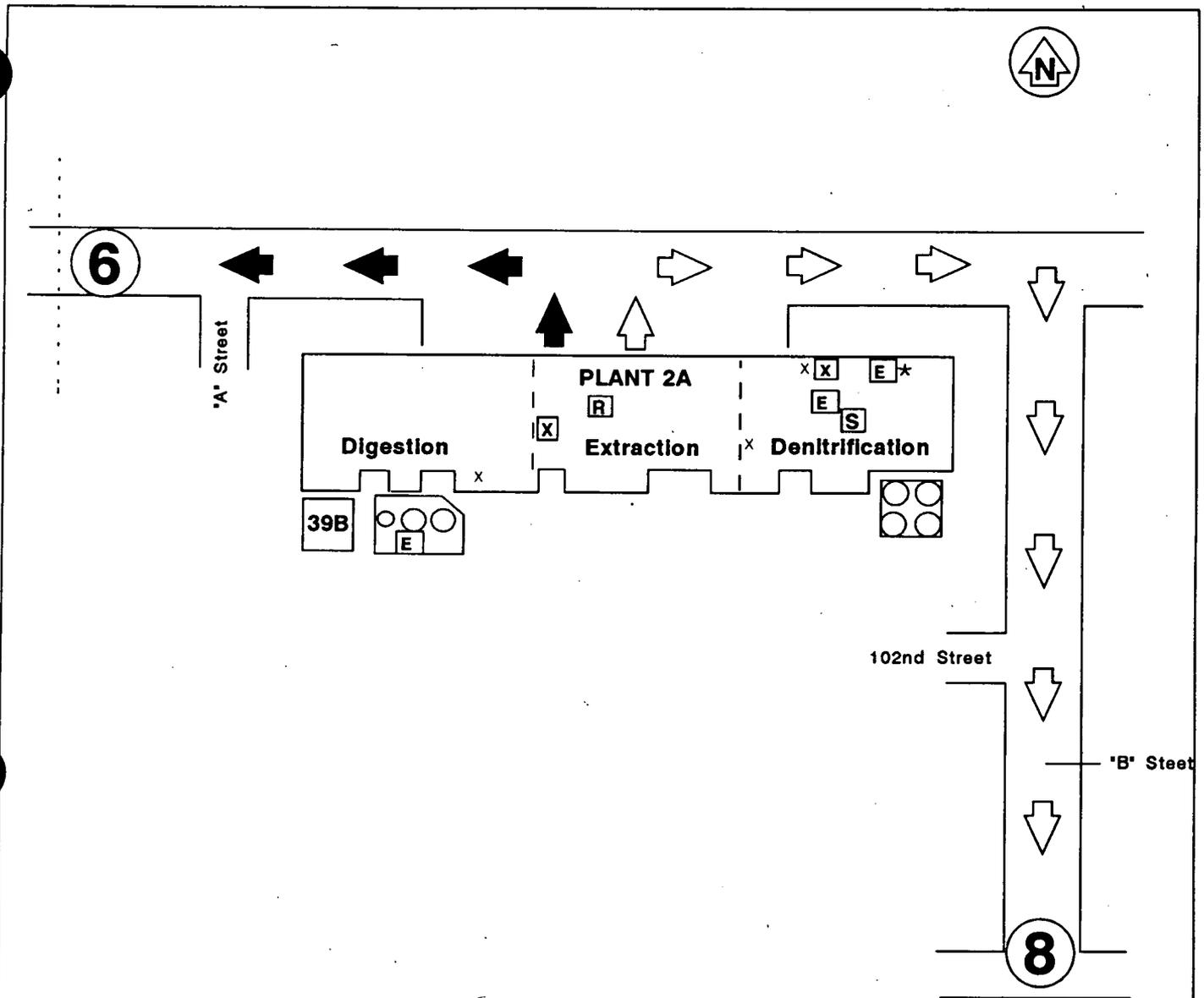
Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located North of the Water Tower. Movement can be north out of Building 2A to 2nd Street then west to the Waste Pit Area access gate. Movement can also be south out of the building to 102nd Street, west to "A" Street, north on "A" Street to 2nd Street then west to the Waste Pit Area access gate.

The Alternate Rally Point is No. 8. Rally Point No. 8 is located at the intersection of 1st Street and "B" Street. Movement is east to "B" Street, and south on "B" Street to the intersection of 1st Street.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarms
 - 1) West side of North personnel door in the Denitrification Area
 - 2) West wall of Extraction Area by Column B-8
- Fire Extinguishers
 - 1) 10# ABC First floor Denitrification Area by Column B-14
 - 2) 10# ABC First floor Denitrification Area by Column D-16
 - 3) 10# ABC Inside door of Supervisor's Office
- Eye Wash/Safety Shower Stations
 - 1) First floor Denitrification Area by Column C-17
 - 2) Second floor Denitrification Area West of Column D-18
 - 3) Inside South wall of NAR Tank Farm
 - 4) First floor Extraction Area by Column B-13
 - 5) Second floor Extraction Area by Column C-17
 - 6) First floor Denitrification Area, East of Column D-15

- Spill Cleanup Equipment
 - 1) First Floor Denitrification Area East of Column B-17



NAR SYSTEM COMPONENTS

HWMU #10

E = eye wash/safety shower

R = respirator cabinet

= primary evacuation route

X = manual fire alarm

S = spill response equipment

= alternate evacuation route

X = fire extinguisher

***** = on second floor

= rally point

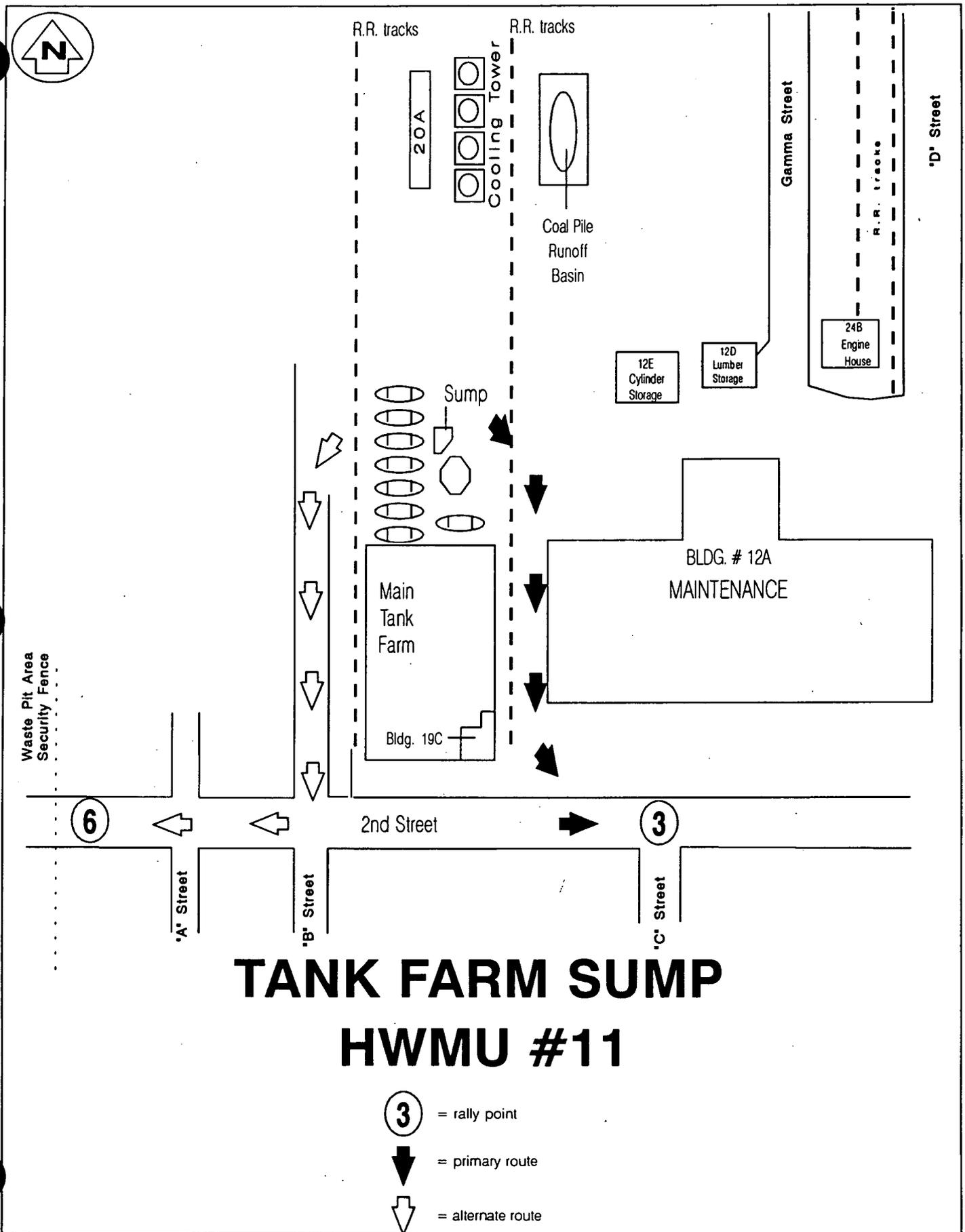
HWMU No. 11 - TANK FARM SUMP

The Tank Farm Sump is a surface impoundment located South of the Cooling Towers.

Personnel should evacuate to Rally Point No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is south to 2nd Street and east on 2nd Street to the intersection of "C" Street.

The Alternate Rally Point is No. ~~5~~ 6. Rally Point No. 6 is located north of the West Water Tower, at the Waste Pit Area access gate. Movement to Rally Point No. 6 is south on "B" Street, then west on 2nd Street to the Waste Pit Area access gate. ~~5 is located at the intersection of 1st Street and "D" Street. Movement from Rally Point No. 3 is east on 2nd Street and south on "D" Street to the intersection of 1st Street.~~

There is no safety equipment assigned to this HWMU. Those personnel desiring access to this unit are required to have a two-way radio for emergency notification purposes.



TANK FARM SUMP HWMU #11

- 3** = rally point
- = primary route
- = alternate route

HWMU No. 12 - WHEELABRATOR (BUILDING 66)

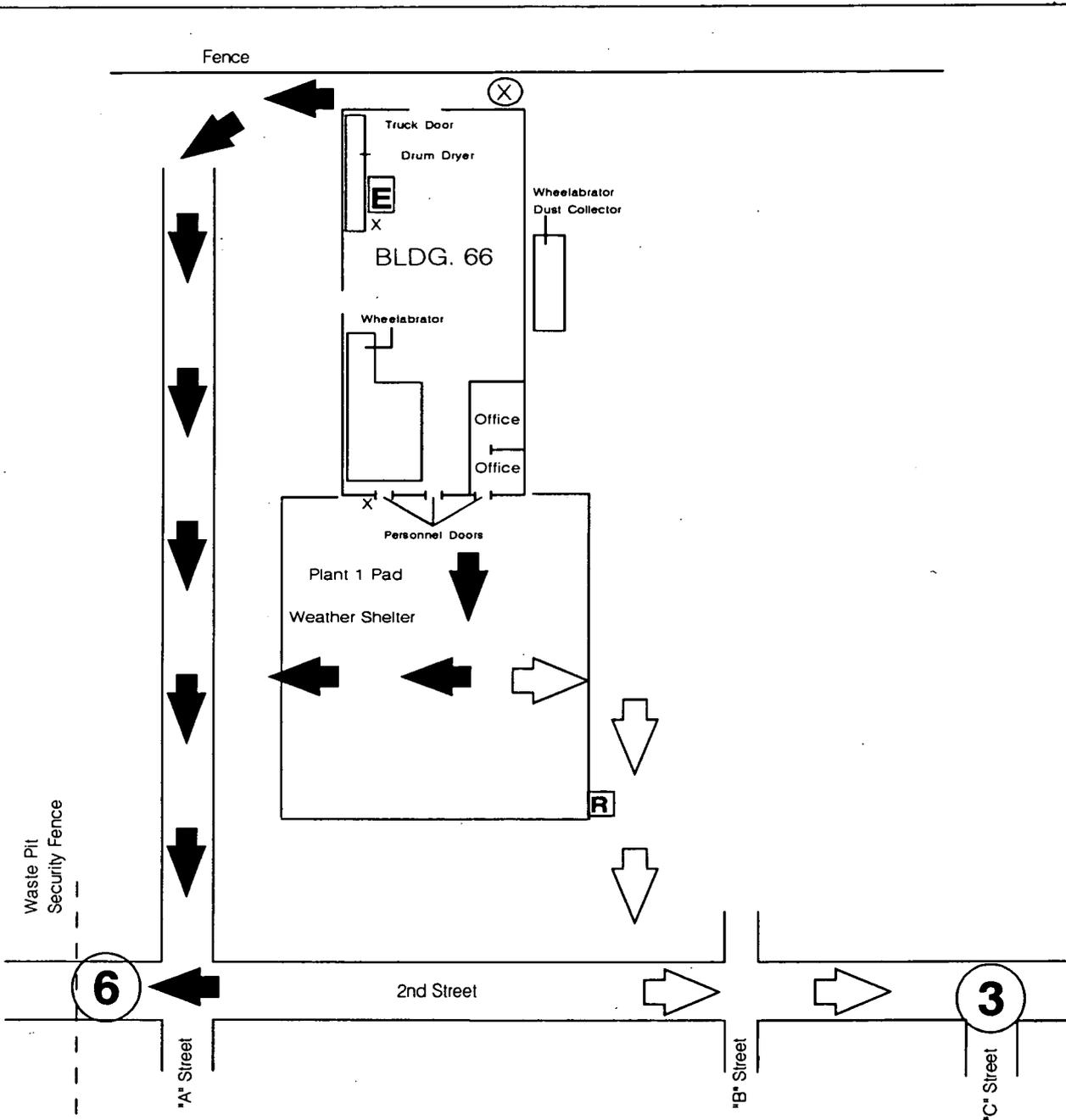
The Wheelabrator was used in the second stage of drum reconditioning to remove paint from old empty drums by an abrasive blasting method using steel shot.

Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located north of the West Water Tower at the Waste Pit Area access gate. Movement is south on "A" Street to the intersection of 2nd Street, then west on 2nd Street to the Waste Pit Area access gate.

The Alternate Rally Point is No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is south past the east side of Building 1A to 2nd Street, and east on 2nd Street to the Point.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) Outside near Northeast corner of Building 1A
 - 2) Outside Northeast of Building 66
- Fire Extinguishers
 - 1) 20# ABC on East side of Drum Dryer
 - 2) 15# CO₂ outside on South end of Building 66 by Wheelabrator
- Eye Wash/Safety Shower Station
 - 1) Inside Building 66 on East side of Drum Dryer
- Spill Cleanup Equipment
 - 1) Behind the fence Northeast of the Building 66
- Respirator Cabinets
 - 1) Inside Building 1A, in Primary Satellite Clothing Area
 - 2) Inside Building 71, in the Northeast corner



WHEELABRATOR (BUILDING 66)
HWMU #12

- | | | | |
|------------------------|--------------------------|----------|------------------------------|
| E | = Eye wash/safety shower | 6 | = Rally Point |
| R | = Respirator cabinet | | = Primary evacuation route |
| X (in a circle) | = manual fire alarm | | = Alternate evacuation route |
| X | = fire extinguisher | | |

HWMU No. 13 - WHEELABRATOR DUST COLLECTOR (BUILDING 66)

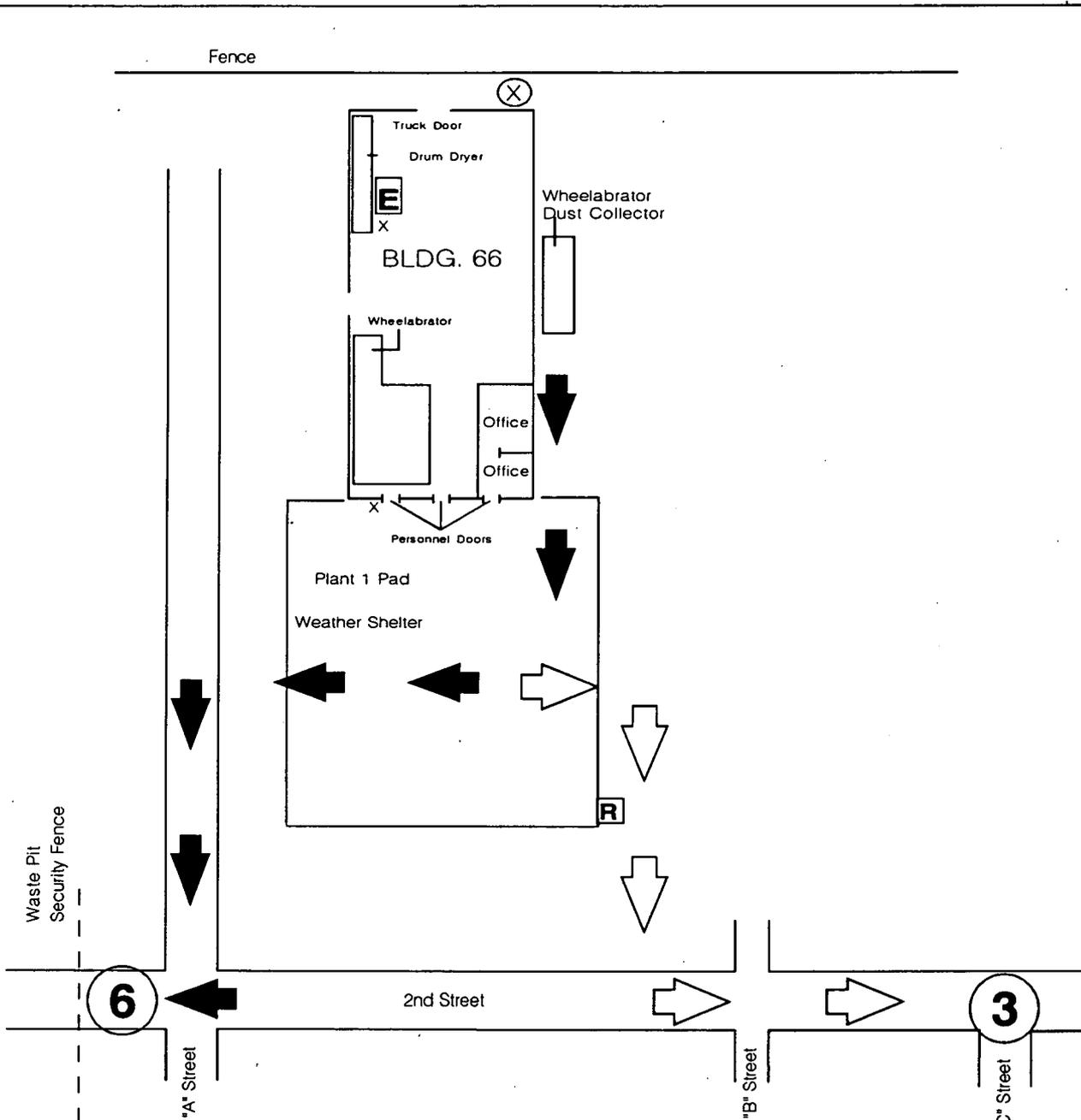
The Wheelabrator Dust Collector is a component of the drum reconditioning system in Building 66.

Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located North of the West Water Tower at the Waste Pit Area access gate. Movement is south on "A" Street to the intersection of 2nd Street, then west on 2nd Street to the Waste Pit Area access gate.

The Alternate Rally Point is No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is south past the east side of Building 1A to 2nd Street, and east on 2nd to the Point.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) Outside on East end of North wall of Building 66
 - 2) Outside Northeast corner of Building 66
- Fire Extinguishers
 - 1) 20# ABC on East side of Drum Dryer
 - 2) 15# CO₂ Outside on South end of Building 66 by Wheelabrator
- Eye Wash/Safety Shower Station
 - 1) Inside Building 66 on East side of Drum Dryer
- Spill Cleanup Equipment
 - 1) Behind the fence Northeast of the Building 66
- Respirator Cabinets
 - 1) Inside Building 1A, in Primary Satellite Clothing Area
 - 2) Inside Building 71, in the Northeast corner



WHEELABRATOR DUST COLLECTOR HWMU #13

- E = Eye wash/safety shower
- R = Respirator cabinet
- X = manual fire alarm
- X** = fire extinguisher

- 6 = Rally Point
- = Primary evacuation route
- = Alternate evacuation route

HWMU No. 14 - BOX FURNACE

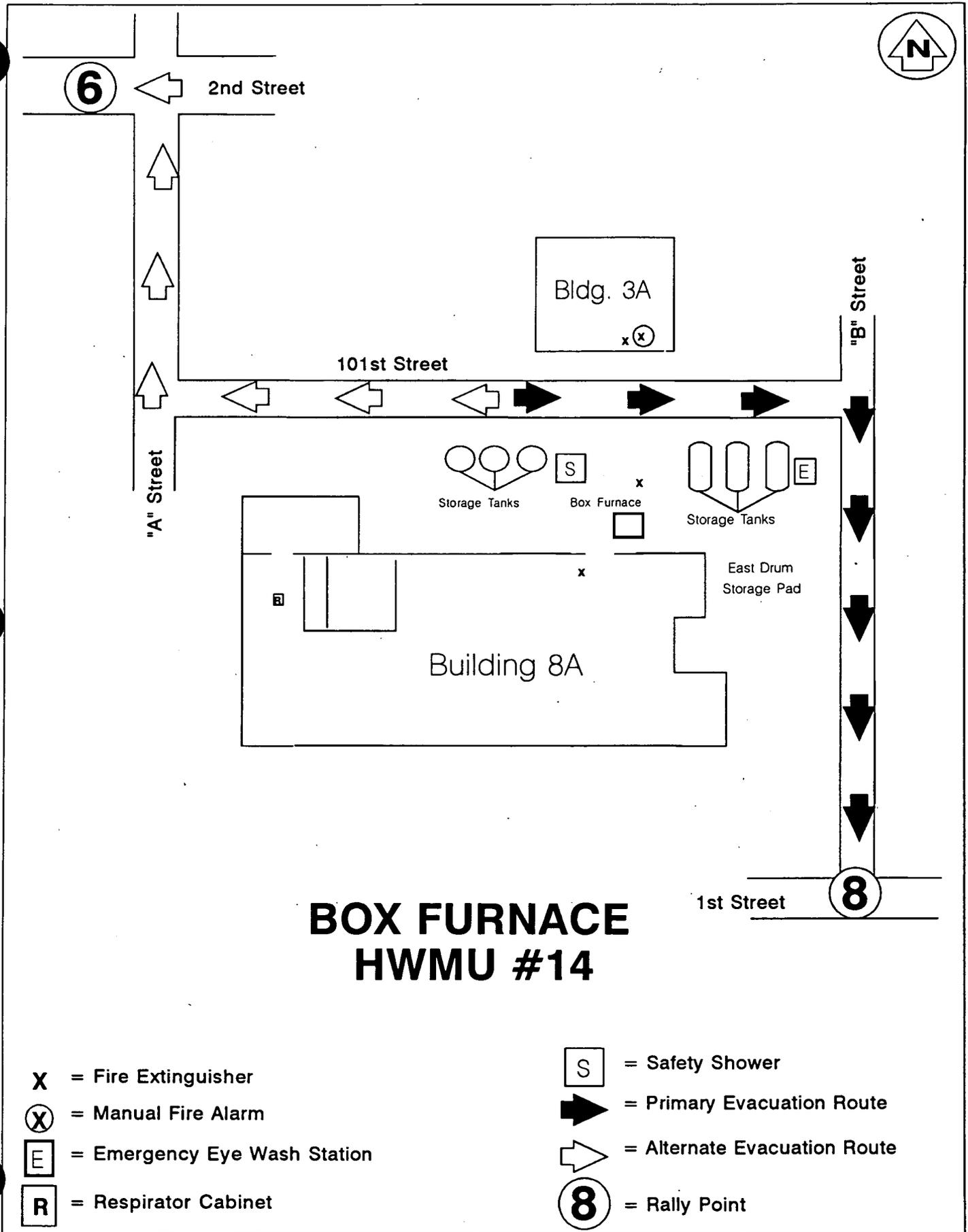
The Box Furnace is located on the North side of Plant 8. The furnace is lined with refractory brick.

Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st Street and "B" Street. Movement is east to "B" Street and south on "B" Street to the intersection of 1st Street.

The Alternate Rally Point is No. 5 ~~6~~. Rally Point No. ~~6~~ is located north of the West Water Tower, at the Waste Pit Area access gate. Movement is west on 101st Street to north on "A" Street, then west on 2nd Street to the rally point. ~~5 is located at the intersection of "D" Street and 1st Street. Movement from Rally Point No. 8 is east on 1st Street to the intersection of "D" Street.~~

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) Inside Building 3A at Southeast entrance door
- Fire Extinguishers
 - 1) 10# ABC First Floor Building 8A Column C-10 by overhead door
 - 2) 10# ABC Box Furnace Pad outside North door
- Eye Wash/Safety Shower Station
 - 1) East of NaOH Storage Tank Northeast of Building 8A
- Spill Cleanup Equipment
 - 1) Located North of Building 8A, East of Tank 28A
- Respirator Cabinet
 - 1) 1st Floor Northwest ~~in Building 8A~~ near Office



BOX FURNACE HWMU #14

- X** = Fire Extinguisher
- (X)** = Manual Fire Alarm
- E** = Emergency Eye Wash Station
- R** = Respirator Cabinet

- S** = Safety Shower
- ➔** = Primary Evacuation Route
- ➡** = Alternate Evacuation Route
- (8)** = Rally Point

HWMU No. 15 - OXIDATION FURNACE # 1

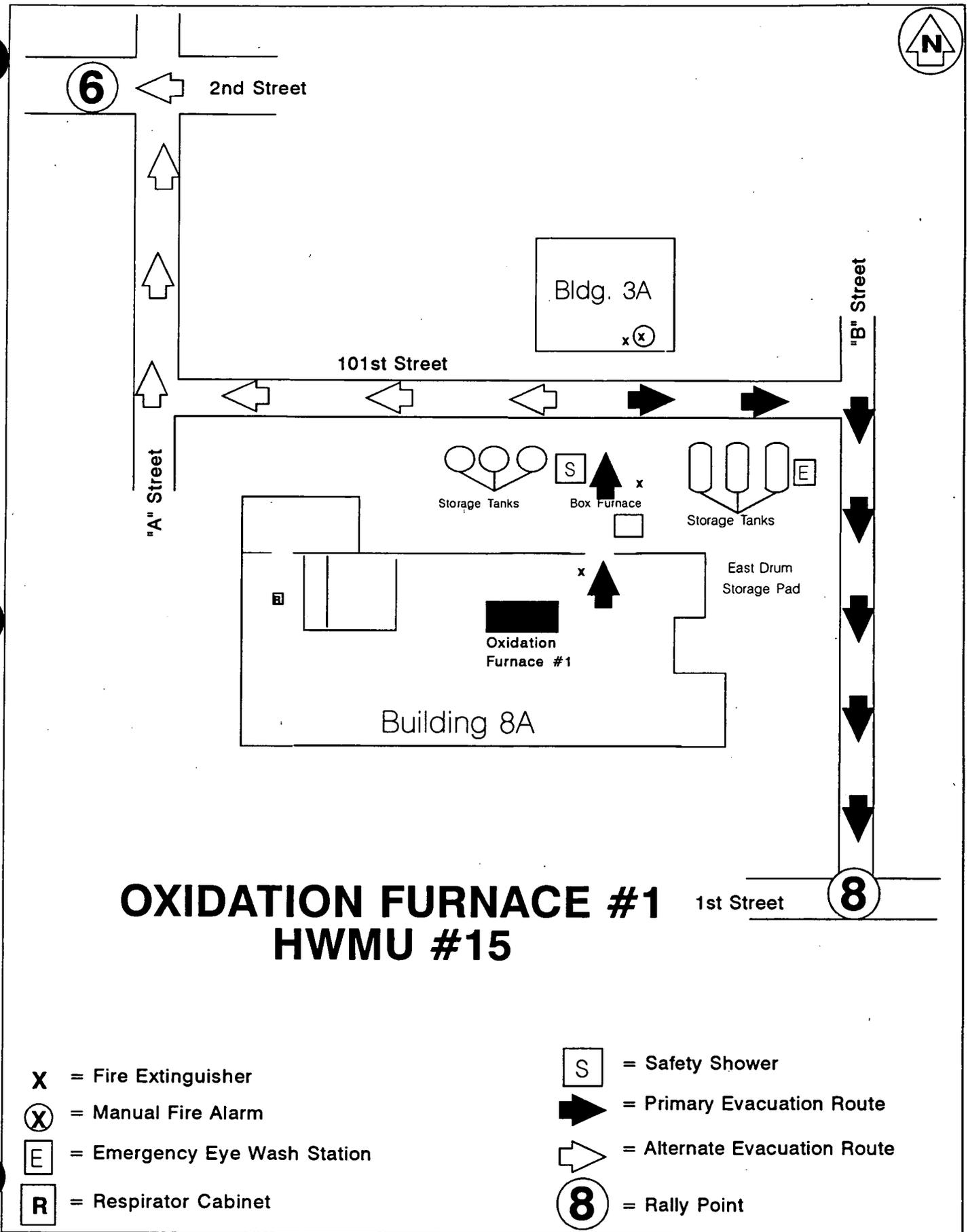
This furnace is located in Plant 8 and functioned as a combined reprocessing, recovery and pre-treatment unit.

Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st Street and "B" Street. Movement is east on 101st Street to "B" Street and south on "B" Street to the intersection of 1st Street.

The Alternate Rally Point is No. 5 ~~6~~. Rally Point No. ~~6~~ is located north of the West Water Tower, at the Waste Pit access gate. Movement is west on 101st Street to north on "A" Street, then west on 2nd Street to the rally point. ~~5 is located at the intersection of "D" Street and 1st Street. Movement from Rally Point No. 8 is east on 1st Street to the intersection of "D" Street.~~

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) Inside Building 8A by Column C-10
- Fire Extinguishers
 - 1) 10# ABC First Floor Building 8A Column C-10 by overhead door
 - 2) 10# ABC First Floor at East elevator
- Eye Wash/Safety Shower Station
 - 1) ~~At East side of nearest roll up door~~ East of NaOH Storage Tank northeast of Building 8A
- Spill Cleanup Equipment
 - 1) Located North of Building 8A, East of Tank 28A
- Respirator Cabinet
 - 1) 1st Floor Northwest in Building 8A near Office



OXIDATION FURNACE #1
HWMU #15

- X** = Fire Extinguisher
- (X)** = Manual Fire Alarm
- E** = Emergency Eye Wash Station
- R** = Respirator Cabinet

- S** = Safety Shower
- ➔** = Primary Evacuation Route
- = Alternate Evacuation Route
- (8)** = Rally Point

HWMU No. 16 - PRIMARY CALCINER

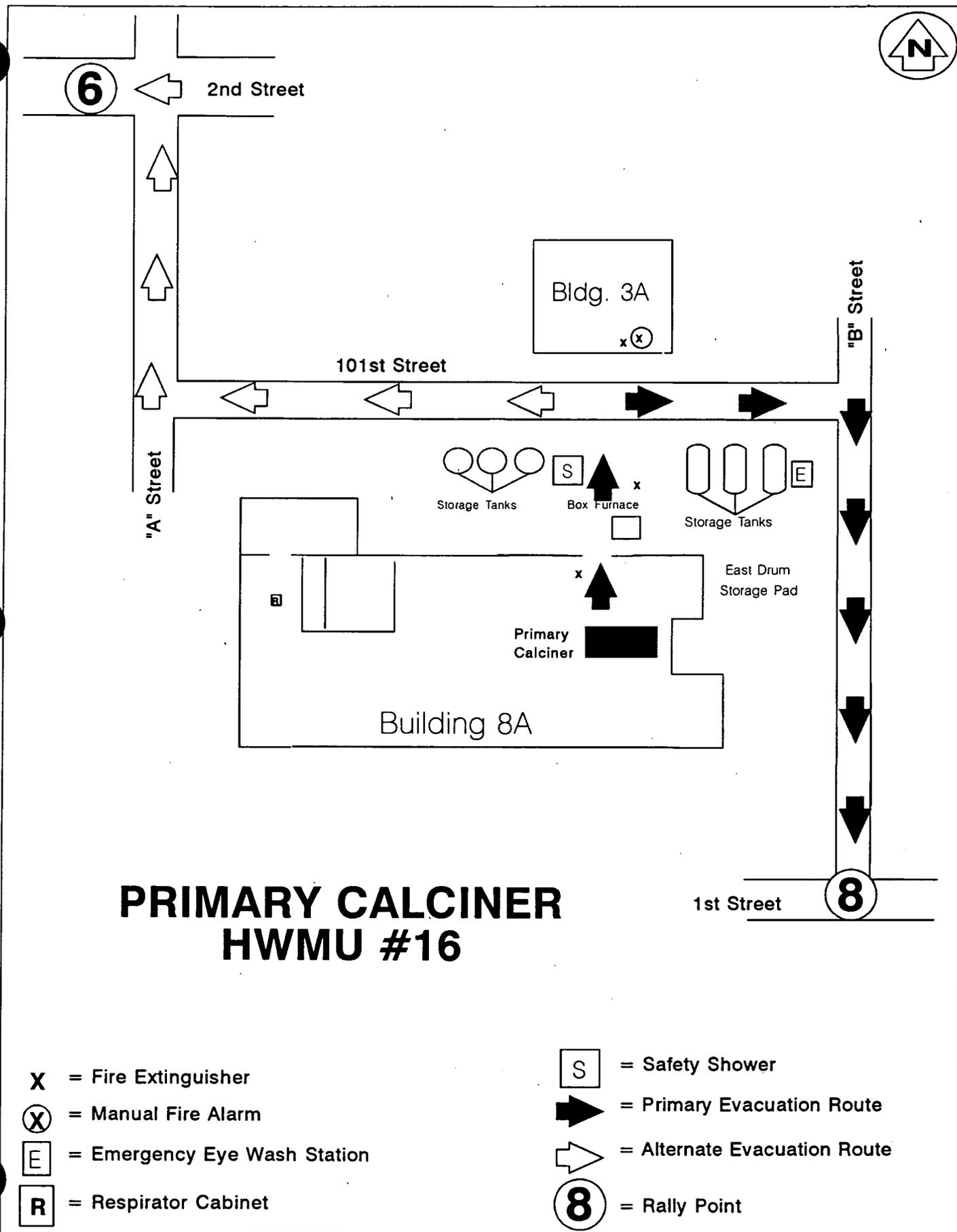
This unit is located in Plant 8 and consists of a steel shell 13 ft 6 inches in diameter with eight refractory brick lined hearths and three burners.

Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st Street and "B" Street. Movement is east on 101st Street to "B" Street and south on "B" Street to the intersection of 1st Street.

The Alternate Rally Point is No. 5 ~~6~~. Rally Point No. ~~6~~ is located north of the West Water Tower, at the Waste Pit access gate. Movement is west on 101st Street to north on "A" Street, then west on 2nd Street to the rally point. ~~5 is located at the intersection of "D" Street and 1st Street. Movement from Rally Point No. 8 is east on 1st Street to the intersection of "D" Street.~~

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) ~~Inside~~ East end of Building 8A by elevator
- Fire Extinguishers
 - 1) 10# ABC First Floor Building 8A Column C-10 by overhead door
 - 2) 10# ABC First Floor at East elevator
- Eye Wash/Safety Shower Station
 - 1) ~~On East side of nearest roll up door~~ East of NaOH Storage Tank northeast of Building 8A
- Spill Cleanup Equipment
 - 1) Located North of Building 8A, East of Tank 28A
- Respirator Cabinet
 - 1) 1st Floor Northwest in Building 8A near office



HWMU No. 17 - PLANT 8 EAST DRUM STORAGE PAD

This unit is a container storage area located East of Plant 8.

Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st Street and "B" Street. Movement is east to "B" Street and south on "B" Street to the intersection of 1st Street.

The Alternate Rally Point is No. 5 ~~6~~. Rally Point No. ~~6~~ is located north of the West Water Tower, at the Waste Pit access gate. Movement is north on "B" Street to west on 101st Street, then north on "A" Street to 2nd Street and west to the rally point. ~~5 is located at the intersection of "D" Street and 1st Street. Movement from Rally Point No. 8 is east on 1st Street to the intersection of "D" Street.~~

Those personnel desiring access to this HWMU are required to have a two-way radio for emergency notification purposes.

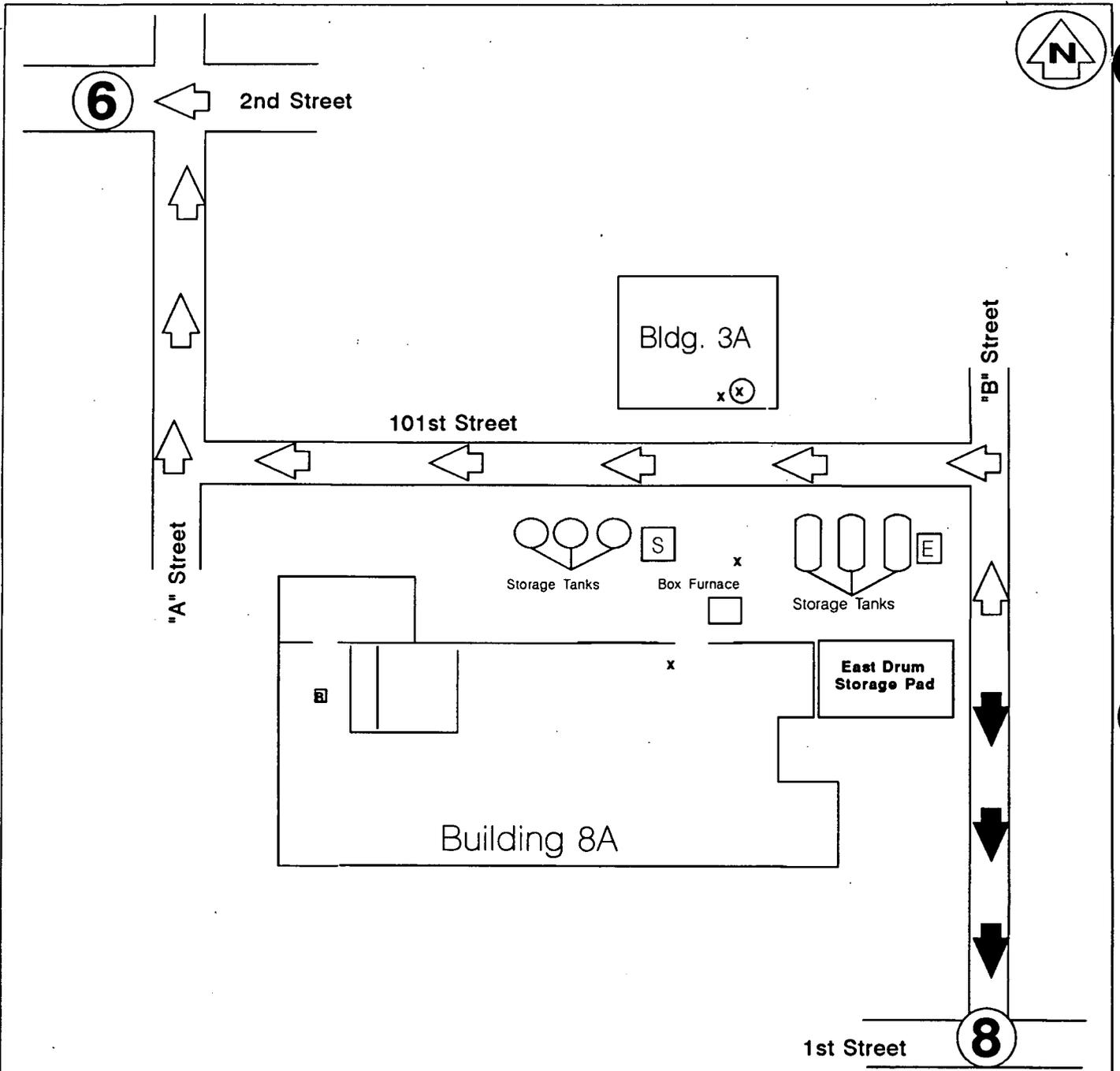
The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) Inside east end of Building 8A by elevator
- Fire Extinguishers
 - 1) 10# ABC First Floor Building 8A by elevator
 - 2) 10# ABC First Floor at Column C-10
- Eye Wash/Safety Shower Station
 - 1) East of NaOH Storage Tank Northeast of Building 8A
- Spill Cleanup Equipment
 - 1) Located North of Building 8A, East of Tank 28A

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- Respirator Cabinet (Plant 8)
 - 1) 1st Floor at Southeast Satellite Clothing Area near new Rotary Kiln



PLANT 8 EAST DRUM STORAGE PAD

HWMU #17

- X** = Fire Extinguisher
- (X)** = Manual Fire Alarm
- E** = Emergency Eye Wash Station
- R** = Respirator Cabinet
- S** = Safety Shower
- ➡** = Primary Evacuation Route
- = Alternate Evacuation Route
- (8)** = Rally Point

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HWMU No. 18 - PLANT 8 WEST DRUM STORAGE PAD

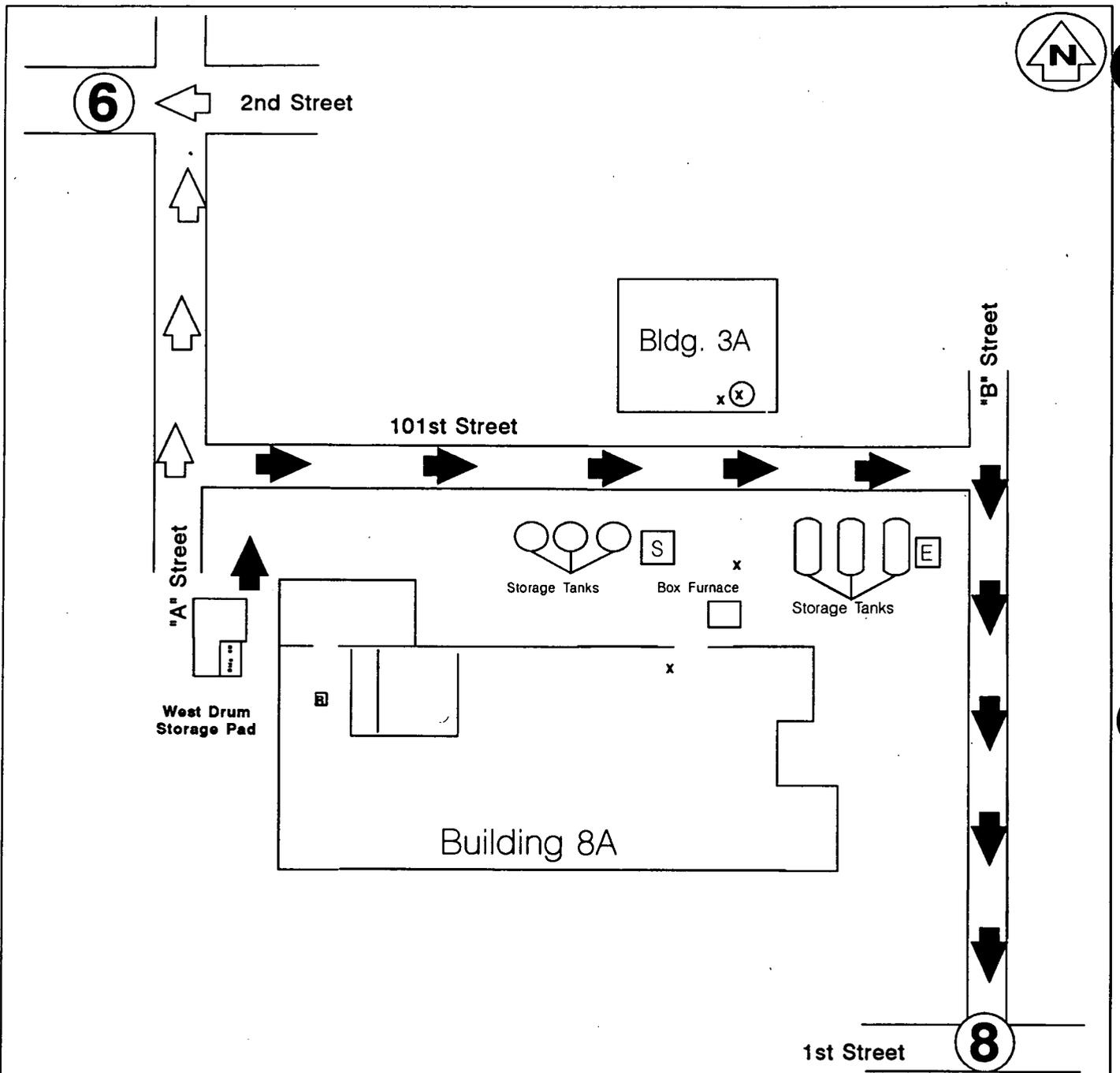
The Plant 8 West Drum Storage Pad is located in the West section of the Production Area.

Personnel should evacuate to Rally Point No. 8 which is located at the intersection of 1st Street and "B" Street. Movement is east on 101st Street to "B" Street and south on "B" Street to the intersection of 1st Street.

The Alternate Rally Point is No. 5 6. Rally Point No. 5 is located north of the West Water Tower, at the Waste Pit access gate. Movement is north on "A" Street to 2nd Street and west to the rally point. ~~5 is located at the intersection of "D" Street and 1st Street. Movement from Rally Point No. 8 is east on 1st Street to the intersection of "D" Street.~~

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) First Floor Northwest side by Supervisor's Office
- Fire Extinguisher
 - 1) 10# ABC First Floor West side by overhead door
- Eye Wash/Safety Shower Station
 - 1) Outside on West wall of Building 8A
- Spill Cleanup Equipment
 - 1) Outside West off of Northwest corner of Building 8A
- Respirator Cabinet
 - 1) 1st Floor Northwest in Building 8A near Office



PLANT 8 WEST DRUM STORAGE PAD

HWMU #18

- | | | | |
|-----|------------------------------|-----|------------------------------|
| X | = Fire Extinguisher | S | = Safety Shower |
| (X) | = Manual Fire Alarm | ➔ | = Primary Evacuation Route |
| E | = Emergency Eye Wash Station | ⬅ | = Alternate Evacuation Route |
| R | = Respirator Cabinet | (8) | = Rally Point |

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HWMU No. 19 - CP STORAGE WAREHOUSE BLDG. 56 (BUTLER BLDG.)

The CP Storage Warehouse is a pre-engineered, ribbed, unheated building covered by metal roofing. This warehouse is being used for the storage of containers of hazardous waste with free liquids.

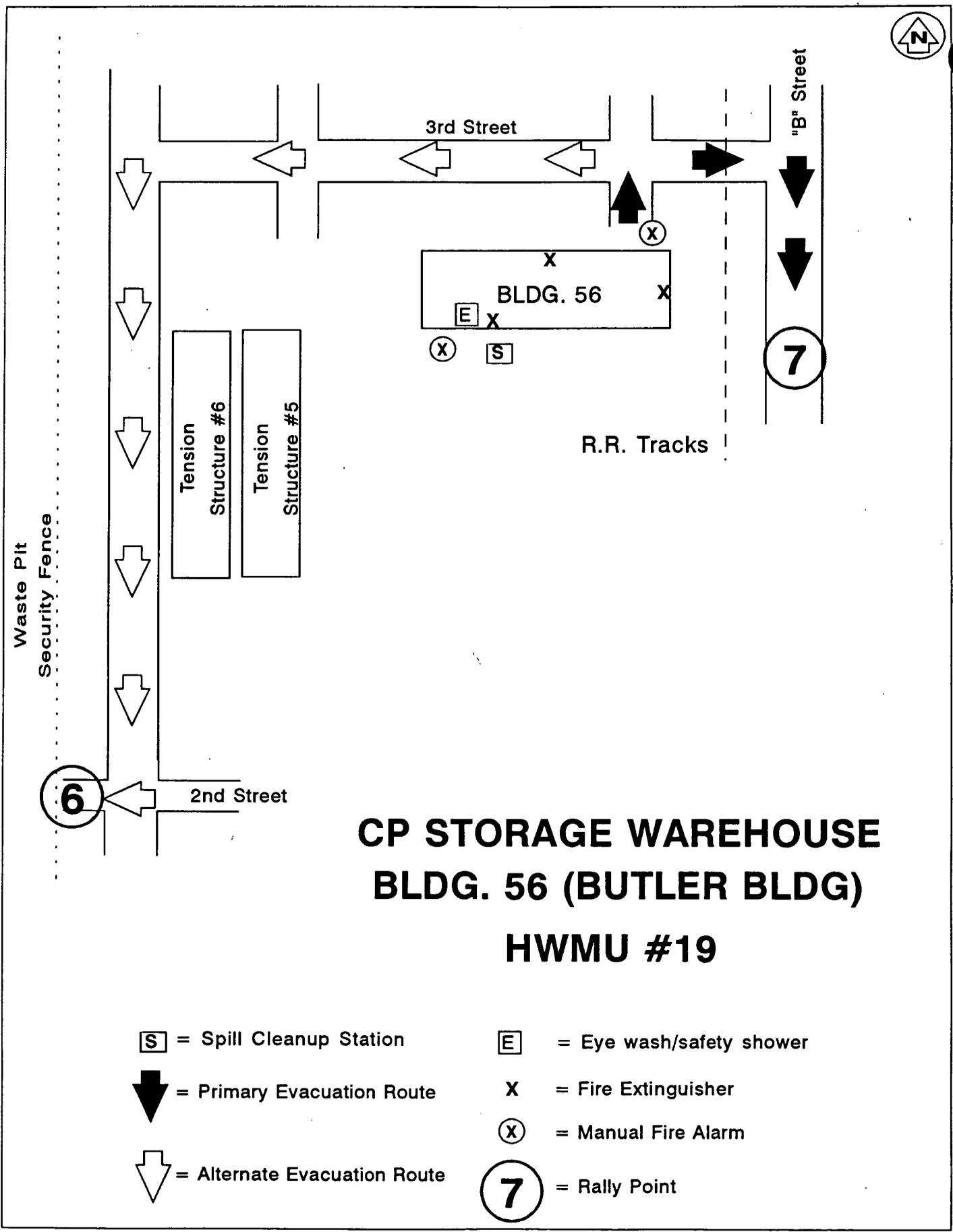
Personnel should evacuate to Rally Point No. 7 which is located on "B" Street at the Northeast corner of Plant 1 Storage Pad. Movement is east to "B" Street and south on "B" Street to the Northeast corner of Plant 1 Storage Pad.

The Alternate Rally Point is No. 3 6. Rally Point No. 6 is located north of the West Water Tower, at the Waste Pit Area access gate. Movement is west on 3rd Street to south on "A" Street, then west on 2nd Street to the rally point. 3 is located at the intersection of 2nd Street and "C" Street. Movement is south across Plant 1 storage pad to 2nd Street, and east on 2nd Street to the intersection of "C" Street.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarms
 - 1) On outside Northeast building corner
 - 2) On outside Southwest building corner
- Fire Extinguishers
 - 1) 20# ABC on South wall between South pedestrian door and Southwest truck door
 - 2) 10# ABC on North wall center of building
 - 3) 10# ABC on East wall by East truck door
- Spill Cleanup Equipment
 - 1) Located near the West inside wall, center of building
 - 2) Located near the East inside wall, center of building
 - 3) Outside, Southwest corner of building near truck door

000348



**CP STORAGE WAREHOUSE
BLDG. 56 (BUTLER BLDG)**

HWMU #19

- S** = Spill Cleanup Station
- E** = Eye wash/safety shower
- █** = Primary Evacuation Route
- X** = Fire Extinguisher
- ⊗** = Manual Fire Alarm
- ⊙** = Rally Point
- ▭** = Alternate Evacuation Route

HWMU No. 20 - PLANT 1 PAD

The Plant 1 Pad provides indoor and outdoor storage for hazardous waste.

Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located North of the West Water Tower, at the Waste Pit Area access gate. Movement is south to 2nd Street, then west on 2nd Street to the Waste Pit Area access gate.

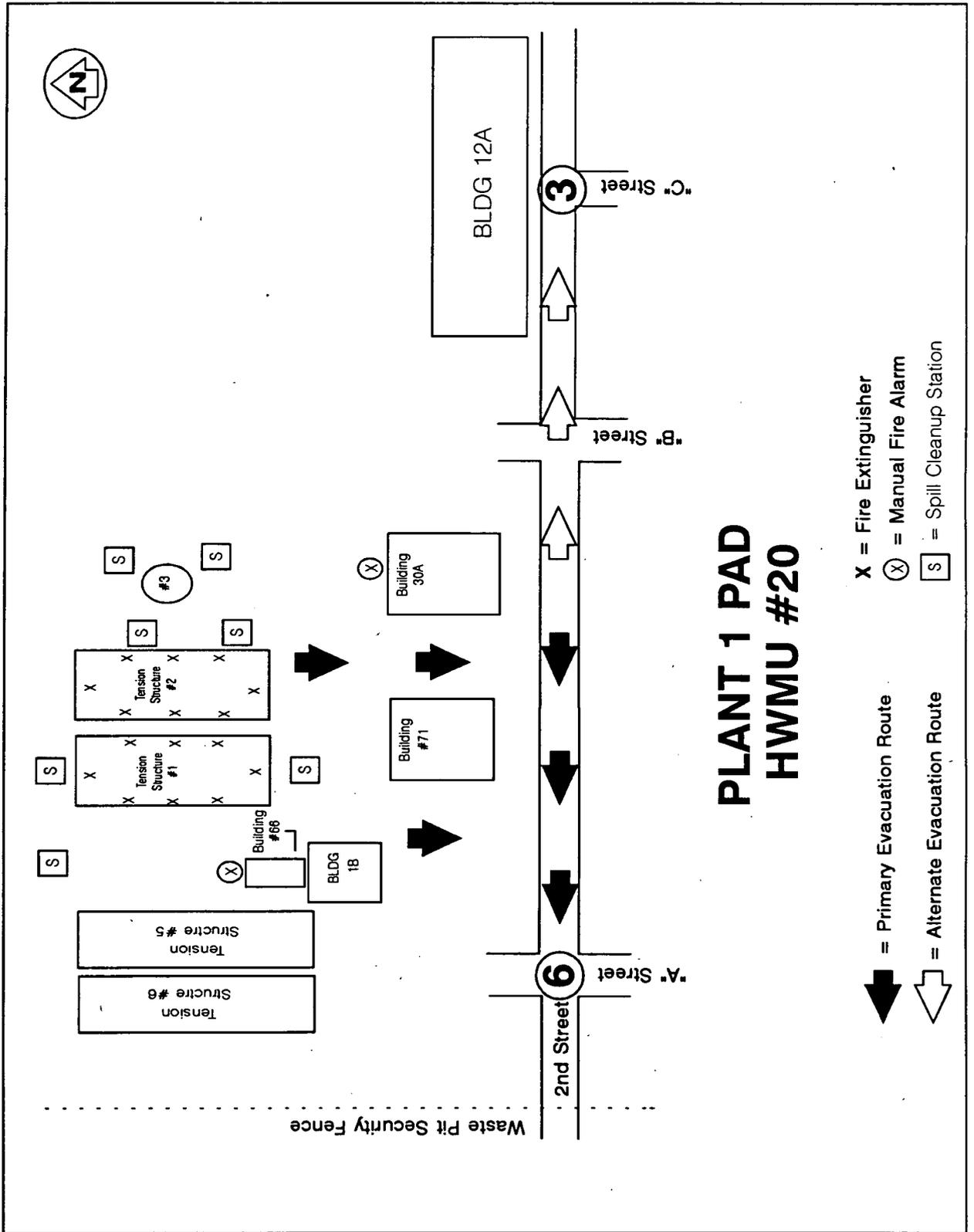
The Alternate Rally Point is No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is east, then south past the east side of Building 1A to 2nd Street, and east on 2nd Street to the intersection of "C" Street.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarms
 - 1) Outside Northeast corner of Building 1A
 - 2) Outside on North wall of Building 30A
 - 3) Outside on East end of North wall of Building 66
- Fire Extinguishers
 - 1) 10# ABC Middle of West side of Drum Shelter
 - 2-9) 10# ABC Eight (8) in West Tension Support Structure #1
 - 10-17) 10# ABC Eight (8) in East Tension Support Structure #2
- Eye Wash Station
 - 1) Outside of Building 1A by North wall near center
 - 2) Second floor above Mill Area next to Supervisors office
- Spill Cleanup Equipment
 - 1-7) Seven (7) located outside of Tension Support and Sprung Structures
 - 8) In Mill Area in Building 1A

- Respirator Cabinet
 - 1) Inside Building 1A in Primary Satellite Clothing Area

Those personnel at this unit are required to have a two-way radio to facilitate emergency notification.



**PLANT 1 PAD
HWMU #20**

-  = Primary Evacuation Route
-  = Alternate Evacuation Route
- X** = Fire Extinguisher
- X** in a circle = Manual Fire Alarm
- S** in a square = Spill Cleanup Station

HWMU No. 21 - HILCO OIL RECOVERY

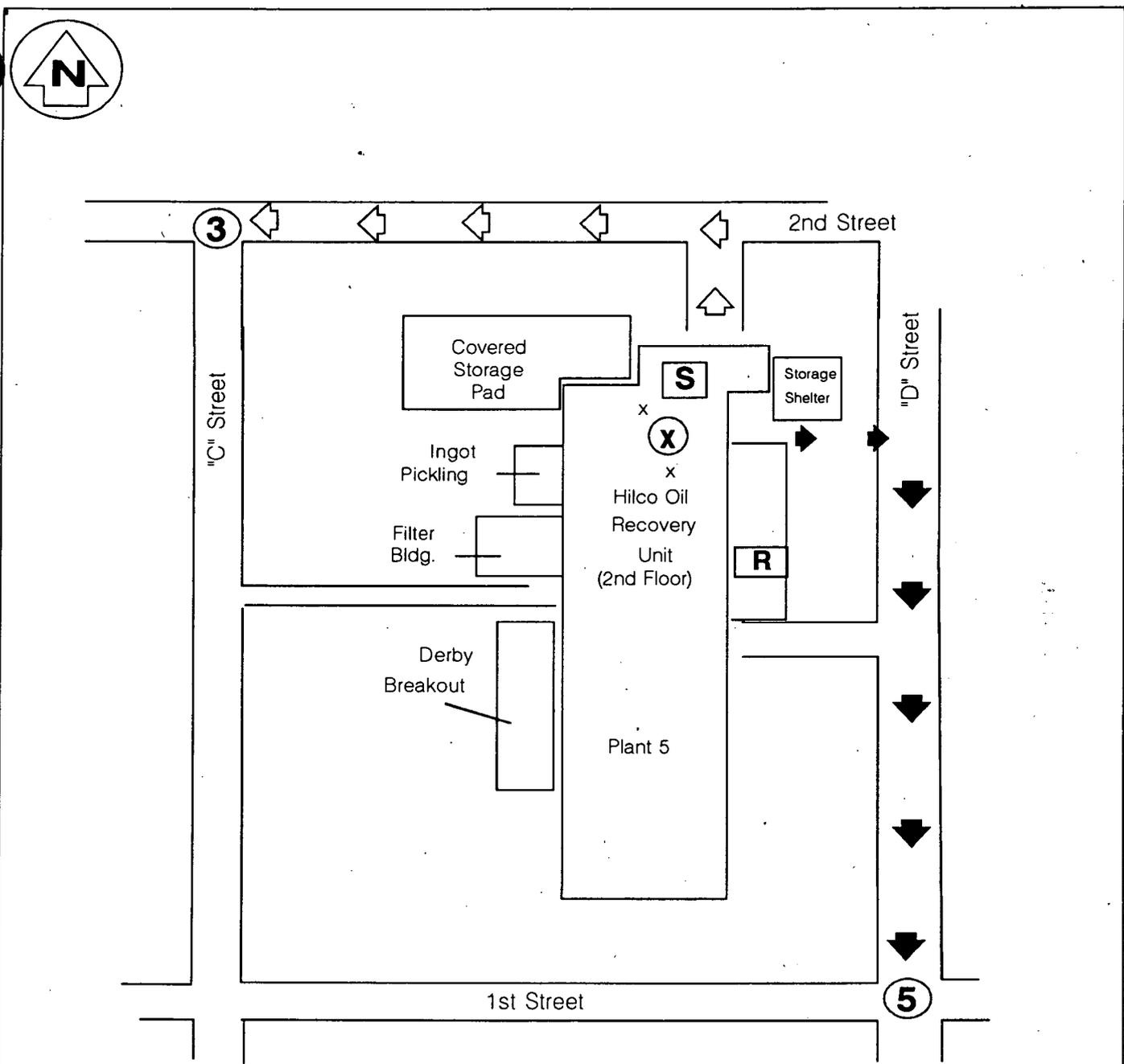
This unit is located in Plant 5 and consists of an oil holding tank on the second floor of Plant 5 and the Stokes pump area on the first floor. The system has not operated since June 1989.

Personnel should evacuate to Rally Point No. 5. Rally Point No. 5 is located at the intersection of 1st Street and "D" Street. Movement is east to "D" Street and south on "D" Street to the intersection of 1st Street.

The Alternate Rally Point is No. 4 ~~3~~. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is north to 2nd Street, then west to the intersection of 2nd and "C" Streets. ~~which is located on "D" Street at the East corner of the Security Building (Bldg 28A). Movement from Rally Point No. 5 is south on "D" Street to the East corner of the Security Building (Bldg 28A).~~

The following is a list of safety equipment located at this unit:

- Manual Fire Alarm
 - 1) Second floor at location 3D - West of HWMU
- Fire Extinguishers
 - 1) 10# ABC Second Floor at location 3D
 - 2) 10# ABC Second Floor Graphite Shop Southeast corner
- Respirator Cabinet
 - 1) First Floor inside Maintenance Shop East of location F11
- Spill Cleanup Equipment
 - 1) Second Floor at Hilco Unit



HILCO OIL RECOVERY HWMU #21

- S** = spill cleanup equipment
- X** = fire extinguisher
- R** = respirator cabinet
- X** = fire alarm
- ↓** = primary route
- ◁** = alternate route
- 5** = rally point

HWMU No. 22 - ABANDONED SUMP WEST OF PILOT PLANT

This unit is a temporary sump located to the West of the Pilot Plant.

Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st and "B" Street. Movement is north to 1st Street, then east to "B" Street.

The Alternate Rally Point is No. 5 ~~6~~. Rally Point No. 6 is located north of the West Water Tower, at the Waste Pit Area access gate. Movement is north on "A" Street to the intersection of 2nd Street, then west on 2nd Street to the rally point. ~~5 is located at the intersection of 1st and "D" Street. Movement from Rally Point No. 8 is east on 1st Street to the intersection of "D" Street.~~

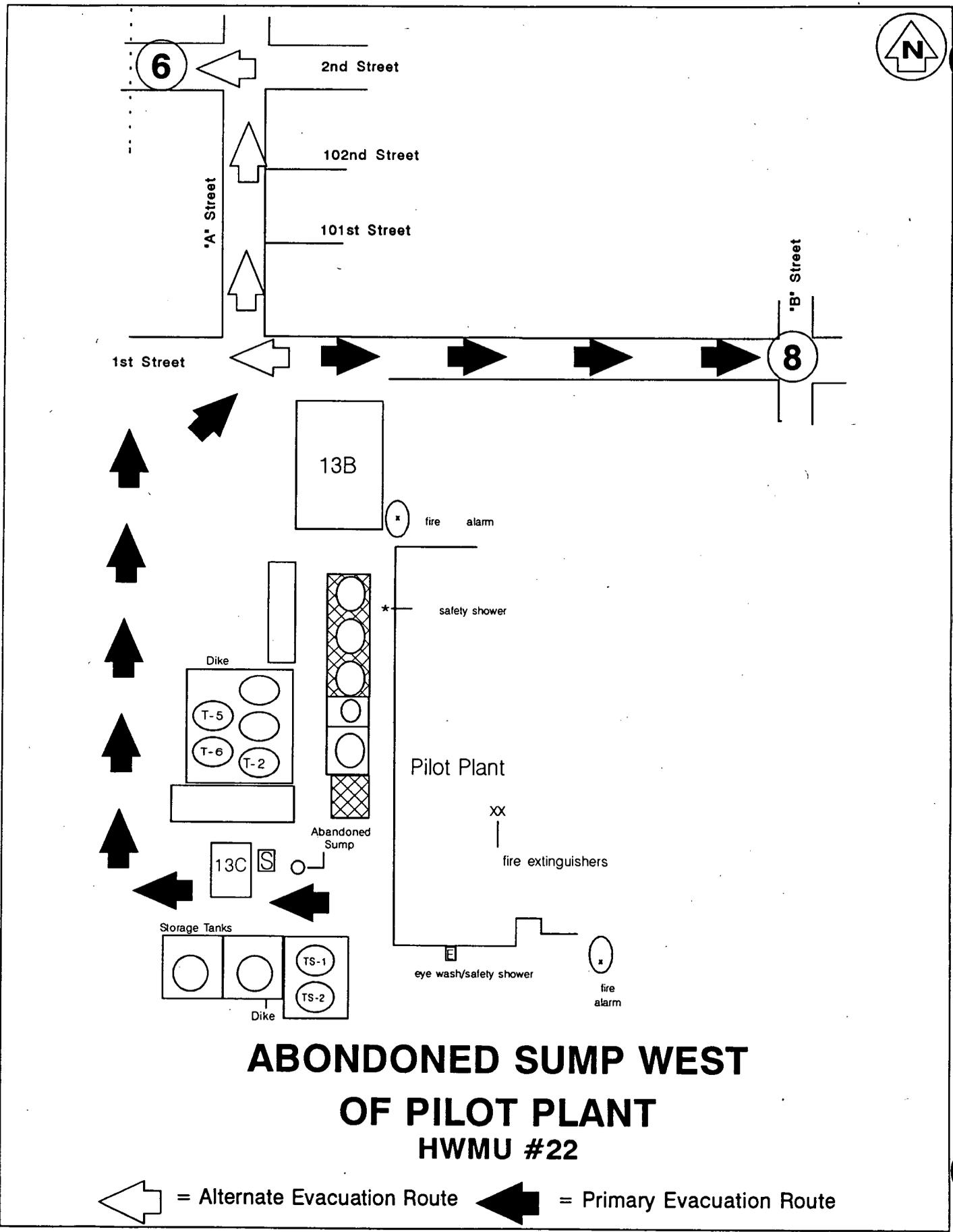
The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarms
 - 1) Outside on South wall of Pilot Plant near center of building
 - 2) Outside at South end of East wall of Building 13B
- Fire Extinguishers
 - 1) 10# ABC outside West Solvent Tanks Berm
- Eye Wash/Safety Shower Station
 - 1) On outside South wall of Pilot Plant near West end of building
- Safety Shower Station
 - 1) On outside West wall of Pilot Plant
- Spill Cleanup Equipment
 - 1) West of HWMU

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Those personnel desiring access to this HWMU are required to have a two-way radio to facilitate emergency notification.



