

RCRA PART B 3010 PERMIT APPLICATION

REVISION 6.0



MAY 2000

**FERNALD ENVIRONMENTAL
MANAGEMENT PROJECT**

**U.S. EPA Identification No. OH6890008976
Ohio EPA Permit No. 05-31-0681**

000001

For EPA Regional Use Only



For State Use Only

United States Environmental Protection Agency
Washington, DC 20460

Hazardous Waste Permit Application Part A

30 10

Date Received

Month Day Year

(Read the Instructions before starting)

I. ID Number(s)

A. EPA ID Number

B. Secondary ID Number (if applicable)

OH 6 8 9 0 0 0 8 9 7 6

II. Name of Facility

U S D O E F E R N A L D E N V P R O J E C T

III. Facility Location (Physical address not P.O. Box or Route Number)

A. Street

7 4 0 0 W I L L E Y R O A D

Street (continued)

City or Town

State

ZIP Code

H A M I L T O N

OH

4 5 0 1 3 - 9 4 0 2

County Code (if known)

County Name

0 3 1

H A M I L T O N

B. Land Type

C. Geographic Location

D. Facility Existence Date

(enter code)

LATITUDE (degrees, minutes, & seconds)

LONGITUDE (degrees, minutes, & seconds)

Month

Day

Year

F

3 9 1 7 5 6 N

0 8 4 4 1 1 6 W

1 1 1 9 1 9 8 0

IV. Facility Mailing Address

Street or P.O. Box

H 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

OH

4 5 2 5 3 - 8 7 0 5

V. Facility Contact (Person to be contacted regarding waste activities at facility)

Name (last)

(first)

S A T T L E R

J O H N

Job Title

Phone Number (area code and number)

W A S T E M G M T T E A M L D R 5 1 3 - 6 4 8 - 3 1 4 5

VI. Facility Contact Address (See instructions)

Contact Address Location Mailing

B. Street or P.O. Box

X

City or Town

State

ZIP Code

3010

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
SECTION A: RCRA PART A PERMIT

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00

ITEM VII: OPERATOR INFORMATION (Continued)

NAME OF CO-OPERATOR

~~Fluor Daniel Fernald~~ Fluor Fernald, Inc.

STREET OR P.O. BOX

P.O. Box 538704

CITY OR TOWN

Cincinnati

STATE

Ohio

ZIP CODE

45253-8704

TELEPHONE NUMBER

(513) 648-3000

000004

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 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, remediation, environmental response actions, nuclear material disposition, new construction (primarily to support CERCLA) response, and miscellaneous operations (e.g., wastewater treatment).

3010

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	V
	STORAGE:		SHORT TONS PER HOUR	D
S01	CONTAINER (barrel, drum, etc.)	GALLONS OR LITERS	METRIC TONS PER HOUR	W
S02	TANK	GALLONS OR LITERS	SHORT TONS PER DAY	N
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
	<small>(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.)</small>	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	C
			HECTARE-METER	F
			BTU's PER HOUR	K

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	

IV. 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	D 0 0 1	1	1,500,000	P	S 0 1 1	3010 INCLUDED IN ABOVE
2	D 0 0 2	2				"
3	D 0 0 3	3				"
4	D 0 0 4	4				"
5	D 0 0 5	5				"
6	D 0 0 6	6				"
7	D 0 0 7	7				"
8	D 0 0 8	8				"
9	D 0 0 9	9				"
10	D 0 1 0	0				"
11	D 0 1 1	1				"
12	D 0 1 2	2				"
13	D 0 1 3	3				"
14	D 0 1 4	4				"
15	D 0 1 5	5				"
16	D 0 1 8	8				"
17	D 0 1 9	9				"
18	D 0 2 0	0				"
19	D 0 2 1	1				"
20	D 0 2 2	2				"
21	D 0 2 3	3				"
22	D 0 2 4	4				"
23	D 0 2 5	5				"
24	D 0 2 6	6				"
25	D 0 2 8	8				"
26	D 0 2 9	9				"
27	D 0 3 0	0				"
28	D 0 3 1	1				"
29	D 0 3 2	2				"
30	D 0 3 3	3				"
31	D 0 3 4	4				"
32	D 0 3 5	5				"
33	D 0 3 6	6				"

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						(2) PROCESS DESCRIPTION (if a code is not entered in D(1))							
	(1) PROCESS CODES (enter)																		
1	D	0	3	7	1,500,000	P	S	0	1						Included in above				
2	D	0	3	8											3010				
3	D	0	3	9											"				
4	D	0	4	0											"				
5	D	0	4	2											"				
6	D	0	4	3											"				
7	F	0	0	1											"				
8	F	0	0	2											"				
9	F	0	0	3											"				
10	F	0	0	4											"				
11	F	0	0	5											"				
12	F	0	2	7											"				
13	P	0	0	4											"				
14	P	0	1	2											"				
15	F	0	1	8											"				
16	P	0	2	2											"				
17	P	0	3	7											"				
18	P	0	4	8											"				
19	P	0	5	0											"				
20	P	0	5	1											"				
21	P	0	5	9											"				
22	P	0	7	1											"				
23	P	0	8	2											"				
24	P	0	9	4											"				
25	P	0	9	8											"				
26	P	1	0	6											"				
27	P	1	1	3											"				
28	P	1	1	5											"				
29	P	1	1	9											"				
30	P	1	2	0											"				
31	P	1	2	3											"				
32	U	0	0	2											"				
33	U	0	0	3											"				

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	1,500,000	P	S	0	1										Included In Above
2	U	0	8	1															"
3	U	0	8	2															" 30 10
4	U	0	8	3															"
5	U	0	8	4															"
6	U	0	8	8															"
7	U	1	0	1															"
8	U	1	0	2															"
9	U	1	0	5															"
10	U	1	0	6															"
11	U	1	0	7															"
12	U	1	0	8															"
13	U	1	1	2															"
14	U	1	1	7															"
15	U	1	2	0															"
16	U	1	2	1															"
17	U	1	2	2															"
18	U	1	2	3															"
19	U	1	2	7															"
20	U	1	2	8															"
21	U	1	2	9															"
22	U	1	3	0															"
23	U	1	3	1															"
24	U	1	3	4															"
25	U	1	4	1															"
26	U	1	5	1															"
27	U	1	5	4															"
28	U	1	5	9															"
29	U	1	6	1															"
30	U	1	6	5															"
31	U	1	6	7															"
32	U	1	6	8															"
33	U	1	6	9															"

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EPA I.D. Number (enter from page 1)	Secondary ID Number (enter from page 1)
H 6 8 9 0 0 0 8 9 7 6	

IV. 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	1,500,000	P	S	0	1												Included In Above
2	U	0	8	1																	"
3	U	0	8	2																	" 30 10
4	U	0	8	3																	"
5	U	0	8	4																	"
6	U	0	8	8																	"
7	U	1	0	1																	"
8	U	1	0	2																	"
9	U	1	0	5																	"
10	U	1	0	6																	"
11	U	1	0	7																	"
12	U	1	0	8																	"
13	U	1	1	2																	"
14	U	1	1	7																	"
15	U	1	2	0																	"
16	U	1	2	1																	"
17	U	1	2	2																	"
18	U	1	2	3																	"
19	U	1	2	7																	"
20	U	1	2	8																	"
21	U	1	2	9																	"
22	U	1	3	0																	"
23	U	1	3	1																	"
24	U	1	3	4																	"
25	U	1	4	1																	"
26	U	1	5	1																	"
27	U	1	5	4																	"
28	U	1	5	9																	"
29	U	1	6	1																	"
30	U	1	6	5																	"
31	U	1	6	7																	"
32	U	1	6	8																	"
33	U	1	6	9																	"

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)												D. PROCESSES											
Line Number	A. EPA HAZARDOUS WASTE NO. (enter code)				B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	(1) PROCESS CODES (enter)					(2) PROCESS DESCRIPTION (if a code is not entered in D(1))											
1	U	1	7	0	1,500,000	P																Included In Above	
2	U	1	7	1																			"
3	U	1	7	9																			" 30 10
4	U	1	8	3																			"
5	U	1	8	5																			"
6	U	1	8	7																			"
7	U	1	8	8																			"
8	U	1	9	1																			"
9	U	1	9	2																			"
10	U	1	9	6																			"
11	U	2	0	3																			"
12	U	2	0	7																			"
13	U	2	0	8																			"
14	U	2	0	9																			"
15	U	2	1	0																			"
16	U	2	1	1																			"
17	U	2	1	3																			"
18	U	2	1	8																			"
19	U	2	1	9																			"
20	U	2	2	0																			"
21	U	2	2	6																			"
22	U	2	2	7																			"
23	U	2	2	8																			"
24	U	2	3	9																			"
25	U	2	4	7																			"
26	U	3	5	9																			"
27	U	0	9	6																			"
28	D	0	2	7																			"
29																							
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31																							
32																							
33																							

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ITEM XV: MAPS

There are ~~twenty-six (26)~~ twenty-three (23) RCRA Hazardous Waste Management Units (HWMUs) at the Fernald Environmental Management Project (FEMP). The following units have been reclassified and are no longer listed as HWMUs:

- HWMU #2, Parts Cleaner in Welding Shop (Bldg 12), has been removed based on correspondence received from OEPA on November 1, 1993.
- HWMU #24 Equipment Storage Area has been removed due to the correspondence from Ohio EPA to DOE, dated June 2, 1992.
- HWMU #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.
- HWMU #23 - Well Drilling Storage Area and #45 - UST No. 5 were removed in accordance with correspondence from the Ohio EPA dated November 1, 1993.
- HWMU #40 - Biosurge Lagoon was removed based on correspondence received from OEPA dated February 14, 1995.
- HWMU #16 - Primary Calciner was removed based on correspondence from the Ohio EPA dated July 11, 1995.
- HWMU #21 - Hilco Oil Recovery was removed based on correspondence received from OEPA dated June 17, 1996.
- HWMU #51 - Experimental Treatment Facility (ETF) was removed based on correspondence received from Ohio EPA dated December 6, 1995.
- HWMU #12 - Wheelabrator (Bldg. 66) was removed based on correspondence received from OEPA dated March 27, 1995.

In addition, the FEMP has closed the following HWMUs:

- HWMU #3 - Waste Oil Storage in Garage
- HWMU #6 - Drummed HF Residue/Associated Storage Areas Inside Plant 4
- HWMU #7 - Drummed HF Residue/Associated Storage Areas NW of Plant 4
- HWMU #8 - Drummed HF Residue/Associated Storage Areas South of Cooling Towers

000014

ITEM XV: MAPS (Continued)

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- HWMU #9 - Nitric Acid Rail Car and Area
- HWMU #13 - Wheelabrator Dust Collector
- HWMU #25 - Plant 1 Storage Building (Bldg. 67)
- HWMU #26 - Detrex Still
- ~~HWMU #28 - Trane Incinerator~~
- HWMU #30 - Barium Chloride Salt Treatment Facility
- HWMU #31 - Tank for Bulk Storage of Solvents, T-5
- HWMU #32 - Tank for Bulk Storage of Solvents, T-6
- ~~HWMU #34 - KC-2 Warehouse (Bldg. 63)~~
- HWMU #35 - Plant 9 Warehouse (Bldg. 81)
- HWMU #38 - HF Tank Car
- ~~HWMU #50 - UNH Tank, Hot Raffinate Building~~
- HWMU #52 - North and South Solvent Tanks
- HWMU #53 - Safe Geometry Digestion Sump
- HWMU # 54 - Tank T-2

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

There are no drinking water wells within one-quarter mile of the production area. The FEMP tied into the Hamilton County public water supply system on February 17, 1996 and is no longer using Production Wells #1 through #3 for drinking water. The drinking water wells within one-quarter mile of the property boundaries are shown on Figure A-2.

000015

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

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00

30 10

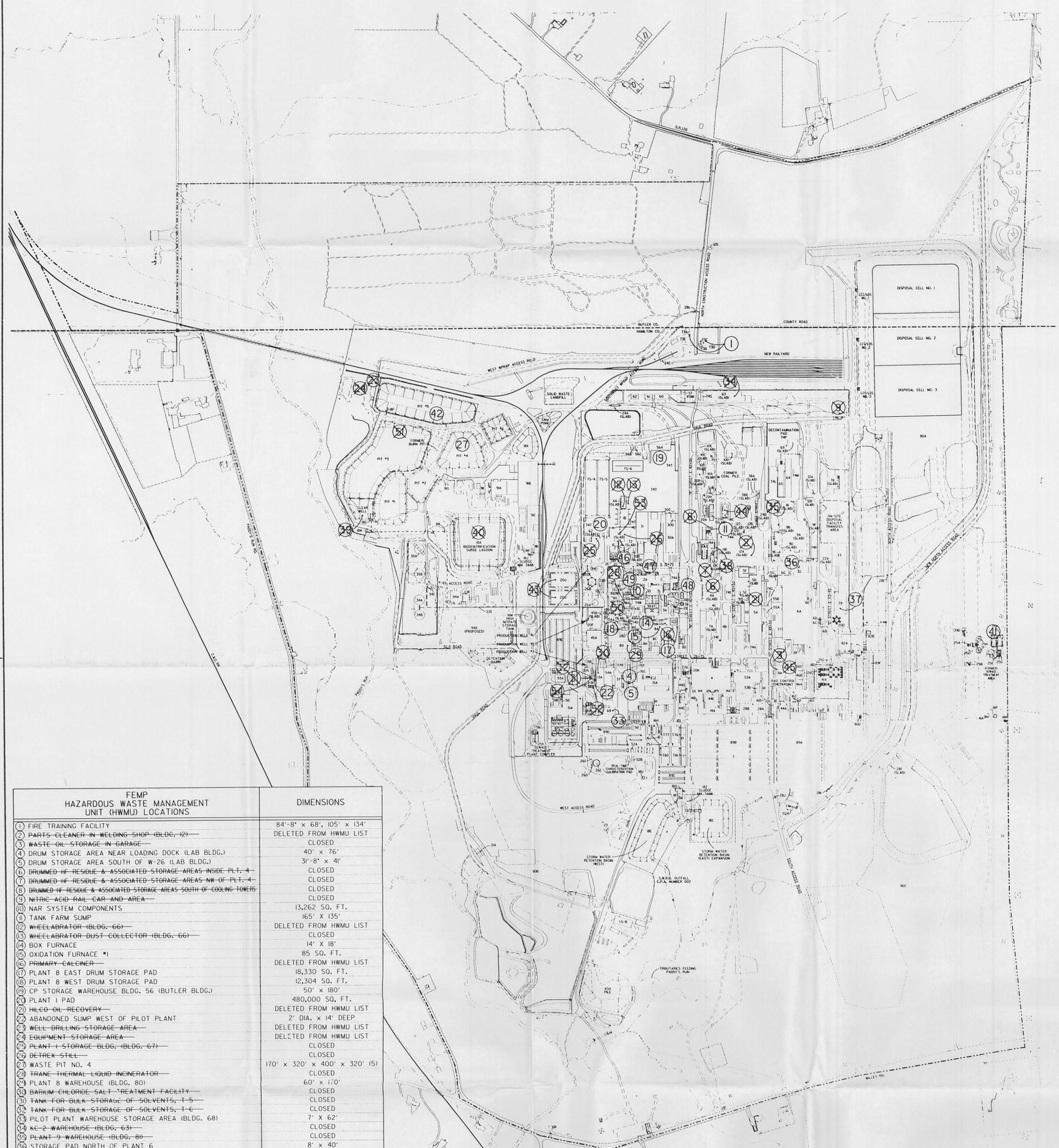
XVI: FACILITY DRAWING

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.

000016

22" 17" 11" 8.5" 8.5" 11" 17" 22" 24"



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

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
10	UPDATED & CLOSED HWMU'S 28, 34 & 50 PER RES #407	4/27/00	SJS	[Signature]	
9	UPDATED & CLOSED HWMU 54 PER RES #3900	4/27/99	SJS	[Signature]	
8	UPDATED & ADDED CURRENT DWG. FORMAT PER RES #3553	4/9/98	SJS	[Signature]	

PERFORMANCE GRADE	1	2	3	4	5
BY:					
DATE:					

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

Fernald Environmental Management Project

FLUOR DANIEL FERNALD

U.S. DEPARTMENT OF ENERGY

SITE PLAN RCRA PART A

FIGURE A-1 FACILITY LOCATION MAP

SCALE: 1" = 300'

RES #4626 DATE 5-24-98 DRAWN SJS/SMCK

75X-5500-X-00171 10

30 24 22 17 11 8.5 8.5 11 17 22 24

MAY 0 1 2000

000017

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

3010
RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00

ITEM XVII: PHOTOGRAPHS

Photographs of the ~~twenty-six (26)~~ ~~twenty-three (23)~~ RCRA Hazardous Waste Management Units are provided as Attachment #2.

000018

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	2	84'8" x 68'
1B	Fire Training Facility*	D	D80	2	105' x 134'
2	Parts Cleaner in Welding Shop (Bldg 12) (Removed in accordance with OEPA letter of November 1, 1993)	S	S01		33" x 71" x 5/8"
3	Waste Oil Storage in Garage (Closed in accordance with OEPA letter of June 6, 1996)	S	S01	3	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 (Closed in accordance with OEPA letter of April 28, 1995)	S	S01	3	4' x 17'
7	Drummed HF Residue/Associated Storage Areas NW of Plant 4 (Closed under "Generator Closure" protocol in accordance with OEPA letter of June 13, 1996)	S	S01	3	25' x 30'
8	Drummed HF Residue/Associated Storage Areas South of Cooling Towers (Closed under "Generator Closure" protocol in accordance with OEPA letter of April 13, 1995)	S	S01	3	14' x 40' x 15'
9	Nitric Acid Rail Car and Area (Closed in accordance with OEPA letter of April 25, 1995)	S	S01	3	10' x 40' x 15'
10	NAR System Components	S	S02	2	13,262 sq. ft.
11	Tank Farm Sump	T	T02	2	165' x 135'
12	Wheelabrator (Bldg 66) (Removed in accordance with OEPA letter of March 27, 1995)	S	S01		24' x 20'
13	Wheelabrator Dust Collector (Bldg 66) (Closed in accordance with OEPA letter of April 5, 1996)	S	S01	3	30' x 17'
14	Box Furnace	T	T03	2	14' x 18'
15	Oxidation Furnace #1	T	T03	2	85 sq. ft.

000019

- 1) T = Treatment S = Storage D = Disposal
 2) Process Codes provided in Item XII of Hazardous Waste Permit Application Part A
 3) 1 = Active HWMU, Closure to be conducted under CERCLA/RCRA Integrated Process
 2 = Inactive HWMU, Closure to be conducted under CERCLA/RCRA Integrated Process
 3 = Inactive HWMU to be closed under RCRA
 4) 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

3010

TABLE A-1

UNIT NO.	FEMP HAZARDOUS WASTE MANAGEMENT UNITS	TYPE OF UNIT (1)	PROCESS CODE (2)	STATUS (3)	DIMENSIONS (4)
16	Primary Calciner (Removed in accordance with OEPA letter of July 11, 1995)	T	T03		13.5 ft diam x 40' high
17	Plant 8 East Drum Storage Pad	S	S01	2	18,330 sq ft
18	Plant 8 West Drum Storage Pad	S	S01	2	4,575 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	Heleo Oil Recovery (Removed in accordance with OEPA letter of June 17, 1996)	S	S01	3	272 sq. ft.
22	Abandoned Sump West of Pilot Plant	S	S01 S02	2	2' diam. x 14' deep
23	Well Drilling Storage Area (Removed in accordance with OEPA letter of November 1, 1993)	S	S01		20' x 56'
24	Equipment Storage Area (Removed in accordance with OEPA letter of June 2, 1992)	S	S01		45' x 145'
25	Plant 1 Storage Bldg. (Bldg. 67) (Closed under integrated RCRA/CERCLA process in accordance with Final Plant 1 Complex - Phase 1 Project Completion Report submitted December 31, 1997).	S	S01	2	165' x 100'
26	Detrex Still (Closed in accordance with OEPA letter of November 27, 1995)	S	S02	3	32" x 76" x 7'6"
27	Waste Pit No. 4	D	D80	2	170' x 320' x 400' x 320'
28	Trane Thermal Liquid Incinerator (Closed under integrated RCRA/CERCLA process in accordance with Project Completion Report for the Decontamination of HWMU No. 50 UNH Tanks, Hot Raffinate Building, and HWMU No. 28 Trane Incinerator, May 28, 1999 and Miscellaneous Small Structures Decontamination and Dismantlement Project, Task Order #432 Completion Report, October 28, 1999)	T	T03	2	50' x 52'
29	Plant 8 Warehouse (Bldg. 80)	S	S01	1	60' x 170'
30	Berium Chloride Salt Treatment Facility (Closed)	T	T04	3	50' x 75'
31	Tank for Bulk Storage of Solvents, T-5 (Closed in accordance with OEPA letter of November 29, 1996)	S	S02	3	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 = Active HWMU, Closure to be conducted under CERCLA/RCRA Integrated Process
 2 = Inactive HWMU, Closure to be conducted under CERCLA/RCRA Integrated Process
 3 = Inactive HWMU to be closed under RCRA
 4) Dimensions are width x length x height - unless otherwise indicated
 5) Waste Unit No. 4 is irregularly shaped; dimensions provided are for each side
 * Unit No. 31 consists of one unit, but is split into 2 areas (A & B) because a road divides the unit

TABLE A-1

UNIT NO.	FEMP HAZARDOUS WASTE MANAGEMENT UNITS	TYPE OF UNIT (1)	PROCESS CODE (2)	STATUS (3)	DIMENSIONS (4)
32	Tank for Bulk Storage of Solvents, T-6 (Closed in accordance with OEPA letter of November 29, 1996)	S	S02	3	40' diameter
34	KC-2 Warehouse (Bldg. 63) (Closed under Integrated RCRA/CERCLA process in accordance with Miscellaneous Small Structures Decontamination and Dismantlement Project, Task Order #432 Completion Report, October 28, 1999)	S	S01	4	346'2 3/8" x 82'
35	Plant 9 Warehouse (Bldg. 81) (Closed in accordance with OEPA letter of June 8, 1998)	S	S01	4	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 (Closed in accordance with OEPA letter of November 27, 1995)	S	S01	2	10' x 36' x 15'
39	Clearwell (Removed in accordance with OEPA letter of June 7, 1993)	T	T02		30,600 sq. ft.
40	Bio-Surge Lagoon (Removed in accordance with OEPA letter of February 14, 1995)	T	T02		160,000 sq. ft.
41	Sludge Drying Beds	T	T02	2	79' x 92'
42	Waste Pit No. 5	T	T02	2	184,000 sq. ft.
43	Lime Sludge Ponds (Removed in accordance with OEPA letter of June 7, 1993)	S	S04		40,000 sq. ft.
44	Geol Pile Runoff Basin (Removed in accordance with OEPA letter of June 7, 1993)	S	S04		5,778 sq. ft.
45	UST No. 5 (Removed in accordance with OEPA letter of November 1, 1993)	S	S02		2'6" diameter
46	Uranyl Nitrate Tanks (NFS Storage Area)	S	S02	2	61'7" x 53'9"
47	Uranyl Nitrate Tanks (North of Plant 2)	S	S02	2	63'6" x 40'6"
48	Uranyl Nitrate Tanks (Southeast of Plant 2)	S	S02	2	54'7" x 45'4"
49	Uranyl Nitrate Tanks (Digestion Area [2 locations])	S	S02	2	127' x 20' (each loc.)

- 1) T = Treatment S = Storage D = Disposal
 2) Process Codes provided in Item XII of Hazardous Waste Permit Application Part A
 3) 1 = Active HWMU, Closure to be conducted under CERCLA/RCRA Integrated Process
 2 = Inactive HWMU, Closure to be conducted under CERCLA/RCRA Integrated Process
 3 = Inactive HWMU to be closed under RCRA
 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

000021

3010

TABLE A-1

UNIT NO.	FEMP HAZARDOUS WASTE MANAGEMENT UNITS	TYPE OF UNIT (1)	PROCESS CODE (2)	STATUS (3)	DIMENSIONS (4)
50	Urenyl Nitrate Tanks (Raffinate Building (2 locations)) (Closed under Integrated RCRA/CERCLA process in accordance with Project Completion Report for the Decontamination of HWMU No. 50 - UNH Tanks, Hot Raffinate Building and HWMU No. 28 - Trane Incinerator; May 26, 1999)	S	S02	2	14' x 50' x 15' x 30'
51	Experimental Treatment Facility (ETF) (Removed in accordance with OEPA letter of December 6, 1995)	T	T04		20' x 48'
52	North and South Solvent Tanks (Pilot Plant) (Closed in accordance with OEPA letter of June 24, 1996)	S	S02	3	6'6" diameter each
53	Safe Geometry Digestion Sump (Plant 1) (Closed in accordance with meeting with OEPA on March 2, 1995)	S	S02	3	8" diameter x 12" deep
54	Tank for Bulk Storage of Thorium Nitrate Solution, T-2 (Closed in accordance with OEPA letter of November 23, 1998)	S	S02	3	10' diameter

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- 1) T = Treatment S = Storage D = Disposal
 2) Process Codes provided in Item XII of Hazardous Waste Permit Application Part A
 3) 1 = Active HWMU, Closure to be conducted under CERCLA/RCRA Integrated Process
 2 = Inactive HWMU, Closure to be conducted under CERCLA/RCRA Integrated Process
 3 = Inactive HWMU to be closed under RCRA
 4) Dimensions: width x length x height - unless otherwise indicated
 5) Unit No. 4 is irregularly shaped; dimensions provided are for each side
 • Unit No. 51 contains one unit, but is split into 2 areas (A & B) because a road divides the unit

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

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00

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)
Revision FEMP 2.0	09/14/94	(Part B submittal)
Revision FEMP 2.1	07/31/95	
Revision FEMP 3.0	04/16/97	(Part B submittal)
Revision FEMP 4.0	05/29/98	(Part B submittal)
Revision FEMP 5.0	06/01/00	(Part B submittal)

ITEM X: OTHER ENVIRONMENTAL PERMITS (continued)

Closure Plans (CP) previously submitted:

- a. ~~Waste Pit No. 4 (Withdrawn)~~
Barium Chloride Salt Treatment Facility
~~Storage Pad North of Plant 6 (Withdrawn)~~
~~Trane Thermal Liquid Incinerator (Withdrawn)~~
Tank for Bulk Storage of Solvents, T-5 & T-6
~~Waste Pit No. 5 (Withdrawn)~~
HF Tank Car
Waste Oil Storage in Garage
~~Drum Storage Area South of W 26 (Laboratory Building) (Withdrawn)~~
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)⁺ (Withdrawn)~~
~~Plant 1 Pad⁺ (Withdrawn)~~
~~Pilot Plant Warehouse (Bldg 68)⁺ (Withdrawn)~~
~~KC 2 Warehouse (Bldg 63)⁺ (Withdrawn)~~
~~Plant 9 Warehouse (Bldg 81)⁺ (Withdrawn)~~
~~Plant 6 Warehouse (Bldg 79)⁺ (Withdrawn)~~
~~Plant 8 Warehouse (Bldg 80)⁺ (Withdrawn)~~
Fire Training Facility
~~Drum Storage Area near Lab Loading Deck (Withdrawn)~~
Detrex Still
~~Uranyl Nitrate Tanks (Withdrawn)~~
North and South Solvent Tanks (Pilot Plant)
~~NAR System Components (Withdrawn)~~
Drummed HF Residue South of Cooling Towers
Wheelabrator Dust Collector
Safe Geometry Digestion Sump (Plant 1)
- b. ~~Waste Pit No. 4 Post-Closure Plan (Withdrawn)~~

2) Underground Injection Control Program (UIC) under SWDA

None

Included in Part B Application, Section I

000021

ITEM X: OTHER ENVIRONMENTAL PERMITS (continued)

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

~~11000004*ED~~ ~~11000004*FD~~

- 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
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

ITEM X: OTHER ENVIRONMENTAL PERMITS (continued)

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
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. Bionitrification 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

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

3010
RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00

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	39	84	39	58	Parshall flume chamber to Great Miami River
002	39	17	34	84	41	21	Storm Sewer Outfall Ditch to Paddy's Run
003	39	17	17	84	41	32	Storm water runoff to Paddy's Run
004	39	17	30	84	41	40	Storm water runoff from inactive flyash pile area to Paddy's Run
005	39	17	50	84	41	49	Storm water runoff from Pilot Plant ditch to Paddy's Run
006	39	18	14	84	41	51	Storm water runoff from drainage swale at north end to Paddy's Run

000027

PTOACTIVE

OEPA_ID	SOURCE	FMPC_DESCR	EQUSTAT	PTOEXPDT	PTIUSDT
B006	100 MMBTU/HR NATURAL GAS/OIL FIRED BOILER	100 MMBTU GAS/OIL FIRED BOILER	V	11/05/1996	03/05/1997
B007	15 MMBTU GAS/OIL FIRED BOILER	GAS FIRED BOILER	V		09/27/1995
B008	15 MMBTU GAS/OIL FIRED BOILER	GAS FIRED BOILER	V		09/27/1995
B009	15 MMBTU GAS/OIL FIRED BOILER	GAS FIRED BOILER	V		09/27/1995
G001	GASOLINE DISPENSING FACILITY - GASOLINE & DIE	GDF - GAS & DIESEL	V	06/02/1998	04/07/1994
P274	DRYERS FOR RADIOLOGICALLY CONTAMINATED CL	CONTAMINATED CLOTHES DRYE	V	10/22/1996	05/06/1992
P275	DRYERS FOR NON-RADIOLOGICALLY CONTAMINAT	NON-CONTAMINATED CLOTHES	V	09/16/1996	05/06/1992
P287	NON-RADIOLOGICALLY CONTAMINATED CLOTHES	# 4 CISSLE DRYER	V		03/31/1993
P288	INDUSTRIAL HYGIENE LABORATORY HOOD SYSTEM	IH LAB HOODS	I		
T160	10,000 GAL DIESEL FUEL STORAGE TANK	DIESEL STORAGE TANK	V		07/26/1995

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**HAZARDOUS WASTE MANAGEMENT UNIT
TRANE THERMAL LIQUID INCINERATOR**

Closure Activities Have
Been Completed

000029

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000030

**HAZARDOUS WASTE MANAGEMENT UNIT
KC-2 WAREHOUSE (BUILDING 63)**

Closure Activities Have
Been Completed

**HAZARDOUS WASTE MANAGEMENT UNIT
URANYL NITRATE TANKS
(RAFFINATE BUILDING [2 LOCATIONS])**

Closure Activities Have
Been Completed

000031

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SECTION B - FACILITY DESCRIPTION

TABLE OF CONTENTS

B-1 GENERAL DESCRIPTION 1

 B-1a Legal Agreements 2

 B-1b CERCLA Activities 3

 B-1c Federal Facility Compliance Agreement/Federal Facility Compliance Act 6

B-2 TOPOGRAPHIC MAP 6

 B-2a General Requirements 6

 B-2b Additional Requirements for Land Disposal Facilities 10

B-3 LOCATION INFORMATION 10

 B-3a Seismic Standard 10

 B-3b Floodplain Standard 10

 B-3b(1) Demonstration of Compliance 10

 B-3b(2) Plan for Future Compliance with Floodplain Standard 10

 B-3b(3) Waiver for Land Storage and Disposal Facilities 10

B-4 TRAFFIC INFORMATION 10

LIST OF TABLES

- Table B-1 Container Storage Areas to be Permitted at the FEMP
- Table B-2 Daytime Residential/Business Population Distribution Within Five-Mile
 Radius of the FEMP, by Distance and Direction

3010

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION B: FACILITY DESCRIPTION

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
Page ii of ii

SECTION B - FACILITY DESCRIPTION

TABLE OF CONTENTS
(Continued)

LIST OF FIGURES

- Figure B-1 Location Of The FEMP Relative to the Surrounding Community
- Figure B-2 Topographic Map of the FEMP Sections A, B, and C
- Figure B-3 Area Plot Plan With 100-Year Floodplain Sections A, B, and C
- Figure B-4 Surface Water and Well Location Map
- Figure B-5 Major Roads and Interstates
- Figure B-6 Production Area Plot Plan Sections A, B, and C
- Figure B-8 In-Plant Traffic Control Signals/Signs and HWMU Primary Loading/Unloading Areas

LIST OF ATTACHMENTS

- Attachment B-1 Underground Sewer Systems for the FEMP

000033

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 Environmental Management Project Site Office (DOE-FEMP). DOE-FEMP 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-FEMP site manager reports directly to DOE-Ohio Field Office. 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, 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 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, and response actions, and from construction, maintenance and miscellaneous activities.

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 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 are not limited to, analytical laboratories, vendors and other laboratory facilities that have processed FEMP wastes.

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 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.~~

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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.

Director's Final Findings and Orders (DF&O)

In June 1996, Ohio Environmental Protection Agency (OEPA) issued a Director's Final Findings and Orders (DF&O) to the Fluor Daniel Fernald (FDF) and the U. S. Department of Energy (DOE). The DF&O establishes a RCRA/CERCLA integration strategy to address closures of FEMP Hazardous Waste Management Units (HWMUs). The integration strategy focuses on dividing the HWMUs into two categories. The first category contains thirteen HWMUs that are planned to be closed under RCRA prior to dismantlement of the component containing the HWMU. The second category contains twenty-two inactive HWMUs and seven active HWMUs that are planned to be closed through implementation of response actions under the CERCLA process.

The DF&O exempts U.S. DOE and FDF from those portions of the Ohio Revised Code (ORC) Sections 3734.02 and 3734.05 and OAC Chapter 3745-50 which require them to obtain a hazardous waste facility installation and operation permit for hazardous waste storage activities for the units identified in this permit application provided that these activities are conducted in accordance with the terms of this permit application and all other applicable hazardous waste laws and regulations. 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 ~~five~~ six container storage areas to be operated under the conditions of the DF&O for storage of hazardous waste. The locations of these units are identified on Figure B-2 (Section B).

B-1b CERCLA Activities

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), 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 is 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 were sequentially scheduled for 1994 (Operable Units 4 and 1) followed by Operable Units 2 and 5 in 1995, and Operable Unit 3 in 1997.

To accomplish the remediation of the FEMP, remedial alternatives have been proposed and evaluated for effectiveness, according to CERCLA regulations and guidance to select the final remedial alternatives. At this time, final 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 final remedial alternative for Operable Unit 1, as established in the Operable Unit 1 Record of Decision (ROD) signed by U. S. EPA and DOE in March 1995, 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. Soil from berms and other areas of the operable unit will be removed and dispositioned in accordance with selected remedies for process area soils as documented in the Operable Unit 5 ROD. Oversized pit debris and Operable Unit 1 processing facilities debris will be dispositioned in a manner consistent with Operable Unit 3 debris.

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 selected remedy for Operable Unit 2, as established in the Operable Unit 2 ROD signed by U. S. EPA and DOE in June 1995, involves excavation and on-property disposal of the flyash piles, solid waste landfill, lime sludge ponds, and South Field. Soil and debris characterized as clean fill and/or construction rubble will be left in place. Contaminated soil will be removed and dispositioned in accordance with selected remedies for process area soils as documented in the Operable Unit 5 ROD. Other materials exceeding the on-property waste acceptance criteria will be dispositioned off-property.

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.

The Final ROD addresses treatment and disposal of the inventory of material waste and debris, including those generated by the Interim Remedial Action. The final remedial alternative for Operable Unit 3 involves selected material treatment, on-property disposal of OU3 material that presents minimum risk to human health, and off-site disposal of material that is highly contaminated. Environmental media, such as soils and groundwater underlying or in the vicinity of OU3, are being addressed within the scope of OU5.

OPERABLE UNIT 4

Operable Unit 4 consists of two earthen-bermed concrete silos (Silos 1 and 2) containing K-65 residues, which are high-specific-activity, radium-bearing residues resulting from the pitchblende-refining process; one concrete silo containing metal oxides (Silo 3); and one unused concrete silo (Silo 4).

During 1997 a decision was reached among DOE, EPA, and OPA to separate the remediation of Silo 3 material from the remediation of Silos 1 and 2 material, and to reevaluate the treatment remedies for both materials. In addition, the Silos 1 and 2 Accelerated Waste Retrieval Project was initiated to provide safe storage of the Silos 1 and 2 until treatment and disposal can be implemented.

Silos 1 and 2 Remediation

A draft Revised Feasibility Study / Proposed Plan (FS/PP) for Silos 1 and 2 was approved by the U.S. EPA on March 22, 2000. The Proposed Plan, which recommends chemical stabilization as the treatment remedy for Silos 1 and 2 material, was issued for formal public comment April 3, 2000. The public comment period ends May 18, 2000. After all public comments have been addressed in the responsiveness summary, a ROD Amendment will be prepared documenting the final remedy decision for Silos 1 and 2.

The Silos 1 and 2 Project initiated the Accelerated Waste Retrieval (AWR) Project in 1998 to transfer the Silos 1 and 2 material to an interim storage facility while awaiting treatment. The project also includes the design, construction, and startup of a Radon Control System to control radon emissions during the construction and operation phases of the AWR project, as well as during interim storage and the operation of the Silos 1 and 2 full-scale treatment facility. A contract for implementing the AWR Project was awarded to Foster Wheeler Environmental Corporation in 1999. Initial design activities took place during the remainder of the year.

Silo 3 Project

A contract for the Silo 3 stabilization/solidification facility was awarded to Rocky Mountain Remediation Services in December 1998. Construction of the facility is scheduled to begin in the fall of 2000.

On September 25, 1997, an announcement was issued in the Commerce Business Daily (CBD) soliciting input from the commercial sector on commercially available technologies potentially applicable to treatment of Silo 1 and 2 material. Responses were received identifying a wide range of potential treatment technologies. As specified by the July 1997 Dispute Settlement, contracts were issued to four commercial contractors to conduct parallel Proof of Principle Testing of potential technologies to collect data regarding their applicability to treatment of Silo 1 and 2 material. The results of this testing will support detailed evaluation of treatment alternatives as part of the revised Silo 1 and 2 Feasibility Study (FS). Testing from these vendors was completed in January 1999 and the preparation of final reports is in process.

The revised remedy for Silo 3 material identified in the final ESD consists of: Treatment, using either Chemical Stabilization/Solidification or a Polymer Based Encapsulation process, to stabilize characteristic metals to meet RCRA TCLP limits and attain disposal facility WAC; and offsite disposal at either the NIS or an appropriately permitted commercial disposal facility.

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OPERABLE UNIT 5

Operable Unit 5 (OU5) consists of the environmental media (groundwater, soil, sediments, surface water, air, vegetation, and wildlife).

The final remedial alternative for Operable Unit 5, as established in the Operable Unit 5 Record of Decision (ROD) signed by U. S. EPA and DOE in January 1996, involves the excavation and disposal of contaminated soils meeting the waste acceptance criteria in the on-property disposal facility. Soils exceeding the on-property waste acceptance criteria will be disposed off-property. Storm water, groundwater, process and remediation wastewaters, and other waters within the operable unit will be removed and treated for release by the FEMP wastewater treatment system.

B-1c Federal Facility Compliance Agreement (FFCA)/ Federal Facility Compliance Act (FFCAct)

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 (FFCAct) required DOE to enter into a Compliance Order with the host state (in this case Ohio) which outlined the schedule for the treatment of mixed wastes stored or to be produced at the DOE sites. In October 1995, Ohio Environmental Protection Agency (OEPA) issued a Director's Final Findings and Orders to implement the plans and schedules for developing mixed waste treatment capacity established in the FEMP's Federal Facility Compliance Act (FFCAct) Site Treatment Plan (STP). The FFCAct allows U.S. DOE to continue to store mixed waste without being subject to fines and penalties for land disposal restriction (LDR) storage violations provided that it is in compliance with the STP and the implementing DF&O.

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. 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 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).

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 secondary 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. The primary access to the Former Production Area is through a gate at the Receiving and Incoming Materials Inspection Area (RIMIA) which, during operation, is manned by a Security officer. Also located on the north side of the facility is a construction entrance through a locked gate. 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 foot fencing, and the former production area is surrounded by a physical barrier or monitored 24 hours a day by security. 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.~~

The Fernald site maintains three accesses from the public highways. The primary facility access is from the south off of Willey Road. Willey road connects to State Route 128 approximately 3300 feet southeast of the South Access road to the site. This access point leads to the parking lots and a connector road to the north. The remaining two access points to the facility are to the north off of State Route 126. All access points to the facility are monitored by security during hours of operations. The access points from the north lead to the railyard activities, Receiving Materials Inspection Area (RIMIA), storage cell and the main parking lots. A fence identifies the facility boundary with signage and notices to trespassers.

The former production area, which is 136 acres, is in the center third of the 1050 acres surrounded by a perimeter fence. Access to the former production area requires specialized training and/or an escort. Individuals access this area by processing through a HIS/20 computer-based program using their identification badge, which logs entries and exits. There are multiple entry points to the former process area. All locations are equipped with the HIS/20 computer program and are monitored by Security and radiological technicians.

All individuals requiring access must be in possession of a Department of Energy identification badge to enter the facility. Visitor or others that are not in possession of a standard badge must stop by the Badging trailer or security to obtain the necessary badge and complete the required paperwork. The Badging trailer is located on the South Access road prior to the security checkpoint. Any individual that violates access requirements is subject to disciplinary action.

Security conducts operations on a 24-hour a day basis seven days a week, including weekends and holidays. Security staffs stationary posts to monitor access activities and conducts routine foot and driving patrols.

Injection and Withdrawal Wells

As part of the OU5 groundwater remedy, there are five injection wells and sixteen extraction wells currently operating. During the peak of the OU5 remedy there will be approximately 10 re-injection wells as well as 37 extraction wells in operation. There are also 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. The OSDF project also has 1 withdrawal well, used for dust control. The FEMP has completed tie in to the Public Water Supply System so that these wells are no longer used to supply potable water for the site.

~~These wells are maintained but are currently not in use with the exception of providing a source of water used for dust control. The On Site disposal Facility (OSDF) project has installed one withdrawal well also used for dust control.~~

As part of the OU5 groundwater remedy, the FEMP currently operates five injection wells and eighteen extraction wells. At the peak of the OU5 remedy, there will be approximately 10 injection wells and 37 extraction wells.

There are three operating withdrawal (production) wells, located in the southwest quadrant of the former production facility (Figure B-4). The depth of each of these wells is 210 feet and the distance from ground level to the surface of the regional aquifer water table ranges between 50 and 60 feet. Two additional withdrawal wells were installed as part of the OSDF project. These five wells are used to provide water for dust control at the FEMP.

Several private wells are located within 1000 feet of the FEMP property boundary. These wells are identified on Figure B-4. No private injection wells are known to be located on the FEMP property 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. 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. As a result of various removal actions, drainage from portions of the OU1 and OU4 areas is also controlled to 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 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 facility~~ is located on the east side of the facility on an access road between the

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION B: FACILITY DESCRIPTION

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
Page 11 of 11

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, which also leads to the Onsite Storage Disposal Cell currently under construction. A third entrance, located at the north end of the facility, is currently used for construction activity at the railroad annex. 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 24 hour, seven days per week control by security patrolmen as described in Section F 1, Security. Access requires processing through a computer-based program, which logs entries and exits. These access points are monitored by security and radiological technicians.

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 access roads is generally light. The two heaviest time periods for traffic are between ~~6:30~~ 6:00 and 7:30 AM, and 3:30 and ~~4:30~~ 5:00 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 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 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 re-paving 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 will utilize rail to transport waste offsite.

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 tankers for the transport of liquid hazardous wastes.