**ABONDONED SUMP WEST
OF PILOT PLANT
HWMU #22**

 = Alternate Evacuation Route
  = Primary Evacuation Route

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HWMU No. 23 - WELL DRILLING STORAGE AREA

This area is located Northwest of the Waste Pit Area. ~~This has been removed from the HWMU list.~~

~~Personnel should evacuate using the access road in a southerly direction to the Ash Pit access road, then northeast to Rally Point 2. Rally Point No. 2 is located in the West FEMP parking lot North of the Stormwater Retention Basin.~~

~~The Alternate Rally Point is No. 1. Rally Point No. 1 is located East of the FEMP employee parking lot. Movement is towards the East from Rally Point 2.~~

~~There is no safety equipment assigned to this unit. Those personnel desiring access to this HWMU are required to have a two way radio for emergency notification purposes, and a key which allows passage through a security fence in the event of an evacuation.~~

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HWMU No. 24 - EQUIPMENT STORAGE AREA

This area is a waste accumulation area located Northwest of the Waste Pit Area.
This has been removed from the HWMU list.

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HWMU No. 25 - PLANT 1 STORAGE BLDG (BLDG. 67)

The Plant 1 Storage Building (Building 67) is a storage area located West of Plant 1A.

Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located North of the West Water Tower, at the Waste Pit Area access gate. Movement is south on "A" Street to 2nd Street and then west on 2nd Street to the Waste Pit Area access gate.

The Alternate Rally Point is No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is east through Plant 1B, then south past the east side of Building 1A to 2nd Street, and east to the intersection of "C" Street.

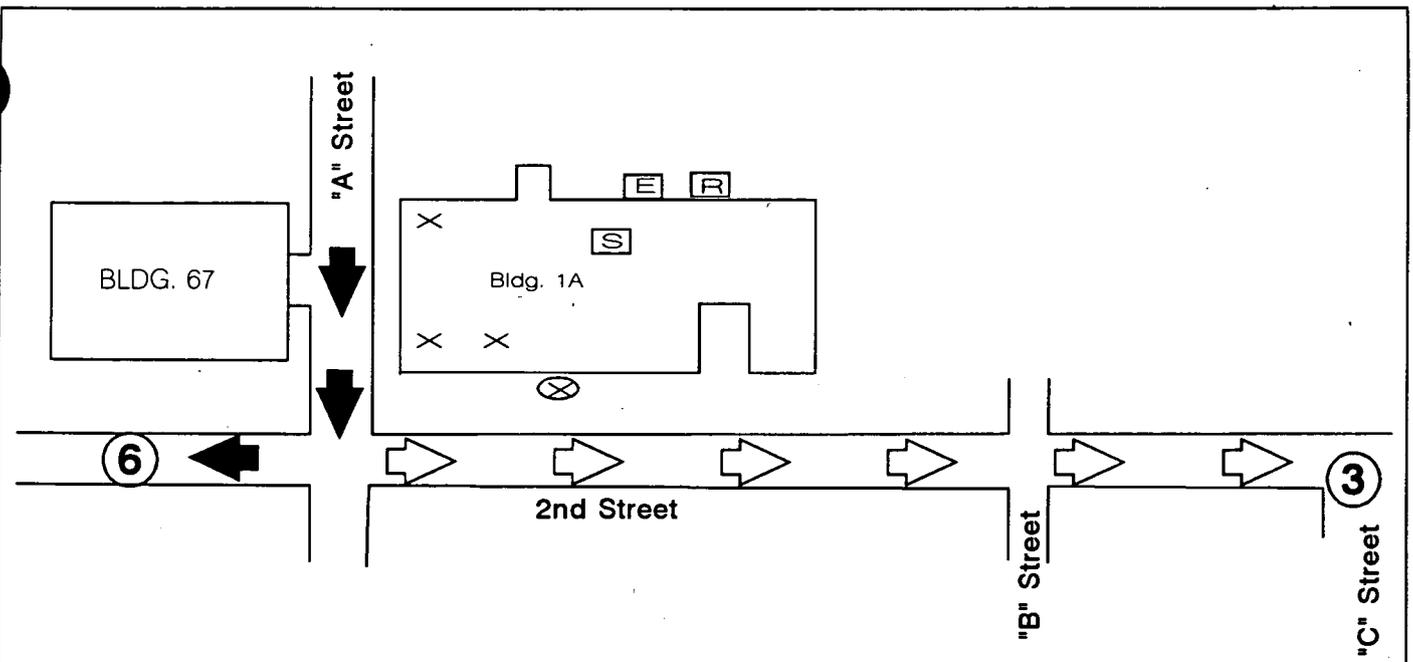
The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) Outside on South wall of Building 1A near center
 - 2) Outside Northeast corner of Plant 1
- Fire Extinguishers
 - 1) 10# ABC Building 1A at Column 2B
 - 2) 15# CO₂ Building 1A at Column 4E
 - 3) 10# ABC Building 1A at Column 2E
- Eye Wash Station
 - 1) None are available at this unit. Use the station outside Building 1A on North wall North of Column 8B
 - 2) Also one on second floor of Building 1A on east side of Supervisors Office

- Spill Cleanup Equipment
 - 1) Use equipment in Building 1A at column 8C

- Respirator Cabinets
 - 1) None are available at this unit. Use respirators from cabinets located in Building 1A Satellite Clothing Area or Building 71 Northeast corner against North wall by Supervisor's Office, Building 1A

Those personnel desiring access to this unit are required to have a Radiation Safety Technician monitor their entry and egress. The Technician is equipped with a two-way radio to facilitate emergency notification.



PLANT 1 STORAGE BLDG (BLDG. 67)

HWMU #25

- | | | |
|------------------------------|---------------------------|---------------------|
| = respirator cabinet | = spill cleanup equipment | = fire extinguisher |
| = alternate evacuation route | = rally point | = eye wash |
| = primary evacuation route | = manual fire alarm | |

HWMU No. 26 - DETREX STILL

The Detrex Still is located in Plant 1 and was used as a distillation unit for recovery of chlorinated hydrocarbon solvents.

Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located North of the West Water Tower, at the Waste Pit Area access gate. Movement is south past the West side of Plant 1 to 2nd Street and west to the Waste Pit Area access gate.

The Alternate Rally Point is No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is south past the East side of Plant 1 to 2nd Street, and east on 2nd Street to the Point.

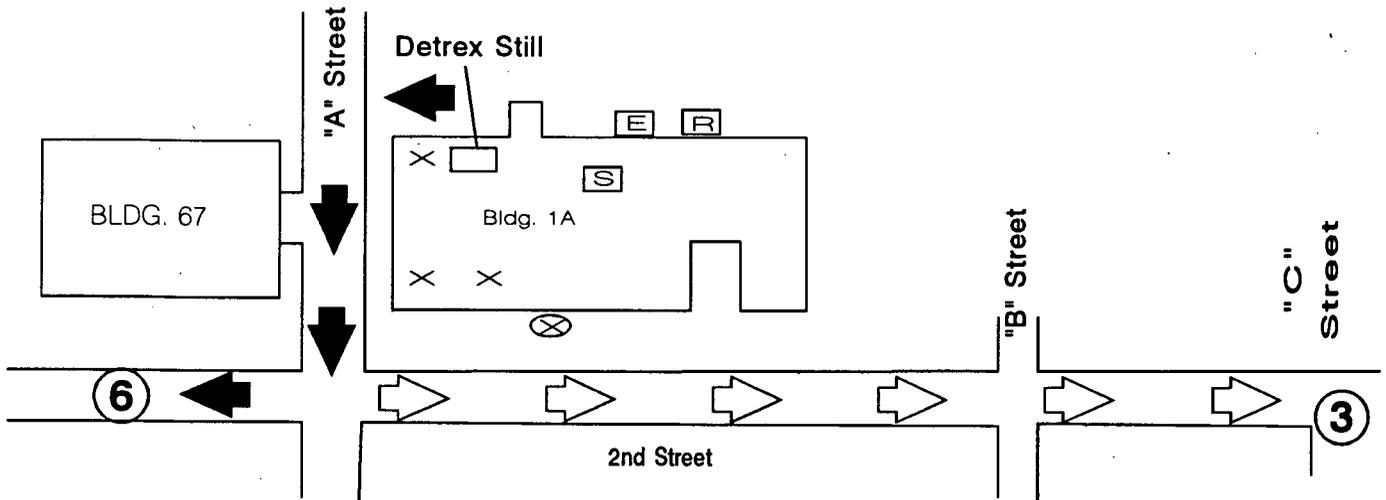
The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) West of column 7C
 - 2) Northeast of Building 66 (Outside)
- Fire Extinguisher
 - 1) 10# ABC First Floor at column 7C
- Eye Wash Station
 - 1) Outside against North wall near exit from Satellite Clothing Area
 - 2) Second floor east side of Supervisors Office
- Spill Cleanup Equipment
 - 1) By Column 8C
- Respirator Cabinet
 - 1) Outside against North wall by Supervisor's Office
 - 2) Inside Building 1A Satellite Clothing Area

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3) Inside Northeast corner of Building 71



DETREX STILL HWMU #26

- | | | |
|------------------------------|---------------------------|---------------------|
| = respirator cabinet | = spill cleanup equipment | = fire extinguisher |
| = alternate evacuation route | = rally point | = eye wash |
| = primary evacuation route | = manual fire alarm | |

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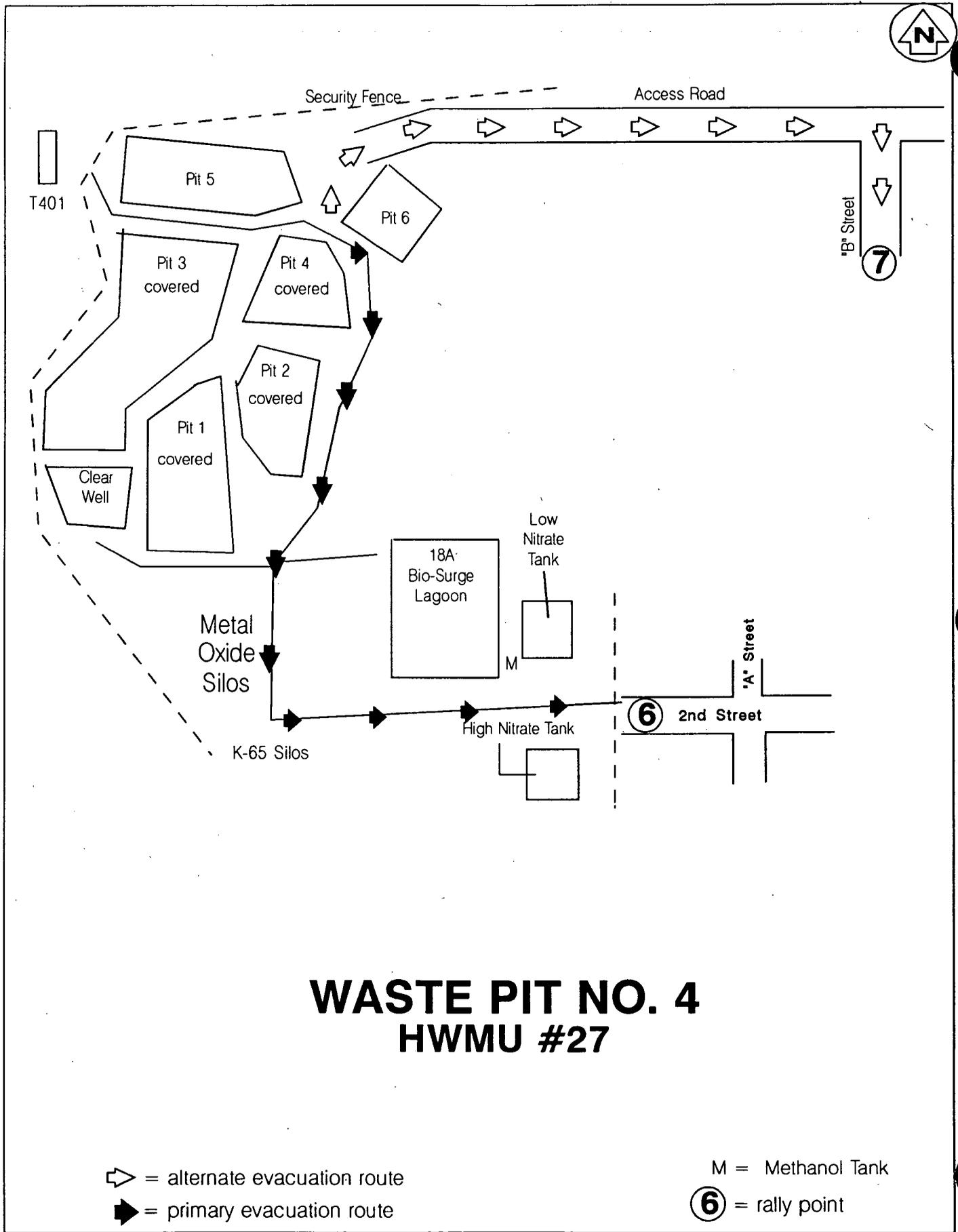
HWMU No. 27 - WASTE PIT No. 4

Waste Pit No. 4 is located West of the Production Area in the Waste Pit Area.

Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located North of the West Water Tower, at the Waste Pit Area access gate. Movement is southeast to 2nd Street and then east to the Waste Pit Area access gate.

The Alternate Rally Point is No. 7. Rally Point No. 7 is located on "B" Street west of the Boiler Plant. Movement is north past Pit 6 on the access road, then east to "B" Street and south on "B" Street to the Point.

There is no safety equipment assigned to this unit. The pit is covered. Those personnel desiring access to this unit are required to have a two-way radio for emergency notification purposes.



WASTE PIT NO. 4

HWMU #27

↗ = alternate evacuation route
 ➡ = primary evacuation route

M = Methanol Tank
 ⑥ = rally point

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HWMU No. 28 - TRANE THERMAL LIQUID INCINERATOR

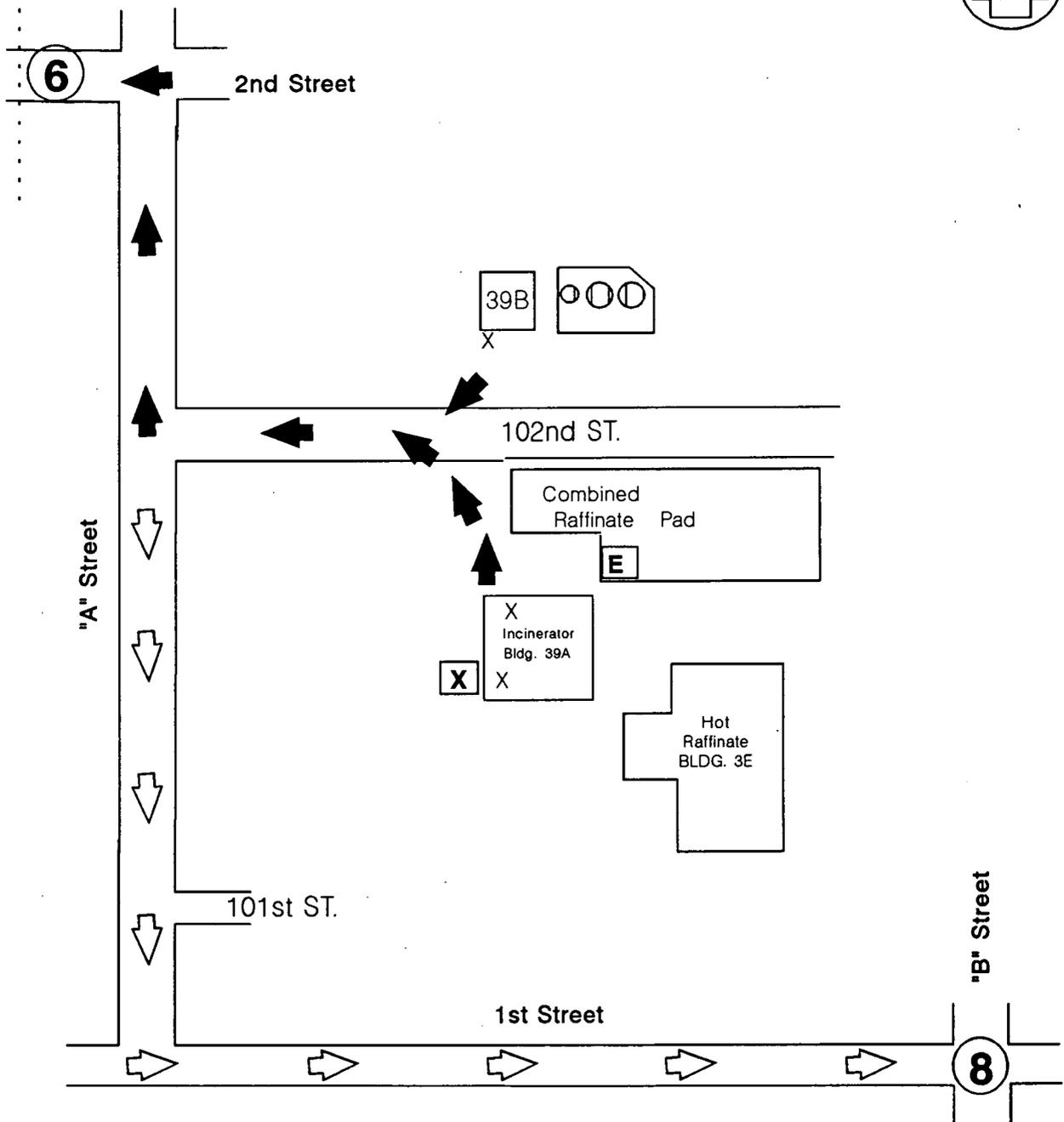
The Trane Liquid Thermal Incinerator was used to incinerate liquid waste contaminated with radionuclides and liquid hazardous wastes. In addition to the incinerator, it consists of an oil-water separator (Building 39B), Feed Tank F3E-406 located near the Plant 2/3 Combined Raffinate pad, and the Plant 2/3 West Storage Pad.

Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located North of the West Water Tower, at the Waste Pit Area access gate. Movement is west to "A" Street and north on "A" Street to 2nd Street and then west to the Waste Pit Area access gate.

The Alternate Rally Point is No. 8. Rally Point No. 8 is located at the intersection of 1st Street and "B" Street. Movement ~~from Rally Point No. 6~~ is west to "A" Street, then south on "A" Street and east on 1st Street to the intersection of "B" Street.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) Outside at Southwest corner of Building 39A
- Fire Extinguishers
 - 1) 10# ABC First Floor Incinerator Bldg. (39A) North wall
 - 2) 10# ABC First Floor Incinerator Bldg. (39A) Southwest corner
- Eye Wash Station and Safety Shower
 - 1) Off Northeast corner of Incinerator Bldg. (39A) in Combined Raffinate Pad area



TRANE THERMAL LIQUID INCINERATOR HWMU #28

E = Eye Wash/Safety Shower

X = Manual Fire Alarm

6 = Rally Point

X = Fire Extinguisher

← = Primary Evacuation Route

⇐ = Alternate Evacuation Route

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HWMU No. 29 - PLANT 8 WAREHOUSE (BLDG. 80)

The Plant 8 Warehouse storage unit is a pre-engineered, ribbed, unheated building covered by metal roofing. The warehouse is being used for storage of containers without free liquids.

Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st Street and "B" Street. Movement is south to 1st Street and east on 1st Street to the intersection of "B" Street.

The Alternate Rally Point is No. 6. Rally Point No. 6 is located north of the West water tower, at the Waste Pit area Access Gate. Movement is north on "A" Street to 2nd Street, then west on 2nd Street to the gate.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarms
 - 1) Inside Building 80 on East wall
 - 2) Inside Building 80 on West wall

- Fire Extinguishers
 - 1) 10# ABC at East door
 - 2) 10# ABC at West door
 - 3) 10# ABC in riser room

- Eye Wash/Safety Shower Station
 - 1) Near Southwest corner of building behind Office (Portable Unit)

- Spill Cleanup Equipment
 - 1) Near Southwest corner of building behind Office

- Respirator Cabinet
 - 1) On South wall of building behind Office



6

2nd Street

102nd Street

101st Street

Drum Storage

Building 80

office

Drum Storage

R

E

S

1st Street

"B" Street

8

"A" Street

PLANT 8 WAREHOUSE (BUILDING 80) HWMU #29

- R** = Respirator Cabinet
- E** = Eye Wash/Safety Shower
- S** = Spill Cleanup Equipment
- X** = Manual Fire Alarm

- X** = Fire Extinguisher
- = Primary Evacuation Route
- = Alternate Evacuation Route
- 8** = Rally Point

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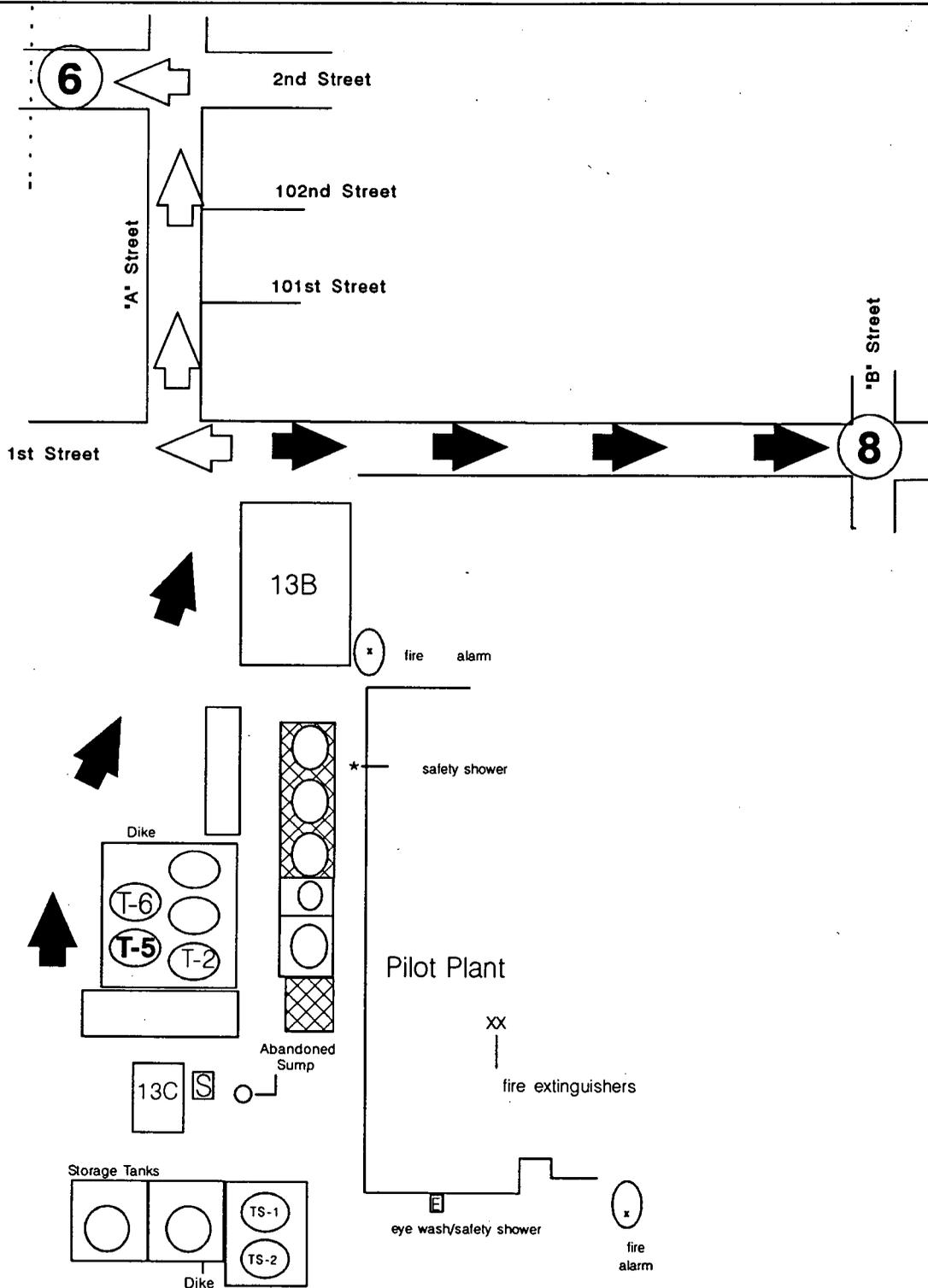
HWMU No. 30 - BARIUM CHLORIDE SALT TREATMENT FACILITY

This unit was used to convert barium chloride into barium sulfate. It has been emptied, cleaned and dismantled in accordance with the Closure Plan schedule. Clean Closure was certified on April 2, 1990, and USEPA approval of the closure was received on April 19, 1990.

~~Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st and "B" Street. Movement is north to 1st Street, then east to "B" Street.~~

~~The Alternate Rally Point is No. 5. Rally Point No. 5 is located at the intersection of 1st and "D" Street. Movement from Rally Point No. 8 is east on 1st Street to the intersection of "D" Street.~~

~~There is no safety equipment assigned to this unit. Those personnel desiring access to this HWMU are required to have an escort carrying a two way radio to facilitate emergency notification.~~



TANK FOR BULK STORAGE OF SOLVENTS, T-5 HWMU #31

 = Alternate Evacuation Route
  = Primary Evacuation Route

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HWMU No. 31 - TANK FOR BULK STORAGE OF SOLVENTS, T-5

This unit is an above ground storage tank located West of the Pilot Plant.

Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st and "B" Street. Movement is north to 1st Street, then east to "B" Street.

The Alternate Rally Point is No. 5 ~~5~~. Rally Point No. 6 is located north of the West Water Tower, at the Waste Pit Area access gate. Movement is north on "A" Street to 2nd Street, then west on 2nd Street to the rally point. ~~5 is located at the intersection of 1st and "D" Street. Movement from Rally Point No. 8 is east on 1st Street to the intersection of "D" Street.~~

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarms
 - 1) Outside on South wall of Pilot Plant near center of building
 - 2) Outside at South end of East wall of Building 13B
- Fire Extinguishers
 - 1) 10# ABC at West Solvent Tanks Berm
- Eye Wash/Safety Shower Station
 - 1) On outside South wall of Pilot Plant near West end of building
- Safety Shower Station
 - 1) On outside West wall of Pilot Plant
- Spill Cleanup Equipment
 - 1) East of Bldg. 13C

Those personnel desiring access to this HWMU are required to have a two-way radio to facilitate emergency notification.

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HWMU No. 32 - TANK FOR BULK STORAGE OF SOLVENTS, T-6

This unit is an above ground storage tank located West of the Pilot Plant.

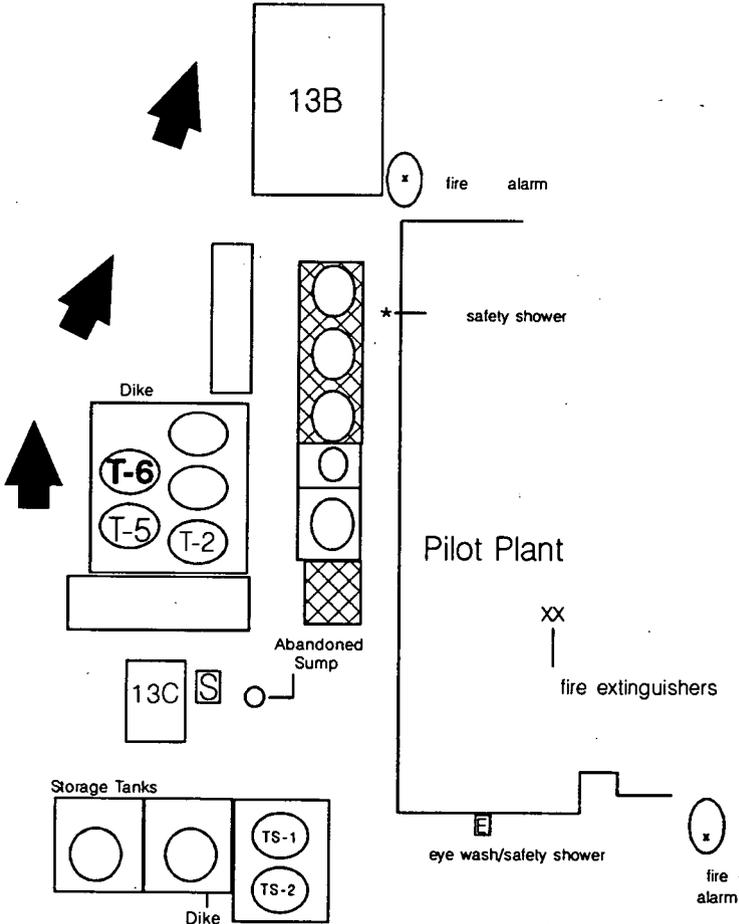
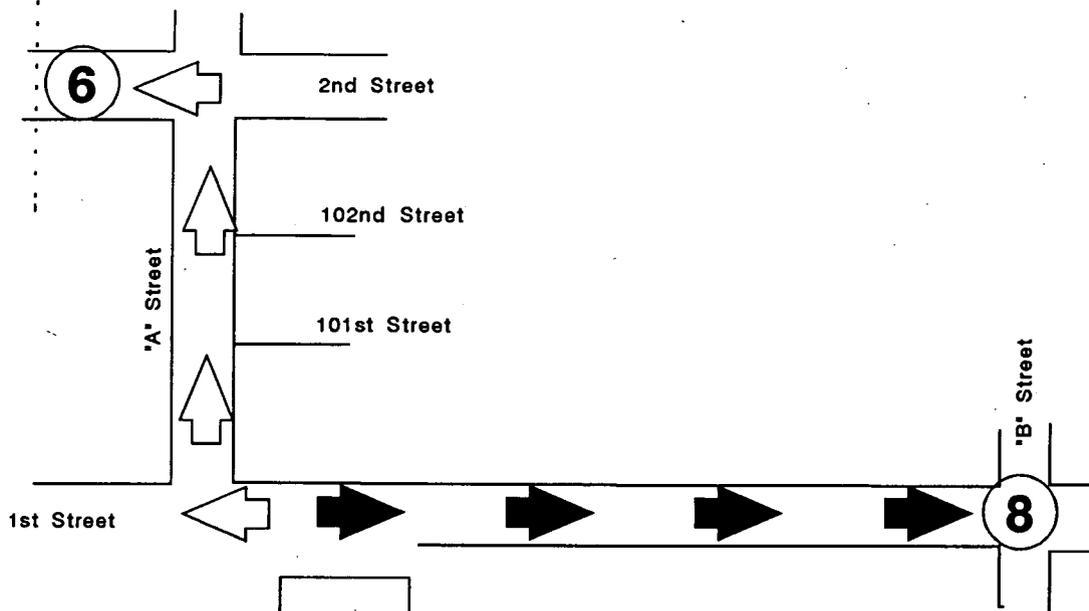
Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st and "B" Street. Movement is north to 1st Street, then east to "B" Street.

The Alternate Rally Point is No. 5. Rally Point No. 6 is located north of the West Water Tower, at the Waste Pit Area access gate. Movement is north on "A" Street to 2nd Street, then west on 2nd Street to the rally point. ~~5 is located at the intersection of 1st and "D" Street. Movement from Rally Point No. 8 is east on 1st Street to the intersection of "D" Street.~~

The following is a list of safety equipment assigned to this unit.

- Manual Fire Alarms
 - 1) Outside on South wall of Pilot Plant near center of building
 - 2) Outside at South end of East wall of Building 13B
- Fire Extinguishers
 - 1) 10# ABC at West Solvent Tanks Berm
- Eye Wash/Safety Shower Station
 - 1) On outside South wall of Pilot Plant near West end of building
- Safety Shower Station
 - 1) On outside West wall of Pilot Plant
- Spill Cleanup Equipment
 - 1) East of Building 13C

Those personnel desiring access to this HWMU are required to have a two-way radio to facilitate emergency notification.



TANK FOR BULK STORAGE OF SOLVENTS, T-6 HWMU #32

 = Alternate Evacuation Route  = Primary Evacuation Route

HWMU No. 33 - PILOT PLANT WAREHOUSE (BLDG. 68)

The Pilot Plant Warehouse is a pre-engineered fabricated building which is totally enclosed, and sided and roofed with Transite. Hazardous waste is stored in a diked area approximately 62' x 7' in the warehouse.

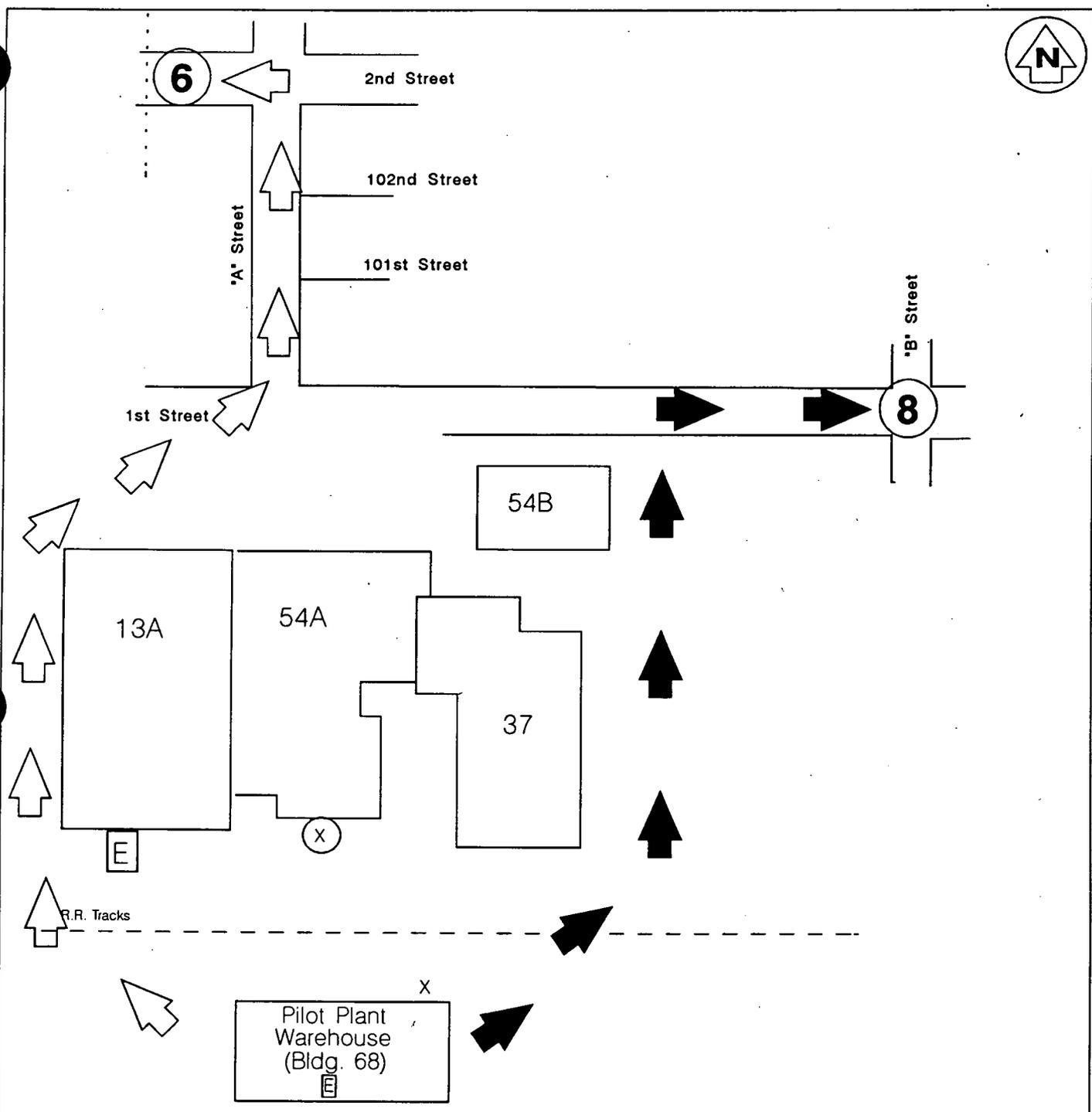
Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st and "B" Street. Movement is East, then north to 1st Street then proceed east to the intersection of "B" Street.

The Alternate Rally Point is No. 6. Rally Point No. 6 is located north of the West water tower, at the Waste Pit area Access Gate. Movement is west, then north to 1st Street, then east on 1st Street to "A" Street and north on "A" Street to 2nd Street, then west on 2nd Street to the gate.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) On outside South wall of Pilot Plant near center of building
- Fire Extinguisher
 - 1) 20# ABC North wall on outside of building
- Eye Wash Station and Safety Showers
 - 1) On outside south wall of Pilot Plant near West end
- Spill Control Kit
 - 1) On outside of building, at north gate of fence surrounding building

Those personnel desiring access to this unit are required to have a Radiation Safety Technician monitor their entry and egress. The Technician is equipped with a two-way radio to facilitate emergency notification.



PILOT PLANT WAREHOUSE (BLDG 68)
HWMU #33

-  = Eye Wash Station/Safety Shower
-  = Manual Fire Alarm
- X** = Fire Extinguisher

-  = Alternate Evacuation Route
-  = Primary Evacuation Route

HWMU No. 34 - KC-2 WAREHOUSE (BLDG. 63)

The KC-2 Warehouse (Bldg 63) is a pre-engineered, ribbed, unheated building covered by metal roofing. The warehouse is divided into eight bays. Each bay is constructed as a separate containment storage unit. The warehouse is used to store hazardous waste with and without free liquids.

Personnel should evacuate to Rally Point No. 7. Rally Point No. 7 is located on "B" Street at the Northeast corner of Plant 1 Pad. Movement is west to "B" Street and south on "B" Street to the Northeast corner of Plant 1 Pad.

The Alternate Rally Point is No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is east to "D" Street, south on "D" Street to 2nd Street, then west on 2nd Street until the intersection at "C" Street.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) Outside South wall center of building
- Fire Extinguishers
 - 1) 20# ABC inside by West door of Bay 1
 - 2) 20# ABC outside South door of Bay 2 ±
 - 3) 15# CO₂ at the riser between Bays 3 and 4
 - 4) 20# ABC between Bays 4 and 5
 - 5) 20# ABC between Bays 5 and 6
 - 6) 20# ABC East of Bay 8 door
 - 7)-13) 20# ABC inside North end of Bays 2,3,4,5,6,7,8
 - 14) 20# ABC east of Bay 8 door

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HWMU No. 34 - KC-2 WAREHOUSE (BLDG. 63)

- Eye Wash/Safety Shower Stations
 - Four ~~(4)~~ Five (5) portable, all in Bay 1 during winter months;
three ~~four~~ are moved to Bays 5,6,7 and 8 during summer, and when
personnel are working in those bays.

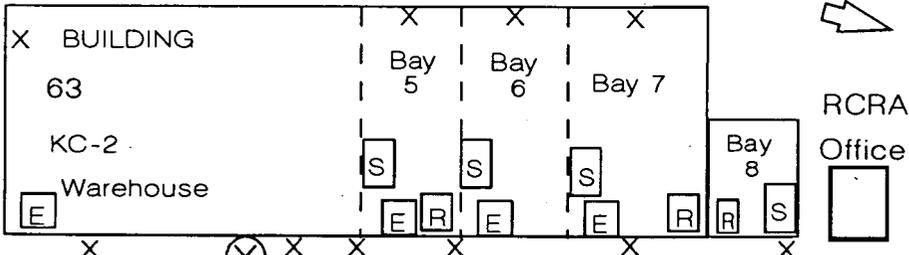
- Spill Cleanup Equipment
 - 1) Inside Bay 5
 - 2) Inside Bay 6
 - 3) Inside Bay 7
 - 4) Inside Bay 1
 - 5) Inside Bay 8

- Respirator Cabinets
 - 1) Inside Bay 1
 - 2) Inside Bay 6 8

Access to equipment inside Building 63 can be gained only by personnel having a key to Bays 1, 5, 6, ~~or 7,~~ or 8. Those personnel desiring access to this unit are required to have a two-way radio to facilitate emergency notification.



FENCE



R.R. Tracks

7

'B' Street

2nd Street

3

'C' Street

'D' Street

**KC-2 WAREHOUSE
(BUILDING 63)
HWMU #34**



= rally point



= spill cleanup equipment



= respirator cabinet



= eye wash/safety shower



= alternate route



= manual fire alarm



= fire extinguisher



= primary
evacuation route

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HWMU No. 35 - PLANT 9 WAREHOUSE (BLDG. 81)

The Plant 9 Warehouse storage unit is an 80' X 100' single story, pre-engineered, ribbed, metal building covered with metal roofing. The warehouse is constructed to store hazardous waste with and without free liquids and is equipped with a sprinkler system to provide fire protection for the storage of combustible hazardous wastes.

Personnel should evacuate to Rally Point No. 3 which is located at the intersection of 2nd Street and "C" Street. Movement is west to "D" Street, south on "D" Street to 2nd Street, then west on 2nd Street to the intersection of "C" Street.

The Alternate Rally Point is No. 5 which is located at the intersection of 1st Street and "D" Street. Movement is south on "D" Street to 1st Street.

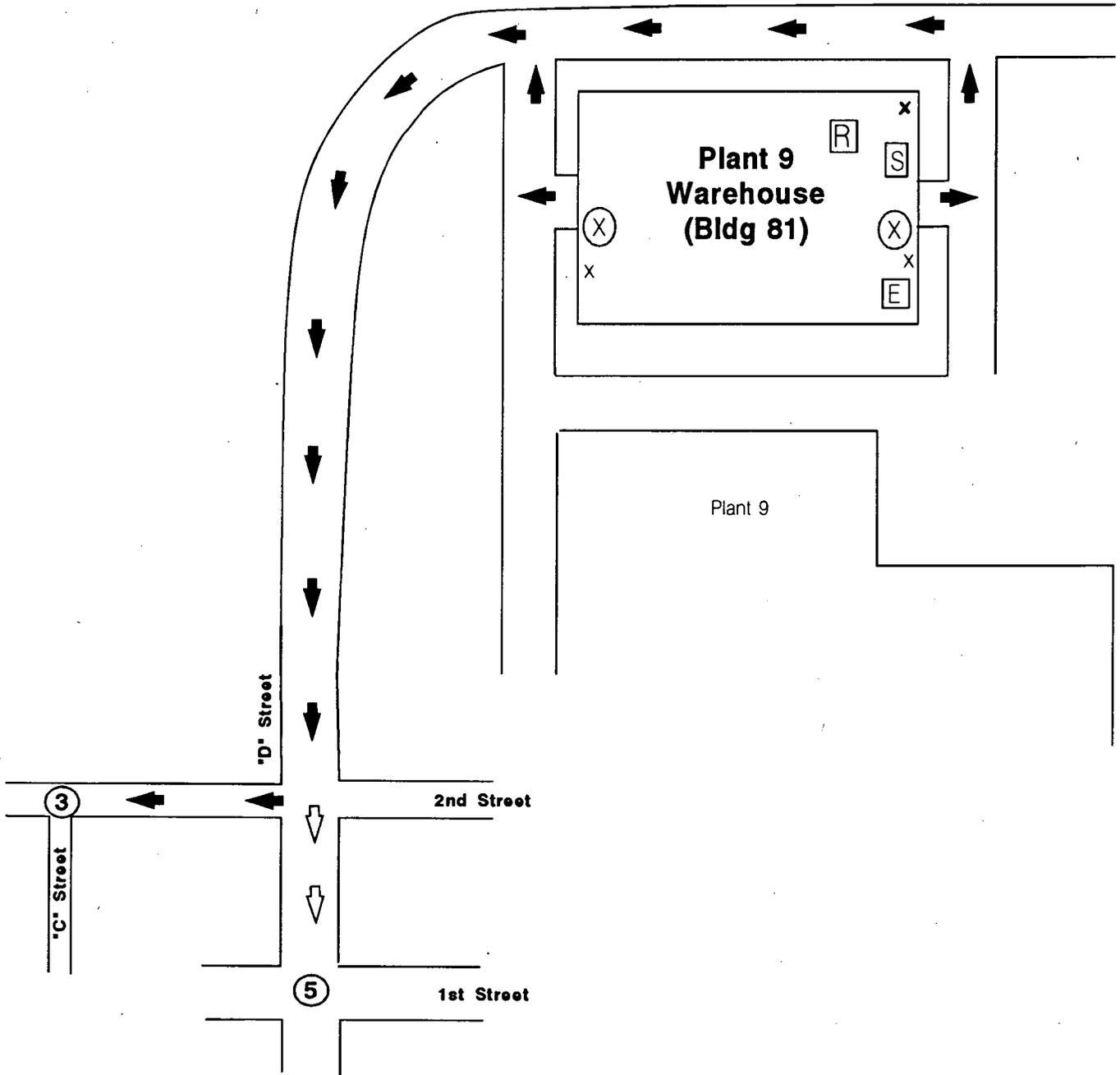
The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarms
 - 1) Inside East wall
 - 2) Inside West wall

- Fire Extinguishers
 - 1) 10# ABC East personnel door
 - 2) 10# ABC West personnel door
 - 3) 10# ABC in riser room

- Eye Wash/Safety Shower Station
 - 1) At Southeast corner of building near office (Portable Unit)

- Spill Cleanup Equipment and Respirator Cabinet
 - 1) At East end North of roll up door



PLANT 9 WAREHOUSE (BLDG. 81) HWMU #35

⑤ = rally point

Ⓢ = spill cleanup equipment

Ⓡ = respirator cabinet

ⓔ = eye wash/safety shower

x = fire extinguisher

ⓧ = manual fire alarm

➡ = primary route

⬇ = alternate route

HWMU No. 36 - STORAGE PAD NORTH OF PLANT 6

This area is North of and adjacent to Plant 6.

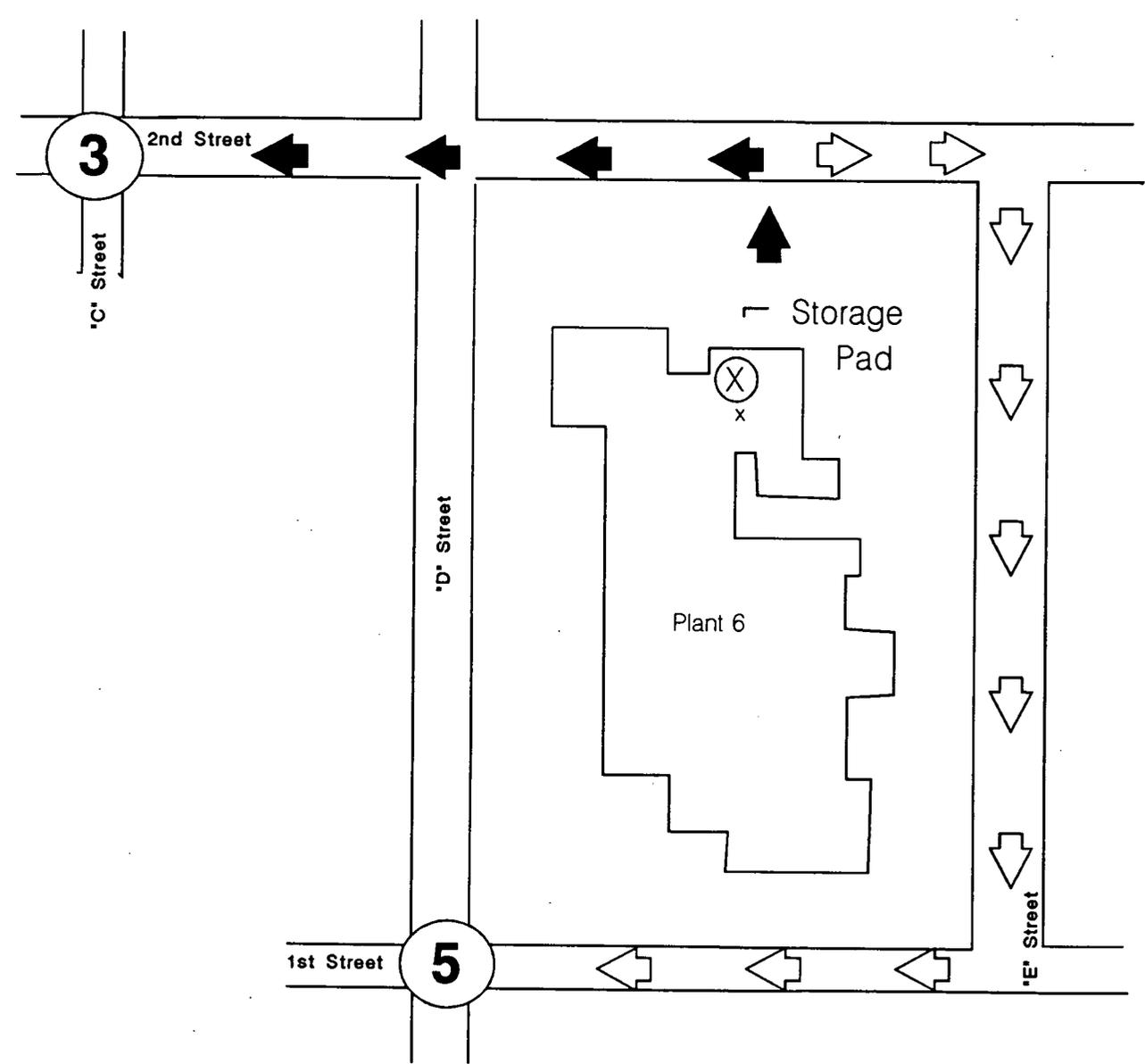
Personnel should evacuate to Rally Point No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is west on 2nd Street to the intersection of "C" Street.

The Alternate Rally Point is No. 5. Rally Point is located at the intersection of 1st Street and "D" Street. Movement from Rally Point No. 3 is south on "C" Street and east is east on 2nd Street to south on "E" Street, then west on 1st Street to the intersection of "D" Street.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) Inside Plant 6 Northwest corner near Restroom

- Fire Extinguisher
 - 1) 10# ABC First Floor Northwest corner next to fire alarm



STORAGE PAD NORTH OF PLANT 6 HWMU #36

- X = fire extinguisher
- ⊗ = fire alarm
- ◀ = primary route
- ⊗ = rally point
- ◁ = alternate route

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HWMU No. 37 - PLANT 6 WAREHOUSE (BLDG. 79)

The Plant 6 Warehouse is a pre-engineered, ribbed, unheated building covered by metal roofing. Plant 6 Warehouse is designed to store hazardous waste with and without free liquids and combustible liquids.

Personnel should evacuate to Rally No. 5. Rally Point No. 5 is located at the intersection of 1st Street and "D" Street. Movement is south on "E" Street and west on 1st Street to the intersection of "D" Street.

The Alternate Rally Point is No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is north on "E" Street to 2nd Street, and west on 2nd Street to the Point.

The following is a list of safety equipment assigned to this unit:

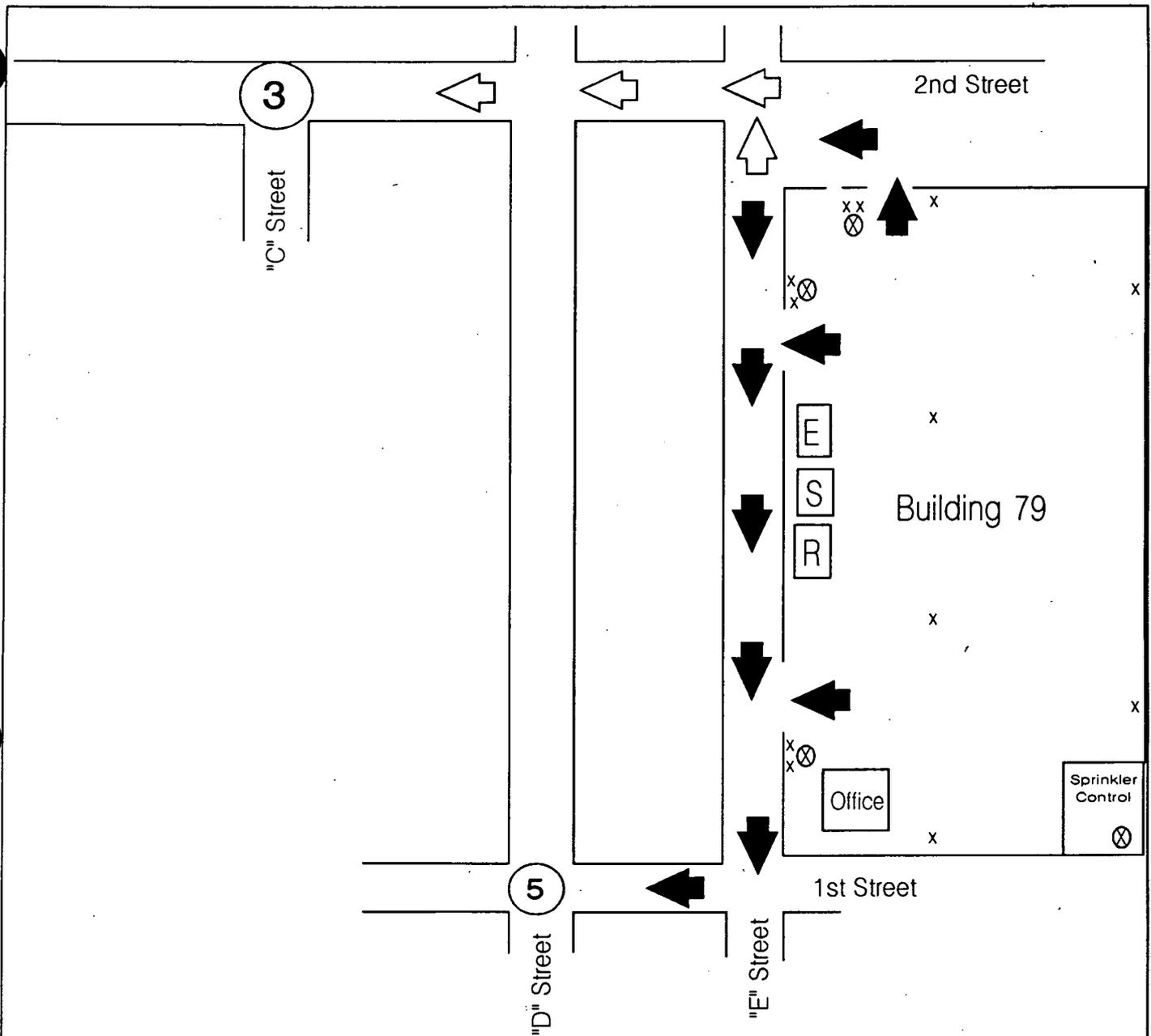
- Manual Fire Alarms
 - 1) By Southwest entrance door
 - 2) By Northwest entrance door
 - 3) North entrance door at Loading Dock
 - 4) Inside Southeast Sprinkler Control Room
- Fire Extinguishers
 - 1) 20# ABC on the North wall in the center
 - 2) 20# ABC on the South Wall in the center
 - 3) 20# ABC on the East wall near the North end
 - 4) 20# ABC on the East wall near the South end
 - 5) 20# ABC on a column in the center of building (towards North end)
 - 6) 20# ABC on a column in the center of building (towards South end)
 - 7) 10# ABC in riser room (Southwest corner)
- Eye Wash/Safety Shower Station
 - 1) At West wall near center

HWMU No. 37 - PLANT 6 WAREHOUSE (BLDG. 79)

- Respirator Cabinet
 - 1) At West wall near center

- Spill Cleanup Equipment (Middle of West wall)
 - 1) Pigs and absorbent pads
 - 2) All purpose absorbent material
 - 3) Six 55-gallon Salvage drums
 - 4) Six 85-gallon overpack salvage drum
 - 5) Cleaning utensils (shovels and brooms)
 - 6) Portable HEPA vacuum industrial cleaner
 - 7) Drum straps

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PLANT 6 WAREHOUSE (BLDG. 79)
HWMU #37

- X = fire extinguisher
- ⊗ = manual fire alarm
- ⤴ = alternative route
- ➔ = primary route
- ⑤ = rally point
- R = respirator cabinet
- E = eye wash/safety shower
- S = spill cleanup equipment

HWMU No. 38 - HF TANK CAR

The HF Tank Car HWMU (~~# 0ROX177501~~) is a ~~railroad car~~ located on the railroad spur immediately off the Northwest corner of Building 12A. The HF Tank Car (~~# 0ROX177501~~) has been moved from that location to the spur west of the Tank Farm in order to provide a secondary containment sump. Currently this unit tank car contains waste dilute hydrofluoric acid (DHF).

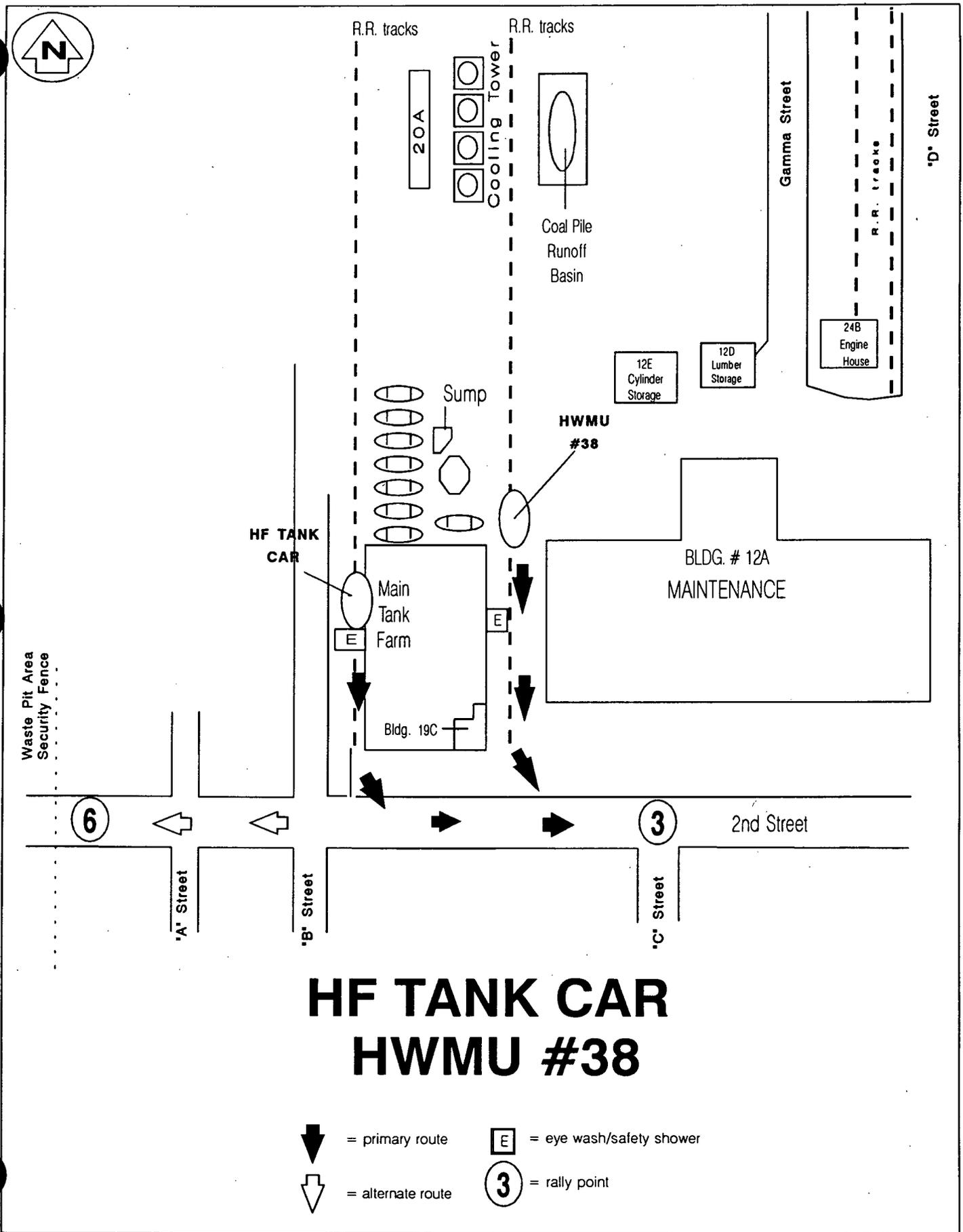
Personnel should evacuate to Rally Point No. 3. Rally Point is located at the intersection of 2nd Street and "C" Street. Movement is south to 2nd Street and east on 2nd Street to the intersection of "C" Street.

The Alternate Rally Point is No. ~~5~~ 6. Rally Point No. 6 is located north of the West Water Tower, at the Waste Pit Area access gate. Movement is south to 2nd Street then west to the rally point. ~~5 is located at the intersection of 1st Street and "D" Street. Movement from Rally Point No. 3 is south on "C" Street and east on 1st Street to the intersection of "D" Street.~~

The following is a list of safety equipment assigned to this unit:

- Eye Wash/Safety Shower Station
 - 1) Yellow painted walk-in unit between track and Tank Farm

Those personnel desiring access to this HWMU are required to have a two-day radio for emergency notification purposes.



HF TANK CAR HWMU #38

-  = primary route
-  = alternate route
-  = eye wash/safety shower
-  = rally point

HWMU No. 39 - CLEARWELL

The Clearwell is a surface impoundment located West of the Production Area in the Waste Pit Area. ~~This has been removed from the HWMU list.~~

~~Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located North of the west Water Tower, at the Waste Pit Area access gate. Movement is southeast to 2nd Street and then east to the Waste Pit Area access gate.~~

~~The Alternate Rally Point is No. 7. Rally Point No. 7 is located on "B" Street, west of the Boiler Plant. Movement is north past Pits 2, 4, & 6 on the access road, then east to "B" Street, south on "B" Street to the Point.~~

~~The following is a list of safety equipment assigned to this unit:~~

~~• Fire Extinguisher~~

- ~~1) 15# CO₂ on East side outside of the Clearwell Pump House (Building 18G)~~

~~Those personnel desiring access to this HWMU are required to have a two-way radio for emergency notification purposes.~~

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HWMU No. 40 - BIO-SURGE LAGOON

This unit is a surface impoundment located west of the Production Area and was constructed in September 1986.

Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located north of the West Water Tower, at the Waste Pit Area access gate. Movement is southeast to 2nd Street and then east to the Waste Pit Area access gate.

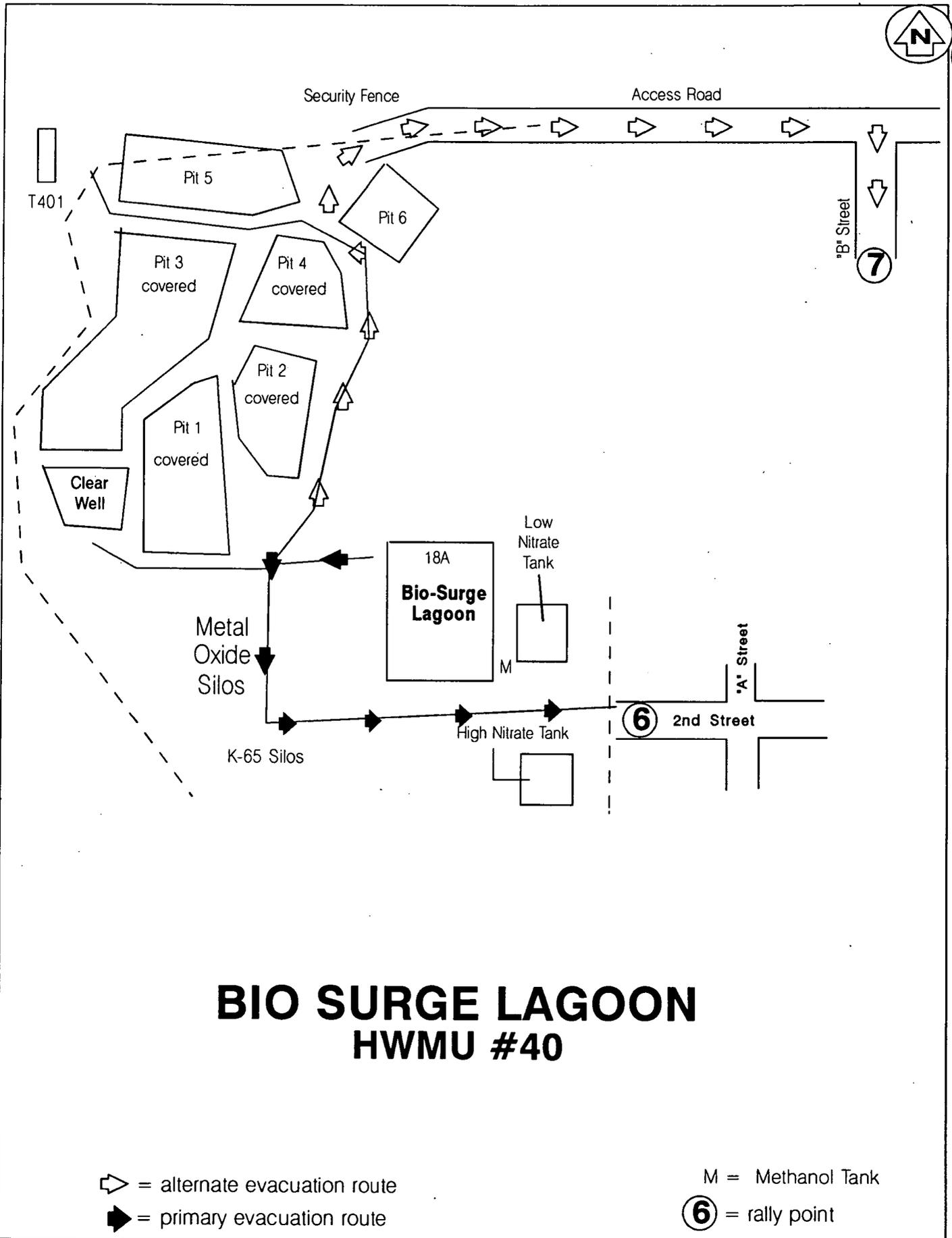
The Alternate Rally Point is No. 7. Rally Point No. 7 is located on "B" Street, west of the Boiler Plant. Movement is north past Pits 2, 4, & 6 on the access road, then east to "B" Street, south on "B" Street to the Point.

Those personnel desiring access to this HWMU are required to have a two-way radio for emergency notification purposes.

The following is a list of safety equipment assigned to this unit:

- Fire Extinguishers
 - 1) 10# ABC by the Methanol Tank at Southeast corner of Lagoon
 - 2) 15# CO₂ by the Methanol Tank at Southeast corner of Lagoon

- Row Boat and Life Preserver
 - 1) At Southeast corner of Lagoon
 - 2) Life Preserver at Northwest corner of Lagoon (Life Preservers are required within 5 feet of Lagoon.)