SECTION B - FACILITY DESCRIPTION

TABLE B-1

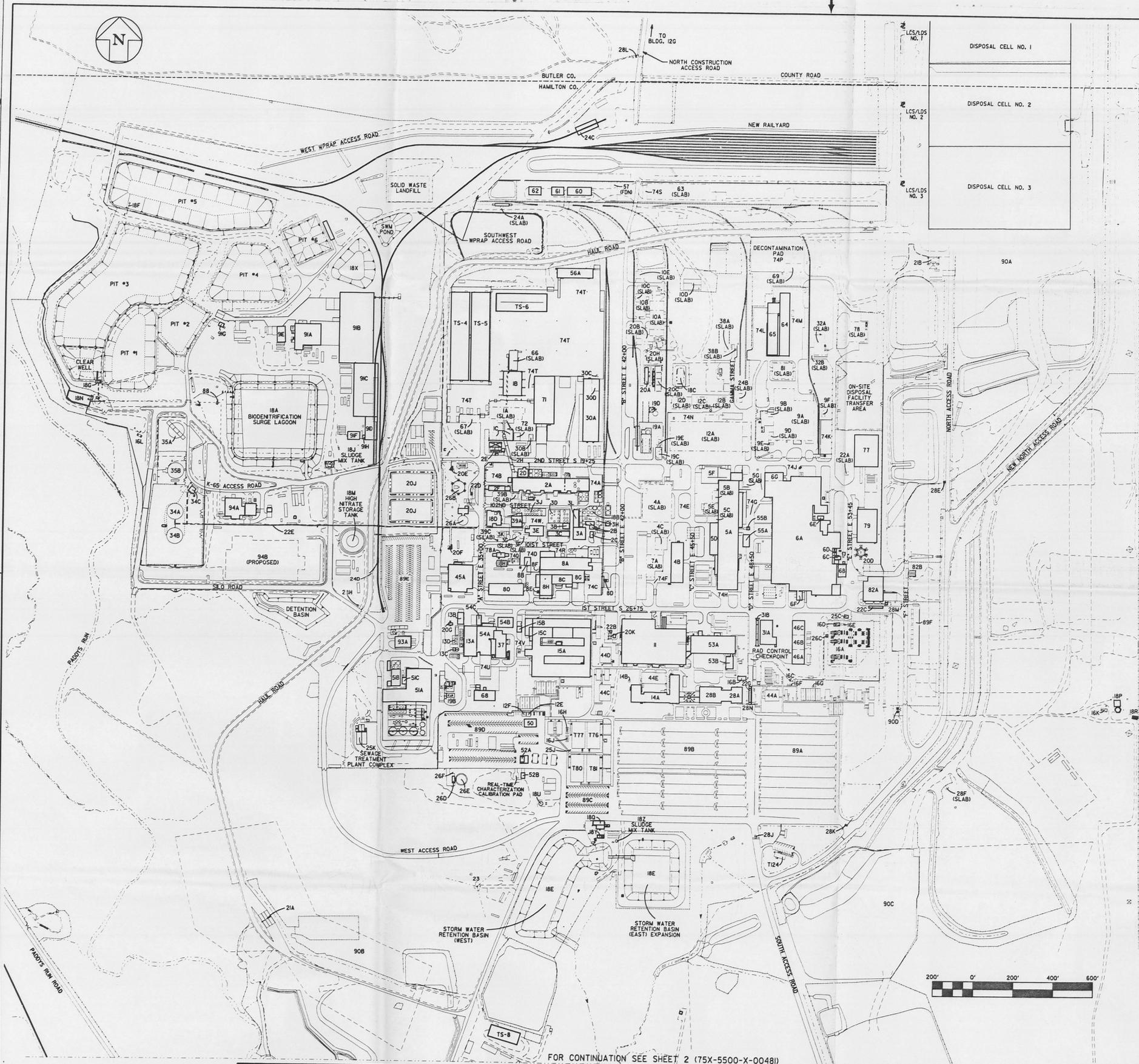
CONTAINER STORAGE AREAS TO BE PERMITTED AT THE FEMP

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	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

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FEMP SITE IDENTIFICATION



SECTION C - WASTE CHARACTERISTICS

TABLE OF CONTENTS

C-1.0	<u>INTRODUCTION</u>	1
C-1.1	<u>ORGANIZATION</u>	1
C-1.2	<u>SITE BACKGROUND</u>	1
C-1.3	<u>REGULATORY COMPLIANCE</u>	2
C-2.0	<u>WASTE DETERMINATION</u>	2
C-2.1	<u>PROCEDURES</u>	4
C-2.2	<u>ANALYSIS</u>	8
C-2.3	<u>LAND DISPOSAL RESTRICTIONS</u>	18
C-2.4	<u>QUALITY ASSURANCE/QUALITY CONTROL</u>	22
C-2.5	<u>RECORDS</u>	26
C-3.0	<u>WASTE ACCEPTANCE CRITERIA</u>	27
C-3.1	<u>OPERATIONS</u>	28
C-3.2	<u>ANALYSIS</u>	31
C-3.3	<u>LAND DISPOSAL RESTRICTIONS</u>	31
C-3.4	<u>QUALITY ASSURANCE/QUALITY CONTROL</u>	31
C-3.5	<u>RECORDS</u>	31
C-4.0	<u>STORAGE AND MANAGEMENT OF WASTES</u>	32
C-5.0	<u>OFF-SITE SHIPMENT OF WASTES</u>	33

FIGURES

(Follows Text)

Figure C-1	Waste Characterization Flowchart
Figure C-2	Material Evaluation Form (MEF)
Figure C-3	Debris Checklists
Figure C-4	Compatibility Codes
Figure C-5	LDR Documentation
Figure C-6	LDR Certification
Figure C-7	Chain of Custody Form
Figure C-8	Decision Diagram for Pre-Acceptance Phase
Figure C-10	Waste Analysis Certification/Request for Transfer Form
Figure C-11	Waste Characterization Process for Off-Site Receipts

TABLES

(Follows Text)

Table C-3	DOE Waste Categories Descriptions and Analysis Rationale
Table C-4	RCRA Regulated Hazardous Waste
Table C-5	Example Analytical Results
Table C-7	Sampling Equipment
Table C-9	Acceptance Criteria

ATTACHMENTS

Attachment C-1	Waste Determination Plan
Attachment C-2	RCRA Compliance Schedule for Hazardous Waste Streams
Attachment C-4	Sitewide CERCLA Quality Assurance Project Plan
Attachment C-6	Quality Assurance Memorandum of the U.S. Environmental Protection Agency dated January 12, 1993, (start from page 19).
Attachment C-7	Prototype Sampling and Analysis Plan for Containerized Waste at the FEMP (Revision 0, PCN-1) <u>Revision 2</u>

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.

C-1.3 REGULATORY COMPLIANCE

The FEMP currently stores wastes generated from former 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 capacity is developed in accordance with plans and schedules established in the FEMP's Federal Facility Compliance Act (FFCA) Site Treatment Plan.

The FEMP is operating under a Consent Decree and its Stipulated Amendment. Under this legal agreement, the parties agreed to a schedule for RCRA characterization of waste materials stored on site. Consent Decree schedules for completing waste characterizations are provided in 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.

C-2.0 WASTE DETERMINATION

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

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION C: WASTE CHARACTERISTICS

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
Page 3 of 35

of waste determination, and to describe the process of waste determination. Note: Wastes generated from CERCLA remedial actions will be characterized in accordance with each Record of Decision (ROD) for each CERCLA Operable Unit (OU). The characterization of bulk soil and debris generated from CERCLA remedial activities is tracked using profiles while the Waste Water Discharge Request Form is used to evaluate waste waters generated from CERCLA remedial actions for discharge into the FEMP's Advanced Waste Water Treatment Facility.

The Waste Characterization Department 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 department 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 response 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 ~~a~~ listed ~~as a~~ hazardous waste, the FEMP will determine if the waste is a characteristic hazardous waste as indicated in OAC 3745-51-20 through 24 and 40 CFR Part 261 Subpart C. This determination will be made by either (1) testing the waste according to methods (or equivalent approved methods) set forth in OAC 3745-51 and 40 CFR Part 261

Subpart C; or (2) obtaining data necessary to determine whether the waste is hazardous. The data may be obtained from site literature, from experience with the waste, from other sources, or a combination of sources.

Adequate data for waste determination to evaluate for listing considerations exists when materials in a process can be tracked and documented from the start of the process to the point when the waste is generated. If information is not sufficient to identify the specific origin of the waste, the process information will be considered incomplete. Sources for documentation at the 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 Requestor Section of the MEF is filled out by the process operator/project supervisor, who is responsible for the waste generation. An example of the Material Evaluation Form is provided in Figure C-2. This form is included as an example of the type of form used by the facility and is subject to change, based on changes in regulatory requirements or site procedures/requirements.

Once completed, the Requestor Section of the MEF is reviewed by FEMP personnel in the Waste Characterization Department 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 and wastes;
- Conversations with personnel familiar with the process or location;
- Text books which describe the processes;
- Material Safety Data Sheets; and
- Vendor Specification information.

Documentation of process knowledge, and supporting documentation is maintained in the waste characterization files. Additional actions such as a visual inspection, a request for additional process information, and/or a request for sampling and analysis of the waste are taken when process knowledge is inadequate to complete a characterization. After adequate information is gathered for the waste, results are evaluated, the Evaluation Section of the MEF is completed and RCRA waste codes assigned as warranted.

If the waste requires sampling and analysis, the parameters needed to assess the hazardous waste constituents of the waste are identified and a sampling plan is prepared. Preliminary information supplied on the Material Evaluation Form is used to develop the sampling plan. The sampling and analysis program is initiated by the Waste Characterization ~~Department 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;

000055

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

Debris

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. The assessment will also identify debris waste streams which can not be characterized under existing MEFs. New MEFs will be developed for these waste streams. 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 complete ~~this the contamination~~ assessment. If the waste is determined to be hazardous, the waste will be stored in one of the RCRA storage units.

Compatibility

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

Chemical constituency or compatibility of each hazardous waste is evaluated to ensure that the hazardous wastes stored in a unit are compatible with each other and with the construction of the unit. A Reactivity Group Code is assigned to each hazardous waste stream to ensure that incompatible hazardous wastes are not stored together. The generator of the hazardous waste is responsible for ensuring that the Reactivity Group Code (RGC) has been stenciled on the container. The current Reactivity Group Codes in use at the 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.

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, when necessary, is listed for each major category and may be found in Table C-3.

Container Labeling

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

C-2.2 ANALYSIS

This section presents the Waste Analysis Plan, including the parameters and rationale for parameter selection that apply to any individual waste stream generated 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 manage waste; the plan has ~~three~~ four objectives:

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

The Waste Analysis Plan may also be used to provide information for the initial screening of hazardous wastes for treatment as treatment facilities become available.

As much relevant information as possible is obtained in the absence of clear understanding of how some waste material will be treated based on the current limits of mixed waste treatment capacity.

Each waste stream is 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, 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 Section 7.2 of the Prototype Sampling and Analysis Plan for Waste at the FEMP (PL-3048). ~~Section 6.1.1 of the Prototype Sampling and Analysis Plan for Containerized Waste at the FEMP.~~ This plan is provided as Attachment C-7. ~~All methods reference the Sitewide CERCLA Quality Assurance Project Plan (SQ), unless otherwise noted.~~ When a waste stream has the potential to have several waste codes, the appropriate analytical tests are conducted on the sample.

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

For those constituent analyses not addressed in test methods presented in the SCQ, American Society of Testing Materials (ASTM) Standards 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.

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.

Toxic Characteristic Leaching Procedure (TCLP) Analysis

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

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

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

where,

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

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

- **Oil and oily wastes** - The TCLP has been demonstrated not to perform well on oily wastes; reproducibility of results has been shown to vary widely. Until USEPA promulgates new standards, 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 prepared a prototype containerized waste sampling and analysis plan (Attachment C-7) for sampling waste materials for characterization which are stored in containers such as cans, pails, drums, 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 group of similar material matrix and physical properties.

Sampling accuracy, or the closeness of a sample value to its true value, is achieved through randomized sampling of the waste containers within a given sub-waste stream.

Randomized sampling minimizes bias in the sample selection process by giving each container an equal probability of being sampled.

Sampling precision, or the closeness of repeated sample values, is achieved by increasing the number of samples to be collected, increasing the actual volume of the samples, or dividing a population into appropriate strata prior to sampling. Additional samples may be collected when the uniformity of the waste is not known and when sample collection is difficult. The volume of sample material collected at the 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 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 Waste at the FEMP (SAP) (PL-3048) ~~Prototype Sampling and Analysis Plan for Containerized Wastes at the FEMP (SAP)~~, (Attachment C-7). The plan is updated on a regular basis to resolve reoccurring sampling problems, regulatory changes, and changes in the supporting documents. The primary objective of the SAP is to generate data of sufficient quality to identify the regulatory status of, and safely manage, containerized waste materials. To satisfy SCO 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. 1, Soils and Solid Media. The following equation will be used to determine the number of samples to obtain a 90% completeness level:

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

where;

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
 FERNALD, OHIO
 EPA ID NO. OH6890008976
 SECTION C: WASTE CHARACTERISTICS

RCRA PART B PERMIT APPLICATION
 FEMP REVISION 6.0 05/00
 Page 15 of 35

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%).

000065

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 10,000	23	29

*Total number of samples required to maintain 90% completeness using a conservative R-value of 0.20 (20%). This number includes collecting one random sample from each 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, Sea/Land, or Top Load boxes, the required number of samples in this table is equal to the number of samples in this table plus one additional sample.

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

Composite samples are also used for large populations (more than 20 drums) of containers with capacities of 55 gallons or less. Samples are collected from randomly selected containers and then composited. Sample compositing does not occur when there are physical anomalies between the wastes such as changes in color or the container holds co-mingled waste such as demolition debris. Composite sampling only occurs when evaluating materials from the same wastestream.

The majority of waste generating activities at the 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 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 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). Figure C-5 is an example of the type of form used to document the information used to complete the LDR waste characterization.

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

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

Waste Characterization

As described in Section C-2.1, hazardous wastes are assessed to determine the applicability of all possible hazardous waste codes including both listed and characteristic codes. 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) and to identify the underlying hazardous constituents present in wastestreams subject to LDR Universal Treatment Standards in 40 CFR 268.48.

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

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 (40 CFR 268.40). 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.

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. 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. 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-2.3, 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-Third rule and UTS.

C-2.4 QUALITY ASSURANCE/QUALITY CONTROL

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

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

Sampling QA/QC

Quality control and assurance blanks, such as duplicates, equipment blanks, and/or trip blanks, will be collected. Duplicate samples are collected for waste streams with more than one drum at the rate of at least 10 percent of samples taken. For example, one duplicate sample is collected if three drums of waste are sampled; two duplicate samples are collected if 11 drums of waste are sampled. Equipment blanks are

collected immediately following equipment decontamination. Trip blanks accompany sample shipments every third week. Trip blanks are analyzed for volatile organics each time they are submitted.

Other samples may be collected as specified by the contract laboratory QA/QC procedures. These samples may include laboratory blanks and spiked blanks, split samples, and standards.

In addition to the quality control samples described above, the 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 (if other than specified in the sampling plan);
- number of phases or matrix;
- phase specific identifying number, if applicable;
- physical description;

- sampling anomalies and resolutions to sampling problems;
- customer number for laboratory use;
- requested analysis;
- quantity and type of bottles;
- preservation techniques (i.e., cool with ice, pH adjustment, etc.);
- type of sample (i.e., grab, composite, etc.); and
- identification of containers storing decontamination rinseate and personnel protective clothing.

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

Sample Containers

The sample containers selected for a particular waste stream are based on the sample matrix and the types of analysis that may be required for that particular waste stream.

Where various sample matrices are encountered or more than one analysis is required, the appropriate sample containers are used. The types of containers, preservatives, holding times, and minimum volumes required are presented in Table 7.1 of the Prototype Sampling and Analysis Plan for Waste at the FEMP (PL-3048). Section 6.2.1 of the Prototype Sampling and Analysis Plan for Containerized Waste at the FEMP.

This plan is provided as Attachment C-7.

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 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.

Equipment Decontamination

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

The general equipment decontamination procedure is described below:

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

Chain-of-Custody and Shipping Seals

Sample containers are placed in appropriate shipping containers after sample collection. The containers are cooled, as required, to meet preservative requirements. Sample transport documentation such as analytical requests and chain-of-custody forms (See Figure C-7) are affixed to or placed in the shipping container. The 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 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 if the returned samples match the inventory list.

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. As capacity becomes available, the FEMP requires 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 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-10.

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 Material Evaluation Form in Figure C-2. 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:

000017A

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION C: WASTE CHARACTERISTICS

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
Page 29 of 35

- 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 Department Group at the FEMP. After it is determined that the waste is from the FEMP, the generator is notified to schedule shipment of the waste.

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 labeling; and
- Fingerprint analysis of the waste (as necessary).

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.

000078

After verification of container condition and proper labeling, contents of the containers are examined to verify the physical state of the waste. Additional/confirmatory sampling and analysis may be conducted as necessary based on a review of data provided by the generator and the results from the verification of the waste shipped. The purpose of this verification is to ensure 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. As necessary, the sample undergoes a fingerprint analysis which includes pH, physical state, flashpoint, specific gravity, and reactivity. Table C-9 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. If the hazardous waste is rejected, the containers will remain segregated until the shipment is accepted or returned to the off-site generator.

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 if the discrepancy is not resolved within 45 days of hazardous waste receipt.

Compatibility

Upon acceptance of the waste, a Reactivity Group Code is stenciled onto the container. Each container is assigned a storage location based on the physical state and its Reactivity Group Code. 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
- The waste received does 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 MEF (Figure C-2) and WAC Certification/Request for Transfer form (Figure C-9) is required prior to acceptance of any hazardous waste from off-site sources. If visual inspection of the hazardous waste and fingerprint analyses (if required) 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 wastes to be consolidated are compatible. The review consists of evaluating the known characteristics of the material. If, after review of analytical data or other supporting documentation it is determined that there is insufficient information to evaluate compatibility, but prior to consolidating material together from different waste streams, aliquots representing the materials will be ~~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.

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION C: WASTE CHARACTERISTICS

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
Page 33 of 35

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 if the waste is not treated as part of a CERCLA response action.

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.

C-5.0 OFF-SITE SHIPMENT OF WASTES

Hazardous wastes shipped off-site shall be manifested under the appropriate hazardous waste manifest. This form will vary, based on the ultimate disposition of the waste (states require use of their own form; for this reason, a copy of the manifest has not been included). In addition to the manifest, 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 lab packs to off-site facilities for treatment under the alternative treatment standards for lab packs. The notification includes the Manifest Number and the Hazardous Waste No. The certification is signed by an authorized facility representative.

Notification and Certification for Wastes to be Further Managed

Prior to shipment of any hazardous waste stored at the 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 below. The FEMP also has the option of sending a one-time notification/certification with the initial shipment of waste. The completed

000082

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

Waste Not Meeting the Applicable Treatment Standard

If the hazardous waste does not meet applicable treatment standards, a notification accompanies each off-site shipment or the initial shipment of a hazardous waste to a facility (see sample form in Figure C-5). The notification includes the Manifest Number, Hazardous Waste No., the Subcategory if applicable, the Treatability Group, and the constituents of concern for certain waste types unless the waste will be treated and monitored for all constituents. ~~All applicable~~ California list restrictions under RCRA Section 3004(d) are also identified, when applicable. The sample notification form for hazardous wastes not meeting the applicable treatment standards is provided in Figure C-5.

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION C: WASTE CHARACTERISTICS

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
Page 35 of 35

Waste with Applicable Extensions

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

Characteristic Wastes That Are No Longer Hazardous

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

000084

MATERIAL EVALUATION FORM (MEF)

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PART 2 Evaluation Section
(To be completed by Waste Characterization Services)

A. WASTE STREAM IDENTIFICATION		
1. MEF #: _____ Revision No.: _____	2. Date Completed: _____	3. Material Type / Source Code of original material: Mat. _____ Src. _____
4. Evaluator: _____	5. Phone No.: _____	6. Badge No./Co. Name: _____
B. MATERIAL REGULATORY STATUS (check all that apply)		
<p>Regulated: Material Specific Regulation:</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no TSCA PCB Waste</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no Asbestos Containing-Waste Materials</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no OAC Infectious waste (only if disposed of in Ohio)</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no OAC Solid Waste (only if disposed of in Ohio)</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no RCRA Solid Waste (RCRA Subtitle C)</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no RCRA Hazardous Waste</p> <p>Hazardous Waste Code(s): _____</p> <p>_____</p>	<p>Regulated: Material Specific Regulation:</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no High Level Radioactive Waste</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no Transuranic (TRU) Waste</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no AEA 11(e)(2) Byproduct Material</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no Source (or) Special Nuclear Material</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no Low Level Radioactive Waste (LLRW).</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no Non-Radioactive waste. ***</p> <p>*** Radiological concurrence signature required for Non-Radioactive determination.</p> <p>Signature: _____ Date: _____</p> <p>Re-evaluation Date: _____</p> <p>Note: Waste stream must be re-evaluated by WCS if it is generated after the re-evaluation date listed above or when the stream/generating process changes.</p>	
C. MATERIAL MANAGEMENT		
<p>1. Waste Form Criteria:</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no Material contains free liquids.</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no Material is a wastewater. (40 CFR 268.2(f)).</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no Material meets the physical definition of debris (40 CFR 268.2(g)).</p> <p>Note: Safety Analysis Group will be informed of changes to characterization status, via the Characterization Change Notice (CCN) Report.</p>	<p>2. Container Specification:</p>	<p>3. Reactivity Group Code(s):</p>
D. WASTE CHARACTERIZATION APPROVAL		
<p>_____</p> <p>me:</p>	<p>Signature: _____</p>	

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS RECORD



P.O. BOX 638704
CINCINNATI, OH 45263-8704

REFERENCE DOCUMENT NO.:

ORIGINAL REF NO.:

CORRESPONDING REFERENCE DOCUMENT NO.:

PAGE 1 OF

RELEASE NO.:	PROJECT NO.:	FOR SAMPLE RELATED PROBLEMS, ACS CONTACT / PHONE:	CONTRACT PURCHASE ORDER / TASK ORDER NO.:
PROJECT NAME:		REQUIRED REPORT DATE / LAB TAX:	SAMPLE SHIPMENT DATE:
PROJECT CONTACT / PHONE:		RECEIVING LAB NAME:	SAMPLE SHIPPER (Print):
CHARGE NO.:	LOT MARKING NO.:	RECEIVING LAB ADDRESS:	OFF-SITE LAB CONTACT:
SAMPLING TEAM (Print) & GROUP NAME / PHONE:			
SAMPLING TEAM (Signature & Badge No.):			

ITEM NO.	SAMPLE NUMBER		SAMPLE MATRIX	C O M P	G R A B	FILTERED	COLLECTION		CONTAINER		NO CONTS	PRESERVATION	A S L	ANALYSES REQUESTED If more space is required, use the SPECIAL INSTRUCTIONS block.	DATE	TIME
	FACTS ID	CUSTOMER ID / SAMPLE POINT					DATE	TIME	TYPE	VOL.						
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																

SPECIAL INSTRUCTIONS:

RELINQUISHED					RECEIVED				
ITEM / REASON	RELINQUISHED BY (Signature) / AFFILIATION	BADGE NO.	DATE	TIME	RECEIVED BY (Signature) / AFFILIATION	BADGE NO.	DATE	TIME	
		1				1			
		2				2			
		3				3			
		4				4			
		5				5			

DISTRIBUTION OF COPIES: WHITE ON-SITE - RELEASE FILE / OFF-SITE ANALYTICAL LAB - RETURN TO FEMP YELLOW ON-SITE - DISTRIBUTE AS NEEDED / OFF-SITE ANALYTICAL LAB - RETURN TO FEMP BLUE SAMPLING TECH / PROJECT FILE

SHADED AREAS ARE TO BE COMPLETED BY THE SAMPLE RECEIVING GROUP

* IF "N", THEN COMPLETE APPLICABLE NON-CONFORMANCE PROCEDURE

000088

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TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS
 AND ANALYSIS RATIONAL

LAB PACKS

Description

This category includes wastes with one or more small containers of free liquids or solids surrounded by solid materials (virgin or waste materials) within a larger container.

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)

D012, ~~D013, D014, D015~~, D018, D019, D020, D021, D022, ~~D023, D024, D025~~, D026, D027, D028, D029, D030, ~~D031~~, D032, D033, D034, D035, D036, D038, D039, D040, D042, D043 (TCLP organics)

D004, D005, D006, D007, D008, D010, D011 (TCLP metals)

F004, F027, P004, ~~P012, P018~~, P022, P037, P048, P050, P051, P059, P071, P082, P094, P098, ~~P106, P113, P115, P119, P120~~, P123, U002, ~~U003~~, U004, U012, U019, U021, U022, U024, U027, U028, U031, U036, U037, U039, U043, U044, U045, U047, U048, U050, U052, U055, ~~U056~~, U057, U060, U061, U066, U068, U070, U072, U073, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U088, U096, U101, U102, U105, U106, U107, U108, U112, U117, U120, U121, ~~U122~~, U123, U127, U128, U129, U130, U131, U141, U154, U159, U161, U165, U167, U168, U169, U170, U171, U179, U183, U185, U187, U188, U191, U192, U196, U203, U207, U208, U209, U210, U211, U213, ~~U218, U219~~, U220, U226, U227, U228, U239, U247, U359, P098 (discarded or off-spec commercial product not suitable for recovery)

TABLE C-3

**DOE WASTE CATEGORIES DESCRIPTIONS
AND ANALYSIS RATIONAL**

LAB PACKS

Other Possible Waste Codes

D001 (oxidizer)
D003 (reactivity; unstable, violent change)

Remotely Possible Waste Codes

None Expected

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-4
RCRA Hazardous Waste Streams

<u>WASTE ID</u>	<u>DOE TYPE</u>	<u>WASTE NAME</u>	<u>US EPA HAZARDOUS WASTE</u>	<u>DETERMINATION BASIS</u>
131	1	DIESEL FUEL IN OIL	D018	PK
180	6	SOLVENT CONTAMINATED RAGS FROM	F002, F003	PK,MSDS,8
183	3	WATER/GAS MIXTURE TANK #8	D001, D018, D035	1,4,7,8,9
201	1	CRANKCASE OIL	D018	PK,MSDS
278	4	CONTAMINATED GRAPHITE CARBON	D005, D008	PK,4,9
345	1	KEROSENE FROM ABANDONED	D001, D018	PK,MSDS,1,3,8,9
358	2	CAUSTIC SOLUTION (NaOH) FROM PLANT	D002, D019	PK,1,3,5,7,8,9
379	1	SPENT 1,1,1-TRICHLOROETHANE	D008, D018, F001, F002	PK,MSDS
380	8	ABSORBENT PADS, RAGS AND GLOVES	D039, F002	PK,1,3,5,6,9
383	2	X-RAY FIXER & DEVELOPER, CLEAR LIQUID	D011	MSDS
385	1	SPENT SOLVENTS	D018, F001, F002	PK,MSDS,7,8
386	1	FLOOR SUMP CLEANOUT SLUDGE	D018, D019, D039, D040	PK,1,2,4,7,8,9
389	6	OILY RAGS FROM WATER TREATMENT	D008, D009, D010	PK,1,3,5,9
390	3	OILY SLUDGES FROM OIL COALESCING	D005, D008	PK,1,4,7,8,9
393	1	LUBRICATING OIL FROM REDUCTION	D008	1,3,8,9
395	1	PAINT THINNERS AND PAINT RESIDUES	D001, D035, F002	PK,MSDS
396	6	PAINT THINNER RAGS	F002, F003	PK,MSDS
398	8	NON-RECOVERABLE TRASH	D008, D009, F001	PK,MSDS,1,3,5,9
399	8	OILY RAGS, PADS AND TRASH FROM	D008, D039, F001	PK,1,3,5,9
400	1	USED OIL FROM MAINTENANCE	D001, D008, F001	PK,MSDS,1,4,8,9
403	6	1,1,1-TRICHLOROETHANE RAGS	D018, F002	PK
406	16	AEROSOL CANS	D001	PK,MSDS
408	1	USED OIL FROM GEAR BOXES, LATHES,	D005, D006, D008, F002	PK,1,3,7,8,9
410	8	OILY RAGS	F002	PK,1,3,5,9
412	1	1,1,1-TRICHLOROETHANE	D001, D006, F002	PK,MSDS,1,3,8,9
414	1	USED OIL	D001, D006, D008, D009, D039, F001,	PK,1,3,8,9
415	8	OILY RAGS AND ABSORBENTS WD-40 AND	D008, D018, F002	PK
416	1	CHLOROFORM	D022	PK
418	1	USED ACETONE AND WATER	D001	PK,MSDS
419	1	XYLENE	D001	PK,MSDS
421	1	METHANOL	D001, F003	PK,MSDS
423	17	ELEMENTAL MERCURY	D009	MSDS
425	1	DIGESTION WASTE (ANL-3002: NITRIC	D001, D002, D004, D005, D006, D007,	PK,MSDS
426	1	METHANOL AND CYCLOHEXANE MIXTURE	D001	PK
427	20	NICKEL-CADMIUM BATTERIES	D002, D006	PK
428	1	ACETONITRILE IN WATER	D001	PK,MSDS
432	7	MERCURY THERMOMETER SPILL CLEAN-UP	D006, D008, D009	PK,MSDS,4,5,9
434	8	SOLIDS CONTAMINATED BY LAB SAMPLES	F003	PK,1,2,4,5,6,9

000091

3010

WASTE ID	DOE TYPE	WASTE NAME	US EPA HAZARDOUS WASTE	DETERMINATION BASIS
438	1	HYDRAULIC OIL FROM BALER IN DRUM	D018	PK,1,3,4,7,8,9
455	1	UNLABELED DRUM CONTAINING 1,1,1	D001, F001	PK,MSDS,1,3,7,8,9
459	1	PAINT	D001, F001, F002	PK,1,4,8,9
460	4	LIQUID & SOLID WASTE SAMPLES	D006, D007, D008, F002	PK,1,3,7,8,9
468	1	SOLVENT/OIL MIX FROM UNDESIGNATED	D001, F002	PK,1,3,7,8,9
479	1	USED PAINT THINNER	D001, D008, D009, D035, F003, F005	PK,1,3,8,9
480	1	USED OIL	D018, F002	PK,1,3,7,9
485	1	KEROSENE	D001	PK,MSDS,1,3,7,8,9
487	2	RAIN WATER FROM UST #8 FORMERLY	D001, D008, D018	PK
507	1	CONTAMINATED SOLVENT GENERATED IN	D001, D035	PK,MSDS,1,3,7,8,9
508	1	UNUSED PAINT THINNER	D001, D035	PK,1,4,7,8,9
514	1	PAINT WASTE FROM PAINTING BOOTH	D001, D007, D008, F002, F003, F005	PK,1,4,7,8,9
517	6	OIL DRY CONTAMINATED WITH OIL FROM	D007, D008	PK,1,3,4,6,7,8,9
524	1	IGNITIBLE LIQUID, UNKNOWN ORIGIN	D001	1,4,7,8,9
533	1	PAINT: GRAY EPOXY	D001, D006	PK,1,3,8,9
534	1	MEK AND WATER	D001, D035	PK,MSDS
538	9	BORING # 1508	F002, F005	PK
547	18	MISCELLANEOUS LEAD TOOLS PIPING,	D008	PK
584	1	KEROSENE (DIESEL FUEL)/SLUDGE/WATER	D001, D018	PK,MSDS
587	1	GREASE AND WATER	D001	1,3,7,8,9
589	9	DIRT CONTAMINATED WITH UNKNOWN	D007, D008	PK,MSDS,1,2,3,4,6,9
633	1	OIL FROM UNKNOWN GENERATION	D007, D008, D009	PK,1,3,4,7,8,9
635	7	MERCURY SPILL CLEAN-UP AND SPENT	D009	PK
644	8	TRASH, PADS, RAGS, WATER	D008, D010	PK,1,3,5,7,8,9
659	4	LEAD AND WOOD SHAVINGS - UNKNOWN	D008	PK
661	9	BORING # 1594 - FROM NORTHWEST	F002	PK,2,4,9,12
700	14	MAGNESIUM FLAKE AND OILY RAGS	D001	PK,1,2,4,5,6,9
742	4	OILY SLUDGE FROM FLOOR DRAIN	D018, D019, D021, D028, D039, D040,	PK,1,2,3,4,6,8,9
757	10	BROWN PARTICULATE SOLID (DIRT AND	D004, D007, D008, D010, D011	PK,1,4,9,11
772	7	RESPIRATOR CANISTER	D007, D011	MSDS
777	1	USED AGITENE	D001, D008, F001, F002	PK,MSDS,1,4,7,8,9
816	1	WATER CONTAMINATED WITH OIL FROM	D002, D018, D019, D039, D040	PK,MSDS,1,3,4,7,8,9
817	4	LEAD BASED PAINT CHIPS	D008	PK
818	1	OIL AND WATER FROM DRUM DECON.	D001, D008	PK,1,3,7,8,9
826	13	METHYL ISOBUTYL KETONE, LABPACKED	D001, U161	PK
828	13	1,4-DIOXANE, STABILIZED, LABPACKED	D001, U108	PK
844	2	URANYL NITRATE SOLUTION	D002, D005, D007	PK
854	20	NI CD BATTERIES	D006	MSDS
855	20	MERCURY BATTERY	D009	MSDS
870	1	VARNISH - UNUSED	D001	MSDS
873	2	SPENT FIXER	D011	MSDS
874	7	LEAD BRICKS, LEAD WINDOW SASHINGS,	D008	PK

<u>WASTE ID</u>	<u>DOE TYPE</u>	<u>WASTE NAME</u>	<u>US EPA HAZARDOUS WASTE</u>	<u>DETERMINATION BASIS</u>
1058	2	DECANT WATER FROM NPR/AAF PRIMARY	D001, D009	PK,1,3,7,8,9
1080	7	CADMIUM SPRINGS	D006	4
1081	7	CADMIUM SPRINGS	D006	PK
1178	2	GROUNDWATER FROM WELL #2649	D007	PK,2,4,7,9
1182	1	CLEAR DISPERSANT,TYPE (H) PREMIX-	D001	MSDS
1183	1	CLEAR DISPERSANT, TYPE (H) PREMIX,	D001	MSDS
1184	1	CLEAR DISPERSANT, TYPE (H) PREMIX,	D001	MSDS
1185	2	TYPE 028 FIX; CD-5 DEVELOPER	D011	MSDS
1199	7	MERCURY CONTAMINATED FLOOR TILE &	D009	PK,MSDS
1210	4	SODIUM NITRATE PROCESSED IN TRASH	D001, D003	PK,MSDS
1229	2	CONTAMINATED SUMP WATER	D008, D009, D039	PK,1,2,4,7,8,9,11,12,13
1271	7	LEAD SOLDER JOINTS	D008	PK
1272	4	MERCURY CONTAMINATED MATERIALS	D007, D008, D009	PK,1,4,7,8,9,13
1273	2	CONTAMINATED WATER	D007, D008, D009	PK,1,3,7,8,9
1275	1	OILY SLUDGES FROM DRUM BALER SUMP	D008	PK,1,2,3,4,6,9
1281	7	LEAD BRICKS	D008	PK
1294	8	PADS CONTAMINATED WITH PETROLEUM	D008	PK,1,4,9
1297	2	PC 49896 ITEK UNIVERSAL DEVELOPER	D011	MSDS,4
1306	10	SPILL CLEAN-UP FROM K-65 AREA.	D001, D008	PK,1,3,5,7,8,9
1337	1	UNSPECIFIED IGNITIBLE LIQUID	D001	1,3,7,8,9
1363	3	OILY SLUDGES FROM WWTS AREA	D005, D006, D007, D008, D009	PK,1,4,5,7,8,9
1369	3	DRUMMED SLUDGE FROM DRYING BEDS	F002	PK,1,4,9
1380	4	NON OILY SUMP CLEANOUT MATERIAL	D007, D008	PK,1,3,4,5,7,8,9
1381	4	HIGH LEVEL CLEANING RESIDUES	D006, D011	PK,1,4,9
1389	4	SCRAP U308 FROM OXIDATION FURNACE	F002	PK,1,4,5,9
1404	10	EXCAVATED SOIL FROM SPILL UNDER	D008	PK,MSDS,1,4,5,9
1405	4	CLEANING AND WASH BATH WASTE	D008	PK,MSDS,1,3,7,8,9
1411	1	CONTAMINATED SOLVENT FROM PAINT	D001, D005, D007, D008, D009, D010,	PK,1,3,6,7,8,9
1414	1	OIL AND FUEL FROM GARAGE AREA	D001, D008	PK,1,3,8,9
1415	1	CONTAMINATED INSOLUBLE OIL	D001, F001, F002	PK,1,3,7,8,9
1421	8	OILY RAGS, PADS, GLOVES AND PLASTIC	D008	PK,1,4,6,9
1423	1	CONTAMINATED INSOLUBLE OIL	D008, D009, D039, D040, F001, F002,	PK,1,3,7,8,9
1425	8	CONTAMINATED RAGS PAPER	D005	PK,1,4,5,9
1427	8	MOP HEADS AND PADS CONTAMINATED	F002	PK,1,4,5,9
1428	8	SPILL CLEANUP MATERIAL FROM BLDG 79	F001, F002	PK
1430	8	PLASTIC SHEETING, GLOVES, FLOOR	D010	PK,1,3,4,5,7,8,9
1432	1	NON CHLORIDE CONTAMINATED SUMP	D001	1,3,7,8,9
1438	3	NON-OILY CLEANOUT SLUDGES FOR	D039	PK,1,3,4,7,8,9
1447	1	SUMP WASTE FROM PLT 1 PAINTING	D001	PK,1,3,7,8,9
1462	2	CONTAMINATED WATER FROM CHEMICAL	D002	PK,1,3,7,8,9
1501	7	SPILL CLEANUPS OF OIL AND GAS FROM	D018	MSDS
1543	1	TETRACHLOROETHYLENE	F002	PK,MSDS

000093

3010

WASTE ID	DOE TYPE	WASTE NAME	US EPA HAZARDOUS WASTE	DETERMINATION BASIS
1550	14	URANIUM HEXAFLUORIDE AND URANIUM	D003	MSDS
1551	14	COBALT TRIFLUORIDE	D003	PK,MSDS
1562	1	MIXED PHOTOGRAPHIC FIXER SOLUTIONS	D001, D011	PK,7,8,9
1575	2	URANYL NITRATE (UNH), EXCESS	D002	PK,MSDS
1585	20	LEAD ACID BATTERY (BROKEN)	D002, D008	MSDS
1604	2	WTP LAB WASTEWATER SAMPLE	D001, D002, D006, D007, D009, D011	PK,MSDS,5,7,9
1616	2	DEIONIZED WATER TANK RINSEATE FROM	F001, F002	PK,1,3,7,8
1617	8	CONTAMINATED PPE, TRASH (CONTACT	F001, F002	PK
1618	7	PIPING WEST OF BUILDING 13	F001, F002	PK
1667	1	ISOPROPYL ALCOHOL	D001	MSDS
1672	8	NON-BURNABLE TRASH	F001, F002	PK,1,2,4,5,6,9
1691	2	HYDROFLUORIC ACID	D002	PK,MSDS
1705	1	LAB GENERATED WASTE, OIL FROM TCLP	D001, D004, D006, D008, D010	1,3,7,8,9,11
1706	1	LAB WASTE, TCLP EXTRACT	D018, D021, D035, D038, D039, D040,	PK,1,4,7,8,9
1707	2	LAB GENERATED WASTE, ACID	D002, D007, D008, D018, D019, D028,	PK,1,2,4,5,7,8,9,11,12
1709	1	LAB GENERATED WASTE FLAMMABLE	D001, D002	PK,2,4,7,8,9
1711	2	METALS EXTRACTS AND DIGESTS	D001, D002, D008, D009, D010, D018,	PK,1,3,7,8,11,12
1713	1	OIL FROM TCLP EXTRACTS	D040, F001, F002, F005	PK,1,3,8,11,12
1714	7	VOLATILE SOLID WASTE	D010	2,4,11,12
1715	7	CONTACT WASTE (LAB GENERATED	D004, D008, D010, F001, F002, F005	2,4,7,11,12
1716	7	LAB GENERATED WASTE, CONTACT	F001, F002, F005	PK,1,4,11,12
1725	1	LUBRICATING OIL FROM GASOLINE	D018	PK
1728	1	CRANKCASE OIL	D006, D008, D018	PK,MSDS,1,2,3,9
1729	1	LEADED GASOLINE	D001, D008, D018	PK,1,3,8,9
1731	18	LEAD	D008	PK
1751	2	SPENT FIXER	D011	MSDS
1813	7	ASBESTOS VACUUM FILTER MATERIAL	D009	PK,5
1815	1	SPENT FUELS	D001, D018	MSDS
1906	7	HF TANK CLEAN-OUT MATERIAL	D007, U134	PK,MSDS,1,2,4,5,10
1938	1	LIQUID SOLVENT WASTE FROM PAINT	D007, D008, D010	PK,1,3,7,8,9
1946	10	SOIL CUTTINGS FROM OUTDOOR FIRING	D008	1,4,9,11
1949	4	DRAW TEMP 275	D001	PK,MSDS,5
1952	1	TBP & KEROSENE DAAP & SOLVESSO	D001, D008	1,4,8
1968	4	RUST, DIRT FROM NIL FISK SWEEPER	D008	PK,1,9
1981	10	DIRT, METAL SCALE, PAINT CHIPS	D008	PK,1,7,8,9
1998	1	METHANOL AND CYCLOHEXANE	D001, F003	PK,MSDS
1999	2	NESSLER, REAGENT, COD DIGESTION	D002, D006, D007, D009, D011	PK,MSDS
2006	1	CURING COMPOUND	D001	MSDS
2011	1	CONTAMINATED OIL	D018, D019, D039, D040	PK,1,2,3,4,7,8,9
2014	3	EPOXY-PRIME COAT LDC-1000	D001, D035	MSDS
2016		PAINT BITUMASTIC 300 M A & B COLD	D001, D018, D026	MSDS
2021	7	BARIUM CARBONATE	D005	MSDS