BIO SURGE LAGOON

HWMU #40

↗ = alternate evacuation route
 ➡ = primary evacuation route

M = Methanol Tank
 ⑥ = rally point

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HWMU No. 41 - SLUDGE DRYING BEDS

The Sludge Drying Beds are surface impoundments that are part of the sanitary wastewater treatment system and are located east of the Production Area.

Personnel should evacuate to Rally Point No. 1. Rally Point No. 1 is located in the Northeast corner of the FEMP East Parking Lot. Movement is south and west on the Sewage Treatment Plant access road to the FEMP East Parking Lot, then north to Rally Point # 1.

The Alternate Rally Point is No. 2. Rally Point No. 2 is located at the West side of the FEMP West Parking Lot, just north of the Stormwater Retention Basin. Movement from Rally Point No. 1 is west through the parking lot to Rally Point No. 2.

There is no safety equipment assigned to this unit.

Those personnel desiring access to this unit are required to have a two-way radio for emergency notification purposes.

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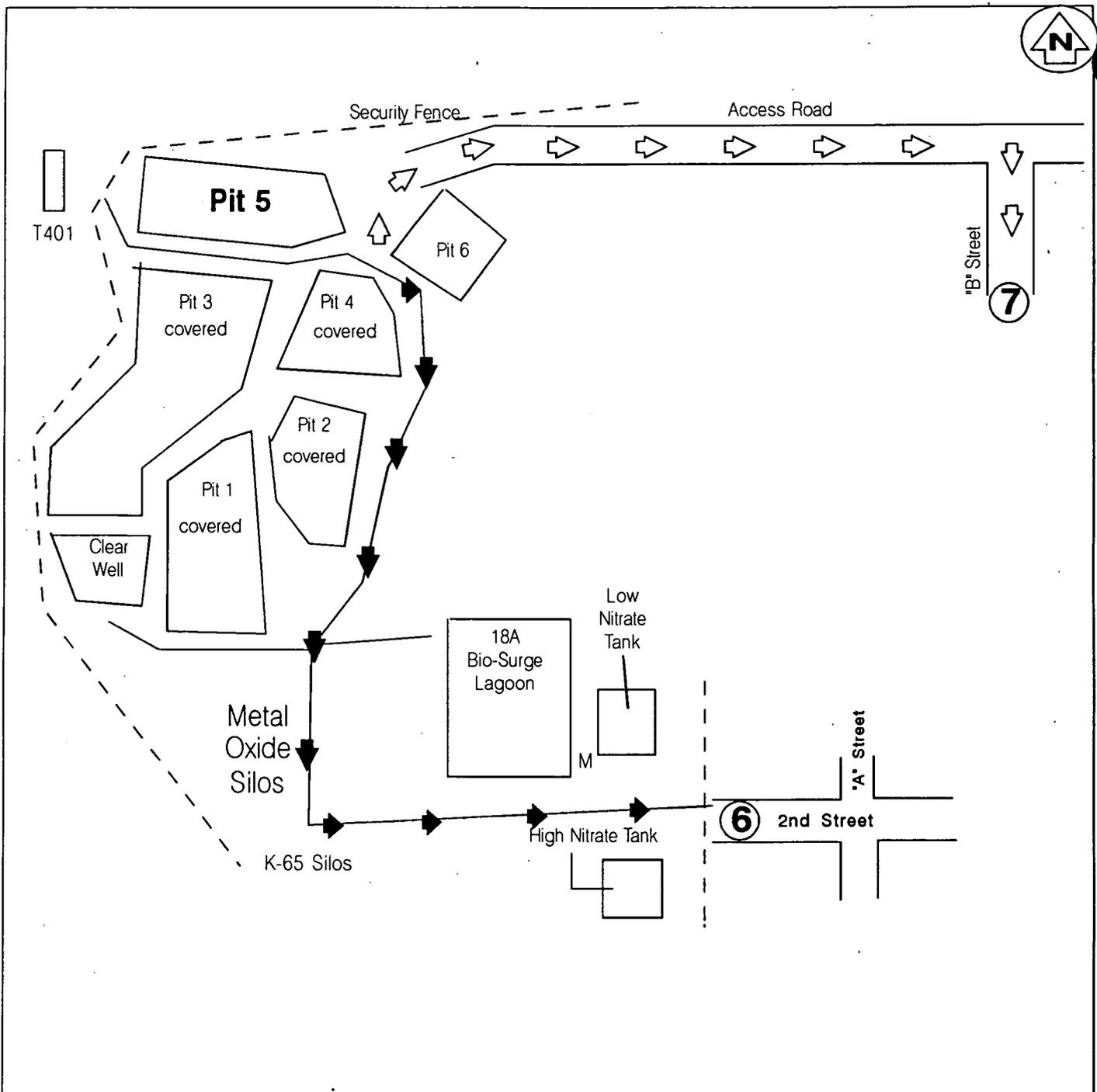
HWMU No. 42 - WASTE PIT NO. 5

Waste Pit No. 5 is a land disposal unit in the Waste Pit Area northwest of the Production Area which covers 4.1 acres.

Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located North of the West Water Tower, at the Waste Pit Area access gate. Movement is southeast to 2nd Street and then east to the Waste Pit Area access gate.

The Alternate Rally Point is No. 7. Rally Point No. 7 is located on "B" Street west of the Boiler Plant. Movement is around Pit 6 on the access road, then east to "B" Street and south on "B" Street to the Point.

There is no safety equipment assigned to this unit. Those personnel desiring access to this unit are required to have a two-way radio for emergency notification purposes.



WASTE PIT NO. 5

HWMU #42

⇨ = alternate evacuation route
 ➡ = primary evacuation route

M = Methanol Tank
 ⑥ = rally point

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HWMU No. 43 - LIME SLUDGE PONDS

The Lime Sludge Ponds are immediately west of the Production Area. ~~This unit has been removed from the HWMU list.~~

~~Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located North of the west Water Tower, at the Waste Pit Area access gate. Movement is north to 2nd Street and then east to the Waste Pit Area access gate.~~

~~The Alternate Rally Point is No. 7. Rally Point No. 7 is located on "B" Street west of the Boiler Plant. Movement is west, then northeast on the access road, then east to "B" Street and south on "B" Street to the Point.~~

~~There is no safety equipment assigned to this unit. Those personnel desiring access to this unit are required to have a two way radio for emergency notification purposes.~~

HWMU No. 44 - COAL PILE RUNOFF BASIN

The Coal Pile Runoff Basin is east of the Boiler Plant. ~~This unit has been removed from the HWMU list.~~

~~Personnel should evacuate to Rally Point No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is south on Gamma Street and "D" Street, then west on 2nd Street to the intersection of "C" Street.~~

~~The Alternate Rally Point is No. 5. Rally Point No. 5 is located at the intersection of 1st and "D" Street. Movement from Rally Point No. 3 is east on 2nd Street and south on "D" Street to the intersection of 1st Street.~~

~~There is no safety equipment assigned to this unit. Those personnel desiring access to this HWMU are required to have a two way radio for emergency notification purposes.~~

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HWMU No. 45 - UST NO. 5

UST No. 5 is East of Building 31. ~~This unit has been removed from the HWMU list. The surrounding soil has been excavated, but the tank has not yet been removed.~~

~~Personnel should evacuate to Rally Point No. 5. Rally Point No. 5 is located at the intersection of 1st Street and "D" Street. Movement is north on "D" Street to the intersection of "D" Street and 1st Street.~~

~~The Alternate Rally Point is No. 4. Rally Point No. 4 is located on "D" Street East of the Security Building (Building 28A). Movement from Rally Point No. 5 is directly south on "D" Street.~~

~~There is no safety equipment assigned to this unit. Those personnel desiring access to this unit are required to have a two way radio for emergency notification purposes.~~

HWMU No. 46 - URANYL NITRATE TANKS (NFS STORAGE AREA)

This unit consists of five above ground UNH Tanks which contain corrosive material.

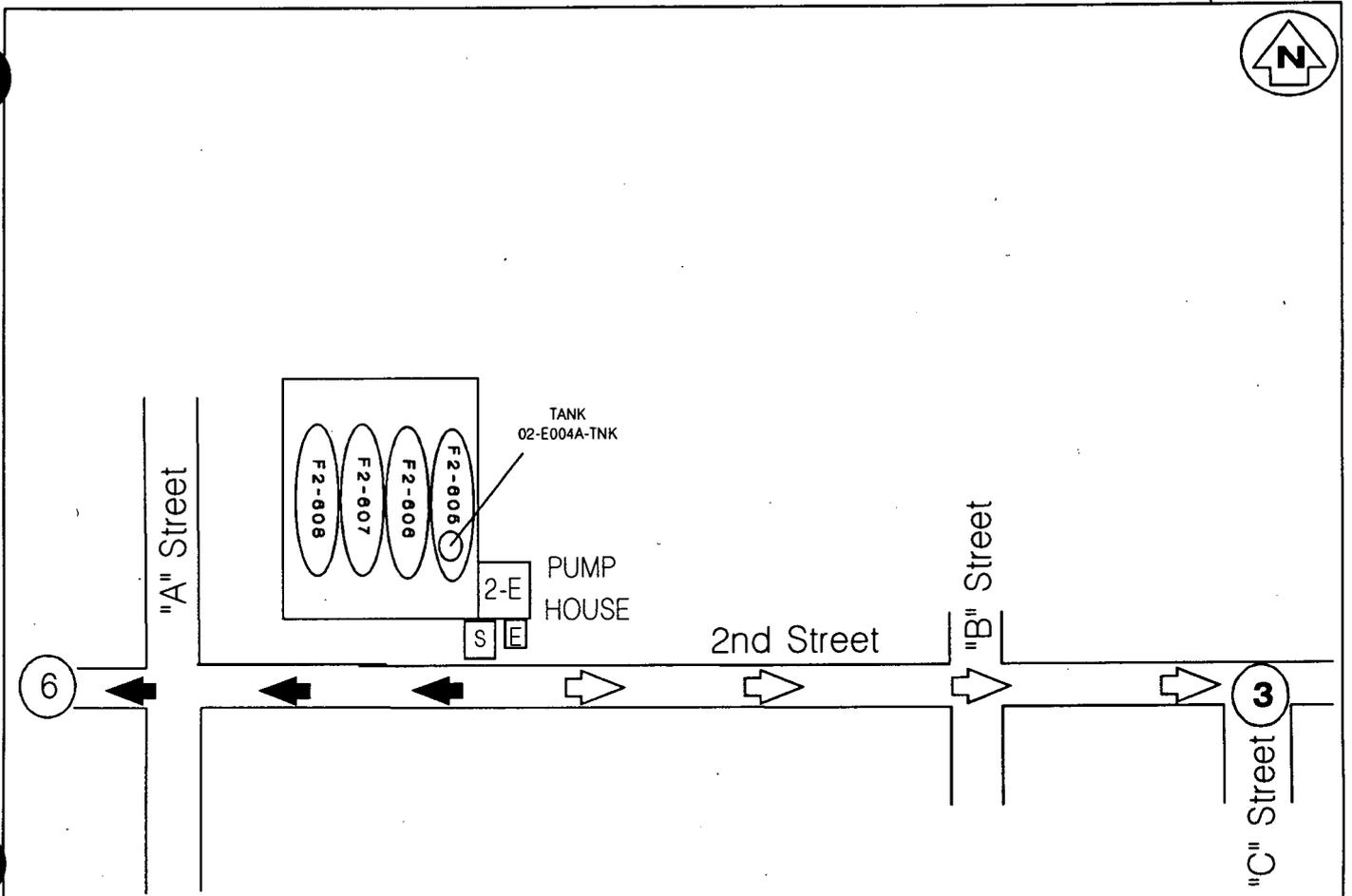
Personnel should evacuate to Rally Point 6. Rally Point 6 is located north of the West Water Tower, at the Waste Pit Area access gate. Movement is west on Second Street to the Waste Pit access gate.

The Alternate Rally Point is No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is east on 2nd Street to the Point.

Those personnel desiring access to this HWMU are required to have a two-way radio for emergency notification purposes.

The following is a list of safety equipment assigned to this HWMU:

- Fire Extinguisher
 - 1) 10# ABC outside, on South side of Pump House 2E
- Eye Wash/Safety Shower Stations
 - 1) Outside, on South side of Pump House 2E
- Spill Cleanup Equipment
 - 1) Outside, by South side of Pump House 2E



**URANYL NITRATE TANKS
(NFS STORAGE AREA)
HWMU #46**

- = primary evacuation route
- = alternate evacuation route
- = rally point

- = spill cleanup equipment
- = eye wash/safety shower

HWMU No. 47 - URANYL NITRATE TANKS (NORTH OF PLANT 2)

This unit consists of three above ground UNH Tanks which contain corrosive material.

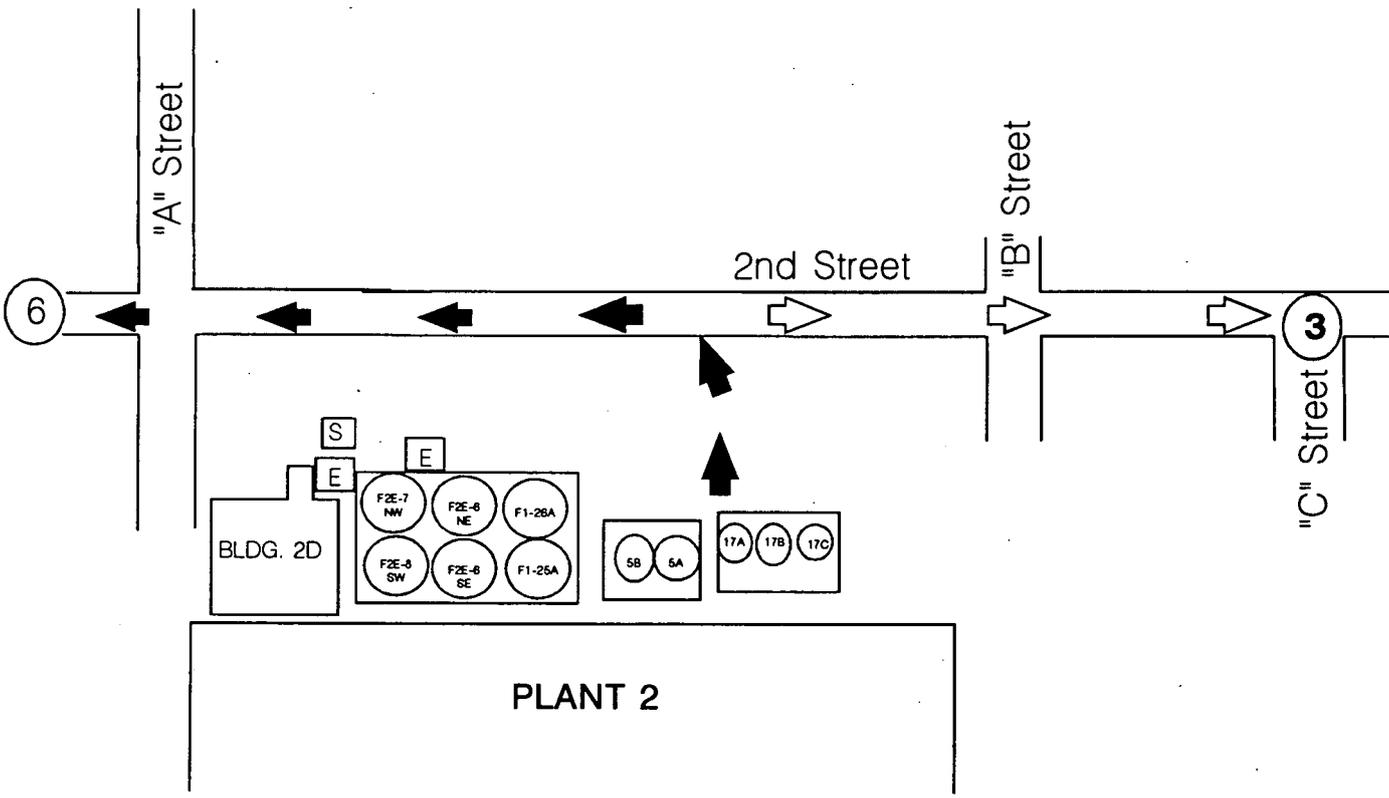
Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located north of the West Water Tower, at the Waste Pit Area access gate. Movement is west on Second Street to the Waste Pit access gate.

The Alternate Rally Point is No. 3. Rally Point No. 3 is located just east of the intersection of 2nd Street and "B" Street. Movement is east on 2nd Street to the Rally Point.

Those personnel desiring access to this HWMU are required to have a two-way radio for emergency notification purposes.

The following is a list of safety equipment assigned to this HWMU:

- Fire Extinguisher
 - 1) 10# ABC on post, just north of (outside) containment area
- Eye Wash/Safety Shower Station
 - 1) In containment area of HWMU
 - 2) At northeast corner of Building 2D
- Spill Cleanup Materials
 - 1) Outside, by North wall of Building 2D



URANYL NITRATE TANKS (NORTH OF PLANT 2) HWMU #47

- = primary evacuation route
- = alternate evacuation route
- = rally point
- = spill cleanup equipment
- = eye wash/safety shower

HWMU No. 48 - URANYL NITRATE TANKS (SOUTHEAST OF PLANT 2)

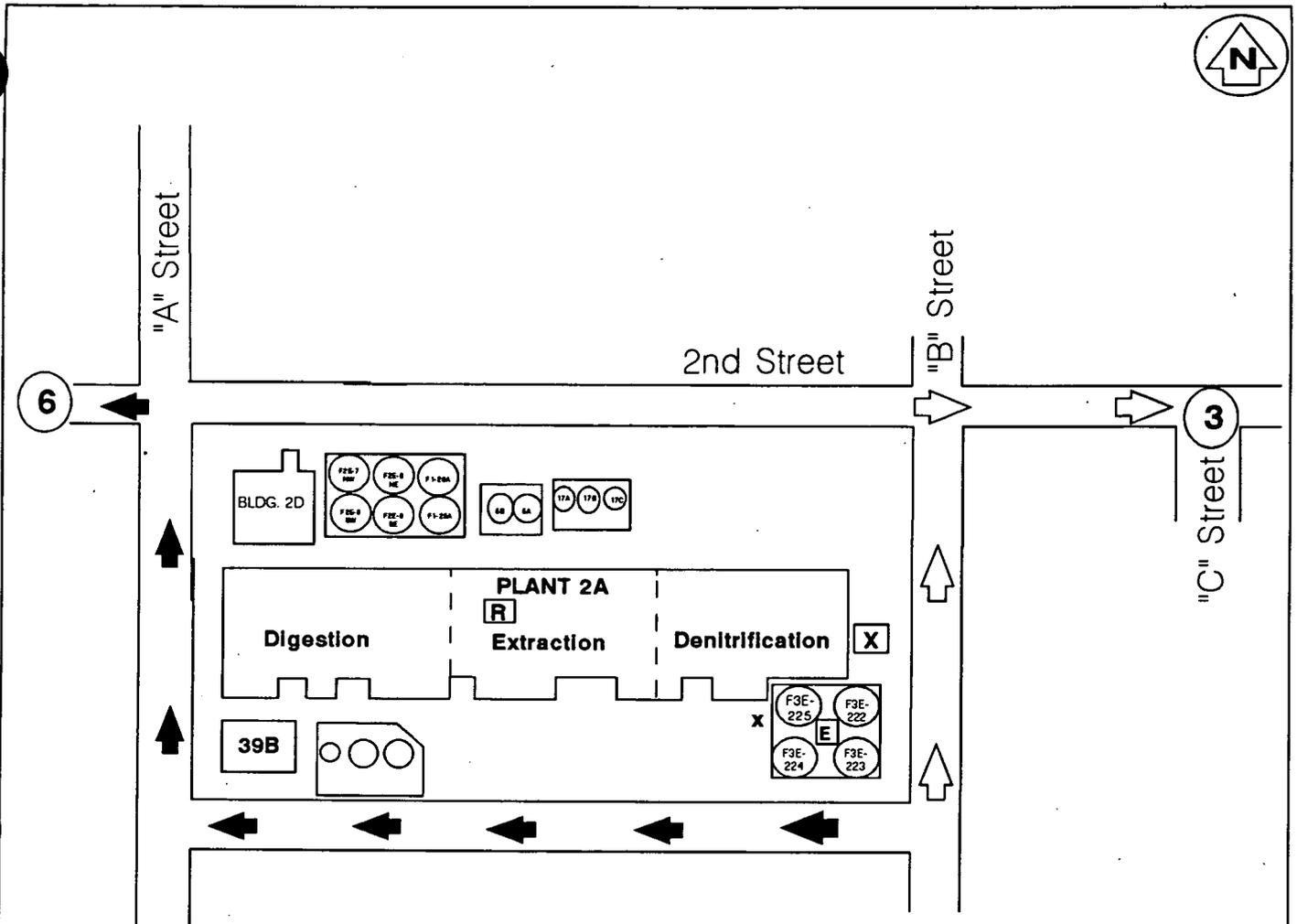
This unit is near the southeast corner of Plant 2 and consists of one above ground storage tank containing corrosive material.

Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located north of the West Water Tower, at the Waste Pit Area access gate. Movement is west on 102nd Street to "A" Street, North on "A" Street to 2nd Street, then west on 2nd Street to the Waste Pit Area access gate.

The Alternate Rally Point is No. 3. Rally Point No. 3 is located just east of the intersection of 2nd Street and "B" Street. Movement is east to "B" Street, north on "B" Street to 2nd Street, and east on 2nd Street to the Rally Point.

The following is a list of safety equipment assigned to this HWMU:

- Manual Fire Alarm
 - 1) At East end of Building 2A between pedestrian door and roll up door
- Fire Extinguisher
 - 1) Outside Building 2A on South wall near HWMU
- Eye Wash/Safety Shower Station
 - 1) Center of Tank Containment Area
- Spill Cleanup Material
 - 1) Located South of the Storage Tank Area
 - 2) First Floor Denitrification Area, Column A-17
- Respirator Cabinet
 - 1) At Control Point Entrance near Column C9 inside Building 2A



URANYL NITRATE TANKS (SOUTHEAST OF PLANT 2) HWMU #48

- = primary evacuation route
- = alternate evacuation route
- = rally point

- = spill cleanup equipment
- = eye wash/safety shower

HWMU No. 49 - URANYL NITRATE TANKS (DIGESTION AREA)

This unit consists of eight above ground steel tanks located within Plant 2 at the western end in the Digestion Area.

Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located north of the West Water Tower, at the Waste Pit Area access gate. Movement is west out of Plant 2 to "A" Street, north on "A" Street to 2nd Street and then west on 2nd Street to the Waste Pit Area access gate.

The alternate rally point is No. 3. It is located just east of the intersection of 2nd Street and "B" Street. Movement is north to 2nd Street, and east on 2nd Street to the Rally Point.

This area is restricted from entry unless personnel are wearing protective clothing due to asbestos contamination. Use safety equipment in adjacent Extraction Area east of this HWMU. Fire Extinguishers and Safety Showers are maintained in the Digestion Area.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarms
 - 1) On East wall between Digestion and Extraction Areas
 - 2) At West end of Extraction Area

- Fire Extinguishers
 - 1) 10# ABC First Floor by Column B1
 - 2) 10# ABC First Floor by Column C1
 - 3) 10# ABC First Floor in Digestion Area east of Column C7
 - 4) 10# ABC First Floor in Extraction Area near Column C8
 - 5) 10# ABC Second Floor by Column B8

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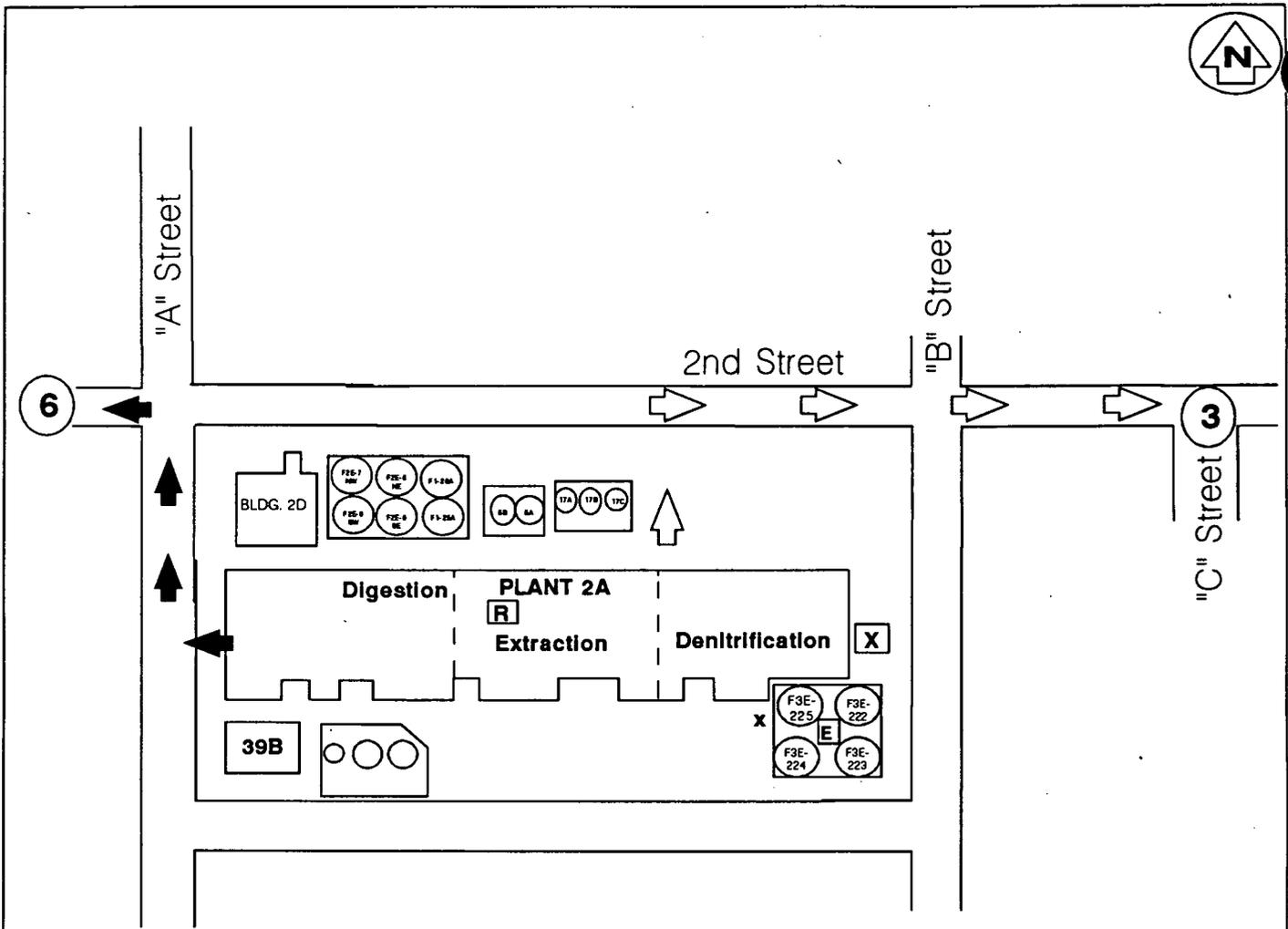
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HWMU No. 49 - URANYL NITRATE TANKS (DIGESTION AREA)

- Eye Wash/Safety Shower Stations
 - 1) First Floor on South wall of Digestion Area near Column A-6
 - 2) First Floor on South wall of Digestion Area near Column A-3
 - 3) First Floor North Digestion Area near Tank D1-8
 - 4) First Floor North Digestion Area north Tank F1-26
 - 5) Second Floor by center stairs
 - 6) Second Floor North Digestion Area Southeast Corner

- Spill Cleanup Equipment
 - 1) At East end of Digestion Area east of Column C7

- Respirator Cabinet
 - 1) At Control Point entrance near Column C9



URANYL NITRATE TANKS (DIGESTION AREA) HWMU #49

- = primary evacuation route
- = spill cleanup equipment
- = alternate evacuation route
- = eye wash/safety shower
- 6
 = rally point

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HWMU No. 50 - URANYL NITRATE TANKS (RAFFINATE BUILDING)

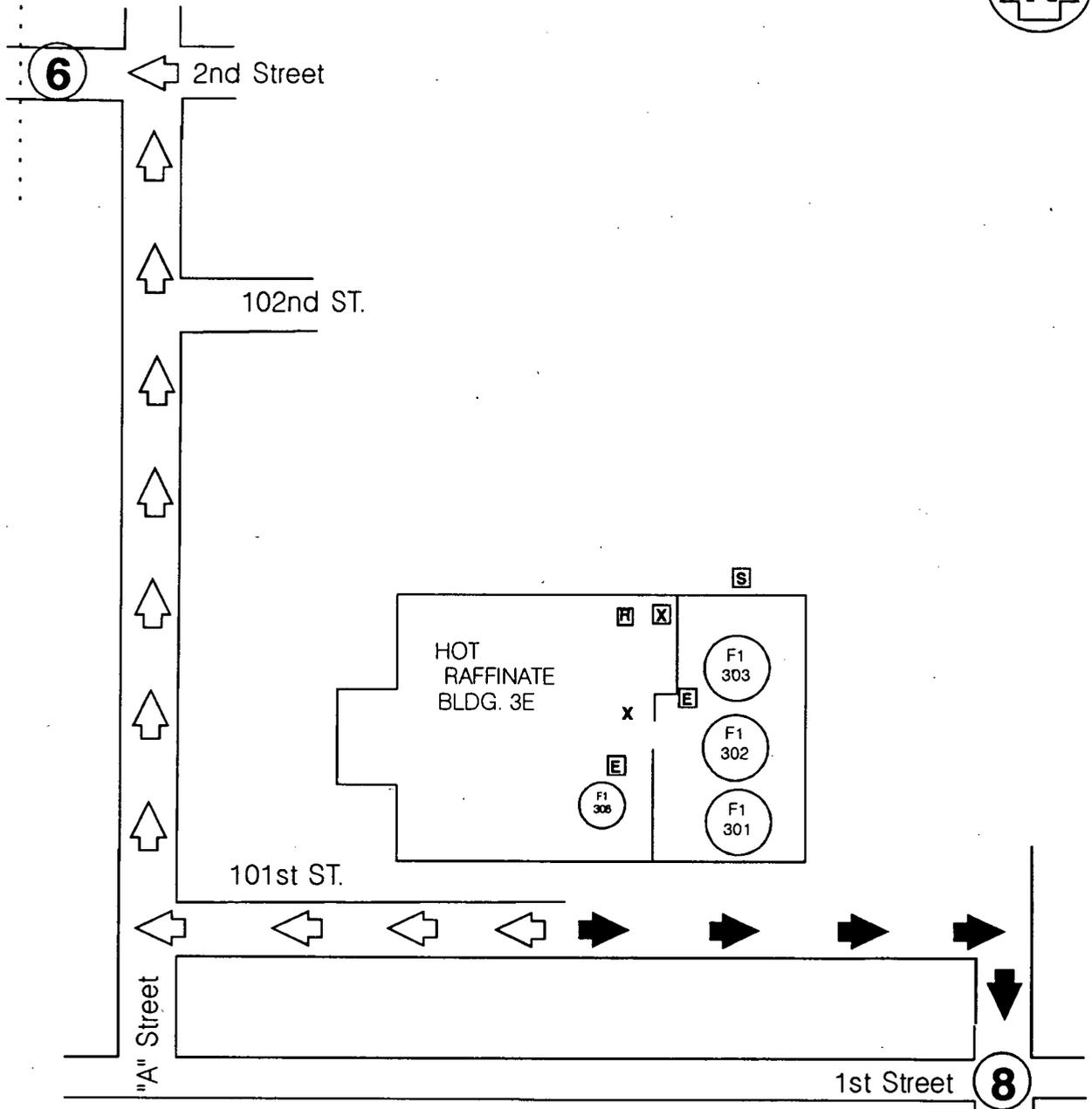
This unit consists of four storage tanks located on the Eastern bay and South central area of Building 3E.

Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st and "B" Street. Movement is east on 101st Street to "B" Street then south on "B" Street to the intersection of 1st Street.