<u>WASTE ID</u>	<u>DOE TYPE</u>	<u>WASTE NAME</u>	<u>US EPA HAZARDOUS WASTE</u>	<u>DETERMINATION BASIS</u>
2048	5	SOLIDIFIED LAB WASTE	F001, F002, F005	PK
2063	1	TEXO CORP. TEXOL-7	D001	MSDS
2064	1	DIVERSEY SUPER MUL SOLVENT CLEANER	D001	MSDS
2066	2	VESTAL DOUBLE BARREL CLEANER	D002	MSDS
2067	2	STATE ACIDINE ACID SCALE AND RUST	D002	PK,MSDS
2068	2	STATE NO. 810 ALUMINUM BRIGHTENER	D002	MSDS
2085	1	CHLORINATED SOLVENTS	D007, F001, F002	PK,MSDS
2090	7	VARIOUS AA LAMPS	D005, D006, D008	PK,4
2210	2	HYDROGEN PEROXIDE SOLUTION	D001	PK,MSDS
2211	17	USED MERCURY FROM MISC. EQUIPMENT	D009	PK,MSDS
2224	1	FLOOR COATING BASE	D001	PK,MSDS
2225	2	TCLP EXTRACTS OF RADIOACTIVE	D005, D007	PK,5
2228	2	TOTAL METAL ACID DIGESTS	D002, D008	PK,MSDS,5
2235	1	LAB GENERATED WASTE ORGANIC LIQUID	D010, F002	PK,1,3,7,8
2257	2	TCLP EXTRACTS LAB GENERATED WASTE	D002	PK,3,7,8
2259	2	TCLP LEACHATE	D009, F001, F002	PK,5
2362	2	RADIOACTIVE ACIDIC LAB WASTE FROM	D002, D007, D008, D018, D019, D021,	PK,1,3,7,8,9,11
2363	2	RADIOACTIVE CAUSTIC LAB WASTE FROM	D001, D002, D006, D008, D009, D018,	PK,1,3,7,8,9,11
2364	2	RADIOACTIVE NEUTRAL LAB WASTE	D001, D006, D007, D008, D009, D018,	PK,1,3,7,8,9,11
2395	7	CONTACT WASTE FROM CTC LAB	D007, D008, D009, D039, F001, F002,	PK
2401	8	CONTACT WASTE FROM PACD SAMPLING	F001, F002, F005	PK
2402	2	WATER USED TO CLEAN SAMPLING	F001, F002, F005	PK
2403	1	DIRT, ROCKS, AND WOOD WITH LIQUID;	D001	PK,1,3,4,5,7,8,9
2418	7	BROKEN GLASS AND OLD FLOURESCENT	D009	PK,MSDS,5
2425	2	CTC CORROSIVE WASTE	D002, D018, D019, D039, D040	PK
2443	8	TRASH AND DEBRIS FROM UNKNOWN	D008	PK,1,4,5,9
2463	7	MICROMELTER SHELL	D007	PK
2465	1	CONTAMINATED WATER/SUMP LIQUOR	D001, D007, D008, D010	PK,1,3,7,8,9
2483	7	OFF-GAS HEPA FILTERS FROM MAWS -	D007	PK,MSDS,4
2489	12	LAB PACK	PLCS	PK
2495	1	DIESEL FUEL (ORIG MEF# 2359)	D001, D008, D018	PK,MSDS
2498	1	LIQUIDS FROM PILOT PLANT SUMP RA#24	D008, D039	PK,MSDS,1,3,7,8,9,12
2499	7	CONCRETE ABANDONED PILOT PLANT	F002, F003	PK,1,4,9,13
2524	2	ALKALINE CONTAMINATED SUMP WATER	D002	PK,1,3,4,7,8
2547	8	GASOLINE/DIESEL FUEL FILTERS	D018	PK,MSDS
2554	2	ACID WASTE	D002	PK
2556	1	ETHYL ACETATE	D001	PK,MSDS
2559	1	USED HEPTANE MIXTURE	D001	PK,MSDS
2578	12	LAB PACKS	PLCS	PK
2581	6	CONTAMINATED PALLETS	F002	PK,MSDS
2591	8	PADS ANTI-C'S & ABSORBANT	U123	PK,MSDS
2594	2	THORIUM NITRATE SOLUTION	D002, D006, D007	PK,3,7,9,13

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3010

<u>WASTE ID</u>	<u>DOE TYPE</u>	<u>WASTE NAME</u>	<u>US EPA HAZARDOUS WASTE</u>	<u>DETERMINATION BASIS</u>
2596	1	IGNITABLE LIQUIDS	D004, D008, D010, D011, D018, D019,	PK
2599	11	LAB PACKS, NON-RAD CONTAMINATED	PLCS	PK,MSDS
2606	2	ACID DIGEST - ARSENIC	D002, D004, D038	PK,1,2,4,7,8,9,11,12
2607	2	ACID DIGEST-NO MERCURY	D002, D008, D018	PK,1,4,7,8,9,11,12
2611	2	DECONTAMINATION WASH/FLUSH WATER	D008, F001, F002	PK,1,3,10,11
2612	7	PPE/CONTACT WASTE FROM DETREX	F001, F002	PK
2613	7	SCABBLED CONCRETE FROM DETREX	F001, F002	PK,1,4,9,11,13
2614	8	SCRAP WOOD, STRAW, ASHES, TIRES,	F002, F005	PK
2618	7	DETREX STILL TANK(INCLUDING	F001, F002	PK
2621	7	SCRAP METAL CONTAMINATED WITH F-	F002, F005	PK
2622	7	SCABBLED CONCRETE FROM FTF,	F002, F005	PK
2624	8	CONTACT WASTE CONTAMINATED WITH	F002, F005	PK
2625	8	CONTACT WASTE CONTAMINATED WITH	F002, F005	PK
2626	3	SEDIMENT/SLUDGE CONTAMINATED WITH	D007, D008, D018, D029, D030, D032,	PK,1,2,3,4,11
2627	1	NEGATIVE FILM HAND DEVELOPER	D001	PK,MSDS
2632	1	ELECTROSTATIC PLOTTER TONER	D001	PK,MSDS
2633	9	PETROLEUM CONTAMINATED SOIL FROM	F002, F005	PK,2,4,6,7,9,11,12,13
2636	6	IGNITABLE PROJECT CONTACT MATERIAL	F001, F002, F003, F005, U019, U211	PK
2640	7	ASPHALT/GRAVEL FROM FTF	F002, F005	PK
2646	2	DECON. RINSE WATER FROM FTF	F002, F005	PK
2651	1	IGNITIBLE PROJECT FRAC TANKER #2	D001, D004, D008, D010, D011, D022,	PK
2652	1	IGNITIBLE PROJECT FRAC TANKER #3	D004, D006, D007, D008, D010, D011,	PK,3,9,10
2653	1	IGNITIBLE PROJECT FRAC TANKER #4	D001, D004, D007; D008, D010, D011,	PK
2654	1	IGNITIBLE PROJECT FRAC TANKER #5	D001, D004, D006, D007, D008, D010,	PK,1,3,7,8,10
2655	1	ACID DIGEST WITH PYRIDINE	D002, D009, D038	PK,1,3,4,7,9,11
2656	1	METHYLENE CHLORIDE EXTRACTS	F002	PK
2657	8	METHYLENE CHLORIDE EXTRACTED	F002	PK
2668	8	MISC. SOLIDS FROM HWMU #26	F001, F002	PK
2674	9	PETROLIUM/PCB CONTAMINATED SOIL	F002, F005	PK,1,4,9,10,11,12,13
2675	16	SMALL PROPANE CYLINDERS	D001	PK
2678	2	CAUSTIC WASTE	D002	PK
2681	4	SODIUM SULPHATE WASTE	F002, F003	PK,2,4,9,11,12
2682	9	SOIL EXTRACT WASTE	F002, F003	PK,2,4,9,11,12
2683	1	METHYLENE CHLORIDE, HEXANE, ETHYL	D010, F002, F003	PK,2,4,9,11,12
2684	2	ACID (WET) WASTE	D002	PK,2,4,9,11,12
2685	1	WASTE PYRIDINE AND WATER	D038	PK,2,4,9,11,12
2686	2	CAUSTIC WASTE WITH MERCURY	D002, D009	PK,2,4,9,11,12
2687	2	ACID (EXT) WASTE WITH LEAD	D002, D008	PK,2,4,9,11,12
2690	2	ACIDIC EXTRACT WASTE	D002, D008, D018, D019, D035, D039,	PK,1,3,7,8,9
2692	1	CORROSIVE/FLAMMABLE LAB WASTE	D001, D002, D007, D018	PK,2,4,7,8,9,11,12
2693	8	LEAD CONTAMINATED CONTACT WASTE	D008	PK,2,4,9,11,12
2694	1	TCLP EXTRACT	D039, F002, F003, F005	PK,1,2,4,7,8,9,11,12

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<u>WASTE ID</u>	<u>DOE TYPE</u>	<u>WASTE NAME</u>	<u>US EPA HAZARDOUS WASTE</u>	<u>DETERMINATION BASIS</u>
2911	2	MISCELLANEOUS PROCESS ACIDS	D002, D006, D007, D008	PK,5
2912	2	MISCELLANEOUS PROCESS CAUSTICS	D002	PK,5
2913	1	MISCELLANEOUS PROCESS LIQUIDS	D001	PK,5
2921	4	SUMP/TRENCH SLUDGES AND LIQUIDS	D039, D040	PK,5
2930	2	HWMU #3 DECON WATER	F002	PK,2,4,11
2932	4	UNUSED TREATABILITY SAMPLES	D004, D005, D006, D007, D008, D010,	PK
2936	7	SURROGATE SLURRY-CONTAMINATED	D005, D008	PK
2937	8	TRASH & SLUDGE FROM BATCH 5	D004, D006, D007, D008, D010, D011,	PK
2938	3	SLUDGE FROM BATCH 6	D008, D018, D019, D022, D026, D029,	PK
2939	3	SLUDGE FROM BATCH 5	D004, D006, D007, D008, D010, D011,	PK
2940	3	SLUDGE FROM BATCH 1	D004, D008, D010, D011, D018, D019,	PK
2943	1	SPENT ACETONE & NITRIC ACID	D001, D002	PK
2944	1	SOLVENT & OIL CONSOLIDATION	D001, D004, D005, D006, D007, D008,	PK
2947	4	DISCARDED PROCESS RESIDUES TRAILER	D010	PK,1,2,4,6,9
2948	2	PLANT 1 SAMPLING RINSATE	F001, F002, F003, F005	PK
2952	1	EXPIRED ORGANIC STANDARDS	D001, F027, P004, P022, P037, P048,	PK,5
2954	6	PCB CONTAMINATED CONTACT WASTE	F001, F002, F003, F005, U019	PK
2955	4	OU4 VITPP EXCESS SURROGATE SLURRY	D005, D008	PK
2960	8	TREATED HAZARDOUS TRASH FROM (NFS	D006, D008	PK
2963	5	TREATED HF NPDS PROJECT	U134	PK
2971	1	MATERIAL FOR IGNITABLE LIQUID BATCH	D018, D019, D021, D022, D027, D028,	PK,1,3
2975	2	SULPHURIC ACID & PIPES	D002	PK
2977	2	OU4 VITPP MELTER CUTTING WATER	D007, D008	PK,MSDS,3,9,13
2982	4	TRENCH MATERIAL FROM AROUND 39A	D008, F002	PK
2987	7	DUST AND DUST BAGS FROM TRANE	D008, F002	PK,5
2990	2	CONSOLIDATED SAMPLES -	F002, F005	PK
2991	3	CONSOLIDATED SAMPLES - WET SUMP OR	F002, F005	PK
2992	6	CONSOLIDATED SAMPLES - NON	F002, F005	PK
2998	7	LEAD & ASBESTOS WIRE INSULATION	D008	PK
3004	1	IGNITABLE LIQUID BATCH 8	D001, D008, D018, D019, D022, D027,	PK,3
3008	1	VARIOUS LIQUIDS FROM TRANE	D008, F002	PK
3011	3	OIL & GREASE RESIDUES REMOVED FROM	D008, F002	PK
3014	7	TRANE INCINERATOR PARTS	D008, F002	PK
3017	2	CORROSIVE DECANT WATERS PRIOR TO	D002	PK
3018	7	ASBESTOS CONTAMINATED TRANE	D008, F002	PK
3024	4	POTASSIUM NITRATE	D001	PK
3025	4	SYNTHETIC BARIUM SULFATE	D005	PK
3030	3	CONTAMINATED LAB RINSE WATER	F002, F003, F005	PK
3033	8	RTAL CONTACT WASTE	F002, F003, F005	PK
3037	1	LIQUIDS DRAINED FROM PUNCTURED	D001	PK,MSDS
3038	16	CAUSTIC AEROSOL CANS FROM LEGACY	D001, D002, D003	PK
3039	16	FREON AEROSOL CANS FROM LEGACY	D001, D003	PK

<u>WASTE ID</u>	<u>DOE TYPE</u>	<u>WASTE NAME</u>	<u>US EPA HAZARDOUS WASTE</u>	<u>DETERMINATION BASIS</u>
3040	16	MISCELLANEOUS AND UNKOWN AEROSOL	D001, D003	PK
3052	1	LIQUID PAINT IN ONE GALLON CANS	D001, D006, D007, D008	PK
3053	4	SODIUM NITRATE	D001	PK
3055	4	BARIUM CARBONATE	D005	PK
3056	4	LEAD OXIDE	D008	PK
3057	2	NITRIC ACID FROM THE NAR TOWERS	D002, D007	PK
3059	1	PU COLUMN WASTE	D002	PK
3063	1	LIQUIDS FROM THE LEGACY LOW LEVEL	D039, F002	PK
3064	4	DUST COLLECTOR RESIDUE FROM BLDG	D008	PK
3067	7	VITPP OFF GAS SYSTEM PIPING	D007	PK,MSDS
3075	4	CERAMIC FRIT	D007	PK
3076	4	THERMAL CERMAIC FRIT	D005	PK,MSDS
3077	2	UNH	D002, D007, D008	PK
3133	1	USED MOTOR OIL	D018	PK,MSDS
3161	2	SODIUM HYDROXIDE	D002	PK,MSDS
3165	4	BOX FURNACE SLUDGES	F002	PK
3166	4	BOX FURNACE ASH	F002	PK
3168	4	SUMP CLEANOUT FROM COMBINED RAFF	D007	PK
3170	4	FLOOR SWEEPINGS FROM OEP	F002, F005	PK
3171	8	TRASH FROM OEP	F002, F005	PK
3173	1	VARIOUS ADHESIVES	D001	PK,MSDS
3176	4	NEUTRALIZED FROM BLDG 3E	D008	PK
3177	4	UNKNOWN FROM TANK F1-320 AT BLDG	D006	PK
3178	6	TRASH FROM BULKING BATCH 8	F001, F002, F003, F005, U019, U123,	PK
3180	6	OIL SATURATED RAGS FROM LEGACY	D001, D006, D007, D008, D009, D010,	PK
3181	1	PAINT THINNERS FROM THE LEGACY	D001, D008, D009, F002, F005	PK
3182	1	LIQUID PAINTS FROM THE LEGACY TRASH	D001, D006, D007, D008, D035, D043	PK,MSDS
3183	3	UNEMPTY CANS OF DRIED PAINT FROM	D007, D008, D035	PK,MSDS
3184	1	USED MOTOR OILS FROM THE LEGACY	D001, D005, D006, D007, D008, D009,	PK,1,3,8,9
3185	7	USED FLUID FILTERS FROM THE LEGACY	D008, D010	PK
3190	3	SLUDGES FROM T-5/6 HWMU CLOSURE	D022, D028, D029, F001, F002, F003,	PK
3204	1	LIQUID PAINT FROM BLDG. 71	D001, D006, D007, D008	PK,MSDS
3205	1	ADHESIVES FROM BLDG. 71	D001	PK,MSDS
3206	4	DRIED UP PAINT FROM BLDG. 71	D006, D007, D008	PK,MSDS
3207	1	PAINT THINNERS FROM BLDG. 71	D001	PK,MSDS
3223	7	DUST COLLECTOR BAGS & RESIDUES	D005, D006, D008	PK
3231	4	ACCOUNTABILITY TANK RESIDUE	D005, D006, D008	PK
3237	1	TRANSMISSION OIL FROM LEGACY TRASH	D003, F002	PK,MSDS
3238	1	ROLLER INK	D001	PK,MSDS
3239	16	UNPUNCTURED AEROSAL CANS FROM	D001, D003, D006, D008, D035	PK,MSDS
3240	7	TECHNECIUM-99 CONTAMINATED	D006	PK
3244	1	RCRA HAZARDOUS ADHESIVES FROM	D001, D035	PK

<u>WASTE ID</u>	<u>DOE TYPE</u>	<u>WASTE NAME</u>	<u>US EPA HAZARDOUS WASTE</u>	<u>DETERMINATION BASIS</u>
3271	4	DUST COLLECTOR RESIDUE	D008	PK
3293	1	CUMENE HYDROPEROXIDE	U096	PK,MSDS
3294	7	OFF-GAS HEPA FILTERS FROM OU4 VITPP	D005, D007, D008	PK
3295	4	TRU CLEAR OXIDIZER	D001	PK,MSDS
3300	7	VITPP GLASS CONTACT BRICK	D007	PK,MSDS
3301	1	UNKNOWN WATERS FROM PLANT 1 PAD	D039	PK
3344	4	DUST COLLECTOR RESIDUES FROM PLANT	D006, D008	PK
3355	4	SUMP SLUDGE FROM PLANT 7	D006, D008	PK
3366	4	TH CONTAMINATED PAINT CHIPS	D007, D008	PK,MSDS
3367	1	TH CONTAMINATED MINERAL SPIRITS	D001, D007, D008, D019	PK,MSDS
3370	1	TH CONTAMINATED LIQUID PAINT	D001	PK,MSDS
3377	2	CAUSTIC SOLUTION IN TANK 06-H015	D002, D003	PK
3408	4	NEUTRALIZED SULFURIC ACID WASTES -	D005, D006, D007, D008	PK
3409	2	RINSEWATER FROM OEP	F002, F005	PK
3414	7	ACID BRICK	D007	PK
3415	2	DECANT WATER FROM THE DRUM	D018	PK
3420	4	BLACK BEAUTY GRIT USED ON WATER	D008	PK,MSDS
3425	7	VITPP AZS BRICK HAZARDOUS	D005, D007, D008	PK,MSDS
3428	4	SCRAP THORIUM FROM ARGONNE	D008	PK
3429	4	THORIUM OXIDE POWDER FROM TN	D008	PK
3430	4	SCRAP SALTS & FLOOR SWEEPINGS	D007	PK
3431	4	MISC. THORIUM SAMPLES	D002, D005, D008	PK
3435	17	PLT 2/3 INSTRUMENTS CONTAINING	D009	PK,MSDS
3436	1	PLT 2/3 NITRIC ACID SOLUTION -	D002	PK
3444	7	VITPP MISCELLANEOUS MELTER	D007	PK,MSDS
3445	7	VITPP MELTER INSULATION	D007, D008	PK,MSDS
3481	6	ABSORBANT MATERIAL FOR LIQUID FROM	F002, F005	PK
3488	1	UNH CRYSTALS LIQUIFIED WITH WATER	D002	PK
3491	4	PLT 8 THORIUM CONTAMINATED DRY	D005, D006, D008	PK
3521	8	PPE/TRASH FIU RHEOLOGY STUDY	D005, D006, D007, D008, D009, D010,	PK
3610	1	USED OIL - PLANT 6 ROLLING MILL	D008	PK,MSDS
3614	2	TC-99 ANALYSIS EXTRACTION WASTE	D002, D022	PK,MSDS
3653	1	METHANOL FROM THE METHANOL TANK J	D001	PK,MSDS
3655	2	RADIUM ANALYSIS WASTE	D002, D008	PK,MSDS
3659	4	SHOT BLAST RESIDUE FROM PLT 8 BINS &	D008	PK
3702	1	ACID WASTE WITH METHANOL FROM LAB	D002, F003	PK,MSDS
3716	1	KEROSENE FROM WPRAP	D001	PK
3736	6	OIL, SLUDGE, & PLASTIC DEBRIS FROM	D006, D008, D029, D039, D040	PK
3739	2	RCRA HAZARDOUS WATER TREATMENT	D002	PK,MSDS
10002	7	SCRAP SALTS	D005, D008	1,4,9
10003	3	OILY OXIDATION SLUDGES WITH HIGH	D001, D039, F002	1,4,7,8,9
10004	1	CONTAMINATED SOLVENT - TRICHLOR,	D007, D018, D019, D021, D029, D039,	PK,1,4,7,8,9

001000

WASTE ID	DOE TYPE	WASTE NAME	US EPA HAZARDOUS WASTE	DETERMINATION BASIS
10005	7	CONTAMINATED SOIL, ROCKS, BRICKS	D008	1,4,9
10006	1	CONTAMINATED OIL - INSOLUBLE	D008, D009, D039, F002, F003, F005	PK,1,2,4,7,8,9
10007	3	OILY SLUDGES	D007, F001	1,4,7,8,9
10009	3	SLUDGES - SOLVENT (TRICHLOR,	D001, D008, D035, F003, F005	1,4,7,8,9
10010	3	SLUDGES, OILY	D006, D008, D029, D039, D040	PK,1,4,7,8,9
10012	8	PCB CONTAMINATED BURNABLES	D039, D040, F002	PK,1,3,4,7,8,9,10
10013	4	SUMP CAKE	D005, D007	1,4,9
10014	2	U-CONTAMINATED WATER	D039	1,4,9
10015	2	U-CONTAMINATED WATER FROM PILOT	D039	1,4,7,8,9
10016	3	OILY SLUDGE	D010, D035, F002	PK,MSDS,1,4,7,8,9
10021	3	SLUDGES, OILY	D008, D018, D019, F002	PK,1,4,7,8,9
10022	4	GRIT BLAST	D008	4,9
10023	8	NON-RECOVERABLE TRASH	D008, F002	PK
10024	6	TRASH CONT. TO SOLVENT	D018, F002	PK,1,4,5,9
10025	7	CONTAMINATED SOIL AND ROCKS	D005	PK
10026	3	1,1,1-TRICHLOROETHANE STILL BOTTOMS	D009, F001, F002	PK,1,3,4,9,10
10027	1	CONTAMINATED OIL, INSOLUBLE	D039, D040, F001	PK,MSDS,1,4,7,8,9
10028	3	SLUDGES, OILY	D008, D028	PK
10029	1	CONTAMINATED INSOLUBLE OIL	D006, D007, D008, D019, D029, D040,	PK,1,4,7,8,9
10030	1	CONTAMINATED SOLVENTS (METHANOL)	D001, F003	PK
10031	3	FLOOR SUMP CLEANOUT SLUDGE	D029, F002	PK,1,4,7,8,9
10034	13	BENZENE (LABPACKED)	D001, D018, U019	PK
10035	13	CARBON TETRACHLORIDE (LABPACKED)	D019, U211	PK
10036	13	ETHYL ETHER (LABPACKED)	D001, U117	PK
20003	1	MIXED SOLVENTS FROM TANKS T-5 AND	D001, D022, D028, D029, D035, F001,	PK,1,2,9,11
20007	3	OIL CONTAMINATED WET SUMP OR	D011	PK,1,4,7,8,9
20013	4	SCRAP SALTS AND FLOOR SWEEPINGS -	D008	PK,4,6,9
20015	4	SCRAP SALTS AND FLOOR SWEEPINGS -	D007	PK,1,4,5,9
20021	1	CONTAMINATED INSOLUBLE OIL	D019, D029, D039, D040, F001	PK,1,2,4,7,8,9
20024	4	SCRAP SALTS AND FLOOR SWEEPINGS -	D007, D008	PK,1,4,9
20027	4	DUST COLLECTOR RESIDUES - HIGH	D004, D011	2,4,5,9,11
20028	1	CONTAMINATED OIL - INSOLUBLE	D039, D040, F001	1,2,4,7,8,9
20031	1	CONTAMINATED OIL, INSOLUBLE GEAR	D006, D008, D010, D018, D019, D028,	1,2,4,7,8,9
20033	4	DRY DUST COLLECTOR POWDER	D008	1,4,9,11
20035	4	DUST COLLECTOR RESIDUES - HIGH	D007	4,9
20037	3	PROCESS RESIDUES, TRAILER CAKES,	D029	2,4,9,11
20038	1	USED OIL FROM PILOT PLANT	D006, D008, D018, D019, D028, D029,	PK,1,2,4,7,8,9,11
20041	4	NON-METALLIC MISCELLANEOUS	D007	PK,4,7,8,9
20045	3	CONTAMINATED TBP AND/OR KEROSENE	D019, D022, D039, F002	PK,1,2,3,4,7,8,9,11
20046	4	NON-METALLIC MISCELLANEOUS	D007	3,9
20047	4	SCRAP SALTS AND FLOOR SWEEPINGS -	D004, D008	2,4,9,11
20048	3	PROCESS RESIDUES, TRAILER CAKES,	F005	PK,1,4,9

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000102

WASTE ID	DOE TYPE	WASTE NAME	US EPA HAZARDOUS WASTE	DETERMINATION BASIS
20053	7	CONTAMINATED SOIL, ROCKS, BRICKS	D010	PK,4,5,9
20054	1	CONTAMINATED SOLVENT - TRICHLOR,	D019, D022, D028, D029, D039, F001,	PK,1,2,4,7,8,9
20055	1	CONTAMINATED OIL - INSOLUBLE	D029, D039, F002	PK,1,2,4,7,8,9,11
20058	4	DUST COLLECTOR RESIDUES - HIGH	D006, D008	PK,4,9
20083	7	CONTAMINATED FILTER ELEMENTS	D004	PK,1,4,5,7,8,9
20094	8	CONTAMINATED BURNABLES, RAGS,	D008	PK,1,4,7,8,9
20095	8	RAGS CONTAMINATED,	D011, D039	PK,1,4,9
20107	4	GRIT-BLAST RESIDUE FROM LEAD PAINT	D008	PK,1,4,5,9
20109	7	DUST COLLECTOR BAGS	D004, D006, D008	1,4,9
20120	7	DUST COLLECTOR BAGS	D007	PK,4,9
20135	7	DUST COLLECTOR BAGS	D006	PK
20139	7	SAMPLES, NON-METALLIC	D005	PK,1,4,7,8,9
20142	3	CONTAMINATED TBP-KEROSENE	D001, D022, D039	PK,1,2,4,7,8,9,11
20143	8	NON-RECOVERABLE TRASH	D011	1,4,5,7,8,9
20145	2	DECANTED WATER FROM SUMP/FILTER	D002, D007	PK,1,3,4,7,8,9
20146	7	CONTAMINATED NON-BURNABLES	D006, D007, D008	5
30005	3	OILY SLUDGES	D001, D019, D039, D040, F002	PK,1,4,7,8,9
30010	3	SLUDGE FROM SERVICES BUILDING SUMP	D040, F002	PK,1,7,8,9
30027	10	CONTAMINATED SOIL, ROCKS, BRICKS	D004, D005, D007, D008, D010, D011	1,2,4,5,7,8,9
30033	1	CONTAMINATED SOLVENT - TRICHLOR,	D001, F002, F003, F005	PK,1,4,5,7,8,9
30034	1	OIL CONTAMINATED WITH SOLVENTS	D018, F001	PK,2,4,7,8,9
30036	4	DUST COLLECTOR RESIDUES - HIGH	D006, D008	1,4,9
30037	3	PROCESS RESIDUES, TRAILER CAKES,	D039	PK,1,4,9
30039	10	CONTAMINATED ROCKS, SOIL, ETC., WITH	D011	1,2,4,7,8,9
30042	3	WET SUMP OR FILTER CAKE - NON-OILY,	D039	PK,1,4,9
30045	3	OILY SLUDGES, HIGH FREE METAL	D001, D039, D040	1,4,7,8,9
30046	3	NON-OILY CLEANOUT SLUDGES FOR	D019, D039	PK,1,4,7,8,9
30047	4	SOLVENT SLUDGE, TRICHLOR, PERCHLOR,	D007, D011	1,4,9
30053	4	PROCESS RESIDUES, TRAILER CAKES,	D006, D007, D008	PK,1,4,9
30060	4	WET SUMP OR FILTER CAKE - NON-OILY,	D005	1,4,9
30080	2	CONTAMINATED SOIL, ROCKS, DEBRIS, W/	D002, D004, D007, D008, D011	PK,MSDS,1,2,4,5,7,8,9
30081	4	DISCARD PROCESS RESIDUES, TRAILER	D002	1,4,7,8,9
30082	8	CONTAMINATED NON-BURNABLES	D011	PK,1,4,5,9
30174	6	OIL-STAINED RAGS, TRASH, WIRE	D004, D008, D011	PK,1,4,5,6,9
40122	4	THORIUM TRAILER CAKES, WASTE	D002, D005, D009	1,3,8
40216	4	THORIA GEL	D005	PK
40226	9	SOIL/ROCKS--PILOT PLANT SUMP	D039	PK
40230	4	MISCELLANEOUS THORIUM	D009	PK
50002	6	NON-RECOVERABLE TRASH.	D001	1,4,5,7,8,9
50008	3	SUMP CAKE - COPPER CONTAMINATED	D001	1,4,7,8,9
50010	8	NON-RECOVERABLE TRASH	F002, F005	PK,1,4,5,7,8,9
50014	8	NON-RECOVERABLE TRASH	D019	PK,1,4,5,7,8,9

WASTE ID	DOE TYPE	WASTE NAME	US EPA HAZARDOUS WASTE	DETERMINATION BASIS
50022	1	CONTAMINATED WATER	D001, F003	PK,1,4,7,8,9
50031	7	CONTAMINATED METALLIC FILTER	D008, D010	1,4,5,8,9
50036	4	BOX FURNACE ASH	D007, F002	PK,1,4,7,8,9
50058	7	DUST COLLECTOR BAGS	D007	PK,1,4,9
50063	4	ROASTED MG F2/OTHER MATERIAL	D004, D008	PK,4,9
50068	3	NON-OILY SLUDGE FOR ROASTING	D001, D010, D011	PK,1,4,7,8,9
50071	3	SOLVENT SLUDGE	D001, D007	1,4,8,9
50072	1	CONTAMINATED SUMP WATER AND	D001, D008, D019, D039, D040	PK,1,4,7,8,9
50085	3	WET SUMP CAKE, NON-OILY/HALIDE FROM	D001, D039, D040	PK,1,4,7,8,9
50087	4	OILY MGF2	D008	2,3,9
50095	1	CONTAMINATED INSOLUBLE OIL	D007	1,4,7,8,9
50102	4	PROCESS RESIDUES, TRAILER CAKES,	D006, D008	1,4,9
50109	3	NON-OILY OXIDATION SLUDGES WITH	D004, D006, D007, D008, D010, D019,	PK,1,2,3,4,7,8,9
50113	3	ROASTED CALCIUM-PRECIPITATED SUMP	F002	PK,1,4,9
50129	4	SCRAP U308 - LOW F	F002	PK,4,9
50148	4	SCRAP U308 HIGH F	D004	PK,1,4,6,7,8,9
50165	4	ROASTED OFF-SITE SUMP CAKE	D007	4,9
50169	4	NON-OILY SLUDGE FOR ROASTING	D007	1,4,9
50170	4	SALT SLUDGE FOR PLANT 8	D004, D039	PK,1,2,4,6,7,8,9
50173	4	SALT SLUDGE, CHLORIDE	D007	1,4,7,8,9
50174	4	SALT SLUDGE, CHLORIDE	D007	PK,MSDS,4,6,7,8,9
50177	4	FURNACE SALT, NON CHLORIDE	D001, D004, D008	4,7,8,9
50178	4	FURNACE SALT, NON-CHLORIDE	D001	4,7,8,9
50180	4	FURNACE SALT, NON-CHLORIDE	D007, D008, D010	1,4,9
50185	4	SCRAP SALT, HIGH F	D009	4,5,9
50197	4	SLUDGES FOR BLENDING	D007	PK,1,2,6,7,8,9
50200	3	OILY SLUDGE FOR OXIDATION	D001, F001	1,4,7,8,9
50202	3	OILY SLUDGE FOR OXIDATION	D001, D010	1,4,7,8,9
50203	4	OILY SLUDGE FOR OXIDATION	D008	1,4,9
50293	4	U308 FOR REOXIDATION	D004	4,9
50295	4	MISC. MATERIAL FOR RECOVERY	D008	PK,2,4,6,9
50339	3	SLUDGES, OILY, FOR OXIDATION, HIGH	D001, D019	PK,1,4,7,8,9
50346	3	OILY SLUDGE FOR OXIDATION	D001	1,4,7,8,9
50347	3	DISCARD PROCESS RESIDUE	D001	1,4,7,8,9
50349	4	DUST COLLECTOR RESIDUES - HIGH	D008	PK,1,4,9
50351	4	DUST COLLECTOR RESIDUES-HIGH	D004, D008	4,7,8,9
50355	3	DISCARD PROCESS RESIDUE	D001	1,4,7,8,9
50358	6	CONTAMINATED NON-BURNABLE	D001	1,4,5,7,8,9
50361	7	NON-RECOVERABLE TRASH	D009	5
50364	4	U308, +8MESH, LOWF	D007, F001, F002	PK,4,5,9
50367	7	NON-RECOVERABLE TRASH	D008	PK,9
50387	4	SALT SLUDGE, CHLORIDE	D005	PK,4,9

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401000

<u>WASTE ID</u>	<u>DOE TYPE</u>	<u>WASTE NAME</u>	<u>US EPA HAZARDOUS WASTE</u>	<u>DETERMINATION BASIS</u>
50405	4	NON-RECOVERABLE TRASH	D006, D007	4,5,7,8,9
50406	4	FURNACE SALT, CHLORIDE	D004, D011	4,5,9
50408	4	FURNACE SALT NON-CHLORIDE	D008, D010	4,7,8,9
50412	3	NON-OILY SLUDGE FOR ROASTING	D008	PK,1,4,7,8,9
60005	8	NONRECOVERABLE TRASH	D008	1,4,5,6,9
60008	8	NONRECOVERABLE TRASH	D008	PK,2,3,4,6,9
60011	7	USED FURNACE SALT (NU-SAL)	D007	PK,MSDS,1,4,5,6,9
60013	1	OFF-SPEC. PAINT	D001	PK
60017	8	OILY RAGS AND CLOTHING	D039	PK,2,3,4,9
60019	8	NONRECOVERABLE TRASH	F002	PK,1,3,4,6,9
60023	7	NONRECOVERABLE TRASH	D008	PK,2,3,4,6
60027	1	CONTAMINATED WATER	D001, D018	PK,MSDS,1,3,4,7,8,9
60033	2	CONTAMINATED WATER, NON-CHLORIDE	D018, D019, D021, D035, D039, D040	PK,1,2,3,4,7,8,9
60039	1	CONTAMINATED SOLVENTS	D001, D018	PK,1,3,7,8,9
60040	1	SOLVENT MIXTURE; UNSPECIFIED ORIGIN	D001, D008, D035	PK,1,4,7,8,9
60042	1	CONTAMINATED SOLVENTS	D001, D006, D008, D009, D019, F002	PK,1,3,7,8,9
60044	1	CONTAMINATED SOLVENT MIXTURE, (TCA	D001, F001	PK,1,3,7,8,9
60046	1	SOLVENT MIXTURE WITH ABSORBENT	D001, D018, D019, D021, D035, D039,	PK,1,3,7,8,9
60049	1	MIXED ORGANICS FROM BLDG 15	D001, D004, D008, D010	PK,1,3,7,8,9
60051	1	SOLVENTS & FILTER MATERIAL	D039, F002	PK,1,2,3,4,6,7,8,9
60052	1	USED SOLVENT FROM GARAGE	D001, D007, D008, F002	PK,1,3,8,9
60053	1	GASOLINE REMOVED FROM GARAGE UST	D001, D008, D018	PK,1,4,7,8,9
60055	1	LEADED GASOLINE FROM TANK # 12	D001, D008, D018	PK,MSDS,1,3,8,9
60056	1	USED CHLORINATED SOLVENT MIXTURE	D001, D007, D008, D009, D039, F002	PK,MSDS,1,3,7,8,9
60058	1	WASTE SOLVENT FROM BOILER PLANT	D001, D008, F002	PK,1,2,3,4,7,8,9
60059	1	USED 1,1,1 TRICHLOROETHANE MIXTURE	D001, D008, F002	PK,MSDS,1,3,8,9
60060	1	ORGANIC SOLVENT MIXTURE FROM	D001, D008, D009, F002	PK,1,3,7,8,9
60062	1	CONTAMINATED INSOLUBLE OIL	D001, D008, D009, F002	PK,1,3,7,8,9
60063	1	USED OIL FROM PLANT 2/3 MAINTENANCE	D006, D008, D009, D018, D019, D021,	PK,1,4,7,8,9
60064	1	SOLVENT CONTAMINATED OIL FROM	D001, D008, D035, F002	PK,1,3,7,8,9
60065	1	CONTAMINATED INSOLUBLE OIL	D001, D008, D019, F002	1,2,3,4,7,8,9
60066	1	USED OIL FROM PLANT 4 MAINTENANCE	D001, D008, D019, D035, F002	PK,1,3,8,9
60067	1	USED OIL WITH 1,1,1 TRICHLOROETHANE	D008, F002	PK,1,4,7,8,9
60068	1	MACHINE AND CUTTING OILS WITH	D008, F002	1,4,8,9
60069	1	CONTAMINATED INSOLUBLE OIL	D008, F001	1,4,8,9
60070	1	CONTAMINATED LUBRICATING OIL	D018, D039	PK,MSDS,1,4,7,8,9
60072	3	SOLVENT CONTAMINATED WASTE OIL	D008, F002	PK,1,4,7,8,9
60074	1	WASTE FROM PLANT 6 MACHINERY	D001, D008, D009, F002	PK,1,3,7,8,9
60076	1	CONTAMINATED INSOLUBLE OIL	D001, D008, D009, F002	PK,1,3,7,8,9
60078	1	USED OIL AND SOLVENTS FROM GARAGE	D001, D006, D008, F002, F005	PK,1,3,5,8,9
60080	1	CONTAMINATED INSOLUBLE OIL FROM	D001, D007, D008, D019, D040, F002	PK,1,3,7,8,9
60081	1	USED OIL/SOLVENT FROM PLANT 7	D001, D006, D008, D010, F002	PK,1,3,8,9

<u>WASTE ID</u>	<u>DOE TYPE</u>	<u>WASTE NAME</u>	<u>US EPA HAZARDOUS WASTE</u>	<u>DETERMINATION BASIS</u>
60082	1	CONTAMINATED INSOLUBLE OIL	D001, D006, D008, F002	PK,MSDS,1,3,7,8,9
60083	1	CONTAMINATED INSOLUBLE OIL FROM	D001, D008, D019, F002	1,4,7,8,9
60084	1	USED, CONTAMINATED MACHINE AND	D001, D008, D010, F002	PK,1,3,7,8,9
60085	1	WASTE OIL FROM PLANT 8 MAINTENACE	D001, D005, D006, D007, D008, D010,	1,3,4,7,8,9
60087	1	USED OIL CONTAMINATED WITH	D001, D008, D039, F002	PK,1,3,8,9
60090	1	USED MERCO-DRI AND HYDRAULIC OIL	D001, D039	PK,1,3,4,8,9
60094	1	TBP/KEROSENE FROM PLANT 2/3	D008, D018, D019, D039, D040	PK,MSDS,1,4,5,7,8,9
60095	3	RESIDUAL UNH SOLUTION WITH	D002, D005	PK,1,3,7,8,9
60096	1	FUELS, OILS, SOLVENTS FROM BUILDING	D001, D008, D009, D018, F002	PK,MSDS,1,3,7,8,9
60099	8	RAGS, SCREEN, PLASTIC AND PAPER	D008	PK,1,2,3,4,6,9
60100	8	CONTAMINATED BURNABLE TRASH	D039, U210	PK,MSDS,5
60102	8	CONTAMINATED BURNABLE TRASH	D006	2,3,4,6,9
60103	6	CONTAMINATED BURNABLE TRASH	D018, D019, D039, D040	1,4,5,6,9
60105	6	CONTAMINATED BURNABLE TRASH	D006, D007	PK,4,6,9
60107	8	ASBESTOS ABATEMENT DEBRIS	D008	PK
60110	3	OILY SLUDGES FROM PLANT 5 METAL	D001	PK,1,3,7,8,9
60113	1	DARK GREEN OILY LIQUID FROM WASTE	D007	1,3,7,8,9
60116	1	USED OIL WASTE DESTINED FOR	D001, D007, D008, D018, D019, D039,	PK,1,2,3,4,7,8,9
60119	3	SLUDGES, OILY, FOR OXIDATION HIGH	D001, F001, F002	PK,1,2,4,7,8,9
60120	3	NON-OILY SEMISOLIDS	D001	PK,2,4,6,7,8,9
60122	3	PILOT PLANT TBP EXTRACTION SLUDGES	D001	PK,MSDS,1,3,4,6,7,8,9
60123	3	SOLVENT SEMI-SOLID	D039, F002	PK,1,2,4,5,6,7,8,9
60124	3	PAINT THINNERS AND PAINT RESIDUES	D009, D018, D035	PK,MSDS,1,4,9
60137	7	MERCURY CONTAMINATED MATERIAL	D009	PK
60140	4	STEEL SHOT	D010	PK,MSDS,1,4,9
60141	4	FURNACE SALT	D005	PK,MSDS,4,9
60148	4	ROTEXED U308 FURNACE PRODUCT	F002	PK
60152	4	U308 ROTEXED PLANT 8 FURNACE	F002	PK,1,4,9
60193	2	PURE UNH SOLUTION	D002	PK,MSDS
60302	7	GRAPHITE	D005	PK,MSDS
60303	8	CONTAMINATED BURNABLE TRASH	D005, D039	PK,1,3,4,6,9
60304	7	CONCRETE, ROCKS, FLOOR SWEEPINGS,	D005	2,4,5,6,9
60305	4	TRENCH SLUDGE FROM RMI	D008	PK,1,4,5,9
60306	4	HARDENED SALT BATH SLUDGE FROM RMI	D005	PK
60307	4	FURNACE SALT, SOLIDIFIED, CHLORIDE	D005, D008	PK
60315	8	MISCELLANEOUS MATERIAL	D005, D009	PK,1,3,4,6,9
60329	3	SOLVENT SEMI-SOLID	D018, D019, D020, D029, D039, D040	PK,MSDS,1,2,4,6,9
60331	1	WATER/GAS MIXTURE TANK #9	D001, D018	1,4,7,8,9
60342	2	CONTAMINATED RAINWATER FROM UST #	D008	PK
60450	4	CRUCIBLE COATING POWERS	D007	PK,MSDS
60700	1	OILY WATER FROM PLANT 7 DECANT	D001	PK,1,4,7,8,9
61003	8	OILY RAGS, GLOVES	F002	PK,MSDS,1,2,5,6,9

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<u>WASTE ID</u>	<u>DOE TYPE</u>	<u>WASTE NAME</u>	<u>US EPA HAZARDOUS WASTE</u>	<u>DETERMINATION BASIS</u>
61004	2	CONTAMINATED WATER FROM K-65 AREA	D007	PK,1,3,7,8,9
61005	1	TETRACHLOROETHYLENE	D001, D039	3,5,8,9
61006	2	MAGNUSPRAY/SURPLUS CHEMICALS	D002	MSDS
61008	1	SOLVENT	D001, D006, D007, D018, D019, D021,	PK,1,2,3,4,5,8,9,11
61009	1	METHANOL ACETATE	D001, D008	PK,MSDS,3,5,8,9
61010	1	ETHYL ACETATE	D001	PK,MSDS,2,4,8,9

Key to "Determination Basis" Codes:

PK Process Knowledge
MSDS Material Safety Data Sheet

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

Key to "DOE Waste Stream Types":

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

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Fernald Environmental Management Project Fluor Daniel Fernald Inc. Functional Area Document Program		Plan Number: PL-3048 Effective Date: 01-31-2000 Revision No. 2	UDC No. None UDC Effective Date: N/A
PROTOTYPE SAMPLING AND ANALYSIS PLAN FOR WASTE AT THE FEMP			
Issue Authorization		Signature: <i>[Signature]</i> Date 01-19-2000	Supersedes: PL-3050
		Tom Walsh, Environmental Restoration and Waste Management FAM	

SUBJECT EXPERT: Bill Neyer, x5469

TABLE OF CONTENTS

SECTION TITLE PAGE

RECORD OF ISSUE/REVISIONS.....4

1.0 INTRODUCTION.....5

1.1 Purpose.....5

1.2 Scope.....5

1.3 SAP Objectives.....5

1.4 Description of Contaminized Waste Sampling Locations.....6

1.5 Use of Process Knowledge/Existing Analytical Data/Visual Inspections.....6

1.6 Sampling and Analysis Schedule.....7

2.0 REFERENCES.....7

3.0 RESPONSIBILITIES.....8

3.1 Waste Characterization.....8

3.2 Waste Storage & Sampling.....8

3.3 Analytical Laboratory Services/Sample Data Management (ALS/SDM).....8

4.0 GENERAL.....8

4.1 Objectives.....8

4.2 Representativeness.....9

4.3 Sampling Accuracy.....10

4.4 Sampling Precision.....10

4.5 Analytical Method Detection Limits.....10

4.6 Completeness.....10

4.7 Comparability.....11

5.0 SAP/PAP DEVELOPMENT CRITERIA.....11

5.1 Sampling Approach.....11

5.2 Sampling Approach for Previously Generated Wastes.....12

5.3 Sampling Approach for Currently Generated Wastes.....12

5.4 Number of Samples for Containerized Waste.....13

5.5 Number of Samples for Surface Impoundment Materials.....14

5.6 Sample Volumes, Containers, Preservation and Holding Times.....15

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000107

5.7	Sample Collection Procedures/Equipment	16
5.8	Sample Handling and Shipment	16
6.0	DOCUMENTATION AND SAMPLE CUSTODY	16
6.1	Sample Identification and Labeling	16
6.2	Recordkeeping	16
6.3	Sample Custody and Analysis Requests	16
6.4	Other Miscellaneous Forms	16
6.5	Special Requirements for Enriched Nuclear Material Sampling	17
7.0	ANALYSIS OF WASTE SAMPLES	17
7.1	Waste Analytical Parameters and Methods	17
7.2	Non-Radiological Parameters and Methods	17
7.3	Radiological Parameters and Methods	18
7.4	Sample Container, Preservation, and Holding Time Requirements	19
8.0	QUALITY ASSURANCE/QUALITY CONTROL	22
8.1	Field QC Samples	22
8.2	Field Screening Equipment Calibration and Documentation	23
8.3	Field Audits/Surveillances	23
8.4	Laboratory QC Samples	23
8.5	Analytical Instrumentation/Equipment Calibration and Documentation	23
8.6	QA/QC Checks and Procedures	23
8.7	Data Reporting and Validation	23
8.8	Waste Disposition	24
9.0	DISTRIBUTION AND CONTROL OF PSAPS	25
9.1	Control of PSAPs	25
9.2	Distribution of PSAPs	25
10.0	APPLICABLE DOCUMENTS	26
10.1	Drivers	26
10.2	Forms	26
10.3	Information Sources	26
11.0	DEFINITIONS	27

Effective Date: 01-31-2000	Revision No. 2	Procedure No. PL-3048	Page 3 of 42
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ATTACHMENTS

<u>ATTACHMENT</u>	<u>TITLE</u>	<u>PAGE</u>
1	Format for Boxed Waste Material PSAPProject-Specific Sampling and Analysis Plan	29
2	Format for Surface Impoundment Material PSAPProject-Specific Sampling and Analysis Plan	34
3	Format for Drummed Waste Material PSAPProject-Specific Sampling and Analysis Plan.....	38
4	Statistical Calculations	42

RECORD OF ISSUE/REVISIONS

ISSUE AUTHORIZATION DATE	EFFECTIVE DATE	PCN No.	REV. No.	DESCRIPTION
N/A	09-21-95		0	Issued the Plan for Prototype Sampling and Analysis.
02-24-98	02-25-98	1	0	Added Record and revision page; Section for Special Requirements for Enriched Nuclear Material Sampling; Added Notes for Maximum Total Grams of U-235 to be collected in attachments.
06-15-99	06-23-99		1	Major rewrite of the plan to reformat to conform to the latest format requirements of MS-2001; update references; change forms for sample request, box plan and drum plan; and to reflect current practices. This plan also supersedes plan PL-3050.
ISSUE AUTHORIZATION DATE	EFFECTIVE DATE	UDC No.	REV. No.	DESCRIPTION
01-19-2000	01-31-2000		2	Change all references from Environmental Monitoring to Waste Characterization and incorporate comments resulting from review.

1.0 INTRODUCTION

1.1 Purpose

- 1.1.1 The purpose of this Plan is to provide a master Sampling and Analysis Plan (SAP) for characterization of containerized and non-containerized waste (which will be containerized) and materials at the Fernald Environmental Management Project (FEMP).
- 1.1.2 This plan provides reference information on sampling design, field and analytical quality control, collection methods, and analytical methods to develop condensed, project-specific SAPs.

1.2 Scope

- 1.2.1 This plan applies to all sampling and analysis requirements for all containerized waste and materials stored within cans or pails, drums, metal boxes, T-Hoppers or J-Hoppers, International Shipping Organization (ISO) containers or Top Load Boxes, Tank/Sump Materials, and other miscellaneous container types being sampled at the FEMP.
- 1.2.2 This plan applies to product and residues which require characterization (items declared or which may be declared waste).
- 1.2.3 Project-specific Sampling and Analysis Plans (PSAPs) will be developed based on the requirements of this Sampling and Analysis Plan (SAP).

1.3 SAP Objectives

- 1.3.1 The primary objective of this SAP is to generate data of sufficient quality to identify the regulatory status of, and safely manage containerized waste materials.
- 1.3.1.1 Secondary objectives are to develop information required to determine appropriate waste disposition options, including disposal and/or treatment.
- 1.3.1.2 This SAP has been developed to meet the requirements for waste management and disposal within the DOE complex and at commercial facilities. Specifically, it meets the requirements of NTS-WAC, "Nevada Test Site (NTS) Waste Acceptance Criteria".
- 1.3.2 Specific objectives of this SAP are as follows:
- 1.3.2.1 Determine the presence and concentrations of RCRA hazardous constituents and radiological activities to support waste characterization.
- 1.3.2.2 Provide sufficient information to ensure that the sub-waste stream is managed safely.
- 1.3.2.3 Support identification of the appropriate disposal or treatment option (e.g., determine if the sub-waste stream meets NTS-WAC waste acceptance criteria).

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

1.4 Description of Containerized Waste Sampling Locations

1.4.1 Containerized waste may be sampled at one of following general locations:

- 1.4.1.1 the container storage area,
1.4.1.2 a container staging area established for sampling activities, or
1.4.1.3 an established container sampling line.

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

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

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

- 1.5.1.1 The sub-waste stream is difficult to sample because of physical form. This primarily applies to solid matrix waste such as metal, glass, or wood, rather than as a residue that could be removed for testing or in a decontamination process.
- 1.5.1.2 Sampling and analysis (S&A) of sub-waste stream would result in unacceptable risk of radiation exposure, (i.e., violate the As Low As Reasonably Achievable, ALARA, precept of the DOE).
- 1.5.1.3 Sub-waste stream is too heterogenous in composition (e.g., compactible trash containing clothing, booties, plastic, paper, experiment-driven, and decontamination and decommissioning waste).

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

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

1.6 Sampling and Analysis Schedule

- 1.6.1 To manage the large amount of sampling and analyses conducted by the FEMP, schedules for individual projects are controlled by an independent support organization within Project and Configuration Control (P&CC). Start and end dates associated with the following specific milestones are generally tracked:
- 1.6.1.1 Request Sampling and Analysis
 - 1.6.1.2 Prepare PSAP
 - 1.6.1.3 Collect Samples
 - 1.6.1.4 Analyze Samples
 - 1.6.1.5 Conduct Data Review and Validation
 - 1.6.1.6 Prepare Statistical Analysis Report
 - 1.6.1.7 Completion and transfer of file record.

2.0 REFERENCES

- 2.1 EW-0002, Chain of Custody/Request for Analysis Record for Sample Control
- 2.2 EW-0010, FEMP Data Validation Procedure
- 2.3 EW-0015, FEMP RCRA Operating Records
- 2.4 EW-1016, Waste Management Task Order Planning Process
- 2.5 RM-0005, FEMP Lot Marking Codes and Color Coding System
- 2.6 FD-1000, (SCQ) Sitewide CERCLA Quality Assurance Project Plan
- 2.7 WM:CHAR-T-0006, Sampling Material and Waste
- 2.8 34-00-002, Soil & Water Project Control of Fissile Special Source Materials Within The Laboratory Building

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3.0 RESPONSIBILITIES

3.1 Waste Characterization

- 3.1.1 Receives an FS-F-3787, "FEMP Request for Sampling and Analysis/Field Activities" (RSA), from requestor.
- 3.1.2 Prepares a PSAP based on information supplied on the RSA.
- 3.1.3 Obtains the required concurrences and approvals prior to initiating sampling activities.
- 3.1.4 Initiates Task Order, in accordance with EW-1016, to direct container movement and sampling implementation.
- 3.1.5 Maintains supporting documentation traceable to the sub-waste stream and characterization file.

3.2 Waste Storage & Sampling

- 3.2.1 Collects and delivers the wastes samples to Analytical Laboratory Services (ALS) for analysis or shipment to FEMP approved laboratories.

3.3 Analytical Laboratory Services/Sample Data Management (ALS/SDM)

- 3.3.1 Performs laboratory analysis of samples or prepares Task Order for analysis to be performed by an off-site subcontract laboratory. Also prepares samples for shipment to off-site laboratories.
- 3.3.2 Upon completion of sample analysis, reviews the data package and forwards data package to Waste Characterization for statistical analysis.

4.0 GENERAL

4.1 Objectives

- 4.1.1 Containerized waste and surface impoundment material sampling and analysis is required to satisfy the following data needs:
 - 4.1.1.1 Determine the regulatory status of the waste materials (at a 90% confidence level) and ensure compliance with NTS-WAC, Envirocare WAC, OSDF WAC, or other applicable requirements
 - 4.1.1.2 Determine the appropriate level of health and safety requirements for protection of site workers during waste handling, disposal, treatment, or storage
 - 4.1.1.3 Determine the waste characteristics to evaluate the proper disposal, treatment, or storage option

- 4.1.1.4 Assess risks to human health or the environment if wastes must be stored at the FEMP.
- 4.1.2 Data Quality Objectives (DQOs) are defined in Appendix C of FD-1000, "(SCQ) Sitewide CERCLA Quality Assurance Project Plan." Appropriate Analytical Support Levels (ASLs) for each data needed are presented in Table 4.1.

Analytical Parameter	ASL (s)
Organic/Radiologic Screening	A
Total/TCLP VOAs, SVOAs, Metals, Pesticides/Herbicides	B
Flash Point, pH, Corrosivity	B
F001 - F005 Solvents, Cyanides, Sulfides, PCBs	B
Paint Filter Liquids Test	B
Total/Isotopic U and Th	B
TAL VOAs, SVOAs, Pesticides/PCBs, Inorganics	B, C and D
Full Radiological	B, D and E

- 4.1.3 DQO NTW-003, A Characterization Sampling and Analysis of Containerized Wastes for Final Disposition or Treatment@ was developed for containerized waste material sampling, analysis, and characterization.
- 4.1.4 In general, the DQO provides a technically-sound sampling and analysis approach capable of satisfying the following items: representativeness, sampling accuracy, sampling precision, analytical method detection limits, completeness, and comparability. These items are addressed in the following sections of this sampling and analysis plan.
- 4.2 Representativeness
- 4.2.1 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 generally comprised of a group of containers labeled with the same Material Type and Source Code. Material Type and Source Code identifiers are provided in each PSAP, in Sections A.5 and A.6, respectively. Requirements Manual RM-0005 identifies the applicable material types and source codes.

4.3 Sampling Accuracy

- 4.3.1 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.

4.4 Sampling Precision

- 4.4.1 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. In general, the volume of sample material collected at the FEMP exceeds the minimum amount needed for analytical sample preparation and analysis. Lastly, when a sub-waste stream is suspected or known to contain separate physical phases (i.e., solids and liquids), the number of samples required is calculated for each waste phase. During sample collection activities, a sample is collected from each waste phase from the randomly selected waste containers.

4.5 Analytical Method Detection Limits

- 4.5.1 In general, analytical method detection limits are provided in Appendix G of FD-1000. Method detection limits for solid- and liquid-phased non-radiological analyses, are based upon EPA SW-846 or Contract Laboratory Program (CLP) protocol. Method detection limits for radiological analyses are based on typical laboratory detection compatibilities and are presented in FD-1000.

4.6 Completeness

- 4.6.1 To satisfy FD-1000 completeness requirements of 90%, the number of samples required to be collected will be calculated in accordance with methods described in EPA/230-02-89-042, Feb. 1989, "Methods for Evaluating the Attainment of Cleanup Standards, Vol. I, Soils and Solid Media". The following equation will be used to determine the number of samples to obtain a 90% completeness level:

Minimum number of samples required

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

where,

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

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

4.7 Comparability

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

5.0 SAP/PSAP DEVELOPMENT CRITERIA

5.1 Sampling Approach

- 5.1.1 The sampling approach for containerized wastes at the FEMP is dependent on the characteristics of the sub-waste stream as determined by PK/previous analytical data/visual inspection reviews.
- 5.1.1.1 Sub-waste streams which contain heterogenous materials and lack sufficient PK data will be subjected to "comprehensive" sampling and analysis (i.e., rate of 10% or cube root).
- 5.1.1.2 Sub-waste streams which contain homogenous materials and/or have preliminary determinations based on PK/previous analytical/visual inspection reviews may be subjected to "confirmatory" sampling and analyses (i.e., log base 10 + 1).
- 5.1.2 The sampling approach for surface impoundment material is dependent on the following factors:
- 5.1.2.1 matrix of surface impoundment materials (e.g., liquids only, solids only, or combination thereof),
- 5.1.2.2 target analytes of concern,
- 5.1.2.3 number and lateral/vertical extent of distinct solid layers,
- 5.1.2.4 basin geometry, and
- 5.1.2.5 location of waste generation source(s) and loading rate(s) to surface impoundment.
- 5.1.3 In order to increase the probability that representative samples are collected from the respective surface impoundment, extensive PK/analytical data/visual inspection reviews will be conducted. Data generated by these reviews will be used for evaluation of the previously-mentioned variables and determination of the appropriate sampling approach.

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

5.4 Number of Samples for Containerized Waste

- 5.4.1 For drummed waste sampling at the FEMP, typically the number of samples required equals 10% of the number of drums in a sub-waste stream. However, for sub-waste streams containing more than 100 drums, collecting samples for analyses at a rate of 10% may not be economically feasible or practical. Therefore, the 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 10000	22	28

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

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

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

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

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

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

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

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

5.5 Number of Samples for Surface Impoundment Materials

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

Effective Date: 01-31-2000

Revision No. 2

Procedure No. PL-3048

Page 15 of 42

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

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

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

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

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

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

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

5.6 Sample Volumes, Containers, Preservation and Holding Times

5.6.1 Required sample volumes, containers, preservatives, and holding times are provided in Appendix A, Table 6.1 of FD-1000. Sample volumes, containers, preservatives, and holding times are presented in Section 7.0 of this SAP, and in Sections B.2, B.3, and C of each PSAP.

5.6.2 Sample Collection Procedures/Equipment

▼ **Note:** Drummed waste sample collection procedures and appropriate sampling equipment, in accordance with Appendix K of FD-1000 and FEMP Waste Management Projects Sampling Procedures.

5.6.3 Sample collection procedures and appropriate sampling equipment are contained in Appendix K of FD-1000 and Waste Management Projects Division Procedure WM:CHAR-T-0006.

5.7 Sample Handling and Shipment

5.7.1 Field storage and shipment of samples procedures are presented in Section 6.7 and Appendix K of FD-1000.

6.0 DOCUMENTATION AND SAMPLE CUSTODY

6.1 Sample Identification and Labeling

6.1.1 Sample identification and labeling procedures are presented in Section 7.1.3 and Appendix K of FD-1000, Laboratory, and WMP procedures.

6.2 Recordkeeping

6.2.1 Field activities will be recorded on sequentially-numbered pages in logbooks or individual log sheets. Media-specific sample collection logs, calibration logs, sketches, and photographs may also be used to document field activities, site conditions, or unusual observations.

6.2.2 Detailed recordkeeping requirements are provided EW-0015

6.3 Sample Custody and Analysis Requests

6.3.1 Pertinent sample collection data will be recorded on the FS-F-3361, AChain of Custody/Request for Analysis Record@ (COC/RFA), in accordance with EW-0002, which will accompany the respective samples to the FEMP analytical laboratory facility for analysis or shipment to a FEMP-contracted laboratory for analysis. Samples shipped to offsite laboratories are accompanied the COC/RFA.

000122

6.4 Other Miscellaneous Forms

- 6.4.1 All sampling and analysis projects at the FEMP require a Work Permit as a minimum. Other forms, such as a Chemical Hazard/Confined Space Entry Permit or a Construction/Excavation Permit may be required based on the nature of the project. In addition, sample line personnel complete a Task Order Briefing at the initiation of each project. This briefing is valid for the duration of the project or until project conditions change.
- 6.4.2 Special Requirements for Enriched Nuclear Material Sampling
- 6.4.3 When Enriched Nuclear Materials are sampled, special notifications are required. These notifications are outlined in WMP sampling procedures. A calculation, performed by the Waste Characterization PSAP developer, will determine the total possible amount of U-235 in grams to be contained in the samples to be collected. After collection, an additional calculation will determine the actual maximum amount of U-235 grams contained in the samples. All calculations are based on best available information as described in 34-00-002, ASoil & Water Project Control of Fissile Special Source Materials Within The Laboratory Building@. The PSAP developer will include maximum total U-235 grams to be collected during sampling in the PSAP.

7.0 ANALYSIS OF WASTE SAMPLES**7.1 Waste Analytical Parameters and Methods**

- 7.1.1 In general, WC personnel or other requesters determine the appropriate waste analytical parameters based on PK and/or reviews of previous analytical data. This information is incorporated into the PSAP.

7.2 Non-Radiological Parameters and Methods

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

Analytical ParameterTest Method(s)**RCRA Analyses**

Ignitability EPA 1010/1020

Reactivity 40 CFR 261.23

Corrosivity EPA 9040

Toxicity Characteristic

EPA 1311

LDR Solvents TCLP (F001-F005)

LDR Halogenated Org.

EPA 9020

Cyanides EPA 9010/9012

Sulfides EPA 9030

000123

Other NTS-WAC Analyses

Free Liquids EPA 9095

PCBs EPA 8080

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

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

- 7.2.3 In general, the FEMP uses a 20:1 ratio of Total concentration results for solid matrix samples to TCLP regulatory threshold limits to determine if TCLP analyses are required. If the analyte-specific upper limit of the 90% confidence interval exceeds the 20:1 ratio to its associated TCLP regulatory value, WC will evaluate the leachability of this analyte to determine if TCLP analyses are warranted. If additional analyses are not warranted, WC will prepare a letter to the waste characterization file documenting the reason(s) for this decision.
- 7.2.4 Additional analytical parameters may be required to satisfy secondary objectives identified in this SAP. For example, if the sub-waste stream is determined to be "mixed hazardous waste", then Target Analyte List (TAL) or Target Compound List (TCL) analytical data may be required to assess the potential risks of storing these containers at the FEMP. The need for these parameters will be reviewed on a case-by-case basis.

7.3 Radiological Parameters and Methods

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

Analytical Parameter

Total/Isotopic Uranium
Total/Isotopic Thorium

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

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

7.4 Sample Container, Preservation, and Holding Time Requirements

7.4.1 Non-Radiological Analyses

- 7.4.1.1 Sample container, preservation, and holding time requirements for non-radiological analyses are provided in Table 7.1.

7.4.2 Radiological Analyses

- 7.4.2.1 Sample container, preservation, and holding time requirements for radiological analyses are provided in Table 7.2.

Table 7.1 Sample Container, Preservation, and Holding Time Requirements Non-Radiological Samples				
Analytical Parameter	Sample Matrix	Sample Container	Preservation	Holding Time
Total/TCLP VOAs	Liquid	3 x 40-mL VOA vials, TLS	HCl to pH < 2 Cool 4 deg. C	14 days
Total/TCLP SVOAs/Pest. Herb./PCBs	Liquid	1 Gal. Amber Glass, TLC	Cool 4 deg. C	7 days
Total/TCLP Metals	Liquid	1 x 1-liter polyethylene	50% HNO ₃ to pH < 2	180 days 28 days (Hg)
Cyanide	Liquid	1 x 1-liter polyethylene	NaOH to pH > 12 Cool 4 deg. C	14 days
Flash Point pH	Liquid	8-oz. widemouth Glass, TLC	None	28 days, ASAP for pH
Sulfides	Liquid	1 x 1-liter polyethylene	NaOH to pH > 9 Cool 4 deg. C	7 days
Total/TCLP VOAs	Solid	3 x 4-oz. jars* glass, TLC	Cool 4 deg. C	14 days
Total/TCLP SVOAs/Pest. Herb./PCBs	Solid	1 x 8-oz jar** Amber Glass, TLC	Cool 4 deg. C	14 days
Total/TCLP Metals	Solid	1 x 8-oz jar** Glass, TLC	Cool 4 deg. C	180 days 28 days (Hg)
PFLT	Solid	1 x 4-oz. glass or polyethylene	None	28 days

Notes:

VOA, SVOA = Volatile Organic Analysis, Semi-Volatile Organic Analysis

Pest., Herb., PCBs = Pesticides, Herbicides, Polychlorinated Biphenols

PFLT = Paint Filter Liquids Test

TLC, TLS = Teflon-Lined Closure, Teflon-Lined Septum

HCl, HNO₃, NaOH = Hydrochloric acid, Nitric acid, Sodium hydroxide

* - Minimum of 25 grams/container for low-density waste materials

** - Minimum of 100 grams/container for low-density waste materials

Table 7.2 Sample Container, Preservation, and Holding Time Requirements Radiological Samples				
Analytical Parameter	Sample Matrix	Sample Container	Preservation	Holding Time
Total Uranium	Solid	8-ounce jar Plastic/Glass	None	180 days
Total Uranium	Liquid	1-liter bottle Plastic/Glass	HNO ₃ to pH < 2	180 days
Isotopic Uranium	Solid	8-ounce jar Plastic/Glass	None	180 days
Isotopic Uranium	Liquid	1-liter bottle Plastic/Glass	HNO ₃ to pH < 2	180 days
Total Thorium	Solid	8-ounce jar Plastic/Glass	None	180 days
Total Thorium	Liquid	1-liter bottle Plastic/Glass	HNO ₃ to pH < 2	180 days
Isotopic Thorium	Solid	8-ounce jar Plastic/Glass	None	180 days
Isotopic Thorium	Liquid	1-liter bottle Plastic/Glass	HNO ₃ to pH < 2	180 days
Total Radiological Parameter	Solid	1-Quart Jar Plastic/Glass	None	180 days
Total Radiological Parameter	Liquid	4-Liter Cubetainer	HNO ₃ to pH < 2	180 days

8.0 QUALITY ASSURANCE/QUALITY CONTROL

8.1 Field QC Samples

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

8.1.1.1 Container blanks - not required when vendor-supplied assay data is provided with container shipment. When required, collect one blank per each container batch or one per sampling round, whichever is more frequent.

8.1.1.2 Duplicate samples - one per every twenty samples per media matrix or one per sampling round per media matrix, whichever is more frequent.

8.1.1.3 Equipment rinsates - one per twenty pieces of a type of equipment cleaned by a specific decontamination method or one per sampling round, whichever is more frequent.

8.1.1.4 Field Blanks - one per twenty samples or one per sampling round, whichever is more frequent.

8.1.1.5 Preservative blanks - not required when vendor-supplied assay data is provided with preservative shipment. When required, collect one blank per each container batch or one per sampling round, whichever is more frequent.

8.1.1.6 Split samples - if required, one per every twenty samples per media matrix or one per sampling round per media matrix.

8.1.1.7 Trip blanks - daily, one trip blank per cooler containing Volatile Organics samples sent to laboratory. Analyzed for Volatile Organics only.

8.1.2 In accordance with Appendix D of FD-1000, field duplicate sample analytical data may be used to calculate the relative percent difference (RPD) for evaluation of sampling precision or degree of homogeneity/heterogeneity of the waste materials.

8.1.3 Equipment rinsate analytical data may be used to evaluate the effectiveness of the decontamination procedure or estimate the amount of cross contamination between sample point locations.

8.1.4 Field blank analytical data may be used to estimate the amount of contamination associated with the sampling environment.

8.1.5 Split sample analytical data may be used to evaluate the accuracy of analytical performance between two distinct laboratory facilities and identify the potential for false positives or false negatives.

8.2 Field Screening Equipment Calibration and Documentation

- 8.2.1 Field screening instrumentation, such as radiation detection and photoionization detection (PID) devices, will be checked on a daily basis for proper operation. Any equipment that fails calibration (limit of +/- 10% of calibration gas value) or becomes inoperable will be tagged and taken out of service. Such equipment will be repaired and recalibrated before reuse.
- 8.2.2 Radiation detection devices will be checked before each use to ensure that the date of required calibration has not been exceeded. PID devices will be calibrated, on a daily basis and prior to use, to a known concentration of volatile gas in air mixture (i.e., isobutylene, etc.). Subsequent to completion of field activities, on a daily basis, the PID instrument will be checked by analyzing the respective gas-air mixture used for calibration. Field screening instrumentation checks and calibration will be recorded in bound field logbooks or field activity daily logs and instrument-specific calibration logs.

8.3 Field Audits/Surveillances

- 8.3.1 In accordance with NTS WAC, DOE-NV may conduct a triannual audit of the sampling activities covered under this SAP. In addition, the FEMP may conduct surveillances of sampling activities to verify conformance with the requirements and procedures identified in this SAP. These surveillances will be documented in accordance with Section 12 of FD-1000.
- 8.3.2 Upon completion of each sampling event, QC shall review field logbook entries, COC/RFAs, etc., to ensure that sample collection and documentation were conducted in accordance with requirements of this SAP, its respective PSAP, and FD-1000. The completed field-generated documentation will be retained in WC MEF files.

8.4 Laboratory QC Samples

- 8.4.1 Laboratory QC sample requirements are provided in Appendix A (Table 2-2) and Appendix G of FD-1000 and based upon the requested ASL. In general, the types of laboratory QC samples will be selected based on project-specific needs.

8.5 Analytical Instrumentation/Equipment Calibration and Documentation

- 8.5.1 Analytical laboratory instrument and equipment calibration procedures are provided in Section 8.0 and Appendix E of FD-1000. The FEMP and FEMP-contracted analytical laboratory facilities will be responsible for ensuring that all analytical instrumentation and equipment is operating properly and is within prescribed calibration limits.

8.6 QA/QC Checks and Procedures

- 8.6.1 Laboratory quality control checks and procedures for inorganic, organic, and radiological analyses are provided in Section 10.0 and Appendices A, B and E of FD-1000. The FEMP and FEMP-contracted laboratory facilities will be responsible for adherence to these quality control checks and procedures.

8.6.2 In accordance with NTS WAC and Section 12.4 of FD-1000, the FEMP will conduct a laboratory qualification audit prior to contract award for analytical services. In addition, a system audit will be conducted for each FEMP-contract laboratory on an annual basis to assure continued acceptable performance. Each data package submitted by a FEMP-contract laboratory is reviewed by Analytical Data Management to ensure that contractual issues have been satisfied.

8.7 Data Reporting and Validation

8.7.1 The FEMP laboratory and FEMP-contracted laboratory facilities shall provide data packages on floppy disk and/or hard copy in such a fashion that allows for DOE-NV to validate data. In addition, field- and laboratory-generated data packages shall be validated in accordance with the FEMP Validation Plan in Appendix D of FD-1000 and EW-0010, "FEMP Data Validation Procedure". Validated data shall be used to support waste determinations.

8.8 Waste Disposition

8.8.1 Contact Wastes

8.8.1.1 Contact wastes, such as personal protective equipment (PPE) and rags or wipes (paper towels, Chemwipes[®], etc.), are typically placed in 5-gallon pails or 55-gallon drums, lot marked so that they can be traced to (associated with) the waste stream sampled, and stored at the FEMP for appropriate disposition. Separate 55-gallon drums will be provided, for segregation of PPE wastes, and labeled as follows:

A. Used Respirators

B. Used Rubber Shoe Covers

C. Used Tyvek/Saranex, Cartridges, Tape, Gloves

8.8.2 Decontamination Solutions

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

9.0 DISTRIBUTION AND CONTROL OF PSAPS

9.1 Control of PSAPs

- 9.1.1 Once a PSAP is generated, approved and signed by an authorized individual, the PSAP shall be controlled by Waste Characterization.
- 9.1.2 An individual project-specific file shall be maintained, and contain, at a minimum, the following:
 - 9.1.2.1 FEMP Waste Program Management/Waste Sampling Request for sampling
 - 9.1.2.2 Project Sampling Plan Development/Sampling and Analysis/Field Activities
 - 9.1.2.3 Master copy of the PSAP
 - 9.1.2.4 Associated documentation (i.e. copies of logbook, log forms, chain of custody, data reports, etc.).
- 9.1.3 Upon completion of a project, this project-specific file will either be:
 - 9.1.3.1 Forwarded by Waste Characterization to the requestor, or
 - 9.1.3.2 Waste Characterization will maintain the file for approximately one year, then the file will be archived.

9.2 Distribution of PSAPs

- 9.2.1 Once a PSAP is generated, distribution will be controlled by Waste Characterization.
- 9.2.2 Distribution will be as follows:
 - 9.2.2.1 One working copy shall be forwarded to ACS
 - 9.2.2.2 One working copy shall be forwarded with the Task Order.
- 9.2.3 In the event of a revision or addendum, Waste Characterization shall distribute the revised copies or addendum with instructions to the distribution points listed in Step 9.2.2
- 9.2.4 All revisions and addendums shall include an effective date.

10.0 APPLICABLE DOCUMENTS**10.1 Drivers**

10.1.1 NTS WAC, Nevada Test Site Waste Acceptance Criteria

10.1.2 Environcare WAC

10.1.3 Onsite Disposal Facility (OSDF) WAC

10.1.4 TSCA Inc. WAC

10.1.5 FD-1000, (SCQ) Sitewide CERCLA Quality Assurance Project Plan

10.2 Forms

10.2.1 FS-F-3361, Chain of Custody/Request for Analysis Record

10.2.2 FS-F-3787, FEMP Request for Sampling and Analysis/Field Activities

10.3 Information Sources

10.3.1 PL-3078, Waste Characterization Program Plan

10.3.2 D22-11-001, Statistical Report Writing For Waste Acceptance Criteria

10.3.3 EPA SW-846, Test Methods for Evaluating Solid Wastes

10.3.4 EPA 230-02-89-042, Methods for Evaluating the Attainment of Cleanup Standards, Volume 1, Soils and Soiled Media

10.3.5 EPA 600/R-92/033, Characterizing Heterogenous Wastes: Methods and Recommendations

10.3.6 34-00-002, Soil & Water Project Control of Fissile Special Source Materials Within The Laboratory Building

10.3.7 34-10-504, Dispositioning Samples from the On-Site Laboratory (and Retrieving Sample From) the Sampling Disposition Facility

10.3.8 DQO NTW-003, Characterization Sampling and Analysis of Containerized Wastes for Final Disposition or Treatment

11.0 DEFINITIONS

- 11.1 Characterization:** The determination of the physical, chemical, radiological, and biological properties of a material to the extent necessary to support informed decision making regarding the management of a waste.
- 11.2 Confidence Coefficient:** The probability statement that accompanies a confidence interval and is equal to unity minus the associated type I error rate (false positive rate). A confidence coefficient of 0.90 implies that 90% of the intervals resulting from repeated sampling of a population will include the unknown (true) population parameter.
- 11.3 Confidence Interval:** The numerical interval constructed around a point estimate of a population parameter, combined with the probability statement (the confidence coefficient) linking the interval to the population's true parameter value.
- 11.4 Disposal:** The systematic and orderly placement, long term storage, distribution, or transformation of wastes (treatment).
- 11.5 Disposal:** (NTS-WAC): The emplacement of low-level radioactive wastes in a manner which is considered permanent in that routine recovery is not provided for.
- 11.6 Facility - RCRA:** (EPA 40 CFR 260.10): All contiguous land, and structures, other appurtenances and improvements on the land used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combinations of them).
- 11.7 Facility - Waste:** (EPA 40 CFR 260.10): All contiguous land, and structures, other appurtenances and improvements on the land used for treating, storing, or disposing of waste. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combinations of them).
- 11.8 Hazardous Waste:** (DOT 49 CFR 171.8): Any material that is subject to the Hazardous Waste Manifest Requirements of the Environmental Protection Agency specified in 40 CFR Part 262.
- 11.9 Hazardous Waste:** (DOE EH-231-003/0191): A solid waste that must be treated, stored, or transported, and disposed of in accordance with applicable requirements under Subtitle C of RCRA.
- 11.10 Low-Level Waste:** (NTS-WAC): All radioactive waste not classified as high-level waste, spent nuclear fuel, transuranic waste, uranium mill tailings, mixed waste, or 11e(2) by-product material as defined in DOE Order 5820.2a. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level waste, provided the concentrations of transuranics is less than 100 nanocuries (nCi/g).

- 11.11 **Mixed Waste:** (NTS-WAC): Waste containing both radioactive and hazardous components as defined by the Atomic Energy Act and the RCRA, respectively. Mixed waste must meet the Land Disposal Restrictions (LDR) as listed in 40 CFR 268.
- 11.12 **Operable Unit:** (EPA 40 CFR 300.6) A discrete part of the entire response action that decreases a release, threat of release, or pathway of exposure.
- 11.13 **Radioactive Waste:** (NTS-WAC): Solid, liquid, or gaseous material that contains radioactive nuclides regulated under the Atomic Energy Act of 1954, as amended, and of negligible economic value considering costs of recovery.
- 11.14 **Radioactive Waste:** (DOE 5480.2): Solid or fluid materials of no value containing radioactivity; discarded items such as clothing, containers, equipment, rubble, residues, or soils contaminated with radioactivity; or soils, rubble, equipment or other items containing induced radioactivity such that the levels exceed safe limits for unconditional release.
- 11.15 **Solid Waste:** (NTS-WAC): Waste material that is an essentially dry, solid form. The waste stream may include well-drained containers or liquids which have been entrapped or otherwise solidified so that they will retain their solid form without the presence of free liquids during handling, transportation, storage, or disposal. Viscous material is determined to be a solid by testing in accordance with American Society for testing Materials Standard D 4359, "Standard Test Method for Determining Whether a Material is a Liquid or a Solid."
- 11.16 **Solid Waste:** (EPA 40 CFR 260.10, 261.2): Garbage, refuse, and other discarded solid materials, including solid waste materials resulting from industrial, commercial, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial wastewater effluent, dissolved materials in irrigation return flows, or other common water pollutants. It generally does not include mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.
- 11.17 **Sub-Waste Stream:** A group of containers that contain similar material based on process knowledge and are labeled with the same Material Type and Source Code as part of the FEMP's Lot Marking System Number.
- 11.18 **Waste Stream:** (NTS-WAC): The categorization of waste defined by the ability or method of characterization and certification. Examples are (1) by matrix; e.g., compactible trash, metal, wood, sludge, filter cakes, glass; and (2) by process; e.g., controlled experiments, decommissioning activities as described in DOE Order 5820.2A, Section V.

**Attachment 1
Format for Boxed Waste Material PSAP
Project-Specific Sampling and Analysis Plan**

Number:
Date:
Page 1 of 4

A. Identifying Information

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

B. Sampling Information

- 1) **General:** Samples taken will be contained in glass or polyethylene jars with Teflon lined lids.
- 2) **Preservation Method:** See Analytical Requirements in Section C.
- 3) **Holding Times:** See Preservative and Holding Time Requirements in Section G Holding times and sample volume/container requirements for media-specific analyses not listed in FD-1000 are provided by the FEMP laboratory facility.
- 4) **Sample Technique:**
- 5) **Number of Boxes to be Sampled and Analyzed:** , see page 2.
- 6) **Composite Samples:** No
- 7) **Visual Inspection Performed?:** No
- 8) **Field Contact:**
- 9) **Send Results to:** Bill Neyer, ext. 5469, MS 46
- 10) **Charge No./Project Manager:**
- 11) **Required QA/QC Samples:**

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

Laboratory QC

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

Attachment 1
Format for Boxed Waste Material PSAP
Project-Specific Sampling and Analysis Plan

Number:
Date:
Page 2 of 4
Charge:

B. Sampling Information

- 12) **Box/Grid/Random Depth Information:** See Appendix A for grid layout. The duplicate sample is to be taken from the container noted with an asterisk (*). The duplicate sample will be given the next consecutive sample number.

<u>Sample Number</u>	<u>Lot Number</u>	<u>Inv. Number</u>	<u>Grid Number</u>	<u>Random Depth (ft)</u>
FIELD(1)-1				
FIELD(1)-1				
FIELD(1)-1-				
FIELD(1)-1				
FIELD(1)-1				
FIELD(1)-1				

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

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

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

When Enriched Materials is sampled, include the following as a note:
"Material to be sampled is enriched, notifications per WMP Sampling Procedures are required."

Attachment 1
Format for Boxed Waste Material PSAP
Project-Specific Sampling and Analysis Plan

Number:
 Date:
 Page 3 of 4

C. Analytical Requirements

In order to satisfy waste characterization requirements the following analyses may be performed.

Analysis Requested ASL B	Solid Matrix Samples Container and Preservative/Units		Liquid Waste Samples Container and Preservative/Units		Quality Control Samples Container and Preservative/Units	
Total VOA Table 5 (off-site)	200 g, GTL	Cool 4°C/ mg/kg	(4) x 40 mL GTS	Cool 4°C/ mg/L	(4) x 40 mL GTS	Cool 4°C & HCl to pH < 2/mg/L
Volatiles Table 26 (off-site)		Cool 4°C/ mg/Kg		Cool 4°C/ mg/L		Cool 4°C & HCl to pH < 2 /mg/L
TCLP VOA Table 4 (off-site)	200 g GTL	Cool 4°C/mg/L				
Total Alcohols Table 6 (off-site)	200 g AGTL	Cool 4°C/ mg/kg	(2) x 1 L AGTL	Cool 4°C/mg/L	(2) x 1 L AGTL	Cool 4°C/ mg/L
Total SVOA Table 8 (off-site)	-----	---	(3) x 1 L AGTL	Cool 4°C/ mg/L	(3) x 1 L AGTL	Cool 4°C/ mg/L
TCLP SVOA Table 7 (off-site)	200 g AGTL	Cool 4°C/ mg/L				
Total SVOA Table 8 (off-site)	---	---	4.5 L AGTL	Cool 4°C/ mg/L	4.5 L AGTL	Cool 4°C/ mg/L
Total Pest/Herbicides Table 10 & 12 (off-site)		---		Cool 4°C/ mg/L		Cool 4°C/ mg/L
Total Metal Table 3 (off-site)	-----	---	(1) x 1 L GTL	Cool 4°C/ mg/L	(1) x 1 L jar, P	Cool 4°C & HNO ₃ to pH < 2/mg/L
TCLP Metal Table 2 (off-site)	250 g G or P	Cool 4°C/ mg/L	-----	---	-----	---
TCLP Pest/Herbicides Table 9 & 11 (off-site)	100 g AGTL	Cool 4°C/ mg/L	---	---	---	---
Flashpoint (on-site)			(1) x 250 mL GTL	None/ ° F		
Total U (on-site)	350 g G or P	None/ ppm	(1) x 120 mL G or P	None/ ppm	(1) x 250 mL G or P	HNO ₃ to pH < 2/mg/L
pH (on-site)		---		None/ pH units		
Quantitative PFLT (on-site)		None/ present/ absent		---		
Percent Moisture (on-site)		None/ Wt%		---		
U-235 (on-site)	250 g G or P	None/ Wt%	(1) x 250 mL G or P	None/ Wt%	(1) x 250 mL G or P	HNO ₃ to pH < 2/mg/L
Alpha-Beta (on-site)		None/ pCi/g		None/ pCi/L		---
Description of material (Color, appearance, consistency, etc.)						

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

** - NOTE TO LAB: IF PFLT FAILS, PERFORM pH AND FLASHPOINT
 ACS CONTACT: JENNY VANCE, EXT. 5372

Lab Information:

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

Send Data Validation Summary to Jenny Vance

NOTE: When Enriched Material is sampled, included the following as a note:

**Attachment 1
Format for Boxed Waste Material PSAP
Project-Specific Sampling and Analysis Plan**

Number:
Date:
Page 4 of 4

D. Waste Stream Description

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

E. Precautions and Limitations

See WMP Sampling Procedures for precautions and limitations. Also see Job Safety Analysis 272 for on-site metal box sampling.

F. Representative Sampling Procedure

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

G. Preservative and Holding Time Guidelines

See Tables 7.1 and 7.2 of the "Prototype Sampling and Analysis Plan for Containerized Waste at the FEMP" and/or Table 6-1 "Sample Container and Preservation Requirements," of the Sitewide CERCLA Quality Assurance Project Plan (FD-1000). Sample container , preservative, and holding time requirements for analytical parameters not provided in these tables have been obtained from federal or state of generation policies/directives, or from the FEMP or FEMP-contracted laboratory facility; and incorporated into this PSAP as permitted in Section 3.3.2 of FD-1000.

H. Variances

The grids within the boxes indicated on page 2 of this PSAP, may be replaced with an adjacent grid due to the following: material cannot be sampled or there is inadequate volume to meet the specified volume requirements. A formal variance is not required, logbook entries will record the specific variance(s).

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

If this Sub-Waste Stream is sampled and analyzed according to the information on this form, the results generated will be in agreement with the sampling and analysis requirements of PL-3048, "Prototype Sampling and Analysis Plan for Containerized Waste at the FEMP;" NTSWAC, "Nevada Test Site Defense Waste Acceptance Criteria" and the Fernald Environmental Management Project (FEMP) "(SCQ) Sitewide CERCLA Quality Assurance Project Plan (FD-1000)".

_____ Sampling & Analysis Requestor	_____ Date	_____ PSAP Developer	_____ Date	_____ Project Manager	_____ Date
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000138

Effective Date: 01-31-2000

Revision No. 2

Procedure No. PL-3048

Page 33 of 42

**ATTACHMENT A to Attachment 1
Diagram of Metal Boxes for Sampling**

	1	2	3	4
F	5	6	7	8
R	9	10	11	12 B
O	13	14	15	16 A
N	17	18	19	20 C
T	21	22	23	24 K
	25	26	27	28
			000139	

NOT TO SCALE

This diagram represents a metal box with dimensions of 7 ft. X 4 ft. Each sample location is approximately 1 ft. X 1 ft.

**Attachment 2
Format for Surface Impoundment Material PSAP
Project-Specific Sampling and Analysis Plan**

Number:
Date:
Page: 1 of 4

A. Identifying Information

- 1) **Project Name:**
- 2) **Surface Impoundment:**
- 3) **Material Description/Matrix Code(s):**
- 4) **Estimated Volume of Surface Impoundment Materials:**
 Surface Water = gallons (gals)
 Sludge = cubic feet (ft³)
- 5) **Dimensions of Surface Impoundment:**
 East - West = feet
 North - South = feet
 Depth = feet (maximum)
- 6) **Process Knowledge:**

B. Sampling Information

- 1) **Containers/Preservative/Holding Times:** See Tables 6.1 and 6.2 of "Prototype Sampling and Analysis Plan for Surface Impoundment Materials. "Holding times for analyses not provided in these tables may be provided in Table 6-1, Appendix A, of the (SCQ) Sitewide CERCLA Quality Assurance Project Plan (FD-1000).
- 2) **Sample Technique:** See Section 4.4 of "Prototype Sampling and Analysis Plan for Surface Impoundment Materials at the FEMP."
- 3) **Sample Point Locations:** sludge and water, see pages 2 and 3.
- 4) **Composite Samples:** No
- 5) **Field Contact:**
- 6) **Send Results to:**
- 7) **Charge No./Project Manager:**
- 8) **Required QC Samples:**

<u>Field QC</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
Trip Blank	_____	_____	daily, for Total VOA samples only
Field Blank	_____	_____	1 per 20 samples or 1 per sampling round
Equipment Rinsate	_____	_____	1 per 20 samples or 1 per sampling round
Duplicate/Split	_____	_____	1 per 20 samples or 1 per sampling round
Field Spike	_____	_____	1 per sixty days or 1 per project

Laboratory QC

Laboratory QC sample type and frequency requirements are provided in Appendix A (Table 2-4), and Appendix G of FD-1000.