The Alternate Rally Point is No. 6. Rally Point No. 6 is located North of the West Water Tower. Movement is west to "A" Street, north on "A" Street to 2nd Street, then west to the point.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarm
 - 1) North wall by entrance
- Fire Extinguishers
 - 1) 15# CO₂ on entrance wall to East bay near tanks F1-301, 302, and 303
- Eyewash/Safety Shower Stations
 - 1) Near tank F1-303
 - 2) Near tank F1-308
- Spill Cleanup Equipment
 - 1) Outside by entrance door
- Respirator Cabinet
 - 1) At entrance by Control Point



URANYL NITRATE TANKS (RAFFINATE BUILDING) HWMU #50

E = Eye Wash/Safety Shower

X = Manual Fire Alarm

6 = Rally Point

X = Fire Extinguisher

→ = Primary Evacuation Route

→ = Alternate Evacuation Route

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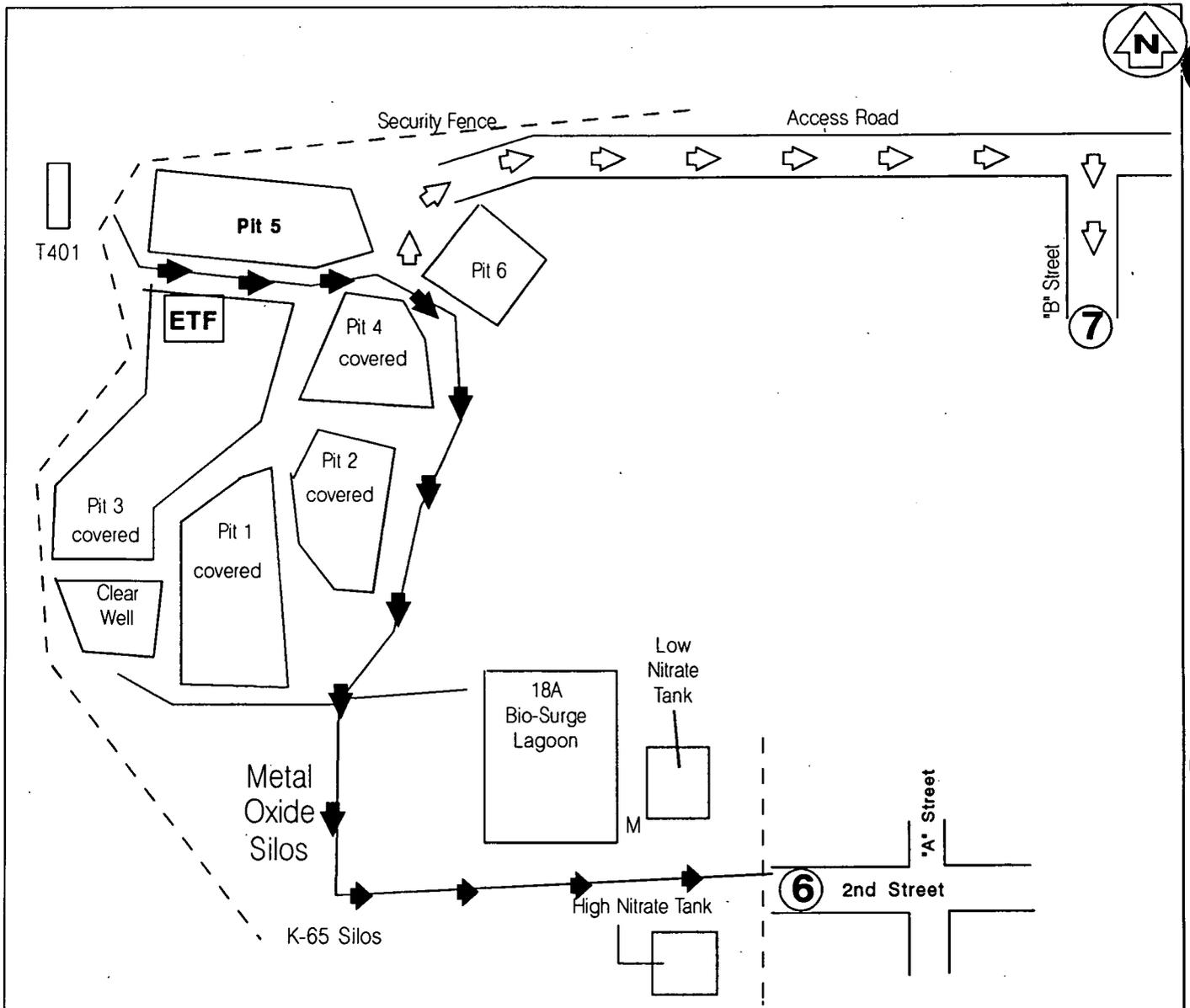
HWMU No. 51 EXPERIMENTAL TREATMENT FACILITY (ETF)

This unit was located south of the Waste Pit No. 5 Access Road, near the Southwestern corner of Waste Pit No. 5. It has been removed.

Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located North of the West Water Tower, at the Waste Pit Area access gate. Movement is southeast to 2nd Street and then east to the Waste Pit Area access gate.

The Alternate Rally Point is No. 7. Rally Point No. 7 is located on "B" Street west of the Boiler Plant. Movement is past Pit 5 and around Pit 6 on the access road, then east to "B" Street and south on "B" Street to the Point.

There is no safety equipment assigned to this unit. Those personnel desiring access to this HWMU are required to have a two-way radio for emergency notification purposes.



EXPERIMENTAL TREATMENT FACILITY (ETF) HWMU #51

↗ = alternate evacuation route
 ➡ = primary evacuation route

M = Methanol Tank
 ⑥ = rally point

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HWMU No. 52 - NORTH AND SOUTH SOLVENT TANKS (PILOT PLANT)

This unit consists of two above ground storage tanks (Tanks T1S & T2S) located southwest of the Pilot Plant.

Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st and "B" Street. Movement is north to 1st Street, then east to "B" Street.

The Alternate Rally Point is No. 5. Rally Point No. 5 is located north of the West Water Tower, at the Waste Pit Area access gate. Movement is north to "A" Street, then north on "A" Street to 2nd Street, then west on 2nd Street to the rally point. 5 is located at the intersection of 1st and "D" Street. Movement from Rally Point No. 8 is east on 1st Street to the intersection of "D" Street.

The following is a list of safety equipment assigned to at this unit:

- Manual Fire Alarm
 - 1) On outside South wall of Pilot Plant near center of building
 - 2) On outside South end of East wall of Building 13B
- Fire Extinguishers
 - 1) 10# ABC outside Southwest Solvent Tanks Berm
- Eye Wash/Safety Shower Station
 - 1) Outside on South wall of Pilot Plant near West end
- Safety Shower Station
 - 1) Outside on West wall of Pilot Plant
- Spill Cleanup Equipment
 - 1) East of Sump House (Building 13C)

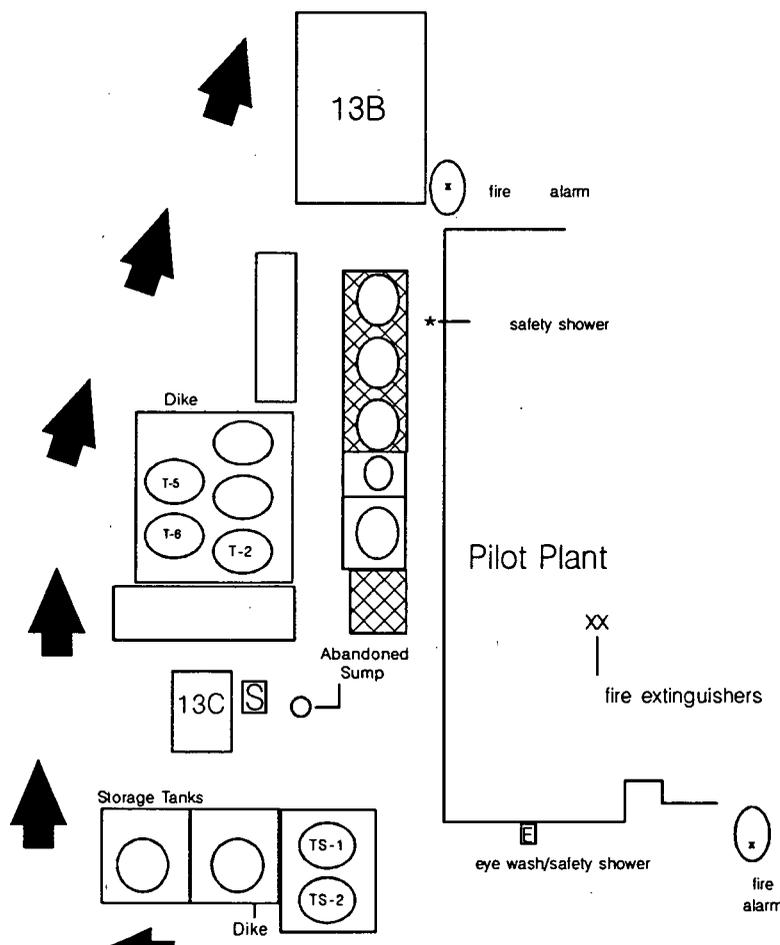
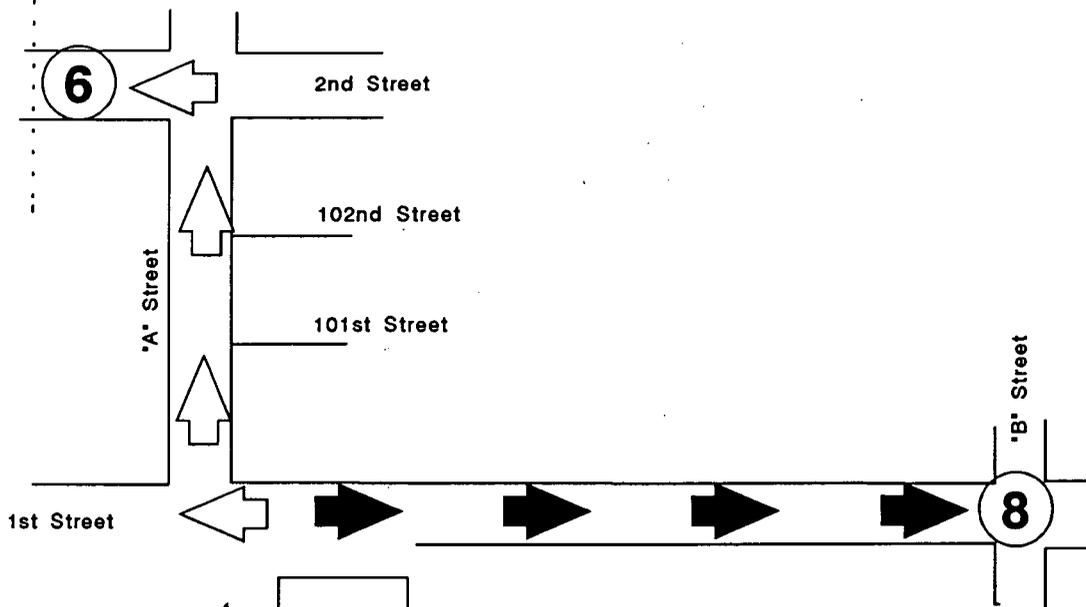
Those personnel desiring access to this HWMU are required to have a two-way radio

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to facilitate emergency notification.

000415



**NORTH & SOUTH SOLVENT
TANKS (PILOT PLANT)
HWMU #52**

◀ = Alternate Evacuation Route ▶ = Primary Evacuation Route

HWMU No. 53 - SAFE GEOMETRY DIGESTION SUMP

The Safe Geometry Digestion Sump is located on the second floor of Plant 1 in Building 1A.

Personnel should evacuate to Rally Point No. 6. Rally Point No. 6 is located North of the West Water Tower, at the Waste Pit Area access gate. Movement is south past the west side of Plant 1 to 2nd Street and west to the Waste Pit Area access gate.

The Alternate Rally Point is No. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is south past the east side of Plant 1 to 2nd Street, and east on 2nd Street to the Point.

The following is a list of equipment assigned to this unit.

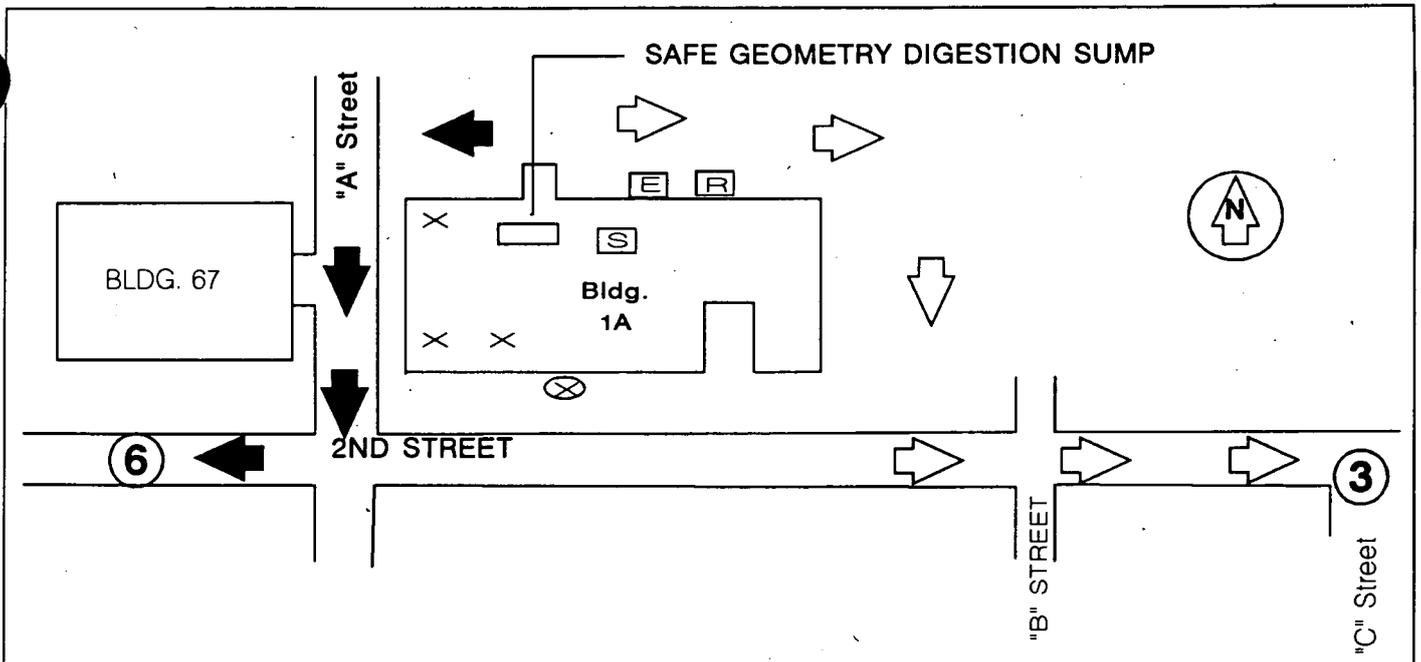
- Manual Fire Alarm
 - 1) First Floor, west of column 7C

- Fire Extinguishers
 - 1) 10# ABC Second Floor, south of Safe Geometry Digester Sump
 - 2) 10# ABC First Floor at column 7C

- Eye Wash Station
 - 1) On East wall, south of column 5B near the Sump
 - 2) On center of wall next to the Safe Geometry Digestion Sump

- Spill Cleanup Equipment
 - 1) First Floor at column 8C

- Respirator Cabinet
 - 1) ~~Outside against North wall near exit from~~ Inside Building 1A
Satellite Clothing Area
 - 2) Inside Northeast corner of Building 71



SAFE GEOMETRY DIGESTION SUMP

HWMU #53

- R = respirator cabinet
- S = spill cleanup equipment
- X = fire extinguisher
- = alternate evacuation route
- 6 = rally point
- E = eye wash
- = primary evacuation route
- X = manual fire alarm

HWMU No. 54 - TANK FOR BULK STORAGE OF THORIUM NITRATE SOLUTION, T-2

This unit is an above ground storage tank located West of the Pilot Plant.

Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st and "B" Street. Movement is north to 1st Street, then east to "B" Street.

The Alternate Rally Point is No. 6. Rally Point No. 6 is located north of the West Water Tower, at the Waste Pit Area access gate. Movement is north on "A" Street to 2nd Street, then west on 2nd Street to the rally point.

The following is a list of safety equipment assigned to this unit.

• Manual Fire Alarms

- 1) Outside on South wall of Pilot Plant near center of building
- 2) Outside at South end of East wall of Building 13B

• Fire Extinguishers

- 1) 10# ABC at West Solvent Tanks Berm

• Eye Wash/Safety Shower Station

- 1) On outside South wall of Pilot Plant near West end of building

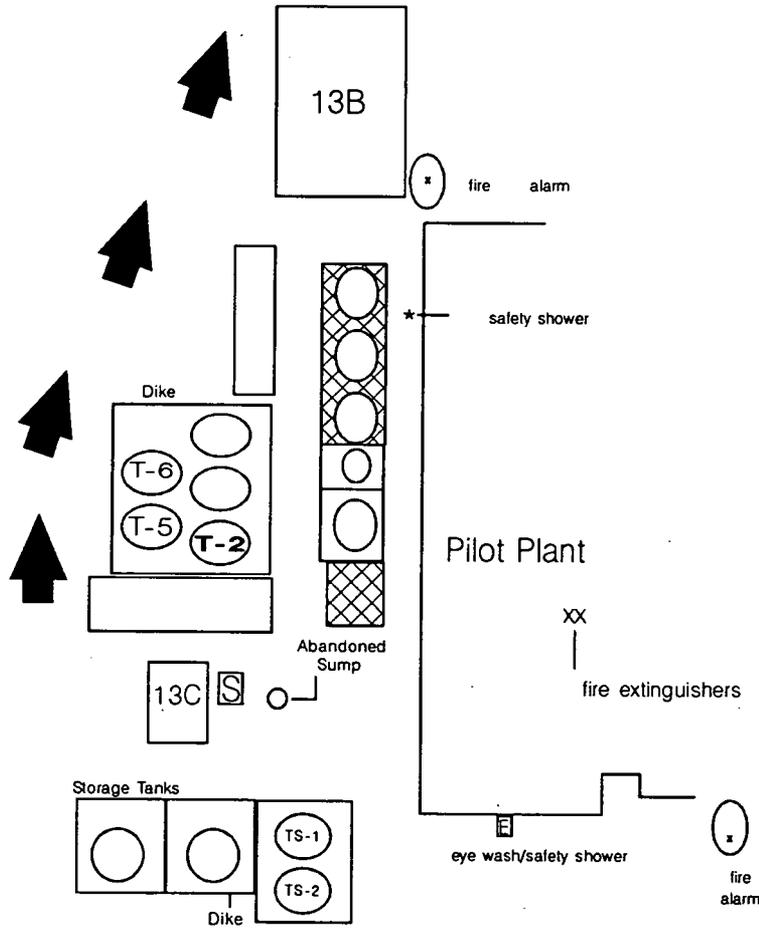
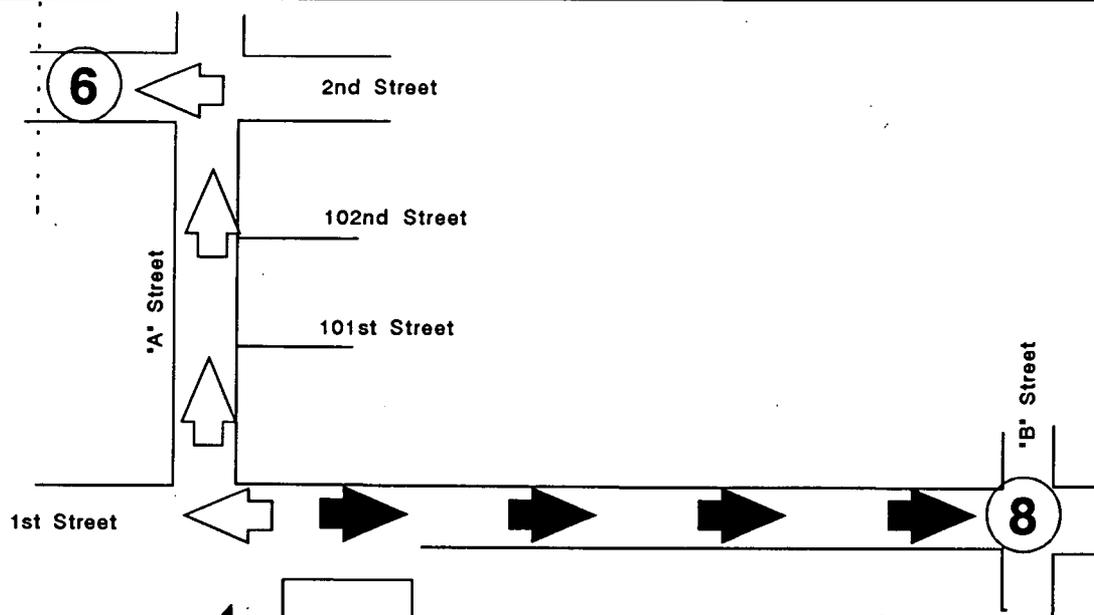
• Safety Shower Station

- 1) On outside West wall of Pilot Plant

• Spill Cleanup Equipment

- 1) East of Building 13C

Those personnel desiring access to this HWMU are required to have a two-way radio to facilitate emergency notification.



**THORIUM NITRATE STORAGE
TANK, T-2
HWMU #54**

◀ = Alternate Evacuation Route ▶ = Primary Evacuation Route

SECTION H - PERSONNEL TRAINING

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- ATTACHMENT H-1 RCRA Training Matrix (RTM)
- ATTACHMENT H-2 Job Descriptions

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SECTION H - PERSONNEL TRAINING

Part B Permit Application Fernald Environmental Management Project Fernald, Ohio

INTRODUCTION

This Section describes the personnel training program for the Fernald Environmental Management Project (FEMP) 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 FEMP 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), the Environmental Remediation Management Contractor, 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 who are directly involved with waste management at the FEMP 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 FEMP 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 RCRA training course is designed to meet the requirements of OAC 3745-50-44(A)(12) and OAC 3745-54-16 and 40 CFR 270.14(b)(12) and 264.16. The RCRA training course is presented to employees whose job assignment involves actual hands-on management of RCRA hazardous wastes.

Additional job-specific training, as applicable, is presented to prepare employees to execute FEMP procedures and specific job tasks, some of which relate to RCRA compliance and hazardous waste management. This training is presented as On-the-Job Training (OJT) inside or outside of a classroom setting to instruct individual employees on specific job skills.

The training programs are also designed to address the training requirements for RCRA permitted treatment, storage and disposal facilities prescribed in the Occupational Safety and Health Act (OSHA) regulations in 29 CFR 1910.120.

H-1a Job Title/Job Description

Employees from the Waste Programs Management Division and Remedial Site Operations (RSO) are primarily responsible for the handling and storage of hazardous waste(s) at the FEMP. Job titles and job descriptions for FEMP 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 area specific Job Assignment Profile System.

All FEMP employees are required to have a Job Assignment Profile upon initial assignment or reassignment to or within the FEMP. This profile is a computer software program associated with the Training Records Management System (TRMS) database. This database is used to track, record, and update employee training records.

The intent of the Job Assignment 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 Programs Management Division or Remedial Site Operations will be required to handle or oversee operations involving RCRA waste materials. For this reason, the profile system becomes an effective tool for identifying and focusing on the specific training needs of the individual and the work center.

The employee profile system is a two part process. Part I of the process consists of an interview. The employees are asked questions by the interviewer relevant to their job assignment at the FEMP. Based upon the employees interview, the job classification and corresponding training requirements are identified. This process eliminates training redundancy and also unnecessary training requirements for the employee. At the conclusion of the interview process, the respective supervisors of those employees review the results of the interview and validate authenticity and applicability to work center needs.

Part II of the process compares employees previous training qualifications to determine whether the employee meets the requirements for the work center to which they are assigned. The profile system will then identify immediate training needs as it relates to regulatory requirement, and project future requalification dates. From the results of the Job Assignment Profile process, the employee is then entered into the RCRA Training Matrix (RTM).

The RCRA Training Matrix (RTM) is a systematic approach for ingressing

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FEMP employees into the training process. The Job Assignment Profile and the employees initial Job Title and Job Description determines exactly where the employee will enter the training process in the RCRA Training Matrix. The attached table (Attachment H-1) illustrates current job descriptions at the FEMP and correlates those descriptions with applicable regulatory training requirements. To illustrate the correlation between job descriptions and the profiling system, and to further illustrate whether an employee will be involved with RCRA hazardous waste, you will find a job description and subsequent training requirements for an Administrative Assistant (see Attachment H-1). Administrative Assistants can perform duties both on and off-site. Job descriptions for administrative assistants do not specify whether the employee will be involved with RCRA hazardous waste materials. This information would emerge from the Job Assignment Profiling System. The Job Assignment Profiling System determines what type of training requirements the employee will be required to satisfy to meet regulatory requirements.

H-1b Training Content, Frequency, and Techniques

All employees, regardless of job description, who require access into RCRA or Hazardous Waste regulated areas for an extended period of time must meet minimum training requirements. This training includes the General Employee Training (GET), the Site Worker Training (SWT), and either Radiological Worker I (Rad I) or Radiological Worker II (Rad II) 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 employees 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 their job.

H-1b(1) Training Content

General Employee Training applies to all FEMP 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 philosophy
- Classification of hazards

Those employees directly involved in the management of hazardous waste, in addition to GET, are required to attend 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)
- Standard Operating Procedure
- Engineering controls
- Waste Management
- Legal/Regulatory aspects
- Emergencies and RCRA contingency plan
- Supervised Field Experience

Annual Refresher training on the topics taught in GET, SWT, and RAD is provided in the Annual Access Refresher Training and Refresher GET. This program provides employees with a review of the initial training topics, lessons learned, and current information relating to operations at the FEMP.

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 employees job assignment. The program is designed to measure the employees ability to 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 FEMP 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 FEMP 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.

H-1c Training Director

The technical staff training manager directs the FEMP RCRA training program and is responsible for establishing technical training requirements in cooperation with the line managers. The technical staff training manager is required to have a bachelor's degree, or equivalent training, and five years of applicable experience. The incumbent is required to be trained in hazardous waste management procedures and hold current certification in 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response, to be well-versed in all other appropriate sections of 29 CFR 1910, and be knowledgeable in and of the applicable regulations, orders, guidelines, and the specific training process employed at the FEMP.

H-1d Relevance of Training to Job Position

The FEMP 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 FEMP mission that they are considered relevant for all FEMP employees. The basic philosophy at the FEMP is that, as a RCRA-regulated facility, all employees must recognize the basic regulatory requirements under which the FEMP must operate. Therefore, all FEMP 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 FEMP employees, all managers receive RCRA/OSHA overview training.

H-1e Training for Emergency Response

The FEMP training program ensures that personnel are able to respond appropriately and effectively to emergency situations. All FEMP employees receive instruction on hazard awareness, emergency preparedness, spill control, and the FEMP Contingency 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 FEMP officials. It also ensures that employees will not endanger themselves or others by taking actions beyond their ability.

The FEMP emergency response organization is described in the FEMP 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 FEMP 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 training department 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 FEMP training program is being implemented to ensure that all waste management personnel employed at the FEMP 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 the indicated training 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 FEMP training program for waste management personnel are maintained by the FEMP training department records section located at the FEMP site. These records include the individual employee profiles for all waste management positions; a list of courses required for each position; course descriptions; documentation that each employee has received and completed appropriate training; and all of the backup information regarding certification, qualification, and examination. A software program called the Training Records Management System (TRMS) database is used by the FEMP to record and track employee training records. Training records of current personnel are kept by the training department records section until closure of FEMP. Records of former employees are kept by the training department records section 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.

ATTACHMENT H-1

RCRA TRAINING MATRIX (RTM)

JOB DESCRIPTION	INITIAL TRAINING						ANNUAL REVIEW
	JOB CODE	GET	SMT	RAD	JOB SPECIFIC	AART	

ADMIN ASSISTANT	GC08	X	X	X	X	X	X
ENGINEER I	EE03	X	X	X	X	X	X
ASSOC ENGR II	EE02	X	X	X	X	X	X
ASSOC ENGR I	EE01	X	X	X	X	X	X
ASSOCIATE PROCESS/SPEC ENGR II	EM02	X	X	X	X	X	X
ASSOCIATE PROCESS/SPEC ENGR I	EM01	X	X	X	X	X	X
ENVIRONMENTAL/LAB SCIENTIST II	TV02	X	X	X	X	X	X
ENVIRONMENTAL WASTE ENGR/SPEC II	TX02	X	X	X	X	X	X
ENVIRONMENTAL WASTE ENGR/SPEC I	TX01	X	X	X	X	X	X
MAINTENANCE SUPERVISOR	OM06	X	X	X	X	X	X
MAINTENANCE PLANNER I	OM02	X	X	X	X	X	X
MATERIAL COST ESTIMATOR I	OM01	X	X	X	X	X	X
FIREFIGHTER/EMER RESP SPEC III	NF03	X	X	X	X	X	X
FIREFIGHTER/EMER RESP SPEC II	NF02	X	X	X	X	X	X
SUPV, FIRE PROT/EMER RESP SVCS	TF05	X	X	X	X	X	X
GENERAL SUPERVISOR	OP14	X	X	X	X	X	X
OPERATIONS ARE SUPERVISOR	OP13	X	X	X	X	X	X
OPERATIONS SUPERVISOR	OP12	X	X	X	X	X	X

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ATTACHMENT H-1

RCRA TRAINING MATRIX (RTM)

JOB DESCRIPTION	INITIAL TRAINING						ANNUAL REVIEW
	JOB CODE	GET	SMT	RAD	JOB SPECIFIC	AART	

SITE SERVICES SUPERVISOR	OP06	X	X	X	X	X	X
INFORMATION/RECORDS SPEC III	GR04	X	X	X	X	X	X
MATERIAL CONTROL SPECIALIST I	A002	X	X	X	X	X	X
MANAGER UTILITIES	OT03	X	X	X	X	X	X
UTILITIES SERVICES SUPERVISOR II	OT02	X	X	X	X	X	X
UTILITIES SERVICES SUPERVISOR I	OT01	X	X	X	X	X	X
PROJECT CONTROLS ASSOCIATE I	EJ01	X	X	X	X	X	X
RADIOLOGICAL CONTROL TECHNICIAN III	NR03	X	X	X	X	X	X
RADIOLOGICAL CONTROL TECHNICIAN I	NR01	X	X	X	X	X	X
REGULATORY COMPLIANCE ENGR SPEC III	TC03	X	X	X	X	X	X
REGULATORY COMPLIANCE ENGR SPEC II	TC02	X	X	X	X	X	X
REGULATORY COMPLIANCE ENGR SPEC I	TC01	X	X	X	X	X	X
SENIOR SAFETY TECHNICIAN	NS04	X	X	X	X	X	X
TECHNICAL WRITER/EDITOR III	AW03	X	X	X	X	X	X
TRAINING SPECIALIST III	AT03	X	X	X	X	X	X
TRAINING SPECIALIST I	AT01	X	X	X	X	X	X
HAZWAT	0010	X	X	X	X	X	X
HEAVY EQUIPMENT OPERATOR	0030	X	X	X	X	X	X

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RCRA TRAINING MATRIX (RTM)

JOB DESCRIPTION	INITIAL TRAINING						ANNUAL REVIEW
	JOB CODE	GET	SMT	RAD	JOB SPECIFIC	AART	
INDUSTRIAL MECHANIC	0032	X	X	X	X	X	X
LAUNDRY WORKER	0039	X	X	X	X	X	X
MILLWRIGHT	0050	X	X	X	X	X	X
MOTOR VEHICLE OPERATOR	0051	X	X	X	X	X	X
MVO/SAMPLER	0053	X	X	X	X	X	X
PAINTER	0054	X	X	X	X	X	X
INSPECTOR (* RENAMED QA CHECKER)	0035	X	X	X	X	X	X
DECONTAMINATOR	0036	X	X	X	X	X	X
STOREROOM ATTENDANT II	0075	X	X	X	X	X	X
CHEMICAL OPERATOR	0009	X	X	X	X	X	X

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**ATTACHMENT H-2
 POSITION DESCRIPTIONS**

Job Code	Position Title	FLSA	Salary Grade
GC08	Administrative Assistant	Non-Exempt	7

Administrative Assistant Typical Duties and Responsibilities

Assists manager in routine administrative details and with general department/division administration. Supervises work assignments of part-time/temporary secretarial/clerical personnel. Coordinates work assignments by keeping accurate records of resumes and status. Can coordinate space allocations. Can develop and generate administrative reports for manpower planning. Trains new employees in understanding company policies and procedures. Assists in development/implementation of division/department/project procedures. Is familiar with commonly used micro software (e.g., Lotus, Dbase, word processing) so as to be the main source of support for personnel needing to use the PC. This requires ability to not only know the programs, but to be proficient at training others in their use.

Assists management in assembling information for performance appraisals and ensuring that appraisal due dates are met; provides input for performance appraisal evaluations on lower level personnel. Maintains personnel files on department/division personnel. Is accountable for completion of work and assignments of lower level personnel. Composes correspondence of managers and staff. Maintains knowledge of safety policies and procedures and performs assigned duties in a safe manner, and, if supervising others, has responsibility for the safety of those being supervised and ensures they comply with established safety policies and procedures and practice safe work habits.

General Responsibilities

Administrative Assistant

Assists in routine administrative details and with general department/division administration. May make work assignments and check work procedures of lower level personnel.

Supervises part-time/temporary clerical personnel and is held accountable for the completion of the work. Becomes proficient with common micro computer software (e.g., Lotus, Wordperfect, and dBase). Performs duties of a highly confidential nature requiring initiative, judgement, and knowledge of company practice, policy, and organization. Works closely with manager, handling any and all administrative responsibilities that the manager delegates.

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Coordinates autonomous projects (i.e., jury duty; service pins; setting up training classes).

High school diploma or equivalent plus six years office/clerical experience.
Must pass required test(s).

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Job Code	Position Title	FLSA	Salary Grade
EE03	Engineer I	Exempt	18
EE02	Associate Engineer II	Exempt	16
EE01	Associate Engineer I	Exempt	14

Engineering Typical Duties and Responsibilities

May perform duties in one of the following engineering disciplines: electrical and process automation, mechanical (building services, equipment, piping and vessels), structural, civil, chemical/biochemical, environmental, machine design and manufacturing engineering.

Establishes basic design criteria and specifications for a particular discipline. Reviews the project regularly to ensure compliance with basic design.

Selects and may requisition all materials required by disciplines; evaluates for service life and suitability. Reviews and approves vendor lists, quotation requests, bid tabulations, recommendations of vendor and purchase orders for subcontracts. Ensures that the requisitioning and purchasing functions of all commodities are fulfilled to meet scheduled field deliveries. Coordinates installation of materials in shop or field.

Develops logic, duration and man-hour requirements for discipline's portion of the engineering schedule. Reviews the schedule periodically to ensure that it is maintained and that man-hour expenditures are kept within budget limits.

Assists in the preparation of estimates on phases of projects or proposals.

Maintains knowledge of safety policies and procedures and performs assigned duties in a safe manner, and, if supervising others, has responsibility for the safety of those being supervised and ensures they comply with established safety policies and procedures and practice safe work habits.

Engineer I

Under general supervision, acts as a fully competent engineer in all conventional aspects of the subject matter or the functional area of the assignments.

Plans and conducts work requiring judgement in the independent evaluation, selection and substantial adaption or modification of standard techniques, procedures and criteria. Demonstrates interpolative, patterned thinking and requires minimal guidance.

May function as lead specialist engineer on a task force or special assignments, coordinating the activities of the task force engineers of the task force engineers from the discipline specialty.

BS degree in engineering or a related field plus four years related experience with typical experience ranging six to ten years.

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Associate Engineer II

Under general supervision, plans and conducts work requiring judgement in the independent evaluation, selection and adaptation or modification of standard techniques, procedures and criteria.

Demonstrates problem solving skills. May function as a group participant on special assignment as assigned by supervisor.

BS degree in engineering or a related field plus two years related experience with typical experience ranging three to seven years.

Associate Engineer I

Under direct supervision, performs engineering work requiring application of standard techniques, procedures and criteria in carrying out a sequence of related engineering or project tasks.

Demonstrates beginning problem solving and exercise of judgement as required on lower level work details and in making preliminary selections and adaptations of engineering alternatives. May function as group participant on special assignment as assigned by supervisor.

BS degree in engineering or a related field. No experience required.

Job Code	Position Title	FLSA	Salary Grade
EW02	Associate Process/Specialty Engineer II	Exempt	16
EW01	Associate Process/Specialty Engineer I	Exempt	15

Process Engineer/Specialty Engineer Typical Duties and Responsibilities

Maintains overall supervision and execution of the process design for the company's projects.

Evaluates and selects overall processing schemes and develops new processes or processing schemes as required.

Establishes process performance specifications for all items of process equipment.

Reviews and approves selection of process equipment.

Prepares process and mechanical flow diagrams to establish fluid flow circuits and process controls.

Establishes process performance guarantees including negotiation with client and licensor.

Responsible for operability and safety of process plant.

Assists in commissioning and start-up of process plant.

Conducts plant performance test runs.

Maintains knowledge of safety policies and procedures and performs assigned duties in a safe manner, and, if supervising others, has responsibility for the safety of those being supervised and ensures they comply with established safety policies and procedures and practice safe work habits.

General Responsibilities

Associate Process/Specialty Engineer II

Under general supervision, at this continuing developmental level, performs engineering work requiring application of standard techniques, procedures and criteria in carrying out a sequence of related engineering tasks.

Exercises judgement on details of work and in making preliminary selections and adaptations of engineering alternatives.

Primary contact is with supervisor and other process engineers.

B.S. degree in Engineering or related field plus two years related experience with typical experience ranging three to seven years.

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Associate Process/Specialty Engineer I

Under direct supervision and following established procedures, performs basic engineering assignments.

Generates, calculates, and correlates data to assist higher level engineers in performing required engineering functions. Has minimum project responsibility, and work is regularly checked by supervisor.

Primary contact is with supervisor and other process engineers.

B.S. degree in Engineering or related field. No experience required.

Job Code	Position Title	FLSA	Salary Grade
TV02	Environmental/Laboratory Scientist II	Exempt	16

Environmental/Laboratory Scientist II Typical Duties

Conducts scientific studies to support the safe and efficient operation of all remediation activities. Performs scientific investigations involving the analysis and interpretation of trends and patterns.

Evaluates proposed and existing codes, standards, regulations and guidelines to determine the impact on proposed or existing programs and facilities. Studies the ecological character of the site to address concerns of various environmental and regulatory agencies. Interprets and monitors compliance with regulatory requirements and industry guidelines regarding remediation programs. Prepares technical documentation for management's use in dealing with regulatory agencies (e.g. responding to proposed new legislation or operating guidelines). Operates, maintains and monitors systems such as water treatment and waste disposal to ensure compliance with established guidelines.

Prepares and revises technical documents for internal and external audit groups.

General Responsibilities and Qualifications

Environmental Laboratory Scientist II

Works under general supervision, following established procedures to conduct scientific studies and investigations; applies precedents and standards in analyzing and interpreting data. Provides technical guidance to field personnel. Provides leadership to less experienced scientists and to technicians; may serve as lead person or technical advisor on small projects.

B.S. in Environmental Science or a related field, plus two years related experience. Certification preferred.

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Job Code	Position Title	FLSA	Salary Grade
TX02	Environmental Waste Engineer/Specialist II	Exempt	16
TX01	Environmental Waste Engineer/Specialist I	Exempt	14

Environmental Waste Engineer/Specialists Typical Duties

Develops, implements and maintains programs and procedures to control the packaging, treatment, storage, transport and disposal of environmentally hazardous materials, especially radioactive waste.

Investigates waste materials management facilities to ensure that they are operated in strict compliance with operating permits.

Evaluates vendors responsible for packaging, transportation, treatment and disposal of hazardous wastes, to ensure that they operate according to standards set by the company and by government regulations (e.g. EPA, RCRA and HSWA programs).

Provides reports to management and to concerned government agencies regarding investigations and evaluations of waste management activities.

Develops and administers hazardous materials minimization programs.

Provides training in hazardous waste handling for site personnel.

Develops and implements quality assurance programs in hazardous waste handling.

Ensures that packaging and shipment of all hazardous and radioactive waste are in accordance with all Federal, State and local motor carrier safety compliance regulations.

General Responsibilities and Qualifications

Environmental Waste Engineer/Specialist II

Works under general supervision and follows established procedures to develop and implement programs and policies. Assists others in investigating and evaluating waste management facilities and vendors. Participates in the administration of hazardous waste minimization and training programs. Provides good working knowledge of applicable laws and regulations in support of various environmental waste management activities. May provide technical direction to less experienced specialists and to technicians; may serve as lead person or technical advisor on small projects.

B.S. in Environmental Science or a related field, plus two years related experience. Certification preferred.

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Environmental Waste Engineer/Specialist I

Works under direct supervision while developing technical knowledge and practical judgement. Supports site objectives and activities through general knowledge of applicable laws, regulations and standards, and of applicable technical and scientific matters. Provides input to the development of technical reports.

B.S. in Environmental Science or a related field. No experience required.

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Job Code	Position Title	FLSA	Salary Grade
OM06	Maintenance Supervisor I	Exempt	17
OM02	Maintenance Planner I	Exempt	14
OM01	Material Cost Estimator I	Exempt	13

Typical Duties and Responsibilities

Maintenance Services

Prepares sales materials and makes sales presentations on maintenance services.

Establishes proposals and commercial terms within guidelines. Responsible for negotiating contracts and terms, and preparing work scopes and estimates. This classification includes establishing overhead budgets and fee plans, monitoring overhead budgets and fee plans.

Includes performance of maintenance consulting, mobilizing projects upon award, and managing projects.

Has responsibility for direct supervision of employees and developing employee performance appraisals. Has responsibility for groups safety program.

Maintains knowledge of safety policies and procedures and performs assigned duties in a safe manner, and, while supervising others, has responsibility for the safety of those being supervised and ensures they comply with established safety policies and procedures and practice safe work habits.

Maintenance Supervisors

Directly supervises maintenance supervisors, maintenance engineers, planner/schedulers, warehouse and stores supervision, administrative personnel, safety supervision and training supervision, as required.

Responsible for the performance of multicraft maintenance workers in the installation, repair, preventative maintenance, removal, operation or adjustment of equipment or components in accordance with project procedure requirements and specifications.

Responsible for carrying out and coordination of daily work schedules with the customer's operations, including personnel deployment and materials and information availability to accomplish work in a way which is consistent with efficient operation.

Assists or performs interpretation of engineering drawings work orders, specifications and manufacturer's technical data material. Also assists or performs diagnostics of equipment failures and recommends solutions to solving equipment reliability problems. Approves completed work orders and stores

requisitions for materials. Responsible for the recruiting and hiring process, administration of disciplinary action and counselling of project personnel.

Maintains knowledge of safety policies and procedures and performs assigned duties in a safe manner, and, while supervising others, has responsibility for the safety of those being supervised and ensures they comply with established safety policies and procedures and practice safe work habits.

Maintenance Planner

Reviews parts lists, drawings and other documents to compile information regarding required material specifications, quantity, etc.

Prepares analyses and estimations. Inputs detailed information to databases and analytical software and verifies accuracy.

Prepares cost reports for project proposals and management presentations.

Interfaces with project managers, engineers, procurement staff and vendors to gather relevant information.

Material Cost Estimator

Responsible for material cost analyses and estimates for proposal efforts.

Compiles and compares data for proposals. May prepare final cost reports for government proposals.

Interfaces with auditors during price audit.

Summary material prices for presentation to management.

May direct and assist in conducting training programs and in developing standards and procedures.

General Responsibilities

Maintenance Supervisor I

Responsible for the supervision and effective execution of all maintenance and operations support activities for a small to medium maintenance project.

Maintains a working knowledge of established project procedures relating to safety and work permitting, work order systems, planning and scheduling and preventative and predictive maintenance.

May serve as the company's senior on-site representative with the client.

BA/BS degree in a related field plus five years related experience to include two years supervisory responsibilities.

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Maintenance Planner I

Works under general supervision, is a member of a planning group on a medium project or responsible for the maintenance and control functions on a medium to small maintenance project.

Plans and schedules maintenance work, requisitions and expedites materials, equipment and services.

BA/BS degree in a related field plus two years related experience.

Material Cost Estimator I

Works under direct supervision while gaining expertise and familiarity with functional standards and procedures. Assists with material cost analyses and estimations, usually for relatively small or routine proposals. Prepares and maintains documentation.

BA/BS degree in a related field. No experience required.

Job Code	Position Title	FLSA	Salary Grade
NF03	Firefighter/Emergency Response Specialist III	Non-exempt	7
NF02	Firefighter/Emergency Response Specialist II	Non-exempt	6

Firefighter/Emergency Response Specialist Typical Duties

Participates in emergency response actions such as fire suppression, hazardous spill response, and specialized rescue operations such as high angle technical rescues, confined space rescues and subsurface rescues.

Conducts regular inspections of plant and equipment including fire extinguishing systems (e.g. sprinklers, fire hydrants, water control systems).

Compiles, verifies and correlates data related to emergency response issues.

Tests and services emergency rescue equipment.

Evaluates and issues confined space permits and hot permits for construction personnel.

Operates and maintains emergency response vehicles (fire trucks, ambulance, etc.)

Develops and presents emergency response and fire prevention training for employees.

Provides emergency medical services in cases of extreme injury.

General Responsibilities and Qualifications

Firefighter/Emergency Response Specialist III

Works under general supervision, following established protocols and standard procedures. Performs standard duties such as fire suppression and rescue operations, equipment testing, and facility inspections.

Two years post high school studies in Fire Science or a related field plus two years related experience; or HS diploma or equivalent plus five years related experience. NFPA certification (Level 3) and EMT certification.

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Firefighter/Emergency Response Specialist II

Works under general supervision, following detailed instructions and established procedures. Performs standard emergency duties and assists with day-to-day activities such as facilities inspections and testing equipment.

Two years post high school studies in a related field plus 1 year related experience or HS diploma or equivalent plus three years related experience. NFPA certification (Level 3) and EMT certification.

Job Code	Position Title	FLSA	Salary Grade
TF05	Supv, Fire Protection/Emergency Resp Svcs	Exempt	17

Fire Protection/Emergency Response Services Typical Duties

Develops and implements a comprehensive program to ensure effective monitoring of site-wide activities to minimize or eliminate personal injury and/or property damage due to fire or explosion.

Maintains current knowledge of building and fire protection codes and regulations to ensure compliance.

Monitors new construction and facilities modifications in light of fire safety issues.

Designs, inspects, tests and maintains fire protection systems and equipment to ensure their proper performance in an emergency.

Investigates all fire incidents to determine origin and cause.

Develops remedial plans and procedures to correct any breakdown in fire protection plans or systems.

Audits facilities to ensure they are in compliance with all OSHA, NFPA and other Federal, State and local codes, regulations and ordinances.

General Responsibilities and Qualifications

Supervisor Fire Protection Engineering/EM Response Services

Under general direction supervises personnel engaged in fire protection engineering activities within a facility of the organization. Work is reviewed upon completion for adequacy in meeting objectives. Provides technical leadership and administrative guidance to personnel to assure effective monitoring of the facilities activities to assess fire protection and life safety implications. Develops short-term plans to maintain the highest standards of fire protection and life safety implications. Schedules project work and personnel assignments. Supervises and coordinates development of fire protection projects. Evaluates progress and results and institutes changes in procedures and objectives as needed. Directs the establishment of monitoring and control procedures. Oversees investigation and analyses of all facets of any fire within the organization to determine the origin, cause, and what, if any breakdown in the fire protection plans and procedures may have occurred.

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Prepares remedial plans and procedures for approval by management. Determines and implements training for subordinates. Maintains current knowledge of building and fire protection codes and regulations to assure the organization's compliance. Provides direct supervision to entry level exempt employees and/or skilled nonexempt employees assigned to the work unit.

B.S. degree in Fire Protection Engineering or a related field plus five years experience to include two years supervisory responsibility. Certification preferred.

Job Code	Position Title	FLSA	Salary Grade
OP14	General Supervisor	Exempt	20
OP13	Operations Area Supervisor	Exempt	18
OP12	Operations Supervisor	Exempt	17
OP06	Site Services Supervisor	Exempt	17

RSO Typical Duties and Responsibilities

Ensures that subordinates are trained and knowledgeable of specifications and work procedures, that they are being utilized to ensure optimum efficiency, and that they are performing work in conformance with specified quality requirements.

Maintains effective schedule and cost control within assigned field functions of the project and ensures adherence to such.

Plans required work activity to ensure that design drawings, tools, equipment and materials are available.

Manages and coordinates in conjunction with contracts administration group the activities of contractors within area of assigned discipline.

Monitors the activities of assigned contractors and ensures compliance with project quality, safety and security requirements.

Supervises all construction-related work activities and crafts involved on the project within a discipline.

Maintains knowledge of safety policies and procedures and performs assigned duties in a safe manner, and, while supervising others, has responsibility for the safety of those being supervised and ensures they comply with established safety policies and procedures and practice safe work habits.

Schedules work activities and manpower requirements to meet required completion dates. Coordinates craft personnel, material and equipment to meet schedules while adhering to budget constraints.

Reviews work assignments with craft supervisors and gives instruction relative to method, procedures and desired results.

Monitors work activities to ensure that craft personnel adhere to project safety standards. Monitors construction activities to ensure work efficiency and to ensure that quality and workmanship meet project standards and specifications.

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Maintains knowledge of safety policies and procedures and performs assigned duties in a safe manner, and, while supervising others, has responsibility for the safety of those being supervised and ensures they comply with established safety policies and procedures and practice safe work habits.

Manages the accounting, timekeeping and payroll functions of the project and ensures that these functions are performed in accordance with the Field Accounting Manual.

Coordinates the preparation of the Project Procedure Manual.

Manages procurement, expediting, traffic and subcontract administration functions of the project and ensures these functions are performed in accordance with the Warehousing Practices Manual.

Ensures accurate and timely submission of financial, administrative, procurement and material control reports to the project manager.

Maintains close liaison with the company's accounting, administrative services and procurement groups, and client's administrative and procurement staff participating in the project.

Administers the project insurance program requirements in cooperation with the client and the company's insurance departments. Implements procedures for proper coverage.

Coordinates the acquisition and installation of all computer equipment, software and related services.

Establishes and maintains an effective and efficient communications system among project and home office functions to ensure an accurate and timely flow of information in accordance with the project requirements.

Establishes requirements for space, furniture and office equipment under the direction of the project manager.

Arranges for and coordinates requirements for office services including secretarial and clerical, reproduction, mail, message center facilities and vending services.

Advises the project manager of developments that may affect personnel resources, material availability, interdepartmental procedural matters and audit of financial, administrative and procurement records. Participates in the preparation of the project completion report.

Administers the contract between the client and the company in a professional manner, understands all aspects of the project which effect the profitability of the project and informs management of the financial status of the project.

Maintains knowledge of safety policies and procedures and performs assigned duties in a safe manner, and, while supervising others, has responsibility for the safety of those being supervised and ensures they comply with established safety policies and procedures and practice safe work habits.

Informs division/business unit management of all significant aspects of assigned projects involving contracts related to the following services:

Facility support services
Facility/equipment maintenance
Acquisition of equipment or vehicles
Facility/equipment repair and troubleshooting
Facility modification or tenant improvement
Porter/cafeteria services
Grounds management
Technical and nontechnical supplemental manpower
Any other support services requested by clients
Establishes and maintains timely communications and close working relationships with client representatives to ensure owner satisfaction.

Maintains close communication with supervisory and craft personnel. Monitors project ledger sheets to ensure that projects are properly charged and ensures the timely collection of all past due accounts.

Performs annual review of contracts and negotiates any change orders approved by company management., Administers contracts with regard to cost, schedule, and other project controls. Furnishes and maintains project billing instructions. Establishes goals and objectives each year for assigned projects with division/management business unit. Pursues additional business with present and potential clients. Assist in preparation of sales proposals, estimates, technical evaluations and budgets. Monitors and approves personnel hiring, promotions, reprimands, and terminations. Staffs assigned projects with qualified salaried and craft personnel. Implements and monitors assigned projects for compliance with EEO, OFCC, EPA and OSHA regulations.

Develops and maintains comprehensive safety procedures and cultivates a safety conscious attitude on every project. Directs training activities that develop and maintain the capability of self perform services. Manages subcontracts and subcontractor personnel as required by clients. Responsible for scheduling and satisfying completion of various work tasks related to service support or equipment. Communicates with supervisor, subordinates and clients as required.

Monitors that proper procedures which are followed in executing and charging for services. Directly supervises and assists in the training of assigned staff. Strictly monitors established safety procedures. Monitors and may approve personnel activities related to the hiring, promotion, reprimands and termination of salaried and craft employees as well as any contract subordinate employees.

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Maintains knowledge of safety policies and procedures and performs assigned duties in a safe manner, and, if supervising others, has responsibility for the safety of those being supervised and ensures they comply with established safety policies and procedures and practice safe work habits.

Meets regularly with company and client management to determine custodial services needs and to discuss performance.

Supervises assigned personnel in the safe and efficient accomplishment of assigned work to established standards and specifications.

Participates in the hiring process, administers disciplinary action and provides counseling for assigned personnel.

Maintains regular contact with custodial employees through individual and group meetings to effect the company's open door policy.

Maintains knowledge of safety policies and procedures and performs assigned duties in a safe manner, and, while supervising others, has responsibility for the safety of those being supervised and ensures they comply with established safety policies and procedures and practice safe work habits.

Responsible for overseeing, issuing and editing the operational control of operating procedures, etc.

Responsible for the supervision and effective execution of the commitment tracking and occurrence reports for remediation Support Operations.

Ensures that objectives are met safely and provides the necessary support for those objectives.

Reviews each subcontractor's daily work plan for consistency with plans of other subcontractor and RSO personnel.

Verify that regulatory approvals, permits and licenses have actually been obtained and that notifications have been made.

Assist Industrial Relations and Payroll in tracking and recording hours, as well as, special charges deriving from union agreements.

Responsible for providing management of landlord services to operate the site and support the environmental restoration program needs for long term monitoring and project support.

Represent RSO interests with the Industrial Relations Manager to negotiate meaningful contracts between the company and the Fernald Atomic Trades and Labor Council (FATLC) creating a proactive approach to the labor/management relationship.

General Responsibilities

General Supervisor

Responsible for the supervision of the performance of all field construction activities within a discipline in conformance with plans, specifications, schedules and cost estimates.

Coordinates the work activity of all involved crafts within a discipline with the entire construction effort. Coordinates the activities of contractors performing work within a discipline.

BA/BS degree in a related field plus nine years related experience to include 4 years supervisory responsibilities.

Civil

Responsible for all of the following functions: concrete, carpentry, painting, structural and rebar, laborers, equipment operations and brick masons.

Electrical

Responsible for all work activities associated with the electrical phase of the entire construction effort.

Mechanical

Responsible for all of the following functions: piping, instrumentation, insulation, millwright, plumbing, sheet metal and boilermaker.

Operations Area Supervisor

Responsible for the supervision, coordination and scheduling of the work activity of an assigned craft within the project construction effort.

Monitors construction activities to ensure adherence to safety and, quality standards and to achieve work efficiency.

BA/BS degree in a related field plus seven years related experience to include two years supervisory experience.

Operations Supervisor

Responsible for the supervision, coordination and scheduling of the work activity of an assigned craft within the project construction effort.

Monitors construction activities to ensure adherence to safety and, quality standards and to achieve work efficiency.

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BA/BS degree in a related field plus five years related experience to include two years supervisory responsibilities.

Site Services Supervisor

Administratively responsible for the total fiscal and administrative functions of a project including office services, contracts administration, procurement, warehousing, accounting, timekeeping, payroll and document control. Provides supervision and direction for subordinates involved in all project support activities. Interfaces with company and client management to ensure that project support functions operate within company standard practice and procedures and contract provisions. Normally assigned to a project with a value up to \$50 million.

BA/BS degree in a related field plus five years related experience to include two years supervisory responsibilities.

Job Code	Position Title	FLSA	Salary Grade
GR04	Information/Records Specialist III	Non-Exempt	6

Engineering Documents Typical Duties and Responsibilities

Establishes and maintains a uniform system for internal and external issuing, tracking and reporting status of contract drawings, specifications and engineering documents.

Tracks and distributes incoming drawings, specifications, documents and microfilm aperture cards from engineering contractors.

Receives, maintains and implements a retrieval system of engineering documents given to the company to be used for design basis.

Responsible for implementing standard computer reporting systems and for recommending modifications to meet specific contract requirements.

Vendor Documents Typical Duties and Responsibilities

Contacts vendors by letter, telephone or FAX to establish and maintain vendor drawing and data submittal dates to coincide with schedules.

Prepares, updates, and distributes status reports of all documents received from vendors. Issues alert reports showing current submission status of data.

Authorizes invoice payment withholding for delinquent vendors.

Compiles and publishes technical, operating and maintenance manuals, and end-of-job contract documentation.

Processes and tracks, through a computerized system, all vendor documents. Expedites internally assuring documents are returned to vendor within a specified time period.

Establishes and maintains required files and records of all documentation to meet purchase order requirements.

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General Responsibilities

Information/Records Specialist III

Under general supervision, follows procedures which are required to manage information, assists in expediting, receiving, classifying, recording, indexing, distribution, storage and retrieval of information on any medium. May be required to run errands, do copying, filing and interfacing with all engineering disciplines.

High school diploma or equivalent plus five years office/clerical experience. Must pass required test(s).

Job Code	Position Title	FLSA	Salary Grade
A002	Material Control Specialist I	Exempt	14

Material Control Typical Duties and Responsibilities

Supervise and coordinate the functions of the reporting systems of all hazardous waste storage and/or uranium or thorium activities to provide data for material control and accountability required by EPA and DOE.

Arrange for movement of RCRA and nuclear material between balance areas, checking and countersigning all receipts and shipment into and out of the areas of responsibility.

Responsible for seeing that all standard operating procedures for material control and accountability are adhered to in plant operation.

Assign area of responsibility and accounting and technical personnel in the group. Train personnel and coordinate projects to ensure that reporting deadlines are met. Maintain official book inventory records of all FEMP nuclear material transaction. Evaluate all book versus physical inventory difference for statistical significance. Ensure the correct identification and labeling of nuclear materials. Performs audits survey and special studies to ensure accountability systems are operating properly.

Monitor scale maintenance

Develop and improve automated systems for the collection, completion, verification, summarization and reconciliation of accountability data.

Supervises all assigned personnel, assigning tasks and preparing schedules to ensure that materials are on the jobsite in accordance with construction schedules.

Keeps the project engineer informed of the status of all materials, for applicable discipline, on the assigned contract.

Schedules, directs, and verifies the accuracy of material take-offs and initiates requests for quotes. Follows through by working with the procurement department in the issuance of a purchase order.

Develops all manpower forecasts estimates and schedules which pertain to applicable discipline. Prepares and submits, to project engineer, trend reports as required.

Develops logistics and related procedures with procurement, construction, project controls and project to ensure timely delivery of materials to the jobsite.

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Represents the discipline at meetings with clients, vendors, and other company departments on matters relating to material control.

Prepares and issues status and control reports as required.

Develops material flow procedures and reports to maintain accurate control of materials from source to jobsite.

Directs and assists in conducting training programs and in developing standards and procedures.

Controls equipment spare parts and lubrication requirements including requisitioning and status reporting.

Provides property file management for computer graphics system. Maintains knowledge of safety policies and procedures and performs assigned duties in a safe manner, and, if supervising others, has responsibility for the safety of those being supervised and ensures they comply with established safety policies and procedures and practice safe work habits.

General Responsibilities

Material Control Specialist I

Under general supervision, is responsible to the project engineer, or material control manager, for less complex/more routine material control activities as a support to the contract task force. Ensures adequate control of assigned activities to sustain contract schedules.

BA/BS degree in a related field plus two years related experience.

Job Code	Position Title	FLSA	Salary Grade
OT03	Manager Utilities	Exempt	**
OT02	Utilities Services Supervisor II	Exempt	18
OT01	Utilities Services Supervisor I	Exempt	17

Utilities Typical Duties

Direct and coordinate the Boiler Plant and Water Treatment sections. Work with and advises section supervisors (Power Plant, Waste Treatment Plant, Water Plant Supervisors and Utilities Engineers) in the solution of operating problems.

Oversee the operation of the Boiler Plant that all equipment is functioning properly, that daily inspections are being made and that adequate utilities are being furnished. Oversee the operation of the Water Treatment section in supplying, treating and distributing water for production and drinking purposes, and in treating and disposing of wastes. Oversee the operation of the General Sump, Biodeintrification Facility, the Storm Sewer Lagoons, the Surge Lagoon and the Sewage Treatment Plant to ensure that systems are operating at optimum performance.

Regularly inspect all facilities in the sections. Plan expansion and alternations of piping and equipment as necessary. Coordinate with Maintenance Department in preventive maintenance program. Supervises through subordinates the maintenance of records, graphs and operating and statistical reports; and coordinate operation of equipment to maintain twenty hour operations of all facilities.

Ensure that quality control laboratories comply with Public Health standards, that power plant is not overlooked, that wastes are properly disposed of, and that SS material is reclaimed as much as possible.

In cooperation with ES&H assume responsibility for an adequate health and safety program; stress good housekeeping. Provide for training and development of employees; hire and discipline; handle grievances.

Formulate and recommend policies and procedures for the utilities functions.

Coordinate the activities of the Utilities Engineers to ensure prompt completion of required tests and inspections: Daily - emergency generator panels, K-65, diked areas, furnaces; Weekly - emergency generator remote tests, propane plant, guard house/cafeteria and water supply tanks. Maintain operating expenses and per unit volume costs for all utilities to be completed no more than thirty days after each month's end.

Provide to ORO, requests for energy conservation retrofit projects on requested dates; quarterly energy consumption reports as requested; energy conversation/survey requests as directed.

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Monitor the plant operation relative to NPDES compliance. Monitor the Boiler Plant operation relative to reportable opacity excursions.

Manages and coordinates the operation of the Process Waster Treatment Facilities and their satellite installations. Manages subordinates supervisor(s) and professional(s) in the areas associated with industrial waste receipt and disposal.

Monitors water disinfection control equipment and operations to assure NPDES compliance. Responsible for regulatory compliance reports generation and interface with Environmental Compliance.

Coordinate inspections for safe and efficient operations of sampling, flow measurement and pumping equipment. Oversees both corrective and preventive of all pollution control equipment. Coordinates the assignment of certified operators to ensure Sate of Ohio EPA compliance.

Confers with Engineering Department personnel on all new projected facilities.

Coordinates the inspection by Sate of Ohio personnel of the pollution control areas and equipment.

Responsible for requisitioning, budgeting and training.

Manages and coordinates the operation of the site sanitary water and wastewater facility and their satellite installations. Manages subordinates supervisor(s) and professional(s) in the areas associated with sanitary, cooling, boiler feed and fire protection water supply and their equipment.

Monitors water disinfection control equipment and operations to assure Safe Drinking Water Act Compliance. Responsible for regulatory compliance reports generation and interface with Environmental Compliance.

Coordinates inspection for safe and efficient operation of Water Treatment equipment and sanitary water compliance.

Oversees both corrective and preventive of all water and sanitary waste treatment equipment.

Coordinates the assignment of certified operators to ensure Sate of Ohio EPA Compliance.

Review with Engineering Department personnel on all new projected facilities.

Coordinate the inspection by the State of Ohio personnel of the production wells and the water treatment units.

Coordinate and supervise the activities of personnel handling waste products through the Biondenitrification System and General Sump.

Maintain quality control by testing and treating process and storm sewage to meet before discharge to the receiving stream. Recover as much suspended solid material as possible.

Supervise routine and quality control of sample analyses to comply with state and federal regulatory requirements.

Conduct and document daily inspections of plants and equipment concerned with operations.

Assist in planning approved expansions and alterations of plants, equipment and distribution system.

System training of employees assigned to new jobs.

Prepare reports such as operational, storm sewer, sewage plant, waste, waste water management and NPDES.

Water Plant

Responsible for supervising operating personnel in supplying water to plant and disposing of wastes.

Maintain operation of the Industrial/Portable Water Treatment facilities. Maintain NPDES requirements by properly treating sanitary, process and storm sewage and discharging to receiving streams. Recover as much suspended solid material as possible.

Supervise routine and quality control laboratories to ensure compliance with local, state and federal regulations.

Conduct and document daily physical inspections of plant and distribution system. Assist in planning expansion and alteration of equipment.

Coordinate with contractors for expansion or tie-ins into distributing systems. Record alterations to underground distribution system.

Train employees assigned to new jobs or operation.

Supply data for reports such as operational, sanitary, sewage and suspended solids recovery.

May maintain documentation of collected analytical samples and chain-of-custody procedures. May review permits and regulatory documents.

Responsible for supervising boiler plant personnel supplying steam, instrument and plant air.

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Coordinate with site services regarding amount of steam needed, Conduct daily inspections of all equipment, operate if necessary to ascertain proper functioning.

Analysis and correct operating problems. Coordinate with maintenance department on all repairs and preventive maintenance. Requisition equipment as necessary.

Insure all boilers are inspected at least once per year.

Supervise training of employees.

Assist with boiler operation to maintain proper opacity reporting.

May calculate coal penalty/premium.

General Responsibilities

Utilities Manager

Under administrative direction, responsible for all boiler plant and water treatment activities on large project. Ensures all activities are conducted in compliance with established procedure and accepted practices.

Executes project safety programs and monitors work scopes and budgets.

BA/BS degree in a related field plus 10 years related experience to include 5 years management responsibilities.

Utilities Services Supervisor II

Responsible for supervision and coordination of daily work schedules.

Maintains a working knowledge of established project procedures relating to safety, planning and scheduling and preventive and corrective maintenance.

Administer, motivates and trains personnel.

BA/BS degree in a related field plus 7 years related experience to include 2 years supervisory responsibilities. Must possess State of Ohio water treatment Level 2 and wastewater treatment Level 2 licenses.

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Utilities Services Supervisor I

Responsible for the supervision and coordination of daily work schedules. Maintains a working knowledge of established project procedures relating to safety, planning and scheduling and preventive and corrective maintenance.

BA/BS degree in a related field plus five years related experience to include two years supervisory responsibilities. Must possess State of Ohio water treatment Level 2 and wastewater treatment Level 2 licenses.

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Job Code	Position Title	FLSA	Salary Grade
EJ01	Project Controls Associate I	Exempt	14

Project Control Associate I Typical Duties and Responsibilities

Prepares and/or supervises preparation of overall estimating requirements or a project or assignment.

May supervise a team of project control specialists.

Has technical responsibility for all work performed. Coordinates assignments with all project participants. Responsible for timely completion of work within schedule requirements. May have training responsibilities.

Prepares estimates for use in proposals, contracts, studies, etc.

Prepares risk analysis.

Prepares labor sampling and time cost and analysis reports.

Prepares change orders and change order patterns.

Maintains and updates standard unit labor charts.

Provides material take-offs and labor take-offs as required.

Prepares cost reports, trends, forecasts and cost code of accounts.

Prepares project performance reports.

Participates in quotation analysis.

Prepares schedules for use in proposals, contracts, studies, etc.

Assists in preparation of office and construction budgets.

Prepares final estimates.

Retrieves data from historical base.

Analyses project problems and recommends corrective action.

Participates in "value engineering" studies.

Maintains and updates estimating manuals and procedures.

Maintains knowledge of safety policies and procedures and performs assigned duties in a safe manner, and, if supervising others, has responsibility for the safety of those being supervised and ensures they comply with established safety policies and procedures and practice safe work habits.

General Responsibilities

Project Controls Associate I

Under direct supervision, responsible for preparing estimating, scheduling or cost engineering data to provide accurate information to be used for project planning and analysis of project status.

Provides efficiency and accuracy in the process of generating project controls data, and provide timeliness and accuracy in the process of gathering project cost and progress data.

The performance of the position is measured by the quality and timeliness of data produced in a professional manner.

This position requires the understanding of the fundamentals of estimating or cost engineering, or planning and scheduling. Beyond this individual is required to start gaining an understanding of all other project controls functions.