Attachment 2
Format for Surface Impoundment Material PSAP
Project-Specific Sampling and Analysis Plan

Number:
Date:
Page: 2 of 4

Sampling Information

- B.9) Start with Sample Number 93-xxx # for the first sample, then number consecutively until sampling is completed. The sample point location that is to be sampled in duplicate will be indicated with an asterisk (*). The duplicate samples will be given different sample numbers.

<u>Sample Number</u>	<u>Sample Type</u>	<u>Sample Matrix</u>	<u>Sample Point Location@</u>	
			<u>Northing</u>	<u>Easting</u>
93-xxx-*	Grab	Sludge	xxx'	xxx'
93-xxx-*	Grab	Sludge	xxx'	xxx'
93-xxx-	Grab	Sludge	xxx'	xxx'
93-xxx-	Grab	Sludge	xxx'	xxx'
93-xxx-	Grab	Sludge	xxx'	xxx'
93-xxx-	Grab	Sludge	xxx'	xxx'
93-xxx-	Grab	Liquid	xxx'	xxx'
93-xxx-	Grab	Liquid	xxx'	xxx'
93-xxx-	Grab	Liquid	xxx'	xxx'
93-xxx-*	Grab	Liquid	xxx'	xxx'
93-xxx-*	Grab	Liquid	xxx'	xxx'
93-xxx-	Grab	Liquid	xxx'	xxx'
93-xxx-	Grab	Liquid	xxx'	xxx'
93-xxx-	Trip	Water		
93-xxx-	Trip	Water		
93-xxx-	Trip	Water		
93-xxx-	Trip	Water		
93-xxx-	Field	Water		
93-xxx-	Rinse	Water		

Note: @ - Easting and Northing coordinates are relative to an origin point assumed to be located on top of the dike at the southwestern corner of the surface impoundment. See attached map for illustration of these sample points.

Attachment 2
Format for Surface Impoundment Material PSAP
Project-Specific Sampling and Analysis Plan

Number:
Date:
Page: 3 of 4

C. Analytical Requirements

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

Analysis Requested (Analysis Code)	Solid Matrix Samples Container and Preservative/Unit Codes	QC/Liquid Matrix Samples Container and Preservative/Unit Codes		
ASL = Analytical Support Level VOA = Volatile Organic Analysis SVOA = Semi-Volatile Organic Analysis	oz., g = ounce, gram mg, ug = milligram, microgram kg = kilograms P00 = No preservation needed P01 = Cool 4 deg. C U02, U04 = mg/L, mg/kg U06, U19 = ug/L, pCi/g TLC = Teflon-Lined Closure	mL, L = milliliter, Liter P01 = Cool 4 deg C P09 = HCl to pH < 2 P11 = HNO ₃ to pH < 2 U02, U06 = mg/L, ug/L U18 = pCi/L TLS = Teflon-Lined Septum TLC = Teflon-Lined Closure		
Total VOAs (2411)* TCLP VOAs (2459)** ASL B	(3) x 4-oz. glass, TLC	P01/U04 U06 for TCLP	(3) x 40-mL VOA vials, TLS	P09 & P01 /U06
Total SVOAs (2470)/ Pesticides (2486)* TCLP SVOAs (2471)/ Pesticides (2487)** ASL B	(1) x 8-oz. amber glass, TLC	P01/U04 U06 for TCLP	(1) x 1 gal amber glass, TLC	P01/U06
Total Metals (2402)* TCLP Metals (2401)** ASL B	(1) x 8-oz. glass or polyethylene	P01/U04 U02 for TCLP	(1) x 1 L polyethylene	P11 & P01 /U02
Alpha-Beta (2005)	(1) x 4-oz. glass or polyethylene	P00/U19	(1) * 120 mL glass or polyethylene	P11/U18
Description of material (Color, appearance, consistency, etc.)				

Note: * Analyze for QC/liquid matrix samples only.

** Solid matrix samples only. Prepare extract immediately. Use sample from a separate container for Total concentrations. If Total concentrations exceed 20 times the TCLP regulatory value, perform analysis of sample extract.

Effective Date: 01-31-2000	Revision No. 2	Procedure No. PL-3048	Page 37 of 42
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**Attachment 2
Format for Surface Impoundment Material PSAP
Project-Specific Sampling and Analysis Plan**

Number:
Date:
Page: 4 of 4

D. Surface Impoundment Description

The surface impoundment, approximate dimensions of ___ feet (east-west) by ___ feet (north-south) by ___ feet depth, consists of a plastic- and clay-lined structure used for _____.
This structure is considered as a component of CERCLA/RCRA Unit x (CRUx), and is located between _____.

E. Safety Concerns

See project-specific health and safety plan for _____.

F. Representative Sampling Procedure

1. The number of samples per each surface impoundment material phase (i.e., liquids and solids) were calculated by the use of the following equation:
2. The spatial location of the water/sludge sample points were determined by using computer algorithms developed based upon guidance provided in EPA/230-02-89-042, "Methods for Evaluating the Attainment of Cleanup Standards, Vol. 1, Soils and Solid Media", February 1989.
3. The sample area for the sludge materials was limited to the area identified in the attached map, since this area contains sufficient material thicknesses to allow for sample collection.
4. The sludge/water samples will be collected in accordance with methodology provided in Section 4.4 of "Prototype Sampling and Analysis Plan for Surface Impoundment Materials at the FEMP," using the following sequence:

- Total VOAs
- Total SVOAs/Pesticides
- Total Metals
- Alpha/Beta Screen

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

If this Sub-Waste Stream is sampled and analyzed according to the information on this form, the results generated will be in agreement with the sampling and analysis requirements of PL-3048, "Prototype Sampling and Analysis Plan for Containerized Waste at the FEMP;" NTSWAC, "Nevada Test Site Defense Waste Acceptance Criteria" and the Fernald Environmental Management Project (FEMP) "(SCQ) Sitewide CERCLA Quality Assurance Project Plan (FD-1000)".

_____	_____	_____	_____	_____	_____
Sampling & Analysis Requestor	Date	PSAP Developer	Date	Project Manager	Date

Attachment 3
Format for Drummed Waste Material PSAP
Project-Specific Sampling and Analysis Plan

Number:

Date:

Page 1 of 4

A. Identifying Information

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

B. Sampling Information

- 1) General: Samples taken will be contained in glass or polyethylene jars with Teflon lined lids.
- 2) Preservation Method: See Analytical Requirements in Section C.
- 3) Holding Times: See Preservative and Holding Time Guidelines in Section G. Holding times and sample volume/container requirements for media-specific analyses not listed in FD-1000 are provided by the FEMP laboratory facility.
- 4) Sample Technique:
- 5) Number of Drums to be Sampled and Analyzed: , see page 2.
- 6) Composite Samples: No
- 7) Visual Inspection Performed (# of visuals)?: Yes ().
- 8) Field Contact:
- 9) Send Results to: Bill Neyer, ext. 5469, MS 46 ,
- 10) Charge No./Project Manager:
- 11) Required QA/QC Samples:

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

Laboratory QC

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

000144

Effective Date: 01-31-2000

Revision No. 2

Procedure No. PL-3048

Page 39 of 42

**Attachment 3
Format for Drummed Waste Material PSAP
Project-Specific Sampling and Analysis Plan**

Number:
Date:
Page 2 of 4
Charge:

Sampling Information

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

<u>Sample Number</u>	<u>Inv. Number</u>	<u>Lot Number</u>	<u>Drum Number</u>
FIELD (1)-1			
FIELD (1)			

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

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

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

000145

NOTE: When Enriched Material is sampled, include the following as a note:
"Material to be sampled is enriched, notifications per WMP Sampling Procedures are required."

Attachment 3
Format for Drummed Waste Material PSAP
Project-Specific Sampling and Analysis Plan

TAL Number:
Date:
Page: 3 of 4

C. Analytical Requirements

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

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

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

** - NOTE TO LAB: IF PFLT FAILS, PERFORM pH AND FLASHPOINT.
ACS CONTACT: JENNY VANCE, EXT. 5372

Lab Information:

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

Send Data Validation Summary to Jenny Vance.

NOTE: When Enriched Material is sampled, included the following as a note:

000146 *Maximum total grams of U-235 to be collected = _____ grams*

Effective Date: 01-31-2000

Revision No. 2

Procedure No. PL-3048

Page 41 of 42

Attachment 3
Format for Drummed Waste Material PSAP
Project-Specific Sampling and Analysis Plan

Number:

Date:

Page: 4 of 4

D. Sub-Waste Stream Description

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

E. Precautions and Limitations

See WMP Sampling Procedures for Precautions and Limitations.

F. Representative Sampling Procedure

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

G. Preservative and Holding Time Guidelines

See Tables 6.1 and 6.2 of the "Prototype Sampling and Analysis Plan for Containerized Waste at the FEMP" and/or Table 6-1 "Sample Container and Preservation Requirements," of (SCQ) Sitewide CERCLA Quality Assurance Project Plan (FD-1000). Sample container, preservative, and holding time requirements for analytical parameters not provided in these tables have been obtained from federal or state of generation policies/directives, or from the FEMP or FEMP-contracted laboratory facility; and incorporated into this PSAP as permitted in Section 3.3.2 of FD-1000.

H. Variances

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

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

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

 Sampling & Analysis Requestor Date PSAP Developer Date Project Manager Date

000117

000148

**Attachment - 4
Statistical Calculations**

Sampling Plan/MEF: 97-1507 NPDS

Mat. Type: cement-stabilized, solution of UNH and other uranium contaminated liquids.

Revised: 03/09/98

Analyte	Reg. Level (ppm)	Number of Samples	Statistical Mean (ppm)	Standard Deviation	Sample Variance	Standard Error	Upper CI Limit (90%)	COV s_x/x	COV x/s_2	# of additional samples required
TCLP Metal										
Constituent(s):										
Barium	100	3	0.718	0.085493	0.0073	0.0494	0.8111	0.0887	98.2343	0
Chromium	5	3	0.412833	0.02175	0.0006	0.0126	0.4365	0.0304	872.6817	0
Silver	5	3	0.008233	0.001595	0.0000	0.0009	0.0080	0.1477	2450.0545	0
Gamma Spectrometry										
Constituent(s):										
Uranium-238		3	851.66666	640.16274	409808.3337	369.5981	1548.7287	0.4340	0.0021	0
Thorium-232		3	0.848333	0.137143	0.0188	0.0792	0.7977	0.1221	34.4708	0
Radium-226		3	0.501667	0.179608	0.0323	0.1037	0.6972	0.2067	15.5516	0
Uranium-235		3	53.666667	35.92121	1290.3333	20.7391	92.7806	0.3864	0.0416	0
Potassium-40		3	2.375	1.67276	2.7981	0.9658	4.1964	0.4066	0.8488	0
Neptunium-237		3	0.526667	0.756593	0.6724	0.4368	1.3505	0.8294	0.9201	4
Gross Alpha (pCi/g)		3	1333.3333	960.90235	923333.3339	554.7772	2379.6432	0.4161	0.0014	0
Gross Beta (pCi/g)		3	1376.6666	982.09840	925633.3332	555.4678	2424.2789	0.4035	0.0015	0
Total U (ICP-MS) (PPM)		3	2455.3333	1572.2182	2471870.3325	807.7206	4167.2945	0.3697	0.0010	0

Discussion:

Effective Date: 01-31-2000

Revision No. 2

Procedure No. PL-3048

Page 42 of 42

SECTION D - PROCESS INFORMATION

TABLE OF CONTENTS

D-1 CONTAINERS 1

 D-1a Containers With Free Liquids 3

 D-1a(1) Description of Containers 3

 D-1a(2) Container Management Practices 4

 D-1a(3) Secondary Containment System Design and Operation 6

 D-1a(3)(a) Requirement for the Base to Contain Liquids 9

 D-1a(3)(b) Containment System Drainage 11

 D-1a(3)(c) Containment System Capacity 13

 D-1a(3)(d) Control of Run-On 16

 D-1a(3)(e) Removal of Liquids from Containment System 17

 D-1b Containers Without Free Liquids 17

 D-1b(1) Test for Free Liquids 18

 D-1b(2) Description of Containers 18

 D-1b(3) Container Management Practices 18

 D-1b(4) Container Storage Area Drainage 18

D-2 TANKS SYSTEMS 20

D-3 WASTE PILES 20

D-4 SURFACE IMPOUNDMENTS 20

D-5 INCINERATORS 20

D-6 LANDFILLS 20

D-7 LAND TREATMENT 20

D-8 MISCELLANEOUS UNITS 20

D-9 SUBPART AA 20

D-10 SUBPART BB 21

D-11 SUBPART CC 21

LIST OF FIGURES

Figure D-1 Site Map of RCRA Storage Units

Figure D-3 Pre-Storage Checklist

Figure D-4 MC&A Material Movement Record

Figure D-6 Plant 1 Pad Layout

Figure D-7 Plant 1 Pad Construction Phase Boundries

Figure D-8 Plant 1 Pad Phase A - Pad Extension & Details

Figure D-9 Plant 1 Pad Phase B - Fabric Structures

Figure D-10 Plant 1 Pad Phases C, D, and E

Figure D-11 Plant 1 Pad Site Details

Figure D-12 Plant 1 Pad Electrical Power and Lighting

Figure D-13 Plant 1 Pad Electrical Demolition

Figure D-14 Plant 1 Pad Electrical Details

Figure D-15 Plant 1 Pad Site Drainage

Figure D-16 Plant 1 Pad Photograph

Figure D-17 Drum Layout for Plant 1 Pad TS-4

Figure D-18 Drum Layout for Plant 1 Pad TS-5

Figure D-19 KC 2 Warehouse Photograph

Figure D-20 Drawings for Base of KC 2 Warehouse

Figure D-21 Drawings for Base of KC 2 Warehouse (cont.)

Figure D-22 KC 2 Warehouse Ramp Construction Drawings

Figure D-23 KC 2 Warehouse, Bay 1 Drum Layout

Figure D-24 KC 2 Warehouse, Bay 1 Secondary Containment Dimensions

Figure D-25 KC 2 Warehouse, Bay 3 Drum Layout

Figure D-26 KC 2 Warehouse, Bay 3 Secondary Containment Dimensions

Figure D-27 KC 2 Warehouse, Bay 4 Drum Layout

LIST OF FIGURES (cont'd)

~~Figure D-28~~ ~~KC 2 Warehouse, Bay 4 Secondary Containment Dimensions~~

~~Figure D-29~~ ~~KC 2 Warehouse, Bay 5 Drum Layout~~

~~Figure D-30~~ ~~KC 2 Warehouse, Bay 5 Secondary Containment Dimensions~~

~~Figure D-31~~ ~~KC 2 Warehouse, Bay 6 Drum Layout~~

~~Figure D-32~~ ~~KC 2 Warehouse, Bay 6 Secondary Containment Dimensions~~

~~Figure D-33~~ ~~KC 2 Warehouse, Bay 7 Drum Layout~~

~~Figure D-34~~ ~~KC 2 Warehouse, Bay 7 Secondary Containment Dimensions~~

~~Figure D-35~~ ~~KC 2 Warehouse, Bay 8 Drum Layout~~

~~Figure D-36~~ ~~KC 2 Warehouse, Bay 8 Secondary Containment Dimensions~~

Figure D-41 Plant 6 Warehouse Construction Drawing

Figure D-42 Plant 6 Warehouse Drum Layout

Figure D-43 Plant 6 Warehouse Secondary Containment Dimensions

Figure D-44 CP Storage Warehouse Secondary Containment Dimensions

Figure D-45 CP Storage Warehouse Drum Layout

Figure D-46 CP Storage Warehouse Photograph

Figure D-47 Pilot Plant Warehouse Photograph

Figure D-48 Pilot Plant Warehouse Construction Drawing

Figure D-49 Pilot Plant Warehouse Layout

Figure D-50 Pilot Plant Warehouse Secondary Containment Dimensions

Figure D-51 CP Storage Warehouse Construction Drawing

Figure D-52 Plant 8 Warehouse Photograph

Figure D-53 Plant 8 Warehouse Construction Drawing

Figure D-54 Plant 6 Warehouse Photograph

Figure D-55 Plant 8 Warehouse Secondary Containment Dimensions

Figure D-56 Plant 8 Warehouse Drum Layout

Figure D-57 Location of Hazardous Waste Storage Lockers

Figure D-58 Hazardous Waste Storage Locker Specifications

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO.: OH6890008976
SECTION D: PROCESS INFORMATION

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
Page iv of iv

LIST OF TABLES

Table D-1 RCRA Storage Units
Table D-2 Container Specifications

LIST OF ATTACHMENTS

Attachment D-1 Coating Systems/Vendor's Specifications
Attachment D-2 Secondary Containment Calculations

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
 FERNALD, OHIO
 EPA ID NO. OH6890008976
 SECTION D: PROCESS INFORMATION

RCRA PART B PERMIT APPLICATION
 FEMP REVISION 6.0 05/00
 PAGE 1 OF 21

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**
- ~~KG-2 Warehouse - Building 63**~~
- Plant 6 Warehouse - Building 79

** Bay 2 is CP Storage Warehouse, Plant 8 Warehouse, and the Pilot Plant Warehouse are not currently being used for the storage of containers of hazardous wastes. Samples are being staged in the Pilot Plant Warehouse under the sample exclusion in OAC 3745-51-04(D).

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 and mixed wastes in accordance with DOE Orders

and regulatory requirements, including the Resource Conservation and Recovery Act (RCRA) and Toxic Substances Control Act (TSCA).

Materials accountability 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 inventory system, which is part of the Sitewide Waste Information Forecasting and Tracking System (SWIFTS) maintains a perpetual inventory of all materials on site. Input to the MC&A system from the materials inventory 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 Inventory Control 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. The beginning inventory for a reporting period is established by bringing forward the ending physical or book inventory balances from the previous report. Materials transactions of the period are used to calculate the book inventory. A book inventory can be obtained after all transactions for the day are entered.

Generators are responsible for marking and labeling their hazardous waste containers based on guidance from the Waste Characterization Department (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 completes a RCRA characterization of a material, 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 that may be used at the facility and their Department of Transportation (DOT) specification are shown in Table D-2.

Hazardous waste storage containers purchased for use at the FEMP (with the exception of steel and polyethylene portable tanks which are used solely for on-site storage) meet the DOT performance standards. These 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 those containers must conform to the standards for steel drums under DOT requirements. Each of the other types of containers purchased for use at the facility will also meet DOT requirements. The FEMP has some containers that pre-date the DOT performance standards. These pre-DOT containers are inspected on the same schedule as all other containers meeting the DOT requirements to ensure their integrity. Hazardous waste is stored in portable tanks in accordance with the manufacturing specifications provided for these containers.

All containers storing hazardous waste are inspected for corrosion and other defects such as severe rusting, apparent structural defects, leaks, holes, dents, or bulges at the time they are first used. Dents that exceed one-inch in depth or 6-inches in length in any two directions render the container non-acceptable. Bulges that exceed outward from the original surface more than one-inch shall not be acceptable. Drums shall be convex-ended in order to be acceptable. The drum lid is inspected for holes, dents, and bulges. If damage exceeding the specifications is found, the container is 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 hazardous waste code, the accumulation start date, and/or hazardous waste determination date. Although not required by RCRA, the facility lot number, inventory number, drum number, and the gross, net and tare ~~weight~~ weights are also attached to the drum for internal tracking and inventory purposes. Also, a storage compatibility/Reactivity Group Code (RGC) is determined and applied to each container.

D-1a(2) Container Management Practices

Various equipment is used to transport containers throughout the facility. The equipment consists 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 and the tuggers and trailers.

A container is inspected for dents, leaks, holes, ~~loose dirt, rocks or pebbles~~, corrosion or rust, and bulges, and signs of leakage, and that they are closed and properly labeled while in storage. ~~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. Prior to transport, the containers and the staging areas are inspected. Items checked include container condition, signs of leakage, and that there is accessible spill clean-up equipment. Also, ~~all necessary documentation indicating the contents of the container(s) and records for inventory control are attached to the lid and inspected~~ documented and verified before movement. FEMP procedures detail the steps taken prior to the transfer of containers. Containers moved by truck or trailer are loaded and unloaded by forklift. The containers are strapped down and transported to the storage unit, once safe conditions for movement are verified. The ~~transportation supervisor~~ Team Leader 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~~ Team Leader must be notified by the MVO before movement of any containers occurs.

Containers are ~~placed on 6-inch high pallets~~ elevated (e.g. placed on pallets) during storage to provide protection from possible spillage. The containers are stored with markings and labels visible and legible from the aisle. A minimum aisle spacing of 24 inches will be maintained at the uncovered portions of Plant 1 Pad and a minimum of 22 inches for ~~all other~~ the covered storage units.

The number of containers and hazardous waste volume for each storage unit will vary depending on the size of container used and the applicable aisle spacing and stacking height necessary to meet additional fire protection standards required on-site. The number of containers in each RCRA storage unit must not ~~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 FEMP procedures to document that the containers are acceptable for storage. An example FEMP Hazardous Waste Container Prestorage Checklist is included as Figure D-3. Once the container is verified as acceptable, the container is logged into the MC&A Material Movement Record (MMR). ~~This log records~~ The minimum information recorded in this log includes the container inventory number, serial number, ~~lot identification, weights,~~ original location, new location, and date of storage movement. Figure D-4 provides a sample of this log.

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 containment 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 containment area.

Individual drums removed or shipped from the storage unit are ~~logged out of~~ documented on the MMR. 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 vent plugs to prevent the build-up of pressure within the container. ~~Vent plugs are not used when drums contain RCRA organics.~~ These vent plugs are installed to provide ventilation to containers of wastes containing free reactive uranium metal that has the potential to generate hydrogen gas. The filter vent plug ~~is composed of a carbon-carbon composite high efficiency particulate air (HEPA) filter charcoal~~ contains a charcoal 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 vented containers are overpacked.

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, 10 percent of the maximum storage capacity volume.

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

- Following removal of dust, loose material and other debris, the existing pad was coated with a polyethylene surface sealant/barrier prior to installing a new layer of concrete;
- A six inch concrete curb was installed as shown in Figure D-6 to provide containment as well as run on and run-off control;
- New wearing surfaces were covered with 86 mils of chemically resistant polyurethane or silicon coating; and,
- The trenches and sumps in the controlled areas were coated with an epoxy sealant.
- The containment sump and adjoining trenches in TS-6 are scheduled to be coated with an elastomeric lining by June 2000.

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

Three (3) structures (TS-4, TS-5 and TS-6) are used to provide covered storage on the Plant 1 Pad. Diked areas within the three (3) structures provide concrete curb secondary containment for storage of liquids. The location of the three (3) structures is shown in Figure D-6. The three structures are labeled Structure 1, Structure 2, and Structure 3 in the Figures D-7 through D-15. Structures 1, 2 and 3 are represented in the Section D text and in the secondary containment calculations as Tension Structure 4 (TS-4), Tension Structure 5 (TS-5) and Tension Structure 6 (TS-6), respectively. The two (2) larger structures (TS-4 and TS-5) 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) provides 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 leading to a dead 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 structures have been sealed with an 86 mil chemically resistant polyurethane wearing surface.

Currently, nine hazardous waste storage lockers are ~~planned to be~~ located on the Plant 1 Pad ~~north~~ south of the tension support structures. Each locker measures 28' in length by 13' in width x 8' in height. The lockers are constructed of galvanized steel with a steel grate flooring. The flooring is elevated to prevent containers from contacting spilled materials in the secondary containment area. The secondary containment is constructed of structural steel and is sealed with a chemically-resistant epoxy coating. Each locker has at least one forklift access door on each end and two on each side. Metal ramps placed at the entrances provide access to the interior. A map indicating the location of the storage lockers is provided as Figure D-57. Engineered design drawings of the storage lockers, including the secondary containment dimensions, are provided as Figure D-58.

~~KC 2 Warehouse (Building 63). 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. A photograph of the KC 2 Warehouse is provided as Figure D-19. The detailed design drawings for the base of the storage unit 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. Construction details for the ramps are provided in Figure D-22. The concrete floor and dikes are coated with an 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 is not used for storage of hazardous waste. Bay 2 may be 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. As a result of the planned demolition of the Boiler Plant Complex, electricity and water have been permanently shut off at KC 2 Warehouse. Since the sprinkler system is no longer operational, ignitable wastes are no longer stored in this building.~~

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

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

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.

Plant 8 Warehouse (Building 80). The Plant 8 Warehouse is a steel-framed, enclosed, metal building. 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-53. The secondary containment dike is constructed of a four inch by six inch steel angle iron frame dike. Steel ramps have been constructed to allow access to the containment area. The building is fully sprinklered using a dry pipe sprinkler system and meets the standards for storage of ignitable liquids. Figure D-55 provides the secondary containment dimensions. A drum layout is provided as Figure D-56. A photograph of the Plant 8 Warehouse is provided as Figure D-52.

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 from a release of hazardous waste must be removed within one working day from discovery and the area re-inspected to ensure compliance. Any cracks or gaps identified will be noted on the inspection checklist. A Maintenance Work Order is written for the repair of the crack or gap. The inspector will re-inspect the area and note the conditions until the gap or crack is repaired.

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 were covered with a chemically resistant coating. ~~Coating of the three structures (TS-4, TS-5 and TS-6) 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. In June 2000, the containment sump and adjoining trenches in TS-6 are scheduled to be coated with Fluorolast coatings. 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 within each structure. TS-6 has one secondary containment area within the structure.

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

~~**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~~

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION D: PROCESS INFORMATION

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 11 OF 21

~~D-1. Note that KC 2 Warehouse is no longer being used for the storage of containers of ignitable wastes since the sprinkler system is no longer operational.~~

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.

Plant 8 Warehouse (Building 80). The floor and curbs are coated with a chemically resistant coating to create an impermeable surface. The base of the Plant 8 Warehouse was re-coated with Surtreat in December 1996. Attachment D-1 provides information regarding the coating system, including chemical resistance data.

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

Plant 1 Pad. Precipitation will, for the most part, not affect hazardous waste containers in the tension support structures and the hazardous waste storage lockers because they are enclosed structures. The floors in the tension support structures are 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. The floor of the storage lockers is grated and is elevated to prevent containers from contacting spilled materials in the secondary containment area. The floor grating is removable to allow access to the secondary containment area for clean up in the event of a spill. Containers stored at the Plant 1 Pad are also elevated (e.g. 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 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 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).

Plant 8 Warehouse (Building 80). Containers stored in the Plant 8 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 since the storage unit is completely enclosed.

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

Containers stored in the following warehouses are ~~stored on pallets to elevate the containers~~ **elevated (e.g. placed on pallets)** 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. Secondary containment calculations for each of the areas storing containers of hazardous waste with free liquids are provided in Attachment D-2.

Plant 1 Pad. The as-built 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. TS-4 and TS-5 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 (11,898 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 maximum hazardous waste storage volume for the area. The capacity of the secondary containment areas in TS-4 is 8,815 ft³ for the North bay and 8,304 ft³ for the South bay. The secondary containment capacity for the North Bay in TS-5 is 8,507 ft³ and 8,723 ft³ for the South Bay. The containment calculations are provided in Attachment D-2.

TS-6 is constructed similar to TS-4 and TS-5, but with a single containment area. The containment area is 22,500 ft² with a twelve (12) inch concrete dike constructed around the perimeter. Its maximum storage capacity is 330,000 gallons (6,000 55-gallon drum equivalents). The containment system capacity is capable of holding at least 10 percent (or 4,411 ft³ of liquid volume) of the maximum hazardous waste storage volume of the area. The capacity of the secondary containment area in TS-6 is about 11,250 ft³.

The maximum storage capacity for each of the hazardous waste storage lockers is 2,640 gallons (48 55-gallon drums). The secondary containment capacity is 1,291 gallons which is greater than 10% of the maximum storage capacity for the unit.

~~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 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 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 D-2.~~

- ~~● 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 ft³. The secondary containment capacity is 1,857 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 ft³. The secondary containment capacity is 1,594 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 ft³. The secondary containment capacity is 1,287 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 ft³. The secondary containment capacity is 1,051 ft³. 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 ft³. The secondary containment capacity is 115 ft³.~~
- ~~● 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 ft³. The secondary containment capacity is 1,045 ft³.~~

- ~~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 ft³. The secondary containment capacity is 647 ft³.
- ~~Bay 8~~ The maximum storage capacity is 5,290 gallons (96 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 70 ft³. The secondary containment capacity is 440 ft³.

Plant 6 Warehouse (Building 79). Hazardous waste containers stored in the Plant 6 Warehouse storage bays are elevated (e.g. 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 D-2.

- Bay A - The maximum storage capacity for Bay A is 82,060 gallons (1,492 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 1,097 ft³. The secondary containment capacity is 1,928 ft³.
- Bay B - The maximum storage capacity for Bay B is 79,640 gallons (1,448 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 1,064 ft³. The secondary containment capacity is 2,061 ft³.
- Bay C - The maximum storage capacity for Bay C is 69,080 gallons (1,256 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 923 ft³. The secondary containment capacity is 1,940 ft³.

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 ft³. The secondary containment capacity is 3,499 ft³.

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.

Plant 8 Warehouse (Building 80). Containers of hazardous waste stored in the Plant 8 Warehouse are elevated (e.g. placed on pallets) during storage. The maximum storage capacity is 139,260 gallons (2,532 55-gallon drum equivalents). The minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 1,862 ft³. The secondary containment capacity is 3,808 ft³.

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

Plant 1 Pad. The covered structures ~~(tension support structures and hazardous waste storage lockers)~~ provide run-on control for the storage of containers with free liquids. The covered ~~tension support~~ structures are constructed upon a 12 inch concrete dike to prevent run-on from entering the storage areas. Precipitation is prevented from entering the tension support structures and the hazardous waste storage lockers since these areas are completely covered and enclosed on all sides.

~~**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 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.

Plant 8 Warehouse (Building 80). Precipitation is prevented from entering the Plant 8 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.

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:

Steps will be taken to mitigate the release as soon as practicable. ~~Vermiculite, diatomaceous earth, sands,~~ Absorbent "pigs", or equivalent, are used to contain and/or absorb the spilled material within the immediate area. The characteristics of the spilled material are established from the container identification if possible. The spill may then be cleaned up by absorption. If an acid or a base, a neutralizing agent is used as necessary to reduce or eliminate the hazardous properties of the spill before absorption. Saturated sorbent material is placed in a compatible container for proper disposal.

A pumping system may be used to remove larger spills. Spilled material will be pumped out of the secondary containment system within one working day from discovery of the incident.

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

D-1b Containers Without Free Liquids

The Plant 1 Pad Tension Support Structures and the hazardous waste storage lockers are designed to store hazardous waste with or without free liquids. The other areas of the Plant 1 Pad 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, the Plant 8 Warehouse and the Pilot Plant Warehouse are designed for the storage of hazardous waste with and without free

liquids. ~~Due to the discovery of an old groundwater monitoring well, Bay 2 of the KC 2 Warehouse is not currently used for the storage of hazardous waste. Bay 2 may be considered for the storage of containers of hazardous waste without free liquids in the future.~~

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 (e.g. 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 to the stormwater management system. The covered structures are equipped with dedicated sumps. The floor of the hazardous waste storage lockers is grated and is elevated to prevent containers from coming into contact with the spilled material.

CP Storage Warehouse (Building 56). The CP Storage Warehouse is a completely enclosed structure. Therefore, precipitation 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. 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.

~~**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 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 (e.g. 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 pile, therefore, this section is not applicable.

D-4 SURFACE IMPOUNDMENTS

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

D-5 INCINERATORS

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

D-6 LANDFILLS

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

D-9 SUBPART AA

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

D-10 SUBPART BB

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

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

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

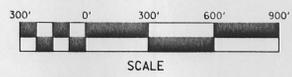
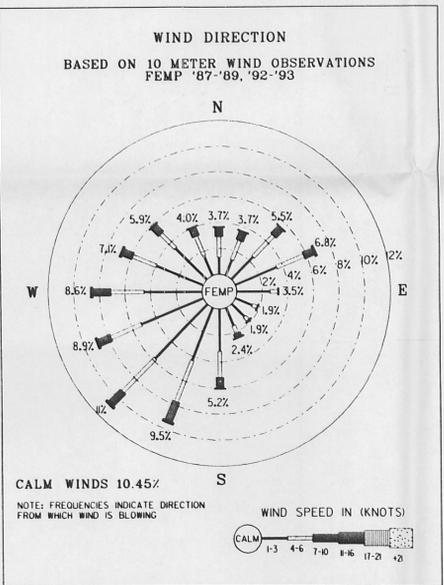
D-11 SUBPART CC

Subpart CC air emission standards require facilities to control emissions of volatile organic compounds (VOC) from containers if the hazardous waste in these containers contains an average VOC concentration of greater than or equal to 100 parts per million by weight. Subpart CC emissions standards do not apply to:

- Containers which contain mixed waste;
- Containers used solely for on-site storage of hazardous waste generated from CERCLA remediation activities; or
- Containers with a capacity of less than or equal to 0.1 m³.

Hazardous wastes generated at the FEMP which are subject to Subpart CC standards are placed into DOT-approved containers which have a design capacity of less than or equal to 0.46 m³. These containers are equipped with a cover and remain closed except when adding or removing waste, sampling or conducting a visual inspection.

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--- PLANT I PAD: RCRA PART B PERMIT
(HWMU #20 BOUNDARY)

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Fernald Environmental
Management Project



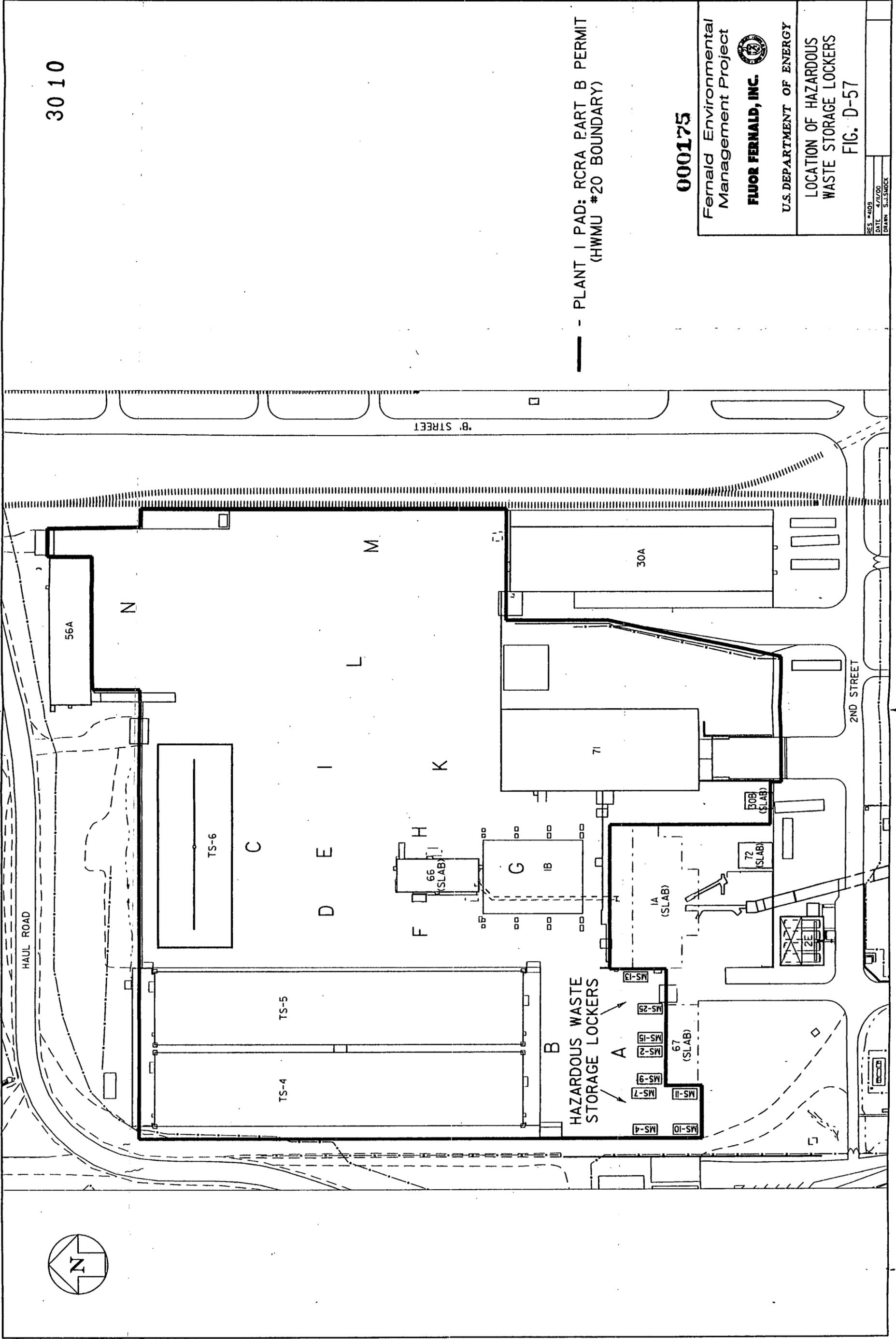
U.S. DEPARTMENT OF ENERGY

LOCATION OF HAZARDOUS
WASTE STORAGE LOCKERS

FIG. D-57

RES. #4109
DATE 4/1/00
DRAWN S.J.SNOOK

FILE NAME: /RES4109/LOCKERS.DGN



SECTION D - PROCESS INFORMATION
 RCRA STORAGE UNITS

TABLE D-1

RCRA STORAGE UNIT	MAXIMUM CAPACITY IN GALLONS	WITH FREE LIQUIDS OR WITHOUT FREE LIQUIDS	STORAGE OF IGNITABLE WASTE LIQUIDS	STACKING HEIGHT (55 GAL Drum)	AISLE SPACING
1. CP Storage Warehouse - Bldg. 56	116,160	With or Without free liquids	Yes	Three High	Minimum of 22 inches
2. Plant 1 Pad	11,222,200 Total	With or Without free liquids	No	Four High	Minimum of 24 inches
TS-4	653,840	With or Without free liquids	No	Four High	Minimum of 24 inches
TS-5	657,360	With or Without free liquids	No	Four High	Minimum of 24 inches
TS-6	330,000	With or Without free liquids	No	Four High	Minimum of 24 inches
Hazardous Waste Storage Lockers	2,640	With or Without free liquids	Yes	No Stacking	Minimum of 24 22 inches
Area Outside of Structures	9,578,360	Without free liquids	No	Four High	Minimum of 24 inches
3. Plant 8 Warehouse - Bldg. 80	139,260	With or Without free liquids	No	Four High (Two High when storing ignitables)	Minimum of 22 inches
4. Pilot Plant Warehouse - Bldg. 68	13,200	With or Without free liquids	No	Three High	Minimum of 22 inches
5. KC 2 Warehouse - Bldg. 63	200,640 Total	With or Without free liquids	No	Two High	Minimum of 22 inches
Bay 1	32,120	With or Without free liquids	No	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	No	Two High	Minimum of 22 inches
Bay 4	25,520	With or Without free liquids	No	Two High	Minimum of 22 inches

000176

3010

SECTION D - PROCESS INFORMATION
 RCRA STORAGE UNITS

TABLE D-1

RCRA STORAGE UNIT	MAXIMUM CAPACITY IN GALLONS	WITH FREE LIQUIDS OR WITHOUT FREE LIQUIDS	STORAGE OF IGNITABLE WASTE LIQUIDS	STACKING HEIGHT (55-GAL. Drum)	AISLE SPACING
Bay 5 Large Dike Area	19,800	With or Without free liquids	No	Two High	Minimum of 22 inches
Bay 6	26,520	With or Without free liquids	No	Two High	Minimum of 22 inches
Bay 7	11,440	With or Without free liquids	No	Two High	Minimum of 22 inches
Bay 8	5,280	With or Without free liquids	No	Two High	Minimum of 22 inches
6. Plant 6 Warehouse - Bldg. 79	230,780	With or Without free liquids	Yes	Four High (Two High when storing ignitables)	Minimum of 22 inches
Bay A	82,060	With or Without free liquids	Yes	Four High (Two High when storing ignitables)	Minimum of 22 inches
Bay B	79,640	With or Without free liquids	Yes	Four High (Two High when storing ignitables)	Minimum of 22 inches
Bay C	69,080	With or Without free liquids	Yes	Four High (Two High when storing ignitables)	Minimum of 22 inches

000177

3010

SECTION F - PROCEDURES TO PREVENT HAZARDS

TABLE OF CONTENTS

F-1	SECURITY	1
F-1a	Security Procedures and Equipment.....	1
	F-1a(1) 24-Hour Surveillance System.....	1
	F-1a(2) Barrier and Means to Control Entry.....	2
	F-1a(2)(a) Barrier.....	2
	F-1a(2)(b) Means to Control Entry.....	2
	F-1a(3) Warning Signs.....	2
F-1b	Waiver.....	2
F-2	INSPECTION SCHEDULE.....	3
F-2a	General Inspection Requirements.....	3
	F-2a(1) Types of Problems.....	3
	F-2a(2) Frequency of Inspections.....	3
F-2b	Specific Process Inspection Requirements.....	4
	F-2b(1) Container Inspection.....	4
	F-2b(2) Tank System Inspection.....	4
	F-2b(3) Waste Pile Inspection.....	4
	F-2b(4) Surface Impoundment Inspection.....	4
	F-2b(5) Incinerator Inspection.....	4
	F-2b(6) Landfill Inspection.....	4
	F-2b(7) Land Treatment Facility Inspection.....	5
	F-2b(8) Miscellaneous Unit Inspection.....	5
	F-2b(9) Subpart AA Inspection.....	5
	F-2b(10) Subpart BB Inspection.....	5
	F-2b(11) Subpart CC Inspection.....	5
F-2c	Remedial Action.....	6
F-2d	Inspection Forms.....	6

SECTION F - PROCEDURES TO PREVENT HAZARDS

TABLE OF CONTENTS (Continued)

F-3	PREPAREDNESS AND PREVENTION REQUIREMENTS	6
F-3a	Equipment Requirements	6
	F-3a(1) Internal Communications	6
	F-3a(2) External Communications	7
	F-3a(3) Emergency Equipment	8
	F-3a(4) Water for Fire Control	9
F-3b	Aisle Space Requirements	10
F-4	PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT	10
F-4a	Prevent Hazards in Unloading Operations	10
F-4b	Prevention of Run-Off to Other Areas	11
F-4c	Prevent Contamination of Water Supplies	11
F-4d	Equipment and Power Failure	11
F-4e	Personnel Protection Equipment	12
F-4f	Prevent Releases to Atmosphere	12
F-5	PREVENTION OF REACTION OF IGNITABLE, REACTIVE AND INCOMPATIBLE WASTES	12
F-5a	Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Wastes	12
F-5b	General Precautions for Handling Ignitable or Reactive Wastes and Mixing Incompatible Wastes	14
F-5c	Management of Ignitable or Reactive Wastes in Containers	14
F-5d	Management of Incompatible Wastes in Containers	15
F-5e	Management of Ignitable or Reactive Wastes in Tank Systems	15
F-5f	Management of Incompatible Wastes in Tank Systems	15
F-5g	Management of Ignitable or Reactive Wastes Placed in Waste Piles	15

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
 FERNALD, OHIO
 EPA ID NO. OH6890008976
 SECTION F: PROCEDURES TO PREVENT HAZARDS

RCRA PART B PERMIT APPLICATION
 FEMP REVISION 6.0 05/00
 PAGE iii of iii

SECTION F - PROCEDURES TO PREVENT HAZARDS

TABLE OF CONTENTS (Continued)

F-5h	Management of Incompatible Wastes Placed in Waste Piles	15
F-5i	Management of Ignitable or Reactive Wastes Placed in Surface Impoundments.....	15
F-5j	Management of Incompatible Wastes Placed in Surface Impoundments	15
F-5k	Management of Ignitable or Reactive Wastes Placed in Landfills	15
F-5l	Management of Incompatible Wastes Placed in Landfills.....	15
F-5m	Management of Ignitable or Reactive Wastes Placed in Land Treatment Units.....	15
F-5n	Management of Incompatible Wastes Placed in Land Treatment Units	15

LIST OF FIGURES

- Figure F-1 Facility 50 Foot Boundary Drawing
- Figure F-2 Hazardous Waste Compatibility Chart

LIST OF ATTACHMENTS

- Attachment F-1 Facility Inspection Schedule
- Attachment F-2 Inspection Forms

SECTION F - PROCEDURES TO PREVENT HAZARDS

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) 3745-50-44(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 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.
- Communication devices are available for personnel accessing these units, for emergency notification purposes.
- Employees and contractors are required to show identification badges when reporting for work. Visitors must complete an access request form when entering the site. The request form must be signed by an authorized manager.

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

The FEMP is under 24 hour surveillance by security officers on mobile and foot patrols. Entry into the facility is monitored through ~~four controlled entry~~ five access points: the South Access Control Point located on the south access road, the East Access Control Point located at the east entrance to the east parking lot, Post N-45 located off of Route 126 which permits access to railyard operations and the RIMIA Building (Bldg. 82) entrance, and the Haul Road located at the entrance to the On-Site Disposal Facility. The South Access Control Point serves as the site's primary access point and is manned 24 hours a day. Access is only permitted through the South Access Control Point during 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 surrounded by a physical barrier ~~or~~ and monitored 24 hours a day by security.

The facility's primary vehicular access to the former production area is through the RIMIA entrance located at the east side of the facility.

The security check point at the South Access Control Point at the south entrance is manned 24 hours a day to control access. ~~The East Access Control Point entrance is only manned during ingress/egress directed by normal first shift working hours. The East Access Control Point and the RIMIA entrance are manned during normal working hours and are locked during hours other than these hours directed by the first shift. All other access points (East Access Control Point, RIMIA, Post N-45, and the Haul Road) are manned during normal working hours of operation to allow routine ingress and egress of employees. At the conclusion of daily operations, access points are secured and locked.~~

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

The primary vehicular entrance to the former production area of the facility is the RIMIA entrance, as discussed in Section F-1a(2)(a). This entry is controlled by a security officer ~~8~~ 10 hours a day. Personnel access is controlled through the RIMIA entrance, ~~Post N-45, the Haul Road, and the~~ South and East Control Points 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 the former production area only if escorted by facility personnel. These practices restrict unauthorized visitors from entering the main facility, and consequently the active RCRA storage areas.

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.

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION F: PROCEDURES TO PREVENT HAZARDS

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 3 OF 15

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 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 "Operational Emergency", as defined in the Contingency Plan, Section G of this permit application, the contingency plan is implemented.

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

000183

In addition, hydrostatic testing of the sump in Tension Support Structure 6 is performed annually.

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 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~~ Examples of the RCRA Container Storage Area Inspection Forms ~~is~~ are provided in Attachment F-2.

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.

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
 FERNALD, OHIO
 EPA ID NO. OH6890008976
 SECTION F: PROCEDURES TO PREVENT HAZARDS

RCRA PART B PERMIT APPLICATION
 FEMP REVISION 6.0 05/00
 PAGE 5 OF 15

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 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 the requirements of this subpart.

F-2b(11) Subpart CC Inspection

Subpart CC air emission standards require facilities to control emissions of volatile organic compounds (VOC) from containers if the hazardous waste in these containers contains an average VOC concentration of greater than or equal to 100 parts per million by weight. Subpart CC emissions standards do not apply to:

- Containers which contain mixed waste;
- Containers used solely for on-site storage of hazardous waste generated from CERCLA remediation activities; or
- Containers with a capacity of less than or equal to 0.1 m³.

Hazardous wastes generated at the FEMP which are subject to Subpart CC standards are placed into DOT-approved containers which have a design capacity of less than or equal to 0.46 m³ (Container Level 1). Therefore, the inspection requirements in 40 CFR 264.1086(g) and (h) are not applicable.

F-2c Remedial Action

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

Repairs are made in a timely manner so that a situation does not lead to an environmental or human health hazard. 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~~ Repackaging is accomplished by transferring the contents of the damaged drum into a different container. Repackaging of hazardous waste containers is conducted in Building 71.

F-2d Inspection 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 at a minimum, 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

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

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

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

Signals from manual fire alarm boxes, automatic fire monitoring, and/or suppression systems located within the 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 electronic alarm bells or air horn signals, can be activated from the Communications Center. A voice message, following the sounding of a warning signal, is broadcast throughout the facility to transmit appropriate instructions and other important information to 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 wired phones connected to the local telephone company.
- Two-way radios capable of internal communications and direct contact with the Hamilton and Butler County Dispatch Centers, the Butler County Emergency Management Agency (BCEMA) and the Hamilton County Emergency Management Agency (EMA).

Off-site Emergency Warning System

The off-site emergency warning system warns citizens within a two-mile radius of the site, when emergencies may affect people outside facility boundaries. Activating the

sirens alerts residents to seek shelter immediately and tune to a radio or TV station for an Emergency Broadcast System message for information.

F-3a(3) Emergency Equipment

Each of the FEMP hazardous waste container storage areas is equipped with supplies, materials, and equipment for responding to emergencies (e.g. portable fire extinguishers and materials for spill response and cleanup). This equipment is inspected at least weekly. The Additional fire protection, spill control, and decontamination equipment in each storage unit is inspected at least weekly. is maintained by the site Emergency Response Team. 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, CP Storage Warehouse (Building 56), Plant 6 Warehouse (Building 79), and Plant 8 Warehouse (Building 80) are protected with a sprinkler system, in addition to portable fire extinguishers. CP Storage Warehouse (Building 56) also has a fire suppression system but it is currently out of service. This system will be re-activated prior to initiating storage of ignitable wastes in this building. Fire hydrants are located outside of each storage unit. Each of the hazardous waste storage lockers on Plant 1 Pad has a dry pipe sprinkler system plumbed to an outside Fire Department connection. The system can be activated by connection to one of the FEMP's fire trucks. 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 a central location and are readily accessible in the event of a spill in each storage unit for spill removal and cleanup. Spill cleanup equipment and material such as shoe covers, booties, gloves, absorbent pads/"PIGS", radiological drum liner bags, caution/banner tape, duct tape, and shovels are stored in each storage unit. 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 - Haz Mat 27. 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 in accordance with NFPA-72 National Fire Alarm Code schedules. The Emergency Message System is tested daily. Failure of any component of the system results in immediate remedial action or implementation of a back-up system.

F-3a(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 <u>400,000</u> gallons

Backup

Domestic Raw Water Tank	750,000 <u>300,000</u> gallons
Elevated Potable Water Tank	200,000 gallons

Note that components of these ~~systems are currently being replaced as described below. will be replaced during the fourth quarter of FY 1999.~~

The two systems for fire control, including the changes that will occur to these systems, are 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 (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.

~~Currently, installation~~ Installation of the new Domestic and Fire Water Storage Tank and Booster Station ~~is in progress~~ was completed during the second quarter of FY 2000. This new water storage and pumping station will, over a period of time, replace the existing storage and pumping system. ~~It will be operational in the fourth quarter of FY 1999.~~ This station ~~will consist~~ consists of one ~~350,000~~ 400,000 gallon storage tank fed from the City Water line with redundant fire water pumping capability of 1,250 gpm at 125 psig discharge pressure. Also, this station ~~will provide~~ provides the site with domestic water via three domestic water pumps rated from zero to one hundred gpm.

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.

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 Haz-Mat 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 ~~in covered storage areas, and 24 inches in outdoor storage areas~~ is maintained between the 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 ~~and 24~~ inch minimum inspection aisle space is adequate because:

- the aisles are adequate for personnel to inspect drums for leaks and deterioration ~~and~~
- ~~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 diked areas. In accordance with the provisions of the Consent Decree and its Stipulated Amendment, 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. Hazardous waste releases will be captured by the storm sewer system. Stormwater flows into the Stormwater Retention Basin (SWRB). Releases into SWRB can be treated through the Advanced Wastewater Treatment System or captured and managed accordingly.

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 except in the hazardous waste storage lockers where flashlights and natural lighting are used to see inside the unit. KC-2

~~Warehouse (Building 63) where electrical power has been permanently disconnected, but natural lighting is sufficient to see inside the building. 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 site-wide power failure. A replacement is available, in the event of a mechanical failure of the fork lift and/or barrel stacker, as the facility maintains 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 site-wide 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 or in a central location, 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.

Hazardous wastes generated at the FEMP which are subject to Subpart CC standards are placed into DOT approved containers which have a design capacity of less than or equal to 0.46 m³. These containers are equipped with a cover and remain closed except when adding or removing waste, sampling or conducting a visual inspection.

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

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

Containers of hazardous waste are inspected for corrosion and other defects to minimize the possibility of ignition or reaction of ignitable or reactive hazardous wastes. Stored containers remain closed except when a sample must be obtained during visual inspections as a part of waste characterization, or during addition or removal of hazardous waste. Some containers are equipped with filter vent plugs 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 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 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 primarily installed to provide ventilation to drums of wastes containing free reactive uranium metal that has the potential to generate hydrogen gas. Vent plugs are not used when drums contain RCRA organics. The filter vent plug ~~contains a charcoal filter, is composed of a carbon-carbon composite high efficiency particulate air (HEPA) filter.~~ The filter vent plug is inserted into the bung opening of the drum lid. The plugs are also installed on all outer drums if the vented drums are overpacked.

Accidental ignition or mixing of ignitable or incompatible hazardous waste types is unlikely. As discussed in the previous section, the 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; and
- Consolidation of lab samples into larger containers.

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

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

Ignitable and reactive hazardous wastes are stored at least 50 feet from the 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 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~~ diked ~~or bays~~ areas. 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.

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

ATTACHMENT F-1

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

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

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

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

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Recovery (Overpack) Drums	Weekly Upon Receipt	Quantity, Condition
Spill Response Materials: <ul style="list-style-type: none"> • Absorbent Pads/PIGS • "PIG" • Absorbent/Containment Boom • Bagged Absorbent • Radiological Drum Liner Bags • Protective Gloves • Shoe Covers, Booties • Caution/Banner Tape • Duct Tape • Shovel 	Weekly	Availability, condition
Broom	Weekly	Quantity, Condition
Emergency Eye Wash and Safety Shower	Semi-Annual Quarterly	Condition, green light, water change

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
 FERNALD, OHIO
 EPA ID NO. OH 6890008976
 SECTION F: ATTACHMENT F-1

RCRA PART B PERMIT APPLICATION
 FEMP REVISION 6.0 05/00
 Page 3 of 8

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

INSPECTION SCHEDULE
 for
 EMERGENCY PERSONAL PROTECTIVE EQUIPMENT
 LOCATED WITHIN A CONTAINER STORAGE UNIT

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Respirators and Cartridges	Weekly	Quantity, condition
Rubber Boots	Weekly	Quantity, condition
Rubber Gloves	Weekly	Quantity, condition
Disposable Coveralls	Weekly	Quantity, condition
Leather Palm Gloves	Weekly	Quantity, condition
Emergency Eye Wash and Safety Shower	Weekly	Condition, green light
	Semi-annual	Operating test

000198

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

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

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

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

INSPECTION SCHEDULE
 for
 OPERATION EQUIPMENT
 LOCATED WITHIN A CONTAINER STORAGE UNIT

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

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

SPECIFIC INSPECTION SCHEDULE
 for
 RCRA LIQUID CONTAINER STORAGE UNIT

EQUIPMENT FREQUENCY	FREQUENCY	TYPE OF PROBLEMS
Containment Diking (Curbs)	Weekly	Damage, cracks, breaks and operating condition
Ramps	Weekly	Damage and operating condition
Containment Floor Condition	Weekly	Free liquid, damage, cracks (sealant), breaks and operating condition
Sumps and Trenches within Containment	Weekly	Free liquids, damage, cracks, breaks and operating condition
Aisle Spacing	Weekly	Adequate aisle spacing, proper container placement and stacking
Housekeeping	Weekly	Clutter, general condition
Container Condition	Weekly	Container labels, dates, closure, compatibility, damage or deterioration (e.g. hole, dent, bulge, corrosion/paint/rust)
<u>Hydrostatic Testing (TS6 Sump)</u>	<u>Annual</u>	<u>Damage and operating condition</u>

000201

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

SPECIFIC INSPECTION SCHEDULE
for
RCRA SOLID CONTAINER STORAGE UNIT

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Floor Condition	Weekly	Cracks, operating condition, liquids (water) from run-on
Aisle Spacing	Weekly	Adequate aisle spacing, proper container placement and stacking
Housekeeping	Weekly	Clutter, evidence of spills
Container Condition	Weekly	Container labels, dates, closure, compatibility, damage or deterioration (e.g., hole, dent, bulge, corrosion/paint/rust)

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

**INSPECTION SCHEDULE
 for
 FACILITY FIRE PROTECTION EQUIPMENT**

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Fire Engine/Pumper	Daily (in service unit only)	Inventory of equipment, operating condition
	Annual	Pump capacity test
Ambulance	Daily (in service unit only)	Inventory of equipment, operating condition
Haz-Mat Response Truck	Daily	Inventory of equipment, operating condition
Utility/Supply Vehicle	Daily (in service unit only)	Inventory of equipment, operating condition
Fire Pumps	Weekly	Start-up and operation test of pump and system, diesel fuel level
	Annual	Pump capacity test
	Every 5 Years	Underground test of fire main systems, flow of water
Elevated High-Pressure Hydrant Fire Water Tank	Weekly	Water level, operating condition
Ground Level Fire Pump Water Tank	Weekly	Water level, operating condition
Fire Hydrants	Annual	Operating condition, annual flushing, pressure
Fire Alarm System	Semi-Annual	Operations test

000203

HWMU 20, PLANT 1 PAD

**Active
Container Storage**

Inspector's Signature:	Badge #:	Date:	Time:
HWMU Facility Owner's Signature:	Badge #:	Date:	Time:

Item No.	Item Description	Acceptable	Unacceptable	Observations/Corrective Actions To Be Completed
1	Signs: -Danger-Authorized Personnel Only -No Smoking or Open Flame -Emergency & Prior to Entry Contact -PCB Warning Label - posted at access points to designated storage facility			
2	Boundary Markers (e.g., chains, rope)			
3	Area Condition			
4	Tension Support Structure Condition			
5	Pad/Secondary Containment Condition			
6	Safety Equipment			
7	Emergency & Spill Response Equipment			
8	Container Management			
9	Reactivity Group Codes (RGCs)			
10	Conditions Of Drums (Evidence Of Leaks Or Spills)			

Comments: _____

Centralized Inspection Group Designee:	Date:
--	-------

HWMU 19, CP STORAGE WAREHOUSE (BLDG. 56)

30 10

ICU
(Container Storage)

Inspector's Signature:	Badge #:	Date:	Time:
HWMU Facility Owner's Signature:	Badge #:	Date:	Time:

Item No.	Item Description	Acceptable	Unacceptable	Observations/Corrective Actions To Be Completed
1	Signs: -Danger-Authorized Personnel Only -Emergency & Prior to Entry Contact			
2	Building Condition			
3	*Condition of Secondary Containment			
4	*Safety Equipment			
5	*Emergency & Spill Response Equipment			
6	*Container Management: - Reactivity Group Codes (RGCs) - Isle Spacing - Drum Stacks			
7	*Conditions Of Drums (Evidence Of Leaks Or Spills)			

* NOTE: Items 3 through 7 are not applicable unless this area is storing RCRA waste.

Comments: _____

Centralized Inspection Group Designee:	Date:
--	-------

30 10

HWMU 29, PLANT 8 WAREHOUSE (BLDG. 80)

Active
Container Storage

Inspector's Signature:	Badge #:	Date:	Time:
HWMU Facility Owner's Signature:	Badge #:	Date:	Time:

Item No.	Item Description	Acceptable	Unacceptable	Observations/Corrective Actions To Be Completed
1	Signs: -Danger-Authorized Personnel Only -No Smoking or Open Flame -Emergency & Prior To Entry Contact			
2	Building Condition			
3	Condition of Secondary Containment			
4	Safety Equipment			
5	Emergency & Spill Response Equipment			
6	Container Management: - Reactivity Group Codes (RGCs) - Isle Spacing - Drum Stacking			
7	Conditions of Drums (Evidence of Leaks/Spills)			

Comments: _____

Centralized Inspection Group Designee:	Date:
--	-------

30 10

HWMU 33, PILOT PLANT WAREHOUSE (BLDG. 68)

ICU
(Container Storage)

Inspector's Signature:	Badge #:	Date:	Time:
HWMU Facility Owner's Signature:	Badge #:	Date:	Time:

Item No.	Item Description	Acceptable	Unacceptable	Observations/Corrective Actions To Be Completed
1	Signs: -Danger-Authorized Personnel Only -Emergency & Prior to Entry Contact			
2	Building Condition			
3	* Condition Of Secondary Containment			
4	* Safety Equipment			
5	* Emergency & Spill Response Equipment			
6	* Container Management			
7	* Compatibility Codes			
8	* Conditions of Drums (Evidence Of Leaks/Spills)			

* NOTE: Items 3 through 8 are not applicable unless this area is storing RCRA waste.

Comments: _____

Centralized Inspection Group Designee:	Date:
--	-------

HWMU 37, PLANT 6 WAREHOUSE (BLDG. 79)

30 10

Active
Container Storage

Inspector's Signature:	Badge #:	Date:	Time:
HWMU Facility Owner's Signature:	Badge #:	Date:	Time:

Item No.	Item Description	Acceptable	Unacceptable	Observations/Corrective Actions To Be Completed
1	Signs: -Danger-Authorized Personnel Only -No Smoking or Open Flame -Emergency & Prior To Entry Contact -PCB Warning Label - posted at access points to designated storage facility			
2	Building Condition			
3	Condition Of Secondary Containment			
4	Safety Equipment			
5	Spill Response Equipment			
6	Container Management: - Reactivity Group Codes (RGCs) - Aisle Spacing - Drum Stacking Height			
7	Conditions of Drums (Evidence Of Leaks/Spills)			

Comments: _____

Centralized Inspection Group Designee :	Date:
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SECTION G - CONTINGENCY PLAN

TABLE OF CONTENTS

G-1 GENERAL INFORMATION..... 1

G-1a Emergency Organization..... 4

 Fernald Environmental Management Project 4

 Emergency Management 4

 Emergency Response Team..... 5

 Security Response Organization..... 5

 Emergency Operations Center (EOC) Staff 5

 Public Information Response 5

 Medical Response Organization 6

 Communications Center Staff..... 6

 Monitoring Team 6

 U.S. Department of Energy (DOE)..... 6

 DOE Fernald Office (DOE-FEMP) 6

 DOE Headquarters (DOE-HQ)..... 6

 State of Ohio..... 7

 Ohio Emergency Management Agency (OEMA)..... 7

 Butler and Hamilton Counties 7

G-1b Distribution 7

G-2 EMERGENCY COORDINATION..... 8

 FEMP Emergency Preparedness Staff..... 8

 Emergency Coordinator/AEDO 8

 Emergency Duty Officer..... 9

 Emergency Chief (EC)..... 10

 Release Evaluator..... 10

G-3 IMPLEMENTATION 10

G-4 EMERGENCY RESPONSE PROCEDURES..... 13

G-4a Notification 13

 General Notification Activities 13

 Initial Oral Notification for Hazardous Waste Emergencies 15

 Local Evacuation Notices..... 15

 Written Notification 16

 Cessation/Resumption of Activities 16

G-4b Identification of Hazardous Materials..... 17

G-4c Assessment..... 17

 Categorization Systems..... 18

 Operational Emergency Classification 18

 Base Program Events 18

 Hazardous Materials Program Events
 (Radiological and Non-Radiological)..... 19

SECTION G - CONTINGENCY PLAN

TABLE OF CONTENTS (Continued)

G-4d	Control Procedures	21
G-4e	Prevention of Recurrence or Spread of Hazardous Waste Fires, Explosions or Releases	24
G-4f	Storage and Treatment of Released Waste	25
G-4g	Incompatible Wastes	25
G-4h	Post-Emergency Equipment Maintenance	26
G-4i	Container Spills and Leakage	26
G-4j	Tank Spills and Leakage	27
	G-4j(1) Stopping Waste Addition	27
	G-4j(2) Removing Waste	27
	G-4j(3) Containment of Visible Releases	27
	G-4j(4) Notifications, Reports	27
	G-4j(5) Provision of Secondary Containment, Repair or Closure	28
G-5	EMERGENCY SUPPORT AND EQUIPMENT	29
	Emergency Operations Center (EOC)	29
	Mobile Operations Center	30
	Joint Information Center (JIC)	31
	Communications Center/Security	31
	Warning Systems	31
	Facility Alarm System	31
	Emergency Message System	32
	Local Evacuation Alarm	32
	Ambulance Alarm	32
	Offsite Emergency Warning System	32
	Fire and Rescue	33
	Decontamination Equipment	33
	Medical	33
	Environmental Radiological Monitoring	33
	Industrial Hygiene Equipment	34
	Emergency Power System	34
	Additional Emergency Equipment	34
	G-5a Fire Protection Equipment	35
	G-5a(1) Plant Water Supplies and Fire Loop Water Supply	35
	G-5a(2) Automatic Sprinklers	36
	G-5a(3) Fire Extinguishers	36
	Classes of Fire Extinguishers	36

SECTION G - CONTINGENCY PLAN

TABLE OF CONTENTS
(Continued)

- G-5a(4) FEMP Emergency Response Equipment..... 37
 - Fire and Safety Vehicles..... 38
 - Fire and Safety Rescue 27..... 38
 - Support 27 38
 - Tanker 227 38
 - Engine 227 38
 - Engine 327 38
 - Ambulances 39
 - Spill Response Vehicle - Haz Mat 27..... 39
 - Mobile Air Unit 39
 - Heavy Equipment..... 40
- G-5b Spill Control and Monitoring Equipment..... 40
 - Spill Control and Emergency Spill Response Equipment 40
 - Monitoring Equipment 41
- G-5c Alarm and Electronic Monitoring Systems..... 41
 - Honeywell D-1000 System 41
 - Meteorological Tower Monitors 42
- G-5d Communication System..... 42
 - Two-Way Radios 43
 - Radio Receivers..... 43
 - Special Telephones and Telephone Service..... 43
- G-5e First Aid and Medical Supplies 43
 - G-5e(1) Emergency Treatment 43
 - G-5e(2) Ambulance Service - General..... 44
 - G-5e(3) Ambulance Service, 2nd and 3rd Shifts,
Weekends, Holidays, Vacation Shutdown..... 44
- G-6 COORDINATION AGREEMENTS..... 44
- G-7 EVACUATION PLAN..... 45
 - Evacuation of RCRA Facilities..... 45
 - General Evacuation 45
- G-8 REPORTS 46
 - G-8a Required Written Reports 46
 - Required Written Reports..... 46
 - General Incident Reporting 46
 - Resumption of Operations Reporting 46
- G-9 AMENDING THE CONTINGENCY PLAN 47

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE iv OF vi

LIST OF TABLES

Table G-1	Emergency Operation Personnel & Organizations
Table G-2	The FEMP Emergency Organization Roster
Table G-3	Emergency Respiratory Equipment
Table G-4	Types of Pressurized Fire Extinguishers



LIST OF FIGURES

Figure G-1	Permitted RCRA Storage Units
Figure G-2	FEMP Emergency Response Organization
Figure G-3	Emergency Coordination
Figure G-3.1	Emergency Response Training Requirements
Figure G-4	Implementation & Notification
Figure G-5.2	Emergency Action Level Guide
Figure G-6	Communications Links
Figure G-7	Interorganizational Links
Figure G-9	Form A - Ohio Hazardous Waste Release Fire, Explosion Report to Ohio EPA
Figure G-10	Form B - Notification of Ohio EPA of Implementation of Contingency Plan
Figure G-11	Form C - Written Notice to Ohio EPA and Appropriate Local Authorities of Resumption of Hazardous Waste Operations

12-11-77



12-11-77
12-11-77

3010

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE vi OF vi

LIST OF ATTACHMENTS

Attachment G-1	Emergency Procedures, Site Layout and Equipment Information
Attachment G-2	Location of FEMP Fire Hydrants
Attachment G-3	Mutual Aid Agreements

000214

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 1 OF 47

SECTION G - CONTINGENCY PLAN

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

This Contingency Plan is required by Ohio Administrative Code (OAC) 3745-50-44(A)(7) and Title 40 of the Code of Federal Regulations (CFR) 270.14 (b)(7) in order to provide planned procedures to be followed in an emergency at any hazardous waste facility. This information is submitted for the Fernald 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 former production facility which produced uranium metal used in the fabrication of fuel cores for nuclear reactors operated by the United States Department of Energy. During production, several types of hazardous wastes were produced from virgin materials, including (but not limited to): toxic halogenated solvents (from parts cleaning), ignitable oil and lubricants (from machining operations), ignitable and metal-bearing paint residues (from drum reconditioning), corrosive acids and alkalis (from metal and ore digestion and extraction), and pyrophoric non-nuclear metals (from foundry operations). In addition, some non-hazardous materials such as cleaning rags and wastewater sump cakes were contaminated with hazardous wastes, and thus became hazardous wastes themselves.

All production activities at the facility have ended. Current activities include waste management operations, site remediation, 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: South of 3rd Street; West of B Street

Maximum Capacity: 116,160 gallons / 2,112 drums

Waste Types: Currently not being used for storage of hazardous wastes

HWMU No.20 (Plant 1 Pad)

Location: North of 2nd Street; West of B Street

Maximum Capacity: 11,222,200 gallons / 198,000 drums

Waste Types: Various hazard classes (including corrosives and ignitable solids (e.g. oxidizers) in the tension support structures and ignitable waste/PCBs in the hazardous waste storage lockers. ~~The FEMP will also begin storing ignitables/PCBs in bulk tanks located near the boundary of Plant 1 Pad by September 1999. These tanks are currently located outside of the Plant 6 Warehouse (Bldg. 79).~~

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: ~~Various hazard classes (including ignitables)~~
~~Currently not being used for storage of hazardous waste.~~

HWMU No.33 (Pilot Plant Warehouse/Bldg. 68)

Location: Southwest corner of production area

Maximum Capacity: 13,200 gallons / 240 drums

Waste Types: Currently not being used for storage of hazardous wastes. ~~Samples are being staged in this unit under the sample exclusion in OAC 3745-5104(D).~~

~~**HWMU No.34 (KG-2 Warehouse/Bldg. 63)**~~

~~Location: B Street - North of 3rd Street~~

~~Maximum Capacity: 200,640 gallons / 3,648 drums~~

~~Waste Types: Various hazard classes EXCEPT ignitables~~

HWMU No.37 (Plant 6 Warehouse/Bldg. 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, PCBs. ~~The FEMP is also storing ignitables/PCBs in bulk tanks located outside of the Plant 6 Warehouse (Bldg. 79).~~

Building 60 (Quonset Hut #1)

Location: West of B Street; North of 3rd Street

Maximum Capacity: 18,500 gallons/434 containers

Waste Types: Thorium-contaminated waste

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN

3010
RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 3 OF 47

Building 64 (Thorium Warehouse)/Building 65 (Old Plant 5 Warehouse)
Location: North of D Street curve
Maximum Capacity: 97,352 gallons/120 containers
Waste Types: Thorium-contaminated waste

The FEMP is currently planning to remove all inventory from Buildings 60, 64 and 65 by December 31, 2000.

The FEMP site and mailing addresses are:

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

Fernald Office - Mailing Address
U. S. Department of Energy
P.O. Box 538705
Cincinnati, Ohio 45253-8705
(513) 648-3000

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 six five storage units the FEMP is seeking to permit, all hazardous waste management units, less than 90 day storage areas and hazardous waste storage areas operated under the site's CERCLA remediation program, 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

000217

contingency plan is located at each such unit while it is being used for storage of hazardous waste. The location of all other HWMUs is shown within Attachment G-1 on the inserted map "Location of FEMP Rally Points", located between pages 6 and 7. Since a potential incident could occur at any HWMU, Attachment G-1 describes evacuation routes for all HWMUs and fire and safety equipment available for HWMUs containing hazardous waste.

G-1a Emergency Organization

The Emergency Coordinator/AEDO may request support and allocate resources under the responsibilities of any or all of the Emergency Response Support Organizations discussed in this section. Table G-2 provides a roster of the 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 Emergency Coordinator is the primary AEDO.

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 Emergency Preparedness Department, 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 Emergency Coordinator/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 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 Information Center (JIC). The FEMP provides administrative support and a technical advisor to the JIC 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 the FEMP Communications Center. The Communications Center 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 Environmental Management Project (DOE-FEMP)

The DOE-Fernald Environmental Management Project (DOE-FEMP) 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-FEMP 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 Emergency Coordinator to act as the primary AEDO. 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
- U.S. EPA

G-2 EMERGENCY COORDINATION

The FEMP Emergency Preparedness staff, headed by the Emergency Services Manager, is in charge of the preparation for an emergency at the FEMP. The Emergency Coordinator/AEDO is in charge of emergency response. 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 Emergency Coordinator/AEDO is the Utility Engineer on shift. The Emergency Coordinator/AEDO has authority to initiate all necessary response actions. The Emergency Coordinator/AEDO responds to the event site, assesses and categorizes the event as an emergency or lesser event.

There are currently four personnel assigned to the position of Emergency Coordinator/AEDO. This group works a four-person rotating shift schedule. A status board which lists the Emergency Coordinator/AEDO and Emergency Chief is established for each shift at the Communications Center.

At least one Emergency Coordinator/AEDO is on site at all times, who can be reached by 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 Coordinator/AEDO.

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 Figure G-3.1, the Emergency Coordinator/AEDO job description requires a B.S. degree in a~~

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 9 OF 47

~~related field plus a minimum of five years of related experience.~~ Required training for the Emergency Coordinator/AEDO is listed in Figure G-3.1.

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 Emergency Coordinator/AEDO, Security Lieutenants, Fire Fighter/Emergency Response Specialists, and Medical personnel may also be summoned in this manner.

Emergency Duty Officer

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

~~In addition to the~~ Required training for the Emergency Duty Officer is listed in Figure 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. The Emergency Chief is the Fire Fighter/Emergency Response Specialist on shift. At least one Fire Fighter/Emergency Response Specialist is on site at all times.

The Fire Fighter/Emergency Response Specialist on duty may be reached in the following ways:

- via radio through the 24-hour-staffed FEMP Communications Center (513) 648-4444
- office (513) 648-4298
- mobile vehicle cellular telephone (513) 535-1367 (513) 582-2584
- by personal digital display pager

~~In addition to the Required training for Fire Fighter/Emergency Response Specialist is listed in Table G-3.1 and in Section H the job description for the Fire Fighter/Emergency Response Specialist 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 listed below:

- 1) LOGGABLE EVENT
- 2) OFF-NORMAL EVENT
- 3) UNUSUAL OCCURRENCE
- 4) OPERATIONAL EMERGENCY

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

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

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

- 4a) ALERT
- 4b) SITE AREA EMERGENCY
- 4c) GENERAL EMERGENCY

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

The 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 Fire Department

Telephone: 911 or 825-2260 (Hamilton County Communications Center)

Colerain Township Fire Department

Telephone: 911 or 825-2260 (Hamilton County Communications Center)

Ross Township Fire Department

Telephone: 911 or 887-3010 (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.

000226

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 13 OF 47

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~~ an ALERT, SITE AREA EMERGENCY, or GENERAL EMERGENCY involving hazardous waste.
- 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, or designee(s), of the event categorization.
- 4) The Communications Center completes County Event Report¹ as directed by the Emergency Coordinator/AEDO.
- 5) The Communications Center Operator activates site-wide alarm system, the site-wide message system, and/or the off-site Emergency Warning System, as directed.
- 6) The Emergency Coordinator/AEDO begins identification of the character, source, amount, and extent of any released materials by observation, for example hazardous

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.

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-FEMP 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-FEMP 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-FEMP 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-FEMP 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

2 Form A (Ohio Hazardous Waste Release Fire, Explosion Report to Ohio EPA) may be used as a guideline to facilitate this verbal reporting.

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;
- an assessment of actual or potential hazards to human health or the environment, where this is applicable;
- estimated quantity and disposition of recovered material that resulted from the incident; and
- an outline or description of procedures or measures that will be taken to prevent or mitigate such incidents in the future.

Cessation/Resumption of Activities

The Emergency Coordinator/AEDO must take the preventive measures described in Section G-4e, if the event causes the affected area of the facility to cease activities.

The equipment in the affected area of the facility will be returned to a clean and serviceable condition after an emergency. Waste generated during spill cleanup will be managed in accordance with all applicable regulatory requirements. Ohio EPA regulatory authorities will be notified by the Department of Energy of the readiness to resume hazardous waste activities.

G-4b Identification of Hazardous Materials

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

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

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

G-4c Assessment

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

- The population at risk (both on- and off-site);
- The environmental conditions contributing to the seriousness of the event such as wind speed and direction, precipitation, ground moisture, and temperature;

- Potential radionuclide hazards;
- Protective Action Guide (PAG) or Emergency Response Planning Guideline (ERPG) exposure levels; and
- The capabilities of available equipment.

The existing DOE event categorization system used by the 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

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

The four categories in order of increasing severity are as follows: Loggable Event, Off-Normal Occurrence, Unusual Occurrence, and Operational Emergency. The Operational Emergency level has been further subdivided for hazardous material and radiological events into three classes: Alert, Site Area Emergency, and General Emergency. Each are discussed below with detailed definition, classifications of emergencies, and appropriate emergency responses to be taken provided in DOE 151.1 and in the Emergency Action Levels of the FEMP Emergency Plan.

Operational Emergency Classification

Base Program Events

Operational Emergencies are unplanned significant events of conditions that require time-urgent

response from outside the immediate/affected site/facility or area of the incident. Such emergencies are caused by, involve, or affect DOE facilities, sites, or activities and represent, cause, or have the potential to cause the events or conditions describe below. Incidents that can be controlled by employees or maintenance personnel in the immediate/affected facility or area are not Operational Emergencies. Incidents that do not pose a significant hazard to safety, health, and/or the environment and that do not require a time-urgent response are not Operational Emergencies. Note that the initiating events described are not all-inclusive. Other initiating events that warrant categorization as Operational Emergencies shall be included in site/facility-specific procedures. Less severe events are reported through the Unusual Occurrence and Off-Normal Occurrence process.

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

Hazardous Materials Program Events (Radiological and Non-Radiological)

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

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

An actual or potential substantial degradation in the level of control over hazardous materials (radiological and non-radiological).

The radiation dose from any release to the environment of radioactive material or a concentration in air of other hazardous material is expected to exceed either:

- a. The applicable Protective Action Guide or Emergency Response Planning Guideline at or beyond 30 meters from the point of release to the environment or;
- b. a site-specific criterion corresponding to a small fraction of the applicable Protective Action Guide or Emergency Response Planning Guideline at or beyond the facility boundary or exclusion zone boundary.
- c. It is not expected that the applicable Protective Action Guide or Emergency Response Planning Guideline will be exceeded at or beyond the facility boundary or exclusion zone boundary.
- d. An actual or potential substantial degradation in the level of safety or security of a facility or process that could, with further degradation, produce a Site Area Emergency or General Emergency.

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

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

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

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

G-4d Control Procedures

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

- explosion
- fire
- spills or material release.

The 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
- Emergency Response Team with appropriate emergency apparatus
- 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 911, pull manual fire alarm, or have the report relayed to the Communications Center over the site-wide FM radio network, if a person with a portable radio is nearby. Otherwise, report information to a local supervisor who will relay the report to the Communications Center or Emergency Coordinator/AEDO.
- 3) Report the following information to the Emergency Coordinator/AEDO:
 - Location;
 - Type of emergency; fire, explosion, chemical release, and personnel, equipment, and chemicals or hazardous wastes involved and amounts if known;
 - The magnitude of the emergency, such as an estimate of the extent, size, quantity, volume, intensity, area, etc.; and
 - Emergency actions taken.
- 4) If possible, the facility personnel encountering the emergency should remain in the vicinity to direct emergency service groups to the scene.

- 5) Determine need for emergency service groups and summon them by calling 911, pulling manual fire alarms, or relaying the information to the Communications Center via the FM radio network.
- 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 Dosimeter (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 Emergency Coordinator/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.

21340

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 that exceeds a reportable quantity (RQ) under CERCLA or reported as required per RCRA 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 a registered professional engineer that the repaired component will safely handle hazardous wastes without release for the intended life of the system.

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 29 OF 47

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-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 Information Center (JIC) at the ~~DOS Building~~, Delta Building, 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 FEMP frequencies. 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 FEMP frequencies.
- 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.

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 31 OF 47

Joint Information Center (JIC)

The Joint Information Center serves as a clearinghouse for information for the FEMP and would become the central contact point for information during an emergency. The Joint Information Center disseminates necessary and relevant information to the public via the news media. The Joint Information Center has a media briefing area, a telephone bank for media inquiries, a telephone bank for concerned citizens' inquiries, and clerical support areas. Telephone lines link the Joint 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, special telephone system, and a paging system. Special monitoring systems include a computerized emergency monitoring system. On-site Security Inspectors are equipped with emergency vehicles with lights and siren, portable communications equipment, 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 Technician, using the control panel, activates alarms located throughout the facility.

Each alarm system is tested by ~~safety and fire personnel~~ Firefighter/Emergency Response Specialist (FF/ERS) according to the following schedule, and the results are recorded:

Manual alarm boxes: Every six months

~~Automatic systems: Every two months~~

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 911 or calling "CONTROL" by radio will alert Emergency Preparedness via the Control Center. Appropriate evacuation and other messages will be broadcast over the loudspeakers in affected and adjacent locations. The speaker system is tested daily.

Ambulance Alarm

Primary ERT members are notified from the Communications Center via special Alert Pagers. The pagers alert garage personnel and assigned ERT members 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~~ ten electronic sirens (seven offsite and ~~four~~ three onsite) and numerous tone-alert radio receivers. The sirens are located within or just outside the 2-mile immediate notification zone. This system is tested on the first Wednesday of each month at noon.

Fire and Rescue

Fire and rescue equipment 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, 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, and as portable units as needed, throughout the plant
- Emergency power and lighting equipment, including power-failure lighting
- Submersible electric pumps
- Portable electric generators
- Portable gasoline-powered pumps (to 250 gpm)
- Mobile gasoline-powered pump (trailer-mounted, @ 500 gpm).

A list of 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.

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. Primary 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.

~~Currently, installation of the new Domestic and Fire Water Storage Tank and Booster Station is in progress. This new water storage and pumping station will, over a period of time, replace the existing storage and pumping system. It will be operational in the fourth quarter of FY 1999. This station will consist of one 350,000-~~ Installation of the new Domestic and Fire Water Storage Tank and Booster has been completed. This new water storage and pumping station will, over a period of time, replace the existing storage and pumping system. It became operational in the second quarter of FY 2000. This station consists of one 400,000 gallon storage tank fed from the City Water line with redundant fire water pumping capability of 1,250 gpm at 125 psig discharge pressure. Also, this station will provide the site with domestic water via three domestic water pumps rated from zero to one hundred gpm.

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 buildings are fully sprinkled with dry pipe systems:

- ~~Building 56~~
- Building 79 Warehouse
- Building 80 Warehouse

~~The fire suppression system in Building 56 Warehouse is currently out of service. This system will be reactivated prior to storing ignitable hazardous wastes in this building.~~

Dry pipe sprinklers located inside each hazardous waste storage locker on Plant 1 Pad are plumbed to an outside Fire Department connection. The system can be activated by connection to one of the FEMP's fire trucks.

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 ejectors, and protective clothing.

FIRE AND SAFETY RESCUE 27

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.

SUPPORT 27

This unit is a 1990 Ford Ranger equipped with manuals, SCBAs, preplans, and a two-way, seven-channel radio.

TANKER 227

One Mack 2,600 gallon tanker is available, equipped with a 500-gpm centrifugal pump, two-way 32-channel radio, protective clothing, tools, fire extinguishers, two SCBAs, and hose.

ENGINE 227

This 1993 Boardman custom fire truck is fully equipped with a 1,250 gpm single-stage centrifugal water pump, 500-gallon booster tank, two-way 32-channel radio, SCBAs, protective clothing, extension ladders, deluge gun, tools, and hose.

ENGINE 327

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 32-channel radio, SCBAs, hose, ladders, and tools.

AMBULANCES

Two fully-equipped ambulances meeting federal specifications are operated and maintained onsite.

SPILL RESPONSE VEHICLE - HAZ MAT 27

This Chevrolet 30-Series van, 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 or 45 high pressure 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 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

(B) Audible Alarm System

- (1) Activated by Communications Center.

METEOROLOGICAL TOWER MONITORS

- (A) Meteorological information collected includes wind speed and direction.
- (B) Information is used to calculate plume direction during a radiological or gaseous hazardous materials emergency.
- (C) Monitors displaying near real-time conditions are located in Building 14 along with computer plume models.
- (D) Communications Center personnel can relay the information to the Emergency Coordinator (AEDO). National Weather Service information is available in case back-up data is needed.

G-5d Communication System

The FEMP utilizes other special radios, receivers, telephones 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 Communications Center personnel on duty, seven days a week:

TWO-WAY RADIOS

The FEMP utilizes eight separate high-band radio frequencies.

RADIO RECEIVERS

These include the following:

- Radio receiver to monitor Crosby Township Fire Department, and
- Radio receiver to monitor Ross Township Fire Department

SPECIAL TELEPHONES AND TELEPHONE SERVICE

These include the following:

- Emergency telephone number 911 (also 6511, which is an automatic switch over, when 911 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~~ FF/ERS (who are state certified Emergency Medical Technicians). A minimum of two state certified Emergency Medical Technicians are scheduled for each shift. 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 joint emergency exercises conducted every three years (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 as needed. Equipment dispatched for such requests operate

under the immediate supervision of the responder's senior on-scene official, but under the general direction of the requester's senior on-site official.

The Communications Center Operator, in the event of Contingency Plan Implementation and at the request of the Emergency Coordinator/AEDO, shall request additional assistance by calling one or more of the off-site organizations' telephone numbers listed in Table G-1; see Figure G-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 Emergency Coordinator/AEDO, personnel may have to evacuate to their rally point. 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.
- (C) All employees will report to their predetermined rally point for accountability and further instruction. Should the emergency involve a nuclear criticality, all employees will report instead to the specific locations indicated in the Site Criticality Procedure.