BS degree in engineering or a business related field. No experience required.

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Job Code	Position Title	FLSA	Salary Grade
NR03	Radiological Control Technician III	Non-Exempt	7
NR01	Radiological Control Technician I	Non-Exempt	5

Radiological Control Technician Typical Duties

Monitors radiation levels in the environment and internal workplace to determine potential radiation hazards, using the appropriate instruments.

Performs radiation surveys, collecting and processing samples of soil, water, vegetation and other environmental media.

Recommends appropriate personnel monitoring devices, protective equipment and working time for operators and research employees working with sources of radiation.

Collects data from personnel monitoring instruments (i.e. pocket dosimeters) and from radiation recording instruments for analysis and inclusion in summary reports.

Compiles and retains records regarding the calibration of personnel monitoring instruments and other radiation instruments.

Participates in monitoring and controlling the company's radiation protection standards in accordance with Federal, State and industry programs.

Maintains records and supporting data for required government, industry and management reports.

Makes recommendations for changes in the work environment to maximize employee safety.

General Responsibilities and Qualifications

Radiological Control Technician III

Under general supervision, participates in planning experiments related to measurements of radioactive materials. Notifies supervisor when excessive contamination levels are detected.

Proficient in all basic Radiological Control support tasks. May assist in training less experienced technicians.

Two years post high school studies in a related field plus two years related experience; or HS diploma or equivalent plus five years related experience.

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Radiological Control Technician I

Under direct supervision performs assigned tasks from detailed instructions and established policies and procedures while learning basic principles and processes of Radiological Control. Analysis of data is limited to comparison of routine readings with pre-determined standards.

HS diploma or equivalent. No experience required.

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Job Code	Position Title	FLSA	Salary Grade
TC03	Regulatory Compliance Engineer/Specialist III	Exempt	17
TC02	Regulatory Compliance Engineer/Specialist II	Exempt	16
TC01	Regulatory Compliance Engineer/Specialist I	Exempt	14

Regulatory Compliance Engineer/Specialist Typical Duties

Develops, implements and maintains inspection procedures and programs designed to minimize deficiencies and ensure compliance with existing Federal, State and local laws, regulations, ordinances, and licensing/ permit requirements pertaining to environmental control and to the health and safety of employees and the public.

Conducts independent investigations to identify existing and potential health, safety and environmental control problems at the company's work sites.

Develops, implements and monitors corrective measures to minimize or eliminate non-compliance.

Prepares regulatory compliance reports on inspection findings and results of corrective actions.

Advises other company staff on regulatory compliance issues and provides guidance in developing procedures and processes that will ensure safety, efficiency and compliance.

General Responsibilities and Qualifications

Regulatory Compliance Engineer/Specialist III

Works under general direction; independently identifies and develops solutions to problems. Identifies potential or actual areas of non-compliance through personal on-site inspections. Writes technical reports regarding inspection findings based on the interpretation of data, observations and current regulations, and presents recommendations for corrective action. Provides in-depth knowledge of applicable Federal, State and local laws, regulations, etc. and of the scientific and technical aspects of various regulatory requirements. May serve as lead person or technical expert on small or medium projects.

B.S. in Environmental Science or a related field, plus five years related experience. Certification preferred.

Regulatory Compliance Engineer/Specialist II

Works under general supervision. Assists in the identification of potential or actual areas of non-compliance. Assists in preparing technical reports and recommendations for corrective action. Provides good working knowledge on all applicable Federal, State and local laws and regulations, and is knowledgeable in all basic issues and concerns of regulatory compliance. May serve as lead person or technical advisor on small projects.

B.S. in Environmental Science or a related field; plus two years related experience. Certification preferred.

Regulatory Compliance Engineer/Specialist I

Works under direct supervision; generally follows detailed instructions and established procedures while developing technical knowledge and practical judgement. Assists in developing and implementing inspection programs and procedures. Assists in the identification of potential or actual areas of non-compliance.

Assists in preparing technical reports and recommendations for corrective action. Supports regulatory compliance activities with a working knowledge of the scientific and technical aspects of various regulatory requirements.

B.S. in Environmental Science or a related field. No experience required.

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Job Code	Position Title	FLSA	Salary Grade
NS04	Senior Safety Technician	Non-exempt	9

Safety Technician General Responsibilities and Qualifications

Safety Technician Typical Duties

Develops, implements and evaluates programs and procedures to ensure personnel and facility safety.

Monitors and controls the company's safety standards in accordance with OSHA and State regulations.

Develops and implements programs and record-keeping systems to track and evaluate personnel injury experience.

Conducts trend analyses, audits, accident investigations and site inspections of operational procedures, facility design, equipment and materials.

Analyzes data in compliance with current regulations and makes appropriate recommendations to prevent new or recurring accidents.

Develops and conducts employee training and quality assurance programs. Evaluates and approves material and equipment requisitions, new and modified processes, and non-routine work.

Senior Safety Technician

With general supervision, performs assigned tasks according to detailed instructions and established procedures. Assists senior safety personnel in monitoring and controlling the organization's industrial safety programs and standards. Assists with testing and servicing safety equipment and systems, and in conducting drills; may assist with calibrating and maintaining sampling and analytical equipment. Maintains storage areas, consumable supply inventories, and personnel protection equipment. Assists with inspections and investigations as directed. Participates in training less experienced technicians.

Two years post high school in a related field plus three years related experience; or HS diploma or equivalent plus seven years related experience.

Job Code	Position Title	FLSA	Salary Grade
AW03	Technical Writer/Editor III	Exempt	16

Technical Publications Typical Duties

Conducts research to ensure completeness and accuracy of assigned documents. Organizes draft information, supplied by others, or compiled from own research, to follow established formats.

Based on draft information, writes, edits and proofreads material for clarity, completeness and accuracy.

Prepares or obtains appropriate illustrations such as graphics and charts.

Edits and/or proofreads work of other writer/editors.

Ensures that technical documentation meets editorial and government specifications and adheres to standards for quality, format and style.

Develops standards for document organization and layout, publication methods, and text style.

Works with internal or external staff to ensure timely publication of documents.

General Responsibilities

Technical Writer/Editor III

Works with a variety of technical publications requiring broad knowledge of the subject matter; projects usually involve major publications. Responsible for accuracy of content and adherence to establish standards. May participate in the establishment of style guidelines and standards for texts, etc. Work is performed under general supervision. May provide work leadership for lower-level writer/editors.

BA/BS degree in a related field plus four years related experience.

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Job Code	Position Title	FLSA	Salary Grade
AT03	Training Specialist III	Exempt	15
AT01	Training Specialist I	Exempt	13

Training Specialist Typical Duties and Responsibilities

Participates with business sectors and operations in determining training needs and developing proposals to provide training services identified.

Designs and develops training systems which are focused on identified needs using state-of-the-art techniques.

Implements training programs and processes.

Conducts training.

Provides technical assistance to outside users of company training systems.

Modifies and maintains existing company training programs as required.

Prepares and manages budgets.

Provides marketing support for business sectors.

Maintains knowledge of safety policies and procedures and performs assigned duties in a safe manner, and, if supervising others, has responsibility for the safety of those being supervised and ensures they comply with established safety policies and procedures and practice safe work habits.

General Responsibilities

Training Specialist III

Under general supervision, coordinates, implements, evaluates and administers training programs.

Performs needs analyses, acquires appropriate training materials, participates in the selection of instructors, and other associated tasks.

Provides facilitation services as required.

BA/BS degree in a related field plus four years related experience.

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Training Specialist I

Works under direct supervision in the collection, analysis, and presentation of information used in training projects.

Performs other related tasks as required in training activities.

BA/BS degree in a related field. No experience required.

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Job Code W09Revision Date 07/30/82Profile No. 0010**WAGE POSITION DESCRIPTION**

JOB TITLE: HazWet (Chemical Operator)

PRIMARY FUNCTION: To perform inspecting, prepare and package low level and hazardous waste for storage and /or shipping. Perform sampling operations or characterization.

TOOLS AND EQUIPMENT: Ladders, Impact Wrenches, Socket Wrenches, Drills, Hand Stack, hoist, sampling equipment such as augers, pipe samplers and colwasse.

MATERIAL:**DIRECTION OF OTHERS:****DUTIES AND RESPONSIBILITIES:**

1. Inspects containers for leakage, condition, proper labeling and storage configuration.
2. Inspects hazardous waste units for physical conditions, proper labeling, safety violation or deviation from establish SOP's
3. Performs housekeeping and safety inspection based on selected predetermined criteria.
4. Package and prepare for shipping per D.O.T. standards, low level and hazardous waste.
5. Receives applicable training as requires for tasks assigned.
6. Performs sampling for characterization in area assigned to identify materials or substances.
7. Performs cleaning tasks using appropriate equipment.

QUALIFICATIONS:

High school graduate or equivalent. Must be physically qualified. Where applicable, must have and be able to retain the physical requirements, wear chemical protective clothing and respiratory protection. Ability to work in poor working conditions. Frequent walking, standing, stooping and climbing. Shift work availability.

* - Nonessential Function
(Optional) - Optional depending on the department.

PREPARED BY: _____

DATE: _____

APPROVALS

T/C ANALYST	DATE	DEPT. MGR.	DATE	T/C HUMAN RESOURCES MGR.	DATE

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030
Job Code Y39

Revision Date 04/91

Profile No. _____

WAGE POSITION DESCRIPTION

JOB TITLE: HEAVY EQUIPMENT OPERATOR

PRIMARY FUNCTION:

TOOLS AND EQUIPMENT:

MATERIAL:

DIRECTION OF OTHERS:

DUTIES AND RESPONSIBILITIES:

Operates variety of electric, gasoline and diesel-powered equipment such as plane loader, yard lift, various cap: mobile cranes, bulldozer, front-end loader and other similar type heavy equipment.

Manipulates throttles, levers, gears, pedals, switches and other operational controls to load and unload, move stack, grade, level, pull or push material, direct, rock or other objects.

May make minor adjustments to equipment, and oil or grease parts of equipment as necessary.

Is responsible for checking equipment to assure proper and safe operation and reports malfunction or need of or maintenance to supervisor.

Complies with all safety regulations.

Knows and observes all hand signals used in operation of equipment.

May be required to train other personnel in operation of equipment.

Performs housekeeping duties as required.

Performs other related duties as assigned.

QUALIFICATIONS:

High school graduate or equivalent. Five years applicable experience.

PREPARED BY: _____ DATE: _____

APPROVALS _____

T/C ANALYST	DATE	DEPT. MGR.	DATE	T/C HUMAN RESOURCES MGR.
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000475

Revision Date 04/91

Profile No. _____

WAGE POSITION DESCRIPTION

JOB TITLE: INDUSTRIAL MECHANIC

PRIMARY FUNCTION:

TOOLS AND EQUIPMENT:

MATERIAL:

DIRECTION OF OTHERS:

DUTIES AND RESPONSIBILITIES:

Responsible for maintenance and repair of the plant mobile equipment such as passenger cars, trucks, trailer, for trucks, and other gasoline, battery and diesel-powered equipment.

Diagnoses causes of faulty operation.

Disassembles, overhauls and reassembles major units such as engines, transmissions, clutches and rear ends.

Replaces worn or broken parts, relines and adjusts brakes, aligns wheels, lubricates equipment, repairs, fills and bleeds hydraulic systems, etc.

Replace charge and maintain batteries.

Must be able to follow manufacture's specifications and repair procedures.

Repairs fenders, doors to other portions of auto and truck bodies.

Inspects equipment as part of the Preventive Maintenance Program.

Utilizes a variety of hand tools and testing and analyzing equipment, electric drill, grinders, buffers, etc.

Operates emergency vehicles according to established procedure.

Uses jacks and other devices to aid in repair work.

Maintains good housekeeping. Performs other related duties as assigned.

QUALIFICATIONS:

Five years journeyman experience in an industrial plant or completion of an approved apprenticeship program in craft.

PREPARED BY: _____

DATE: _____

APPROVALS

T/C ANALYST	DATE	DEPT. MGR.	DATE	T/C HUMAN RESOURCES MGR.	DA
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WAGE POSITION DESCRIPTION

JOB TITLE: LAUNDRY WORKER

PRIMARY FUNCTION: To gather and launder, fold, repair and issue company issued clothing

TOOLS AND EQUIPMENT: floor scrubbers, computerized keyboard, broom, mop, washing machine, dryer, la. carts, clothing racks, vacuum sweepers and respiratory.

MATERIAL: laundry soap, bleach, brighteners, softeners, floor soap, general purpose cleaners.

DIRECTION OF OTHERS:

DUTIES AND RESPONSIBILITIES:

Operates laundry equipment such as washers, drying tumblers, extractor and hoist, to wash and dry soiled process clothing, towels, etc.

Follows predetermined procedures and charts in loading and unloading equipment, determining temperature and level, and in mixing detergents.

Sorts and/or folds clothing and place in lockers.

Operates mending machine. Stencils and marks sizes on clothing.

Issues clothing, shoes and other required items.

Gathers soiled clothing from both sides of locker room and take to laundry.

Prepares necessary reports as instructed.

Handles and dispenses supplies to and from stock and laundry rooms.

Maintains good housekeeping.

Perform other related duties as assigned.

Inventory stock room supplies.

QUALIFICATIONS:

High school graduate or equivalent.

Related experience helpful but not required.

* - Nonessential Function

(Optional) - Optional depending on the department.

PREPARED BY:

DATE:

APPROVALS

T/C ANALYST	DATE	DEPT. MGR.	DATE	T/C HUMAN RESOURCES MGR.	
<i>M. Adams</i>	<i>9/92</i>			<i>R. Sullivan</i>	<i>9/8</i>

Revision Date 09/01/92

Profile No. _____

WAGE POSITION DESCRIPTION

JOB TITLE: MILLWRIGHT

PRIMARY FUNCTION: Installing, moving, dismantling and maintenance of all types of machines and equipment

TOOLS AND EQUIPMENT: measuring devices, rigging aids, a variety of hand tools, welding machines and post a cutting torch.

MATERIAL: Gaskets, variety of metals, black iron, stainless steel, aluminum.

DIRECTION OF OTHERS: gives recommendations, advice, or guidance to others.

DUTIES AND RESPONSIBILITIES:

Responsible for the installation, moving, dismantling and maintenance of all types of machines and equipment. May be required to exercise extreme accuracy in aligning and balancing (Optional). Installs motors and motor generator sets. Installs and repairs a wide variety of equipment such as elevators, conveyors, hoists, blowers, power transmissions, etc.

Installs and repairs factory machinery, and renews or repairs parts such as bushings, bearings, levers, pulleys, etc. Checks operations when installed.

Lays-out and fabricates structural steel and plate.

Fabricates and repairs metal items such as platforms and stairs, tanks, hoppers, bins, etc.

Works from drawings, sketches, verbal and written instructions.

Inspects equipment, prepares reports as needed, and are responsible for time cards.

Utilizes a variety of hand tools, measuring devices.

Crimps, punch, bend, rivet, form, shape, fit, solder and electric arc weld with processes, varied sheet metal work

Utilize oxygen-acetylene burning and/ or plasma arc cutting equipment to size reduce or install and dismantle equipment.

Exercises proper safety methods and techniques.

Maintains good housekeeping.

Performs other related work as assigned.

QUALIFICATIONS:

High graduate or equivalent.

Five years journeyman experience in an industrial plant or completion of an approved apprenticeship program craft.

- - Nonessential Function (Optional) - Optional depending on the department.

PREPARED BY: _____

DATE: _____

APPROVALS

T/C ANALYST	DATE	DEPT. MGR.	DATE	T/C HUMAN RESOURCES MGR.
<i>M. Ashmore</i>	<i>9/92</i>			<i>R. Sullivan</i> 9

Revision Date 04/91

Profile No. _____

WAGE POSITION DESCRIPTION

JOB TITLE: MOTOR VEHICLE OPERATOR

PRIMARY FUNCTION:

TOOLS AND EQUIPMENT:

MATERIAL:

DIRECTION OF OTHERS:

DUTIES AND RESPONSIBILITIES:

Operates a variety of gasoline or diesel-powered motor vehicles such as passenger cars, dump trucks, street sweeper, straight, tractor-trailer and tank trucks.

May be required to make over-the-road or long distance trips.

Manipulates various levers, buttons, switches and other operational controls such as gear shifts, hoists or hand valve, demster-dumpster units and air valves.

May assist in manually loading and unloading trucks.

May make minor adjustments or repairs to equipment such as changing tires, etc., when necessary.

Is responsible for checking equipment to assure proper operation and advises supervision of any malfunction equipment or need for maintenance or repair.

Keeps necessary log or other records as required.

Is responsible for safe operation of vehicle, observing traffic laws, state, local, or DOE regulations, and other pertinent restrictions.

May be required to train other personnel.

Perform duties such as cleaning windshield, cab, truck bed, etc., or performs other housekeeping duties as instructed. Performs other related duties as assigned.

QUALIFICATIONS:

High school graduate or equivalent. Valid driver's license and two years applicable experience.

PREPARED BY: _____

DATE: _____

APPROVALS

T/C ANALYST	DATE	DEPT. MGR.	DATE	T/C HUMAN RESOURCES MGR.	D.
				000479	

7/27/92

MVO/SAMPLER

GRADE/JOB GROUP:18

Major Duties and Responsibilities

Operates a variety of gasoline or diesel - powered motor vehicles; may be required to make over-the-road or long distance trips. May assist in manually loading or unloading trucks. Is responsible for safe operation of vehicle, observing traffic laws, state, local or DOE regulations, and other pertinent restrictions. May be required to train other personnel.

Supports non-process related activities throughout the site: acquiring, storing, and retrieving samples; handling, packaging of low level waste. May use a variety of handtools and motorized equipment to perform tasks.

May be assigned to a team with other classifications to accomplish work assignments. May be responsible to assist with on-the-job training. May exercise limited independent judgment when authorized by procedure.

Is responsible for and performs housekeeping duties at work stations; performs other related duties as assigned.

Qualifications

High school education or equivalent. Two years industrial experience. Requires ability to read and comprehend written instructions. Must be physically qualified. Must possess a valid driver's license.

Revision Date 04/91

Profile No. _____

WAGE POSITION DESCRIPTION

JOB TITLE: PAINTER

PRIMARY FUNCTION:

TOOLS AND EQUIPMENT:

MATERIAL:

DIRECTION OF OTHERS:

DUTIES AND RESPONSIBILITIES:

Applies paints, enamels, stains, and other paint-like coating and protective materials to walls, woodwork, building trim fixtures and equipment.

Mixes colors, oils, lead and other paint ingredients to obtain required color or consistency.

Prepares surface for painting. Applies paint with spray gun, roller or brush.

Is familiar with the hazards of certain inflammable and toxic paints, lacquers and thinners, and exercises care in their use and storage.

Requires knowledge of surface peculiarities and types of paint required for different applications.

Installs new glass and plexiglass in windows, compartments or partitions. Removes old glass and cleans channels and cuts glass.

Prints and paints signs and required symbols. Refinishes, waxes and polishes coated surfaces on repair work.

Required to work from scaffolds, ladders, boatswains chairs, roof tops, etc.

Erects painting scaffolds, ladders, etc.

Maintains good housekeeping. Performs other related work as assigned.

QUALIFICATIONS:

Five years experience in use of industrial paint products and techniques.

PREPARED BY: _____

DATE: _____

APPROVALS

T/C ANALYST	DATE	DEPT. MGR.	DATE	T/C HUMAN RESOURCES MGR.	DATE
				000481	

Revision Date 04/91

Profile No. _____

WAGE POSITION DESCRIPTION

JOB TITLE: DECONTAMINATOR

PRIMARY FUNCTION:

TOOLS AND EQUIPMENT:

MATERIAL:

DIRECTION OF OTHERS:

DUTIES AND RESPONSIBILITIES:

Cleans equipment, parts and other materials. Segregates metals into various types: such as, cast iron, steel, stainless steel, copper and brass, monel, and aluminum. Partially disassembles equipment for cleaning and salvage. Clean truck type trailers. May involve, but not be limited to, handling hazardous waste(s)/material(s).

Equipment operated in the cleaning process are: blasting equipment, high pressure pumping equipment, hand stacked overhead crane, geiger counter, various power tools (air, electric, and gasoline powered) works with acids, such as nitric and HCL, and other products, such as, caustic, etc., in the cleaning operation. May involve, but not limited to handling waste(s)/material(s).

May prepare logs, performance sheets or technical records, and may affix signature indicating responsibilities for validation, and corroboration of data.

Cleans out sump drains, takes samples of sump and labels same.

Uses a cutting tool for reducing size of scrap metal for handling and packaging of low level waste.

May be assigned to a team with other classifications to accomplish work assignments. May be responsible to assist with on-the-job training.

Maintains good housekeeping. Performs other related duties as assigned.

QUALIFICATIONS:

High school graduate or equivalent. Two years applicable experience preferred in chemical processing, sand blasting, steam cleaning, high pressure cleaning, and good mechanical guide.

PREPARED BY: _____

DATE: _____

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T/C ANALYST	DATE	DEPT. MGR.	DATE	T/C HUMAN RESOURCES MGR.	DATE

WAGE POSITION DESCRIPTION

JOB TITLE: STOREROOM ATTENDANT

PRIMARY FUNCTION:

TOOLS AND EQUIPMENT:

MATERIAL:

DIRECTION OF OTHERS:

DUTIES AND RESPONSIBILITIES:

Receives and checks material against receiving report and stores catalogue in order to verify quantity, description and stock number of material.

Places material into proper storage bin or area affixing necessary markings.

Is required to maintain assigned records such as catalogue cards, inventory lists, check sheets, etc.

Issues material from various stockrooms or warehouses on the basis of an approved requisition.

May assist in selecting proper items to fill requisition.

Prepares requisition to storekeeper and returned stores credit memo forms when required.

Takes physical inventory completing necessary records.

Loads, unloads, stacks and moves material manually or utilizing work saving devices.

Determines placement of material in warehouse or stockroom making adjustments when necessary.

Is responsible for safe handling of all material.

Performs housekeeping duties as required. Performs other related duties as assigned.

QUALIFICATIONS:

High school education or equivalent. Three years applicable experience, legible handwriting and good color recognition.

PREPARED BY: _____

DATE: _____

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T/C ANALYST	DATE	DEPT. MGR.	DATE	T/C HUMAN RESOURCES MGR.	DATE

Revision Date 04/91

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WAGE POSITION DESCRIPTION

JOB TITLE: INSPECTOR

PRIMARY FUNCTION:

TOOLS AND EQUIPMENT:

MATERIAL:

DIRECTION OF OTHERS:

DUTIES AND RESPONSIBILITIES:

Performs a variety of physical and visual tests.

Inspects material for physical dimensions such as length, diameter, contour and radius specification.

Inspects for metal quality defects including surface seams, nicks, mars, etc.

Notifies appropriate personnel when material fails to meet specifications.

Follows drawings, specifications and instructions to comply with inspection requirements.

Inspects material utilizing manual or automatic measuring devices such as pneumatic, dial indicator, surface roughness, projectors, profilometer, and hardness testers.

Responsible for checking gauges, instruments, equipment and other measuring devices to conform within specified limits and makes minor adjustments.

Prepares proper forms and checks material against accompanying batch-card or other records and maintains records such as scrap logs and control charts.

Transfers or moves material into containers or material handling equipment as instructed.

Maintains area housekeeping and performs other related duties as assigned.

QUALIFICATIONS:

One year experience as in Inspector in a machine shop environment.

PREPARED BY: _____

DATE: _____

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T/C ANALYST	DATE	DEPT. MGR.	DATE	T/C HUMAN RESOURCES MGR.	DATE

WAGE POSITION DESCRIPTION

JOB TITLE: CHEMICAL OPERATOR

PRIMARY FUNCTION:

TOOLS AND EQUIPMENT:

MATERIAL:

DIRECTION OF OTHERS:

DUTIES AND RESPONSIBILITIES:

Is responsible for, observes, and/or operates various assigned equipment, such as a chemical or process apparatus performing an operation or a sequence of operations to carry out chemical or physical reaction or to transfer material or package materials. May involve, but not be limited to, handling hazardous waste(s)/material(s).

May inspect materials, product and/or equipment to assure conformity to specification or to ascertain correct performance and report discrepancies to supervision. May involve, but not be limited to, handling hazardous waste(s)/material(s).

May prepare logs, performance sheets or other technical records and may affix signature, indicating responsibility for and validation and corroboration of data.

Supports non-process related activities throughout the site, acquiring, storing, and retrieving samples handling packaging of low level waste. May use a variety of handtools and motorized equipment to perform tasks.

May be assigned to a team with other classifications to accomplish work assignments. May be responsible to assist with on-the-job training.

May exercise limited independent judgment when authorized by procedure.

Is responsible to supervision for all work performed at his/her work station.

Is responsible for and performs housekeeping duties at his/her work stations.

Performs other related duties as assigned.

QUALIFICATIONS:

High school graduate or equivalent plus two years applicable experience preferred in industrial chemical operation experience. Must be physically qualified. Where applicable, must have and be able to retain the physical requirements to wear chemical protective clothing and respiratory protection.

PREPARED BY: _____

DATE: _____

APPROVALS

T/C ANALYST	DATE	DEPT. MGR.	DATE	T/C HUMAN RESOURCES MGR.	DATE

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION I: CLOSURE PLAN,
POST-CLOSURE PLAN INFORMATION,
AND FINANCIAL INFORMATION

RCRA PART B PERMIT APPLICATION
FEMP REVISION 2 0994
PAGE 1 OF 1

RCRA Part B Permit Application
Fernald Environmental Management Project
Fernald, Ohio

SECTION I - CLOSURE PLAN INFORMATION
POST-CLOSURE INFORMATION, AND FINANCIAL REQUIREMENTS

Closure of the seven container storage units will be achieved through the Resource Conservation and Recovery Act (RCRA)/Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) integration process as established in the Director's Findings and Orders. This order is currently being negotiated with the Ohio Environmental Protection Agency (OEPA).

Part B Permit Application
Fernald Environmental Management Project
Fernald, Ohio

SECTION J - CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS

The U.S. DOE and USEPA have agreed to address RCRA corrective action requirements for Solid Waste Management Units (SWMUs) under the Amended Consent Agreement. Information normally presented in Section J will be presented in the appropriate CERCLA document.

The provisions of Section VIII of the Amended Consent Agreement that relate to corrective action for SWMUs are incorporated by reference into this section of the FEMP Resource Conservation and Recovery Act (RCRA) Part B Permit Application. The required actions and associated schedules to comply with these provisions will be provided in the Record of Decision (ROD) for each Operable Unit. The full text of Section VIII of the Amended Consent Agreement is provided for reference:

- "A. The Parties intend to integrate into this comprehensive Agreement U.S. DOE's CERCLA response obligations and RCRA corrective action obligations that relate to the release(s) of hazardous substances, pollutants, contaminants, or hazardous constituents covered by this Agreement. Therefore, the Parties intend that activities covered by this Agreement will be deemed to achieve compliance with CERCLA, 42 U.S.C §9601 et seq.; to satisfy the corrective action requirements of Section 3004(u) of RCRA, 42 U.S.C. §§6924(u) and 6924(v) for a RCRA permit, and Section 3008(h) of RCRA, 42 U.S.C. §6928(h) for interim status facilities; and to meet or exceed all applicable or relevant and appropriate Federal and State laws and regulations, to the extent required by Section 121 of CERCLA, 42 U.S.C. §9621. However, this Agreement is not a RCRA permit.
- B. Based on the foregoing, the Parties intend that any removal or remedial action(s) selected, implemented, and completed under this Agreement shall be deemed by the Parties to be protective of human health and the environment such that remediation of releases covered by this Agreement shall obviate the need for further corrective action under RCRA. The Parties agree that with respect to releases of hazardous waste and hazardous constituents covered by this Agreement, ~~from SWMUs and Hazardous Work Management Units identified in Table J-1,~~ RCRA shall be considered an Applicable or Relevant and Appropriate Requirement (ARAR) pursuant to Section 121 of CERCLA.

- C. If a RCRA permit is issued to U.S. DOE for on-going hazardous waste management activities at the facility, USEPA shall reference and incorporate any appropriate provisions, including appropriate schedules (and the provision for extension of such schedules), of this Agreement into such permit. The Parties intend that the judicial review of any permit conditions which reference this Agreement shall, to the extent authorized by law, only be reviewed under the provisions of CERCLA.
- D. Except for the provisions specifically set forth herein, this Agreement shall not alter U.S. DOE's authority with respect to removal actions conducted pursuant to Section 104 of CERCLA, 42 U.S.C. §9604."

SECTION K - OTHER LAWS

RCRA Part B Permit Application
 Fernald Environmental Management Project
 Fernald, Ohio

~~ACTS REFERENCED IN 40 CFR 270.3~~

The Fernald Environmental Management Project (FEMP) has reviewed and is in compliance with any all applicable sections of the following laws acts as referenced in 40 CFR 270.3:

- **THE WILD AND SCENIC RIVERS ACT OF 1968 (16 U.S.C. 1273 et- seq.)**
 Wild and Scenic Rivers Act prohibits the Regional Administrator from assisting, by license or other means, the construction of any water resource project that would have a direct and adverse effect on the values for which a national wild and scenic river was established.

The Great Miami River, approximately 0.75 miles east and 1.5 miles south of the FEMP, is the nearest river to the FEMP. The segment of the river closest to the facility is not designated as a "Wild and Scenic River" or a "Study River" as defined by 36 CFR 297. In addition, the FEMP does not propose to construct any facilities that would adversely affect the free-flowing, scenic and natural values for which a Wild and Scenic River would be established.

- **THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 (16 U.S.C. 470 et- seq.)**

The National Historic Preservation Act of 1966 requires the Regional Administrator to adopt measures, when needed, that will mitigate potential adverse effects of a proposed licensed activity on properties listed or eligible for listing on the National Register of Historic Places. Consultation and coordination with federal and state historical preservation reservation agencies is required by Section 106 of the Act when cultural resources are in danger of being disturbed. Previous consultation contact with the State Historic Preservation Officer (SHPO) had established that the 1,050 acre site is not listed or eligible for inclusion listing on the National Register of Historic Places. Therefore there is no requirement to consult the SHPO for new actions onsite. Therefore prior to any project within the FEMP property boundary (e.g. ground disturbance), DOE must consult with the SHPO. However in addition, a survey and consultation for each project undertaking outside the fence FEMP property boundary, such as the South Groundwater Contamination Plume Removal Action, is needed. No known resources have been identified in the area near the FEMP.

• THE ENDANGERED SPECIES ACT OF 1973 (16 U.S.C. 1531 et- seq.)

The Endangered Species Act of 1973 requires the Regional Administrator to ensure that any actions authorized by the U.S. EPA are not likely to jeopardize the continued existence of any endangered or threatened species, or to adversely affect its critical habitat. The ~~base-line~~ ~~baseline~~ ecological survey conducted by Miami University (Oxford, Ohio) in 1986 and 1987 found no federal ~~or~~ ~~state~~ endangered species at the FEMP. While the facility is not designated as a critical habitat in 50 CFR Parts 17 or 226, the Miami University study has identified suitable habitats at the FEMP for the following listed species:

1. The Indiana bat (*Myotis sodalis*) is a ~~federal and state listed~~ ~~federally~~ endangered species. While the ~~Indian bat~~ ~~has not been seen~~ ~~none have been seen~~ at the FEMP, some areas within the property along Paddy's Run are considered good habitat for the Indiana bat.
2. The Running Buffalo clover (*Trifolium stoloniferum*) is a ~~federally~~ endangered species and has been found near the FEMP. Surveys will be conducted in 1994 to confirm whether this species exists at the site.
3. The Sloan's crayfish (*Orconectes sloanii*) is listed as threatened by the Ohio Department of Natural Resources. Surveys conducted in 1993 have confirmed the presence of this species at the FEMP.
4. The cave salamander (*Eurycea lucifuga*) is on the Ohio's endangered species list and has been found in several locations close to the FEMP. ~~There are areas along Paddy's Run which are suitable habitat for the cave salamander, but none have been sighted.~~ However, surveys conducted in 1993 have concluded the cave salamander, is not present at the FEMP.

• THE COASTAL ZONE MANAGEMENT ACT OF 1972 (16 U.S.C. 1451 et- seq.)

The Coastal Zone Management Act of 1972 and implementing regulations (15 CFR Part 930) prohibit the U.S. EPA from issuing permits for activities affecting land or water use in the coastal zone in question until the applicant certifies that the proposed activity complies with the State Coastal Zone Management Program. There are no coastal zones as defined in 15 CFR Part 930 in the vicinity of the FEMP. Therefore, the Coastal Zone Management Act is not applicable to this facility.

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION K: OTHER FEDERAL LAWS

RCRA PART B PERMIT APPLICATION
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• THE FISH AND WILDLIFE COORDINATION ACT OF 1934 (16 U.S.C. 661 et seq.)

The Fish and Wildlife Coordination Act of 1934 requires the Regional Administrator to consult with the appropriate state agency exercising jurisdiction over wildlife resource conservation before issuing a permit that authorizes the impoundment, diversion, or modification of any body of water. The FEMP does not intend to construct any facility that would impound, divert, or modify any body of water regulated by the Fish and Wildlife Coordination Act.

OTHER ENVIRONMENTAL LAWS

In addition to the acts referenced in 40 CFR 270.3 (as stated above), the FEMP is in compliance with the Clean Water Act and Clean Air Act as indicated by the permits listed in the FEMP Part A Permit Application (Modified), Section A.