G-8 REPORTS

Certain notifications and reports may be required by the regulatory authorities, in the event of an emergency that requires implementation of the Contingency Plan. Section G-4a describes the oral notifications and written reports required upon the implementation of the Contingency Plan. Any one or more of these reports may be required depending on the nature and extent of the emergency. Current record keeping/reporting procedures are maintained in the Operating Record 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.

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN

30 10
RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 47 OF 47

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:

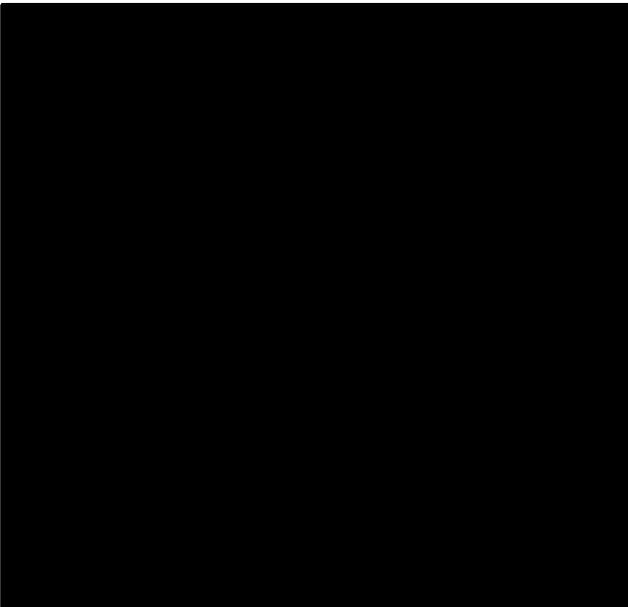
- a) The plan fails in an emergency; or,
- b) The list of emergency coordinators changes; or,
- c) The list of emergency equipment changes; or,
- d) Changes in the facility increase the potential for fires, explosions, or releases of hazardous waste, or change the response necessary in an emergency.

000261

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>
Rogers, L. **	920-7776	4164		
William Prues**	920-7958	4295		
Duckworth, R.	920-7928	4749		
Bierman, J	920-1197	4749		
McCool, D.	920-7813	4749		
Stacey, E.	920-7929	4749		

* The most effective means for reaching the on-site Emergency Coordinator/AEDO is via pager, or Radio # 202. The on duty Emergency Coordinator/AEDO may also be reached by:

- o radio through the 24-hour-staffed FEMP Communications Center, (513) 648-4444,
- o office, (513) 648-4749,
- o portable cellular telephone, (513) 582-2584, 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 Coordinator/AEDOs (and other Emergency Operations personnel as well) are available on-site from the Communications Center or the Emergency Operations Center, if, for some reason, an off-duty Emergency Coordinator/AEDO would need to be reached.

** ~~L. Rogers~~ W. Prues has been designated the Emergency Coordinator. The on-site/on-duty Emergency Coordinator/AEDO at the time of an incident will be the primary incident commander for that incident.

Table G-1

OTHER

All Emergencies	648-6511
FEMP Communications Center.....	648-4444
Security Portable.....	646-5534
	or 532-4092
DOE Site Office.....	648-3155
Utility Engineer/Emergency Coordinator (AEDO) Vehicle.....	535-1365
Emergency Coordinator (AEDO) Portable.....	582-2584
Fire & Safety Vehicle #301.....	535-1367
Fire & Safety Portable.....	582-2831
Security Vehicle.....	535-1366
Industrial Hygiene Vehicle.....	646-3367
Environment & Radiological Monitoring Techs Portable	460-7839
Medical Portable.....	543-0783
Release Evaluators (Office)	648-4204
Spradlin, T (Pager)	920-5046
Campbell, Greg (Pager)	920-7931
US EPA Region 5	(312) 353-2318
USEPA RCRA Hotline	(800) 424-9346

Table G-1

Off-Site Emergency Operation Organizations

OFF-SITE NOTIFICATION

DEPARTMENT OF ENERGY

DOE Headquarters, Washington, D.C. (202) 586-5000
 DOE Headquarters Emergency Operations Center (202) 586-8100
 DOE Ohio Field Office (513) 865-3020

STATE OF OHIO

Ohio Emergency Management Agency (614) 889-7150
 Ohio EPA Emergency Response Center (800) 282-9378
 Ohio EPA Columbus (614) 644-2924
 Ohio EPA Southwest District Office (513) 285-6357
 or (800) 686-8930
 Ohio Department of Health (614) 466-3543
 Ohio State Highway Patrol (513) 863-4606
 ORSANCO (513) 421-1151
 Ohio State Fire Marshall (800) 686-0736

HAMILTON COUNTY

Communications Center (Emergency - 911).....Non-Emergency (513) 825-2280
 Emergency Management Agency (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) 825-2280

Table G-1

Off-Site Emergency Operation Organizations

BUTLER COUNTY

Sheriff's Office (Emergency - 911).....Non-Emergency (513) 887-3010
Emergency Management Agency (513) 844-8020

LOCAL FIRE DEPARTMENTS

MuAid: Crosby Township 911 or (513) 385-8338
MuAid: Ross Township 911 or (513) 867-5700
MuAid: Colerain Township 911 or (513) 825-6143

LOCAL AMBULANCE

Butler County 911 or (513) 887-3010
Hamilton County 911 or (513) 825-2260
MuAid: Crosby Township Life Squad Mobile Telephone 911 or (513) 977-6337

LOCAL HOSPITALS

MuAid: ~~Providence Hospital~~ Mercy Franciscan--Emergency Room (513) 853-5222
MuAid: Mercy Hospital--Emergency Room (513) 867-6450
MuAid: University--Emergency Room (513) 558-4571

EMERGENCY CARE CENTER

Mercy Franciscan Ambulatory Care Unit (Harrison) (513) 367-2222

EMERGENCY HELICOPTER SERVICE

MuAid: University Air Care (800) 826-8100
FBI 421-4310

Chemical Referral Center, CMA (800) 262-8200

Coast Guard/DOT National Response Center (800) 424-8802

National Weather Service (Cincinnati) (937) 383-0228

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: TABLE G-1

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 5 OF 5

Table G-1

Off-Site Emergency Operation Organizations

EPA Chemical Emergency Prep. Hotline	(800) 535-0202
American Red Cross	(513) 579-3000
Chemtrec	(800) 424-9300

Table G-2

The FEMP Emergency Organization Roster

EMERGENCY RESPONSE TEAM

- Assistant Emergency Duty Officer
- Emergency Chief
- Firefighters
- Driver-Operators
- Emergency Medical Technicians
- Radiological Safety Technicians
- Industrial Hygiene Technicians

ADDITIONAL FIELD PERSONNEL

Operations Response

- Plant Supervisors
- Facility Owner
- Operations Personnel

Security Response

- Shift Lieutenant
- Security Officers
- Security Support Group

COMMUNICATIONS CENTER

- Communication Technician
- Honeywell Alarm Technician

EMERGENCY OPERATIONS CENTER

- Emergency Duty Officer
- DOE Site Manager
- Emergency Director
- Emergency Management Advisor
- Deputy Emergency Director
- Safety and Health Advisor
- Safety and Health Support
- Meteorologist
- Operations Advisor
- Environmental Advisor
- Public Information Advisor
- Public Information Support
- Security Advisor
- DOE Liaison
- Off-site Notification Officer (2)
- Off-site Liaison(2)
- Field Communicator

The FEMP Emergency Organization Roster
(continued)

EMERGENCY OPERATIONS CENTER (Continued)

Information Plotters
Runners
Historian
Administrative Support

JOINT INFORMATION CENTER TEAM

Joint Information Center Manager
DOE PIO
FEMP PIO
~~Citizen Hotline Operator/
Media Query and Citizen Hotline Telephone Banks~~
~~FEMP Citizen Hotline Operator~~
Butler County PIO
~~Butler County Citizen Hotline Operator~~
Hamilton County PIO
~~Hamilton County Citizen Hotline Operator~~
State PIO
~~Media Room Duty PIO~~
Technical Advisor
Administrative Support Supervisor
Media Monitoring Supervisor
~~Media Query and Citizen Hotline Telephone Banks
Supervisor~~

Table G-3
Emergency Respiratory Equipment

<u>DESCRIPTION</u>	<u>TYPICAL APPLICATION</u>	<u>LIMITATIONS</u>
<p>Air-purifying full-face MSA Ultravue Ultratwin respirator equipped with chin-mounted canisters cartridges approved for HF up to 0.5 percent concentration by volume, organic vapors, acid gases, ammonia, amines, formaldehydes, radionuclide aerosols not exceeding 100 times DOE limits in DOE Order 5480.1 10 CFR 835 or other highly toxic particulates.</p>	<p>Environments containing relatively low HF concentrations, radionuclides or other highly toxic particulate contaminants including UF₆.</p>	<p>Only approved for relatively low concentrations of HF gases, vapors, and particulate contaminants. Wearers must be satisfactorily fit-tested prior to use.</p>
<p>Airline half-mask full-face mask respirator or hooded airline hoods respirator provides head protection.</p>	<p>Environments containing relatively high but not immediately dangerous to life and health (IDLH) concentrations of contaminants.</p>	<p>Requires CGA-Grade D breathing air supply. Length of airline hose station and wearer must not exceed 300 feet. May only be used in confined spaces when equipped with 5-minute compressed air escape bottle.</p>
<p>Full-faced self-contained breathing apparatus for corrosive contaminants (SCBA) or positive pressure supplied air respirator equipped with 5-minute compressed air escape bottle.</p>	<p>Environments with IDLH or unknown concentrations of air contaminants.</p>	<p>Air supply in compressed (SCBA) air bottle is limited to 30 or 60 minutes. Must be used in 2-man teams. This equipment must be used in 2-man teams, with at least one additional worker outside IDLH area (two workers outside area for fire-fighting). Wearer must be judged physically fit enough to wear 40 pound SCBA and protective clothing. Wearers must also be trained and drilled in use of this equipment.</p>

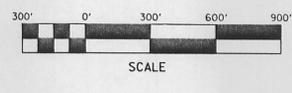
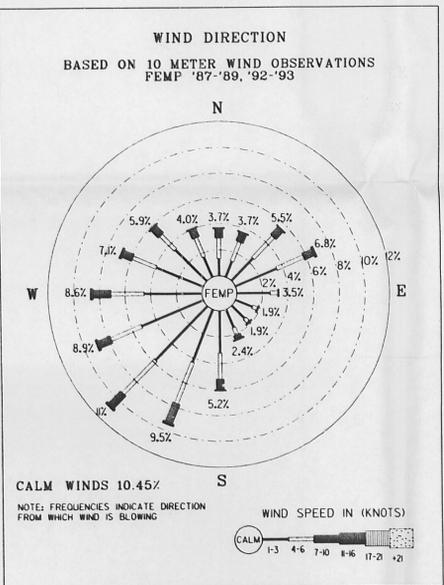
NOTE: All personnel must be fit-tested for the proper size of respirator before use. A training session must also be attended prior to fit-testing on the types and uses of equipment available.

Table G-4

Types of Pressurized Fire Extinguishers

<u>DESCRIPTION</u>	<u>TYPICAL APPLICATION</u>	<u>LIMITATIONS</u>
Pressurized water (stainless steel)	Class A fires including wood, paper, trash, etc.	Not suitable for flammable liquid (Class B), electrical (Class C), or metal (Class D) fires.
Pressurized CO ₂ (red tank)	Flammable liquid (Class B) and electrical (Class C) fires.	Not suitable for Class A or Class D fires.
Pressurized dry chemical (red tank)	Paper, wood, some plastics (Class A) Flammable liquid (Class B) and electrical (Class C) fires.	Not suitable for Class A or Class D fires.
Pressurized MetL-X (yellow tank)	Metal (Class D) fires.	For metal fires only.
Pressurized dry chemical (small red tank)	Class A, B, and C fires.	May be used on burning uranium but not on other metal fires.

30 22" 17" 11" 8.5" 11" 17" 22" 24"



30 10

NO. REVISIONS DATE DWN. BY APPD. REF. DWG. NO.				PERFORMANCE GRADE 1 2 3 4 5		APPROVALS CIVIL & STR. SAFETY ENG. MAINTENANCE ELECTRICAL FIRE PROTECT. WASTE MANAGE. INSTRUMENT MECHANICAL SECURITY CRU		Fernald Environmental Management Project FLUOR DANIEL FERNALD U.S. DEPARTMENT OF ENERGY		SITE PLAN RCRA PART B PERMITTED RCRA STORAGE UNITS FIGURE G-1 SCALE: 1" = 300'-0"	
FLUOR DANIEL FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.				CHECKED APPROVED		DATE: 4/5/00 DRAWN: S.J. SWICK		FILE NAME:		DATE: 4/5/00 DRAWN: S.J. SWICK	

30 22" 17" 11" 8.5" 11" 17" 22" 24" MAY 0 1, 2000 000271

Figure G-3.1 Training and Participation Requirements

	Drills & Exercises	EMT-State of Ohio	Firefighter-NFPA	HazMat-NFPA	Incident Command	GET	EOC Staff	JIC Training
Administrative Support	Full participation req'd							
AEDO	Full participation req'd		Some participation	Some participation	Some participation			
CommCenter Staff	Full participation req'd							
Emergency Chief	Full participation req'd							
Emergency Director	Full participation req'd							
Emer. Mgmt Advisor	Full participation req'd							
ERT	Full participation req'd		Some participation	Some participation	Some participation			
Employees	Full participation req'd							
Deputy Emergency	Full participation req'd							
DOE-FN Manager	Full participation req'd							
DOE Liaison	Full participation req'd							
Environmental Advisor	Full participation req'd							
EOC (County & State)	Full participation req'd					Invited		Invited
Field Communicator	Full participation req'd							
Historian	Full participation req'd							
Information Officer	Full participation req'd							
JIC Staff	Full participation req'd							Invited
Medical Staff	Full participation req'd							
Meteorologist	Full participation req'd							
Monitoring Teams	Full participation req'd							
Mutual Aid Responders	Full participation req'd							
Off site Notification	Full participation req'd							
Operations	Full participation req'd							
Plotter	Full participation req'd							
Public Information	Full participation req'd							Invited
Safety & Health	Full participation req'd							
S & H Support	Full participation req'd							
Security	Full participation req'd							
Visitors	Full participation req'd							
Key	Full participation req'd		Some participation			Invited		

Figure IS NOT intended to be inclusive of all training that may be required for each position.

000272

GENERAL DESCRIPTION

FIGURE G-5.2

Operational Emergency levels and four types of actions are described in the FEMP EAL Guides:

Radiological Events - Criteria

Radiological Events	Alert	Site Area	General
Criteria	Loss of accountable special nuclear material Unplanned release of radioactive material projected to result in an exposure at the facility boundary ≥ 100 mrem TEDE but < 1 rem TEDE Unplanned breach of Silos 1, 2, or 3 resulting in a projected exposure at the facility boundary ≥ 100 mrem TEDE but < 1 rem TEDE	Unplanned release of radioactive material projected to result in an exposure at the facility boundary ≥ 1 rem TEDE Unplanned breach of Silos 1, 2, or 3 resulting in a projected exposure at the facility boundary ≥ 1 rem TEDE	Unplanned release of radioactive material projected to result in an exposure at the site boundary ≥ 1 rem TEDE or ≥ 5 rem thyroid.
Onsite - Protective Actions	Shelter in place if possible, evacuate immediate danger area Rally point accountability Employee announcement Bioassay at termination		
Offsite - Protective Actions	Update counties and state regularly Monitoring onsite and/or offsite		Activate offsite warning system Issue Protective Action Recommendations Implement RCRA plan applicable
Event Mitigation Actions	Contain event Isolate area Terminate release Monitor onsite/offsite Clean up		
Response Groups	Emergency Duty Officers Emergency Operations Center Joint Information Center (JIC) Monitoring teams Security (Recall) Medical (Recall) Emergency Response Team (Recall) Mutual Aid (as needed)		

000273

PL-3020	FEMP EMERGENCY PLAN	Effective Date: 04-13-00 Revision Number: 5	Page 32 of 110
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FIGURE G-5.2

Hazardous Material Events - Criteria

Hazardous Material Events	Alert	Site Area	General
<p>Criteria</p>	<p>Unplanned release of a hazardous substance resulting in a projected airborne concentration at the facility boundary \geq ERPG-1 and $<$ ERPG-2. If ERPG values are not available, projected airborne concentration at the facility boundary \geq TEEL-1 and $<$ TEEL-2 values.</p> <p>Unplanned release from an indoor tank in building 18D containing 44,333 pounds of sulfuric acid resulting in an airborne concentration of $\geq 2\text{mg/m}^3$ (ERPG-1) at the facility boundary but $< 10\text{mg/m}^3$ at the site boundary.</p>	<p>Unplanned release of a hazardous substance resulting in a projected airborne concentration between the facility boundary and the site boundary is \geq ERPG-2. If ERPG values are not available, \geq TEEL-2.</p> <p>Unplanned release from an indoor tank in building 18D containing 44,333 pounds of sulfuric acid resulting in an airborne concentration of $> 10\text{mg/m}^3$ (ERPG-2) at the facility boundary but $< 10\text{mg/m}^3$ at the site boundary.</p>	<p>Unplanned release of a hazardous substance resulting in a projected airborne concentration at the site boundary is \geq ERPG-2. If ERPG values are not available, \geq TEEL-2.</p>

000274

FIGURE G-5.2

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Hazardous Material Events - Actions

Hazardous Material Events	Alert	Site Area	General
Onsite - Protective Actions	Shelter in place if possible, evacuate immediate danger area. Rally point accountability. Employee announcement. Bioassay at termination.		
Offsite - Protective Actions	Update counties and state regularly. Monitoring onsite and/or offsite.		Activate offsite warning system. Issue Protective Active Recommendations.
Event Mitigation Actions	Contain event. Isolate area. Terminate release. Monitor onsite/offsite. Implement RCRA plan applicable. Clean up.		
Response Groups	Emergency Duty Officers Emergency Operations Center Joint Information Center (JIC) Monitoring teams Security (Recall) Medical (Recall) Emergency Response Team (Recall) Mutual Aid (as needed)		

000275

FIGURE G-5.2

Health & Safety - Criteria

Health & Safety	Operational Emergency
Criteria	<p>The following events or conditions represent, cause, or have the potential to cause serious health and safety impacts to workers or members of the public.</p> <p>Radioactive or other hazardous material contamination that is causing or may reasonably be expected to cause uncontrolled personnel exposures exceeding protective action criteria.</p> <p>An offsite hazardous material event not associated with DOE operations that is observed to have or is predicted to have an impact on a DOE site such that protective actions are required for onsite DOE workers.</p> <p>An occurrence that causes or can reasonably be expected to cause significant structural damage to DOE facilities, with confirmed or suspected personnel injury or death or substantial degradation of health and safety.</p> <p>Any facility evacuation in response to an actual occurrence that requires time-urgent response by specialist personnel, such as hazardous material responders or mutual aid groups not normally assigned to the affected facility.</p> <p>An unplanned nuclear criticality resulting in actual or potential facility damage and/or release of radioactive material to the environment.</p> <p>Any non-transportation-related mass casualty event.</p>

000276

FIGURE G-5.2

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Health & Safety - Actions

Health & Safety	Operational Emergency	
Onsite - Protective Actions	Shelter in place if possible, evacuate immediate danger area Rally point accountability Employee announcement Bioassay at termination	
Offsite - Protective Actions	Update counties and state regularly Monitoring onsite and/or offsite	Activate offsite warning system Issue Protective Active Recommendations Implement RCRA plan applicable
Event Mitigation Actions	Contain event Isolate area Terminate release Monitor onsite/offsite Clean up	
Response Groups	Emergency Duty Officers Emergency Operations Center Joint Information Center (JIC) Monitoring teams Security (Recall) Medical (Recall) Emergency Response Team (Recall) Mutual Aid (as needed)	

000277

FIGURE G-5.2

Environmental - Criteria

Environmental	Operational Emergency
<p>Criteria</p>	<p>The following events or conditions represent, cause, or have the potential to cause serious detrimental effects on the environment.</p> <p>Any actual or potential release of dispersible hazardous material or regulated pollutant to the environment, in a quantity greater than five times the Reportable Quantity (RQ) specified for such material in 40 CFR 302, that could result in significant offsite consequences such as major wildlife kills, wetland degradation, aquifer contamination, or the need to secure downstream water supply intakes.</p> <p>Any release of greater than 1,000 gallons (24 barrels) of oil to inland waters; greater than 10,000 gallons (238 barrels) of oil to coastal waters; or a quantity of oil that could result in significant off-site consequences (e.g., need to relocate people, major wildlife kills, wet-land degradation, aquifer contamination, need to secure downstream water supply intakes, etc.) [Oil as defined by the Clean Water Act (33 U.S.C. 1321) means any kind of oil and includes petroleum.].</p>

Environmental - Actions

Environmental	Operational Emergency	
<p>Onsite - Protective Actions</p>	<p>Shelter in place if possible, evacuate immediate danger area Rally point accountability Employee announcement Bioassay at termination</p>	
<p>Offsite - Protective Actions</p>	<p>Update counties and state regularly Monitoring onsite and/or offsite</p>	<p>Activate offsite warning system Issue Protective Active Recommendations Implement RCRA plan applicable</p>
<p>Event Mitigation Actions</p>	<p>Contain event Isolate area Terminate release Monitor onsite/offsite Clean up</p>	
<p>Response Groups</p>	<p>Emergency Duty Officers Emergency Operations Center Joint Information Center (JIC) Monitoring teams Security (Recall) Medical (Recall) Emergency Response Team (Recall) Mutual Aid (as needed)</p>	

000278

Offsite Transportation Events - Criteria

Offsite Transportation Events	Operational Emergency
Criteria	Transportation accident involving a shipment of hazardous or radiological material originating from the FEMP in which the integrity of the shipment is in doubt or cannot readily be determined.

Offsite Transportation Events - Actions

Offsite Transportation Events	Operational Emergency
Protective Actions	Offer Protective Action Recommendations to IC Update counties and state regularly in appropriate jurisdiction. Monitoring at event scene (if requested)
Event Mitigation Actions	Support local jurisdictions Public Information Officer Monitoring at event scene (if requested) Contain event (local event) Isolate area (local event) Terminate release (local event) Clean up (local event)
Response Groups	Emergency Duty Officers Emergency Operations Center Joint Information Center (JIC) Monitoring teams Medical (local event) Emergency Response Team (local event)

000279

FIGURE G-5.2

Safeguards & Security Events - Criteria

Safeguards & Security Events	Operational Emergency
Criteria	<p>The following events or conditions represent, cause, or have the potential to cause degradation of security or safeguards conditions with actual or potential direct harm to people or the environment.</p> <p>Actual unplanned detonation of an explosive device or a credible threatened detonation resulting from the location of a confirmed or suspicious explosive device.</p> <p>Any actual confirmed dissimulation/contamination or a credible threat to the site by the use of biological or chemical agents resulting from a malevolent act.</p> <p>An actual terrorist attack or sabotage event involving a DOE site/facility or operation.</p> <p>Kidnapping or the taking of hostage(s) involving a DOE site/facility or operation.</p> <p>Actual theft or loss of a Category I or II quantity of Special Nuclear Materials or other hazardous material that, if released, could endanger workers, the public, or the environment.</p> <p>Damage or destruction of a site or facility by natural or malevolent means sufficient to expose classified information to unauthorized disclosure.</p>

Safeguards & Security Events - Actions

Safeguards & Security Events	Operational Emergency
Onsite - Protective Actions	<p>Shelter in place if possible, evacuate immediate danger area. Rally point accountability. Employee announcement. Implement search procedures. Restrict radio communications.</p>
Offsite - Protective Actions	None
Event Mitigation Actions	<p>Implement PL-3055 Fernald Physical Protection Security Plan Isolate area.</p>
Response Groups	<p>Emergency Duty Officers Emergency Operations Center Joint Information Center (JIC) Security (Recall) Assistance from local law enforcement or FBI</p>

000280

Other Events - Criteria

Other Events	Operational Emergency
Criteria	Anytime the AEDO/EDO or DED/ED determine that conditions warrant the declaration of an Operational Emergency

Other Events - Actions

Other Events	Operational Emergency	
Onsite - Protective Actions	Shelter in place if possible, evacuate immediate danger area Rally point accountability Employee announcement Bioassay at termination	
Offsite - Protective Actions	Update counties and state regularly Monitoring onsite and/or offsite	Activate offsite warning system Issue Protective Active Recommendations Implement RCRA plan applicable
Event Mitigation Actions	Contain event Isolate area Terminate release Monitor onsite/offsite Clean up	
Response Groups	Emergency Duty Officers Emergency Operations Center Joint Information Center (JIC) Monitoring teams Security (Recall) Medical (Recall) Emergency Response Team (Recall) Mutual Aid (as needed)	

000281

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, Quonset Hut #1 (Building 60), Thorium Warehouse (Building 64), Old Plant 5 Warehouse (Building 65), the Liquid Mixed Waste Project Bulk Tanks, and the 90 Day Hazardous Waste Storage Locker.

90 Day Hazardous Waste Storage Locker

The 90 Day Hazardous Waste Storage Locker 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 active 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. 20 - Plant 1 Pad
- ~~HWMU No. 29 - Plant 8 Warehouse (Building 80)~~
- ~~HWMU No. 34 - KC 2 Warehouse (Building 63)~~
- HWMU No. 37 - Plant 6 Warehouse (Building 79)

The ~~Pilot Plant Warehouse (Building 68)~~, ~~Plant 8 Warehouse (Building 80)~~, and CP Storage Warehouse (Butler Building, Building 56) are also included in the permit application for the storage of containers of hazardous waste. These units are currently not being used for hazardous waste storage so that there is no minimal safety/emergency equipment identified with these units. ~~In addition, the Pilot Plant Warehouse (Building 68) is not currently being used for storage of containers of hazardous waste. However, samples are being staged in this building under the sample exclusion in OAC 3745-51-04(D).~~

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. 4 - Drum Storage Area Near Loading Dock (Lab Bldg)
- HWMU No. 5 - Drum Storage Area South of W-26 (Lab Bldg)
- HWMU No. 10 - NAR System Components
- HWMU No. 11 - Tank Farm Sump
- HWMU No. 14 - Box Furnace
- HWMU No. 15 - Oxidation Furnace #1
- HWMU No. 17 - Plant 8 East Drum Storage Pad
- HWMU No. 18 - Plant 8 West Drum Storage Pad
- HWMU No. 22 - Abandoned Sump West of Pilot Plant
- HWMU No. 27 - Waste Pit No. 4
- ~~HWMU No. 28 - Trane Thermal Liquid Incinerator~~
- HWMU No. 36 - Storage Pad North of Plant 6
- HWMU No. 41 - Sludge Drying Beds
- HWMU No. 42 - Waste Pit No. 5
- 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)~~

General Information

Hazardous Waste Management Unit (HWMU), Quonset Hut #1 (Building 60), ~~Thorium Warehouse (Building 64)~~, ~~Old Plant 5 Warehouse (Building 65)~~, the Liquid Mixed Waste Project Bulk Tanks, and the 90-Day Hazardous Waste Storage Locker emergency procedures are described specifically in this section. Responses to an event are identical for each unit and the details are given for the response to the three types of events:

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN - ATTACHMENT G-1

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 3 OF 42

- 1) an explosion;
- 2) a fire; or
- 3) a spill of hazardous waste

A response involves the action that endangered personnel must take when encountering an actual or potential explosion, fire, or spill. Personnel may have the knowledge and judgement to discern the severity of the situation. Personnel lacking knowledge sufficient to discern the severity of the situation should immediately move to a safe location and contact the Emergency Coordinator/AEDO. The categorization level of an EVENT may not reach an OPERATIONAL EMERGENCY level, and thus will not cause the implementation of this Contingency Plan. The situation may nevertheless warrant a protective and remediation response. For example, an incident that does not involve the 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, 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.
- 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.
- 2.2.7** Evacuate to the designated rally point. 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/AEDO by two-way radio, or telephone, if ~~of~~ 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 AEDO and/or 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.

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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.

000289

QUONSET HUT #1 (BUILDING 60)

Quonset Hut #1 is a pre-engineered, single-level structure located west of the KC-2 Warehouse. It is being used for the storage of containers of thorium-contaminated mixed waste.

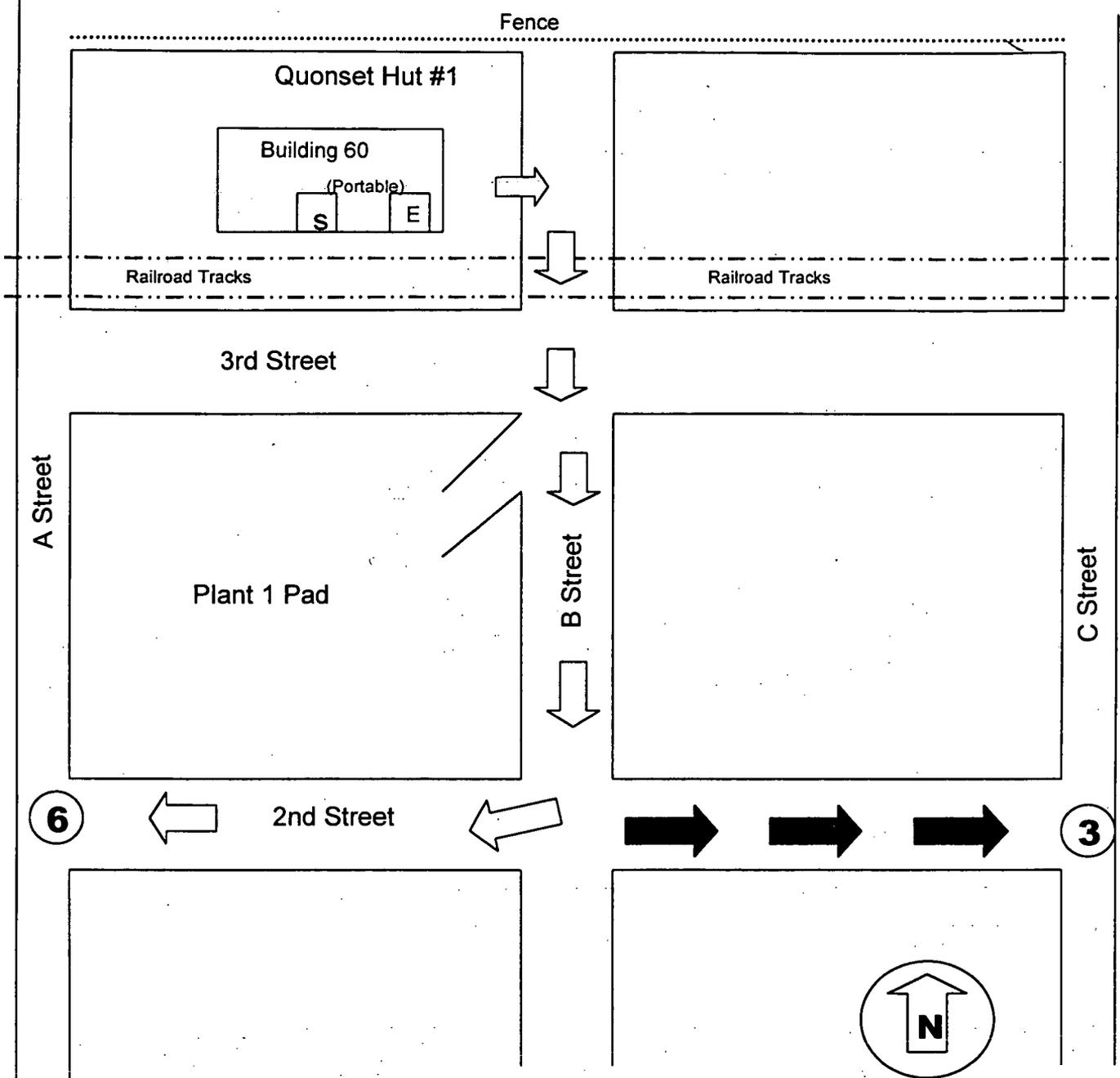
Personnel should evacuate to Rally Point No. 3 which is located at the intersection of 2nd Street and "C" Street. Movement is east on 3rd Street to south on "B" Street, then east on 2nd Street to the intersection of "C" Street.

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 on 3rd Street to south on "A" Street, then west on 2nd Street to the rally point.

The FEMP is currently planning to remove all inventory from Building 60 by December 31, 2000.

The following is a list of safety equipment assigned to this unit:

- Eye Wash Station
 - 1) During operations, available to personnel in the area
- **Spill Cleanup Equipment**
 - 1) **One Portable spill kit located inside the building**



QUONSET HUT #1 (Building 60)

③ = Rally Point

E = Eye Wash Station

S = Spill Cleanup Equipment

● = Primary Evacuation Route

⇨ = Alternate Evacuation Route

THORIUM WAREHOUSE (Building 64) and PLANT 5 WAREHOUSE (Building 65)

The Thorium Warehouse (Building 64) and Plant 5 Warehouse (Building 65) are single story, rectangular buildings located north of "D" Street. They are being used for the storage of containers of thorium-contaminated mixed waste.

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 southwest to "D" Street, south on "D" Street to 2nd Street, then west on 2nd Street until the intersection at "C" Street.

The Alternate Rally Point is No. No. 5. Rally Point No. 5 is located at the intersection of 1st Street and "D" Street. Movement is south on "D" Street to the intersection of 2nd Street, east on 2nd Street to south on "E" Street, then west on 1st Street to the intersection of "D" Street.

The FEMP is currently planning to remove all inventory from Buildings 64 and 65 by December 31, 2000.

The following is a list of safety equipment assigned to these units:

• **Eye Wash Station**

- 1) In Building 64, adjacent to Building 65 (Due to high radiation concerns, eyewash stations are not maintained in Building 65)

• **Spill Cleanup Equipment**

- 1) In Building 64, adjacent to Building 65 (Due to high radiation concerns, eyewash stations are not maintained in Building 65)

• **Manual Pull Fire Alarm**

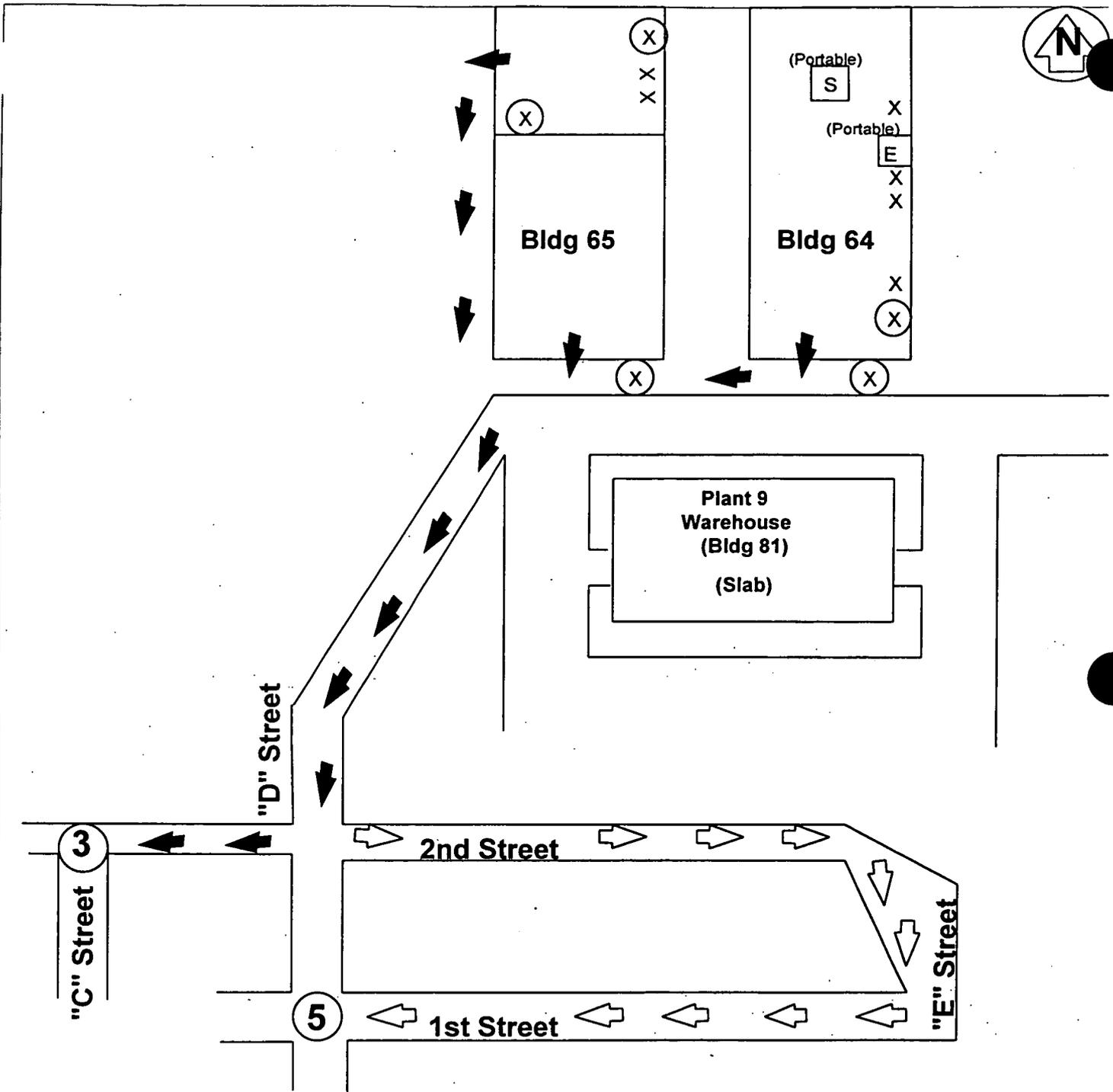
- 1) (1) Inside, northeast wall Building 65
- 2) (1) Inside, northeast wall Building 65
- 3) (1) Inside, southeast wall by office in Building 64
- 4) (1) Outside, on south wall of Building 64
- 5) (1) Outside, on south wall of Building 65

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN - ATTACHMENT G-1

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 10 OF 42

Fire Extinguisher

- 1) (2) Located in Building 65, on northwest wall
- 2) (4) Inside, east wall of Building 64
- 3) (1) Outside, southeast wall of Building 64



PLANT 5 WAREHOUSE (BLDG. 65)
THORIUM WAREHOUSE (BLDG. 64)

- ⑤ = rally point
- S = spill cleanup equipment
- E = eye wash / safety shower

- X = fire extinguisher
- ⊗ = manual fire alarm
- ➔ = primary route
- ⇨ = alternate route

LIQUID MIXED WASTE PROJECT BULK TANKS

~~The southwest portion of Plant 1 Pad provides storage for ignitable hazardous waste. Several tanks will be relocated to Plant 1 Pad from their current location outside of the Plant 6 Warehouse (HWMU # 37) by September 1999.~~ The Liquid Mixed Waste Project Bulk Tanks are located at the northwest corner outside of Plant 6 Warehouse (HWMU #37). These tanks will be ~~are~~ used to bulk PCBs/ignitable 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.~~

~~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 south on "E" Street and west on 1st Street to Rally Point.~~

~~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 Rally Point.~~

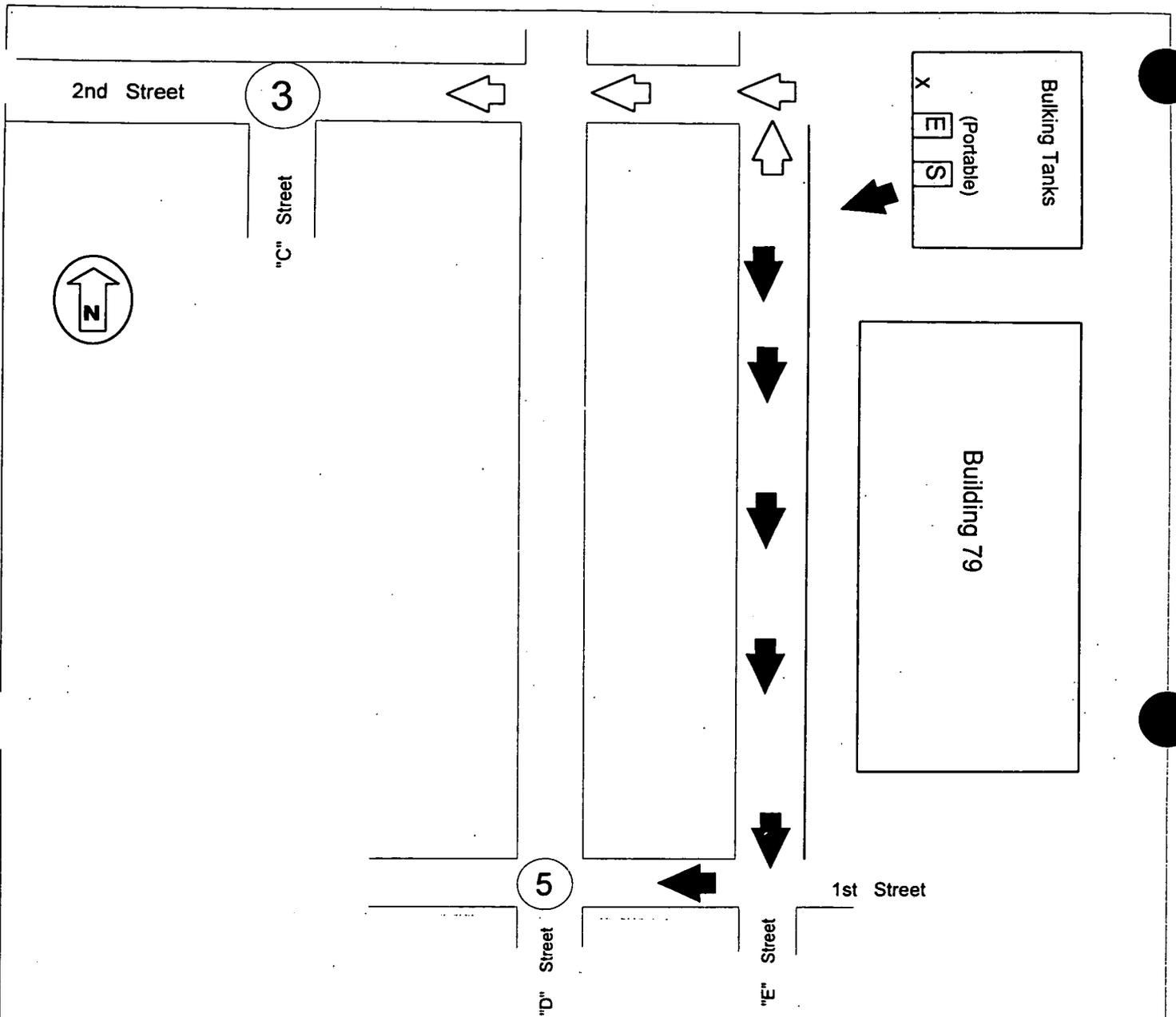
~~By the end of June 1999, the main and alternate Rally Points will be reversed. The Primary Rally Point will be No. 3, and the alternate Rally Point will be No. 6. This reordering is consistent with the other RCRA storage warehouse (Building 56 (HWMU 19)) located in the same general vicinity as Plant 1 Pad.~~

The following is a list of safety equipment assigned to the bulk tanks:

- Fire Extinguisher
 - 1) 20# ABC posted in front of the bulk tanks

- Eye Wash Station
 - 1) Located in front of the bulk tanks

- Spill Cleanup Equipment
 - 2) Located in front of the bulk tanks (Portable, brought from Building 79 during bulking.)



LIQUID MIXED WASTE PROJECT BULK TANKS

-  = rally point
-  = alternative route
-  = primary route

-  = fire extinguisher
-  = eye wash / safety shower
-  = spill cleanup equipment

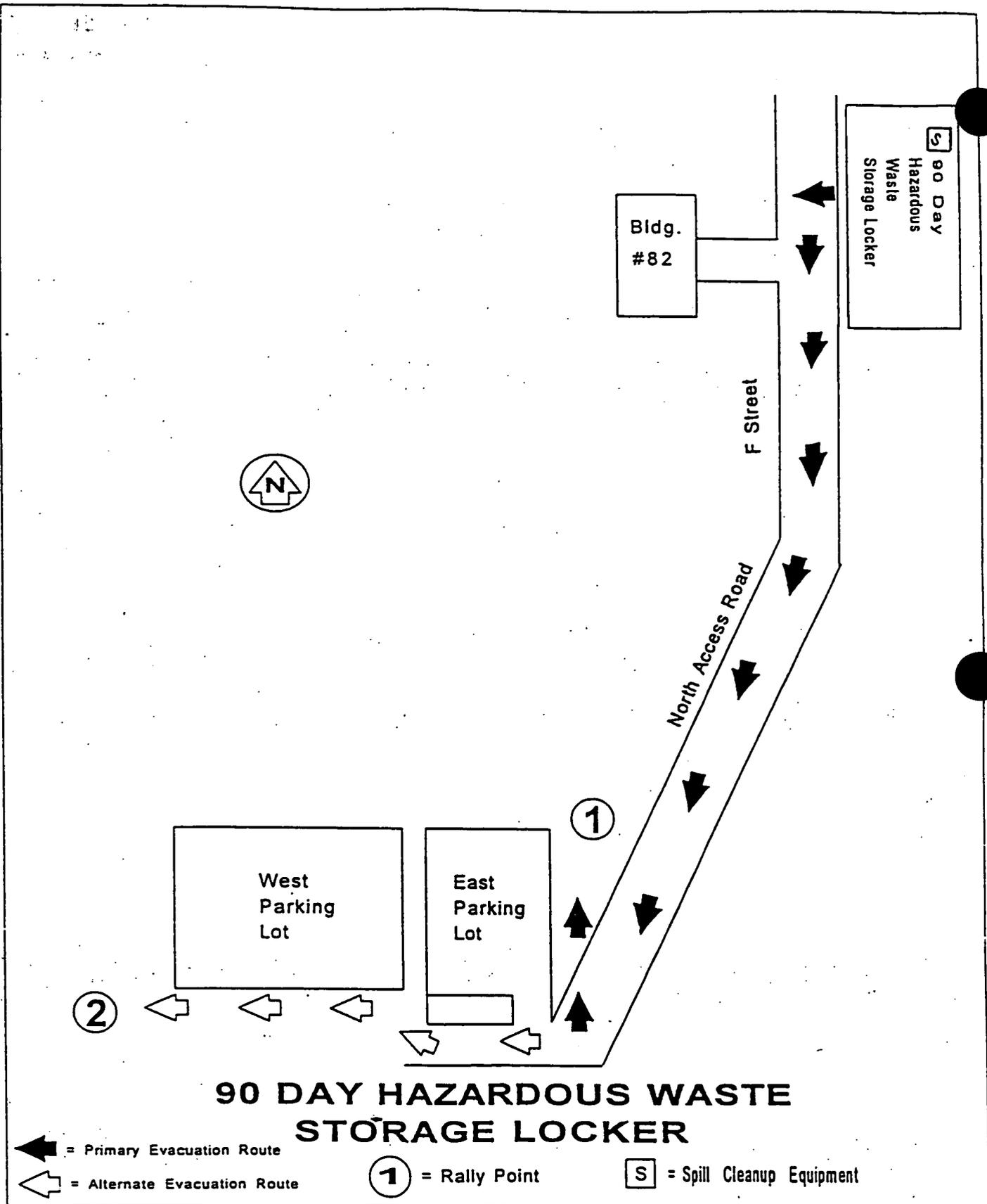
90 DAY HAZARDOUS WASTE STORAGE LOCKER

The 90 Day Hazardous Waste Storage Locker is a temporary container storage area located east of the Receiving and Incoming Materials Inspection Area (RIMIA). The locker is used to store hazardous waste that is non-radiologically contaminated for less than ninety days prior to shipment off-site for recycle or disposal.

Personnel should evacuate to Rally Point No. 1. Rally Point No. 1 is located at the Northeast corner of the FEMP East Parking Lot. Movement to Rally Point No. 1 is south on F street to the North Access Road and through the East Parking Lot to the rally point.

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 to Rally Point No. 2 is south on F street to the North Access Road and west through the FEMP East and West Parking Lots to the rally point.

- Spill Cleanup Equipment
 - 1) Located inside 90 Day Hazardous Waste Storage Locker



90 DAY HAZARDOUS WASTE STORAGE LOCKER

- = Primary Evacuation Route
- = Alternate Evacuation Route
- 1 = Rally Point
- S = Spill Cleanup Equipment

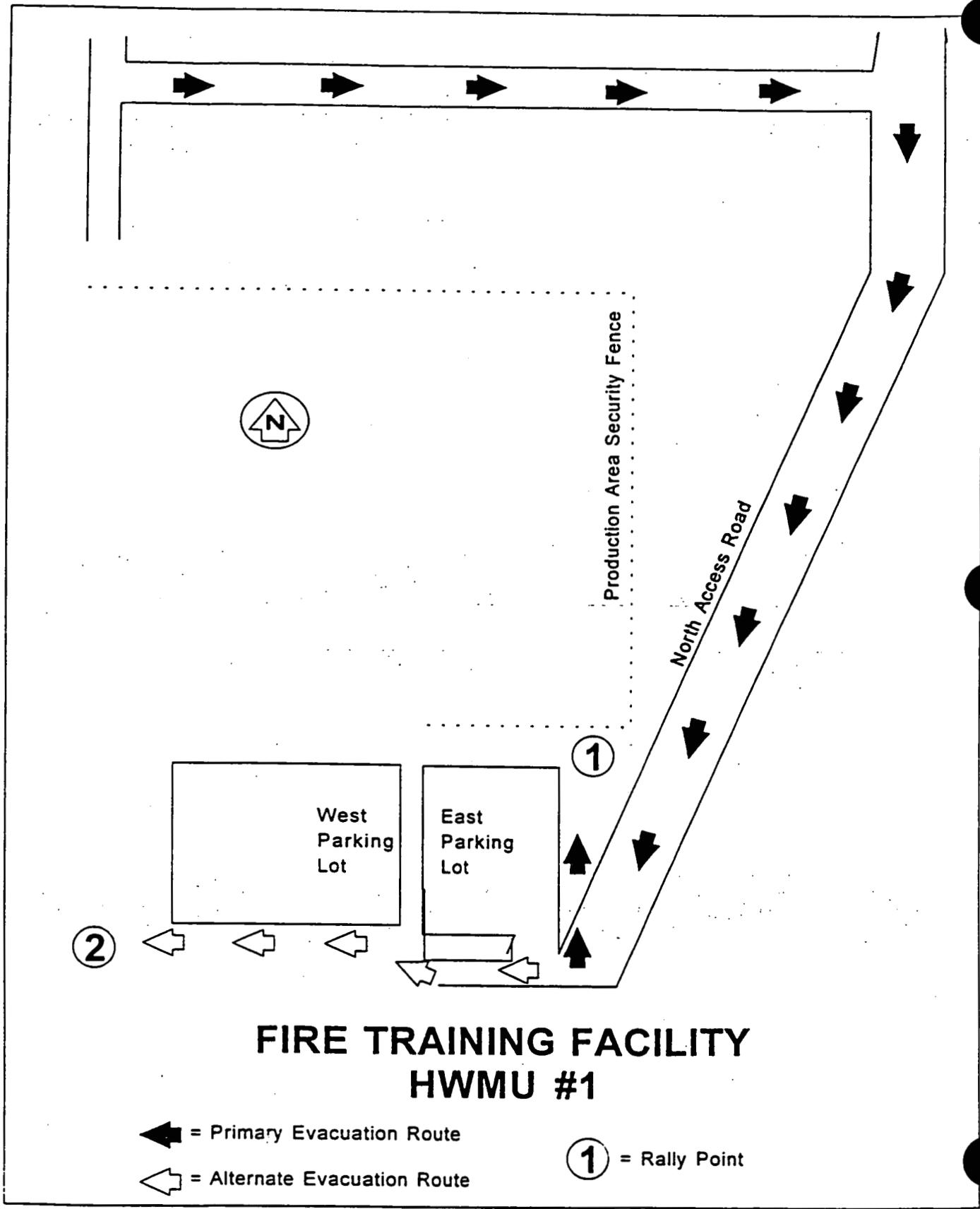
HWMU No. 1 - FIRE TRAINING FACILITY

This facility is located due north of the KC-2 Warehouse outside the perimeter fence.

Personnel should evacuate to Rally Point No. 1. Rally Point No. 1 is located at the Northeast corner of the FEMP East Parking Lot. Movement is east on the unnamed gravel road to south on the North Access Road to the FEMP East Parking Lot, then north to Rally Point #1 at the Northeast corner of the Parking Lot.

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 to Rally Point No. 2 is west through the parking lot to the rally point.

There is no safety equipment assigned to this unit. Communication devices are available for personnel accessing this unit for emergency notification purposes.



FIRE TRAINING FACILITY HWMU #1

- = Primary Evacuation Route
- = Alternate Evacuation Route
- 1 = Rally Point

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN - ATTACHMENT G-1

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 14 OF 42

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.

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 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.

There is no safety equipment assigned to this unit. Communication devices are available for personnel accessing this unit for emergency notification purposes.



Waste Pit
Security Fence

2nd Street

6

"A" Street

"B" Street

1st Street

8

Lab Building
(BLDG. 15A)

**DRUM STORAGE AREA NEAR
LOADING DOCK (LAB BLDG.)
HWMU #4**



= Primary Evacuation Route



= Alternate Evacuation Route

8

= Rally Point

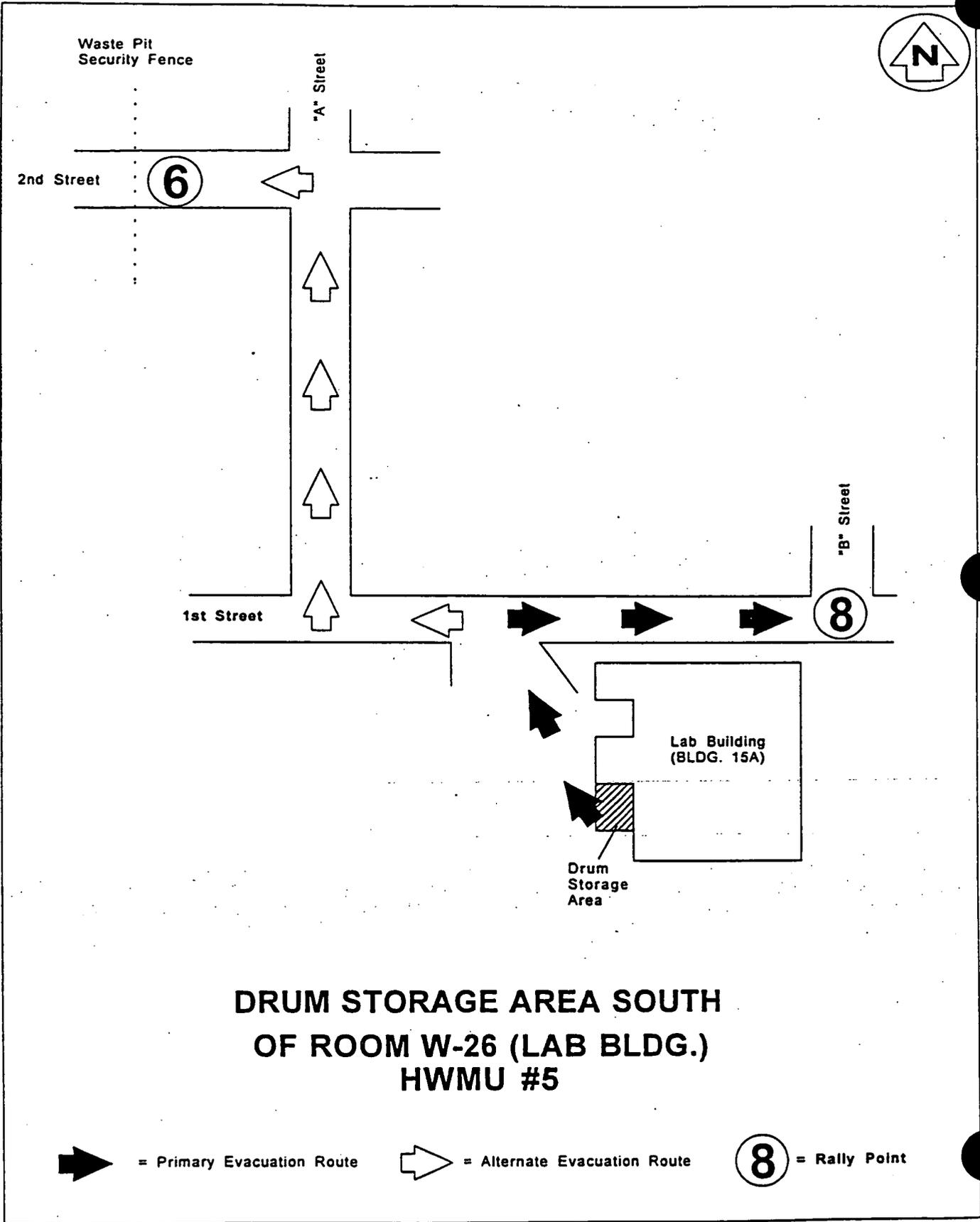
HWMU No. 5 - DRUM STORAGE AREA SOUTH OF ROOM W-26 (LAB BLDG.)

This area was located 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. 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.

There is no safety equipment assigned to this unit. Communication devices are available for personnel accessing this unit for emergency notification purposes.



000304

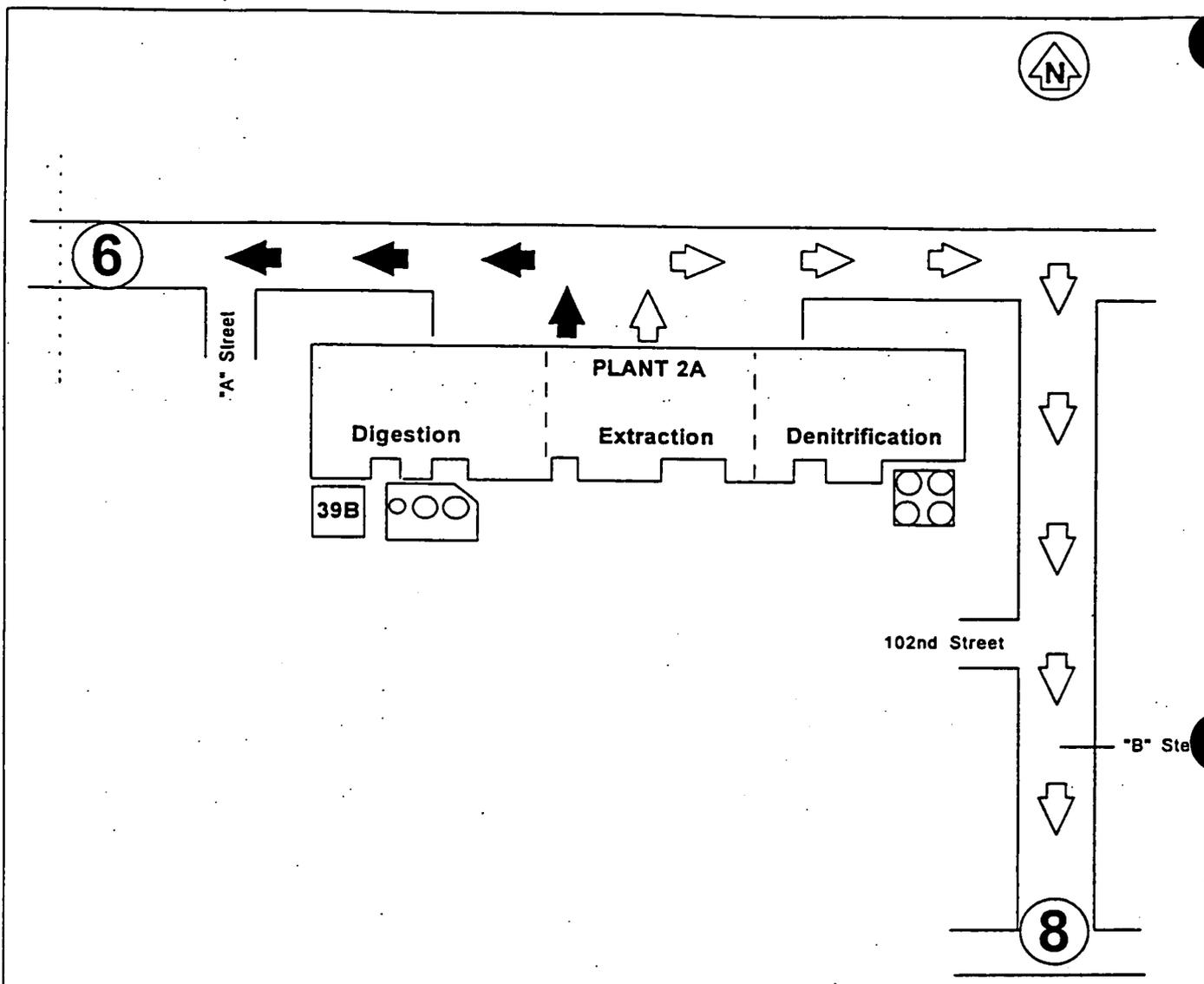
HWMU No. 10 - NAR SYSTEM COMPONENTS

This unit is located in the NAR Tank Farm and in the Denitrification Area which converted uranyl nitrate to uranium oxide. The tanks are empty and residues have been removed from the pots and ancillary equipment.

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.

There is no safety equipment assigned to this unit. Communication devices are available for personnel accessing this unit for emergency notification purposes.



NAR SYSTEM COMPONENTS

HWMU #10

6

= rally point



= primary evacuation route



= alternate evacuation route

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN - ATTACHMENT G-1

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 17 OF 42

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. 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.

There is no safety equipment assigned to this HWMU. Communication devices are available for personnel accessing this unit for emergency notification purposes.



Waste Pit Area
Security Fence

R.R. tracks

R.R. tracks

Gamma Street

R.R. tracks

"D" Street

Sump

2nd Street

"A" Street

"B" Street

"C" Street

TANK FARM SUMP

HWMU #11

3 = Rally Point

↓ = Primary Route

⇩ = Alternate Route

000308

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN - ATTACHMENT G-1

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 18 OF 42

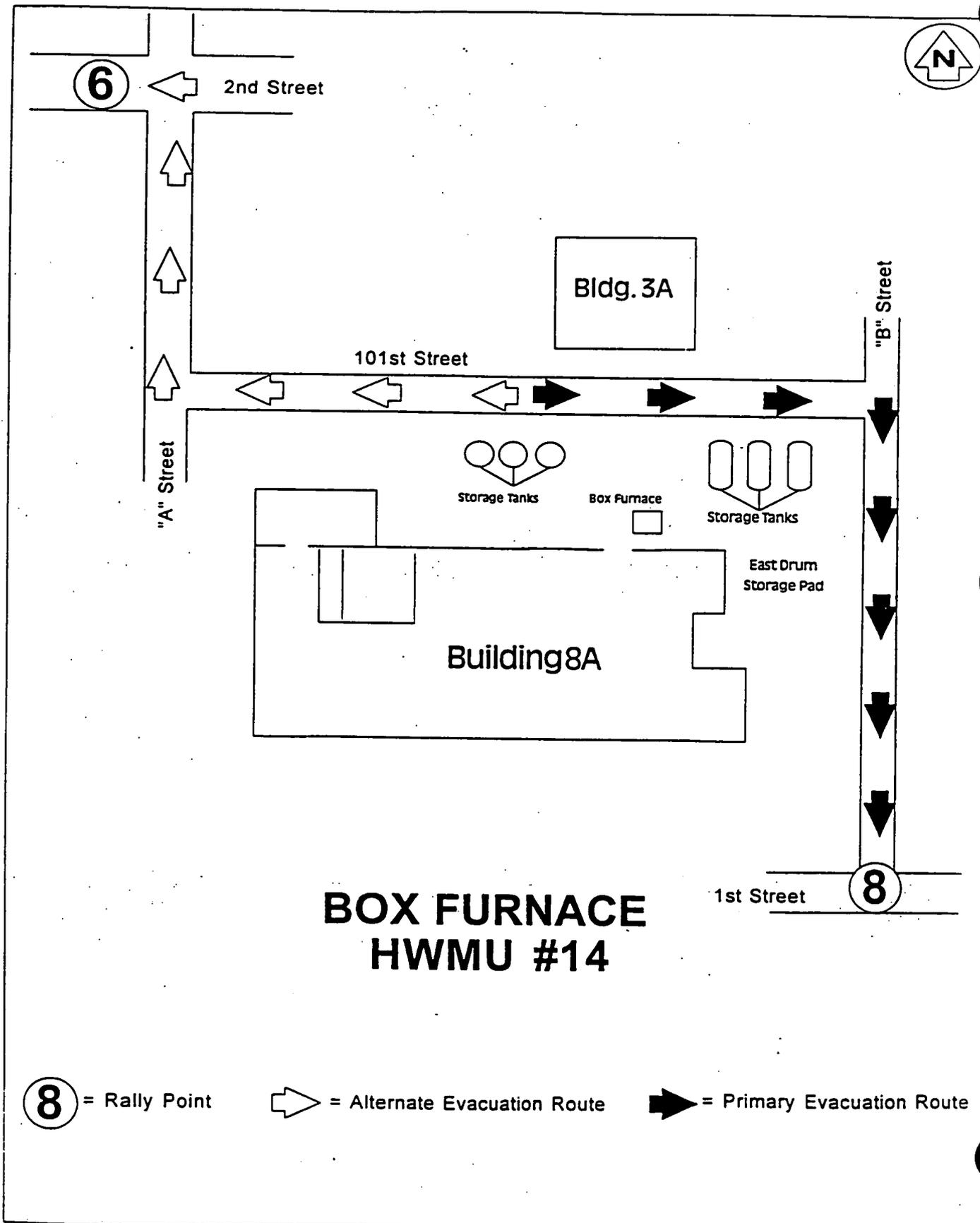
HWMU No. 14 - BOX FURNACE

The Box Furnace is located on the North side of Plant 8. Residues have been removed from this 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 to "B" Street and 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, 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.

There is no safety equipment assigned to this HWMU. Communication devices are available for personnel accessing this unit for emergency notification purposes.



⑧ = Rally Point

⇨ = Alternate Evacuation Route

➡ = Primary Evacuation Route

HWMU No. 15 - OXIDATION FURNACE # 1

This furnace is located in Plant 8 and functioned as a combined reprocessing, recovery and pre-treatment unit. Residues have been removed from this 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. 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.

There is no safety equipment assigned to this HWMU. Communication devices are available for personnel accessing this unit for emergency notification purposes.



6

2nd Street

Bldg. 3A

101st Street

"B" Street

"A" Street

Storage Tanks

Box Furnace

Storage Tanks

East Drum Storage Pad

Oxidation Furnace #1

Building 8A

OXIDATION FURNACE #1 HWMU. #15

1st Street

8

8

= Rally Point



= Alternate Evacuation Route



= Primary Evacuation Route

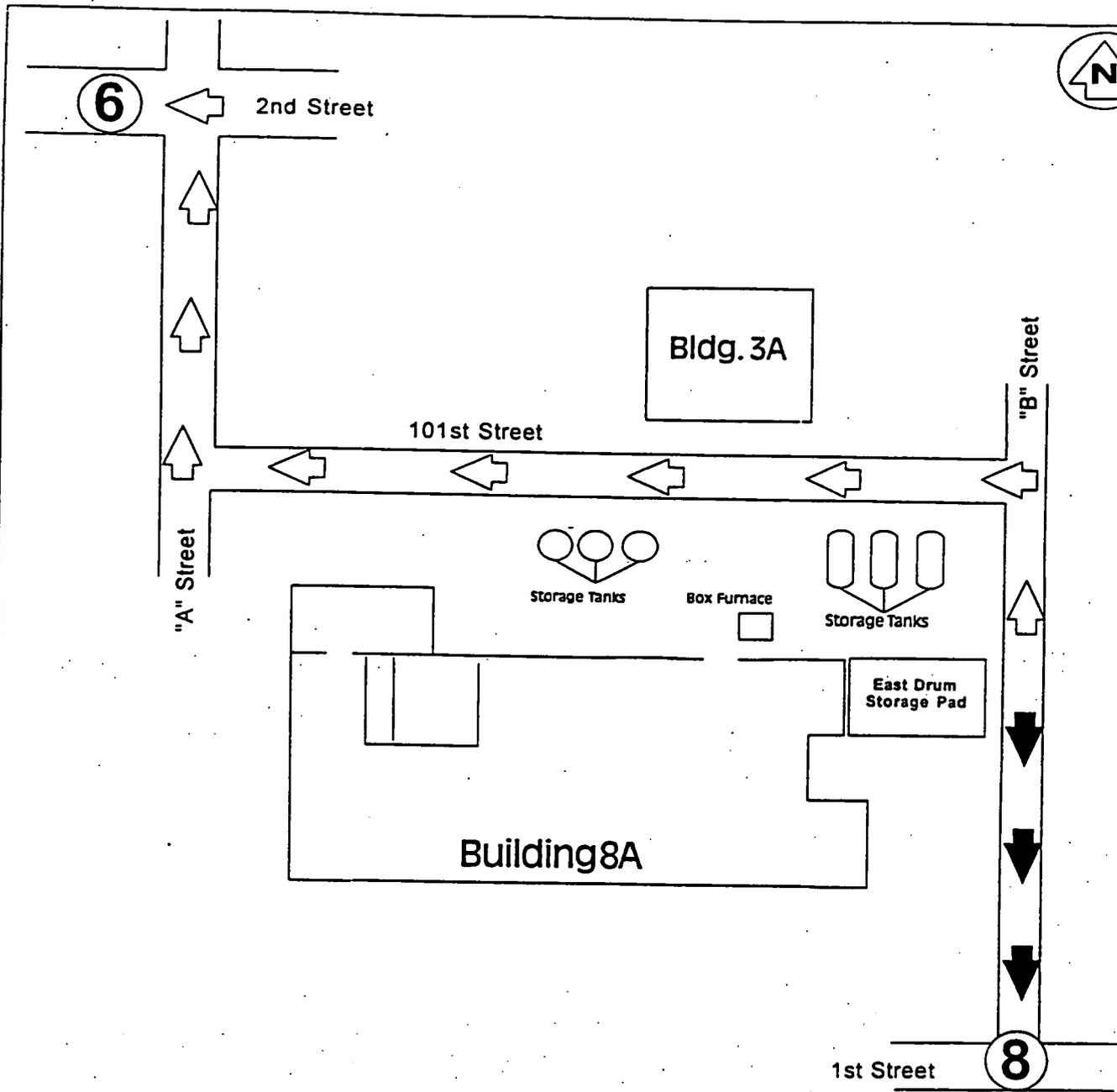
HWMU No. 17 - PLANT 8 EAST DRUM STORAGE PAD

This unit is a container storage area located East of Plant 8. The pad is no longer used for the storage of containers of hazardous waste but may be used for the temporary staging of containers of low-level radioactive waste.

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. 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.

There is no safety equipment assigned to this HWMU. Communication devices are available for personnel accessing this unit for emergency notification purposes.



**PLANT 8 EAST DRUM STORAGE PAD
HWMU #17**

8 = Rally Point
 = Alternate Evacuation Route
 = Primary Evacuation Route

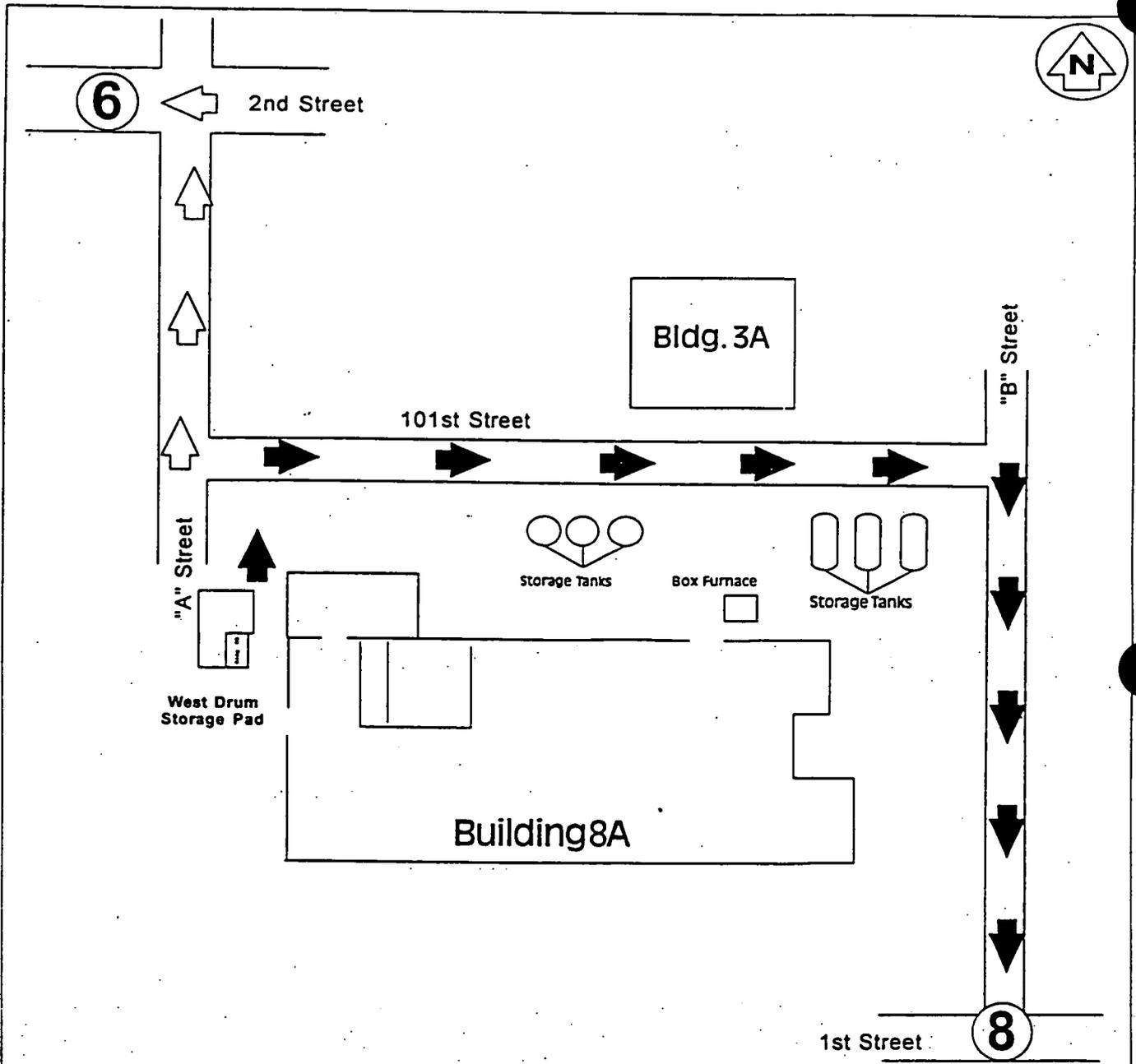
HWMU No. 18 - PLANT 8 WEST DRUM STORAGE PAD

The Plant 8 West Drum Storage Pad is located in the West section of the Production Area. The pad is no longer used to store containers of hazardous waste but may be used for short-term storage of containers of low-level radioactive waste.

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. 6. Rally Point No. 6 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.

There is no safety equipment assigned to this HWMU. Communication devices are available for personnel accessing this unit for emergency notification purposes.



**PLANT 8 WEST DRUM STORAGE PAD
HWMU #18**

8 = Rally Point  = Alternate Evacuation Route  = Primary Evacuation Route

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. There currently are no containers of hazardous waste being stored in the CP Storage Warehouse.

Personnel should evacuate to Rally Point No. 3 which is located at the intersection of 2nd Street and "C" Street. Movement is east on 3rd Street to south on "B" Street, then east on 2nd Street to the intersection of "C" 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 on 3rd Street to south on "A" Street, then west on 2nd Street to the rally point.

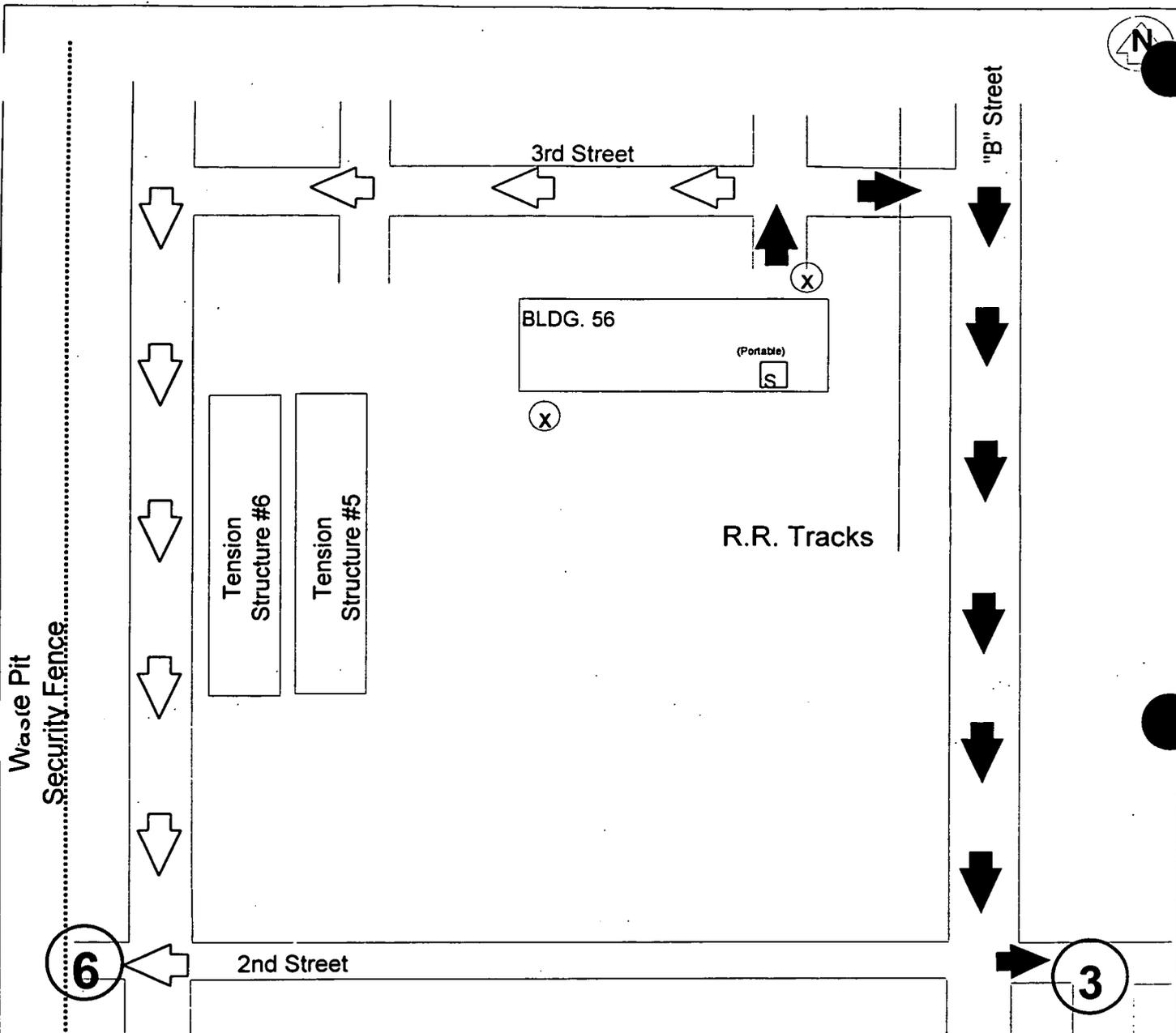
The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarms
 - 1) On outside Northeast building corner
 - 2) On outside Southwest building corner

• **Spill Cleanup Equipment**

- 1) **(1) Portable spill kit in the building**

Communication devices are available for personnel accessing this unit for emergency notification purposes.



**CP STORAGE WAREHOUSE
BLDG. 56 (BUTLER BLDG)
HWMU #19**

-  = Primary Evacuation Route
-  = Alternate Evacuation Route
-  = Spill Cleanup Equipment
-  = Manual Fire Alarm
-  = Rally Point

HWMU No. 20 - PLANT 1 PAD

The Plant 1 Pad provides indoor and outdoor storage for hazardous waste. Ignitable hazardous wastes are stored in the hazardous waste storage lockers. Ignitable solids (i.e., oxidizers) are stored in the tension support structures.

~~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.~~

~~By the end of June 1999, the main and alternate Rally Points will be reversed. The Primary Rally Point will be No. 3, and the alternate Rally Point will be No. 6. This reordering is consistent with the other RCRA storage warehouse (Building 56 (HWMU 19)) located in the same general vicinity as Plant 1 Pad.~~

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 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 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 south to 2nd Street, then west on 2nd Street to the Waste Pit Area access gate.

The following is a list of safety equipment assigned to this unit:

- Manual Fire Alarms
 - 1) Outside on North wall of Building 30A
 - 2) Inside door on South wall of Trailer #93

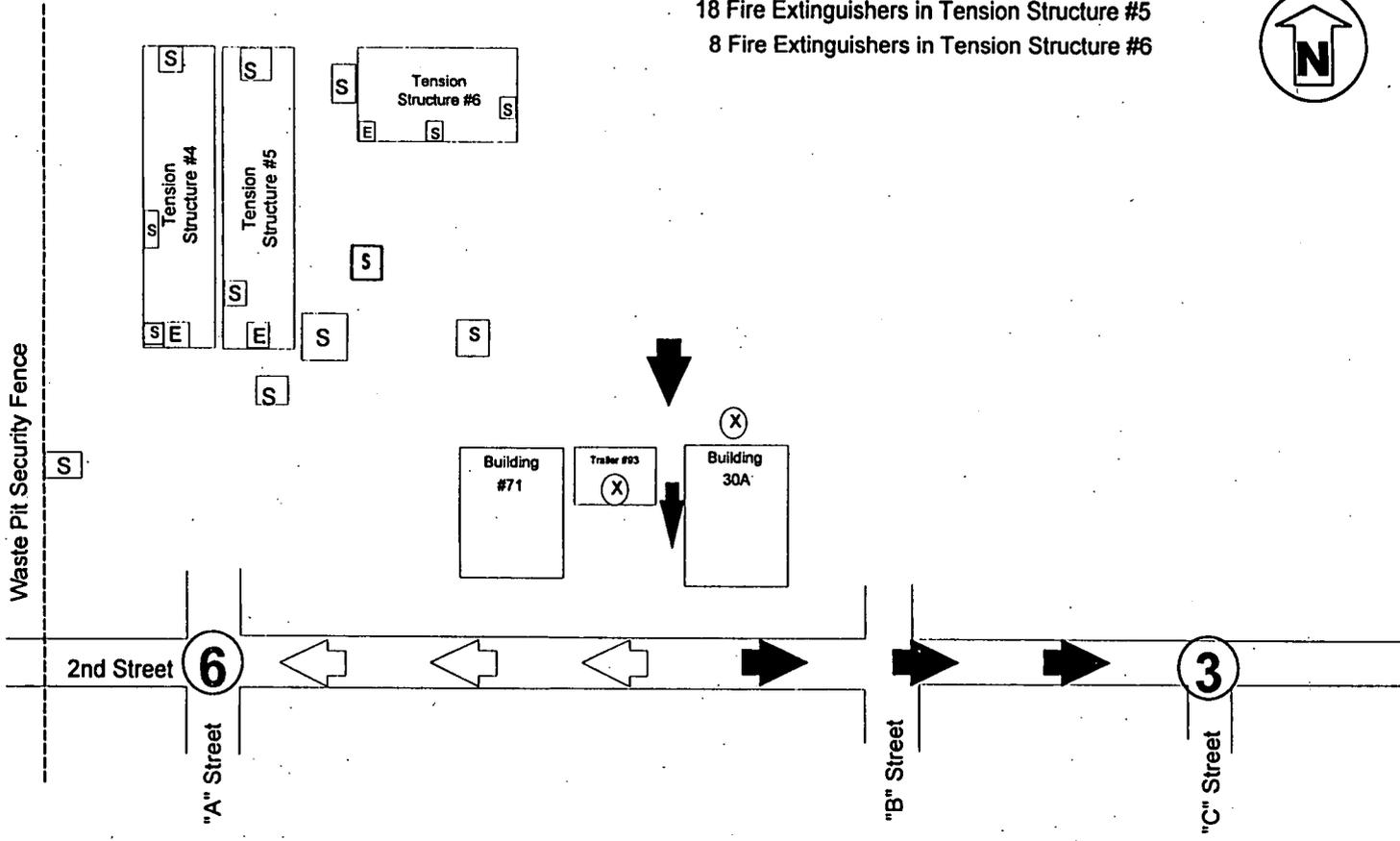
- **Fire Extinguishers**
 - 1-18) 10# ABC Eighteen (18) in Tension Support Structure #4
 - 19-36) 10# ABC Eighteen (18) in Tension Support Structure #5
 - 37-44) 10# ABC Eight (8) in Tension Support Structure #6
 - 45) 10# ABC outside T-65 located on the north end of Tension Support Structure #5

- **Eye Wash Station**
 - 1) Inside, south wall of Tension Support Structure #4
 - 2) Inside, south wall of Tension Support Structure #5
 - 3) Inside, southwest corner of Tension Support Structure #6

- **Spill Cleanup Equipment**
 - 1) Inside, at north wall of Tension Support Structure #4
 - 2) Inside, at southwest wall of Tension Support Structure #5
 - 3) Inside, at south wall of Tension Support Structure #6
 - 4) Outside of Tension Support Structure #5, south of south wall
 - 5) Outside, southwest of Tension Support Structure #4 by waste pit security fence
 - 6) Outside, southwest west corner of Tension Support Structure #6
 - 7) Inside, north of Tension Support Structure #5
 - 8) Inside, near center of west wall of Tension Support Structure #4
 - 9) Outside, northwest of Building #71
 - 10) Outside, east of Tension Support Structure #5
 - 11) Outside, southeast of Tension Support Structure #5
 - 12) Inside, west wall of Tension Support Structure #6
 - 13) Inside, southwest corner in Tension Support Structure #4

Communication devices are available for personnel accessing this unit for emergency notification purposes.

18 Fire Extinguishers in Tension Structure #4
 18 Fire Extinguishers in Tension Structure #5
 8 Fire Extinguishers in Tension Structure #6



**PLANT 1 PAD
 HWMU #20**

 = Primary Evacuation Route
 = Alternate Evacuation Route

X = Fire Extinguisher
 (X) = Manual Fire Alarm
 S = Spill Cleanup Station

 = Eye Wash / Safety Shower

000321

3010

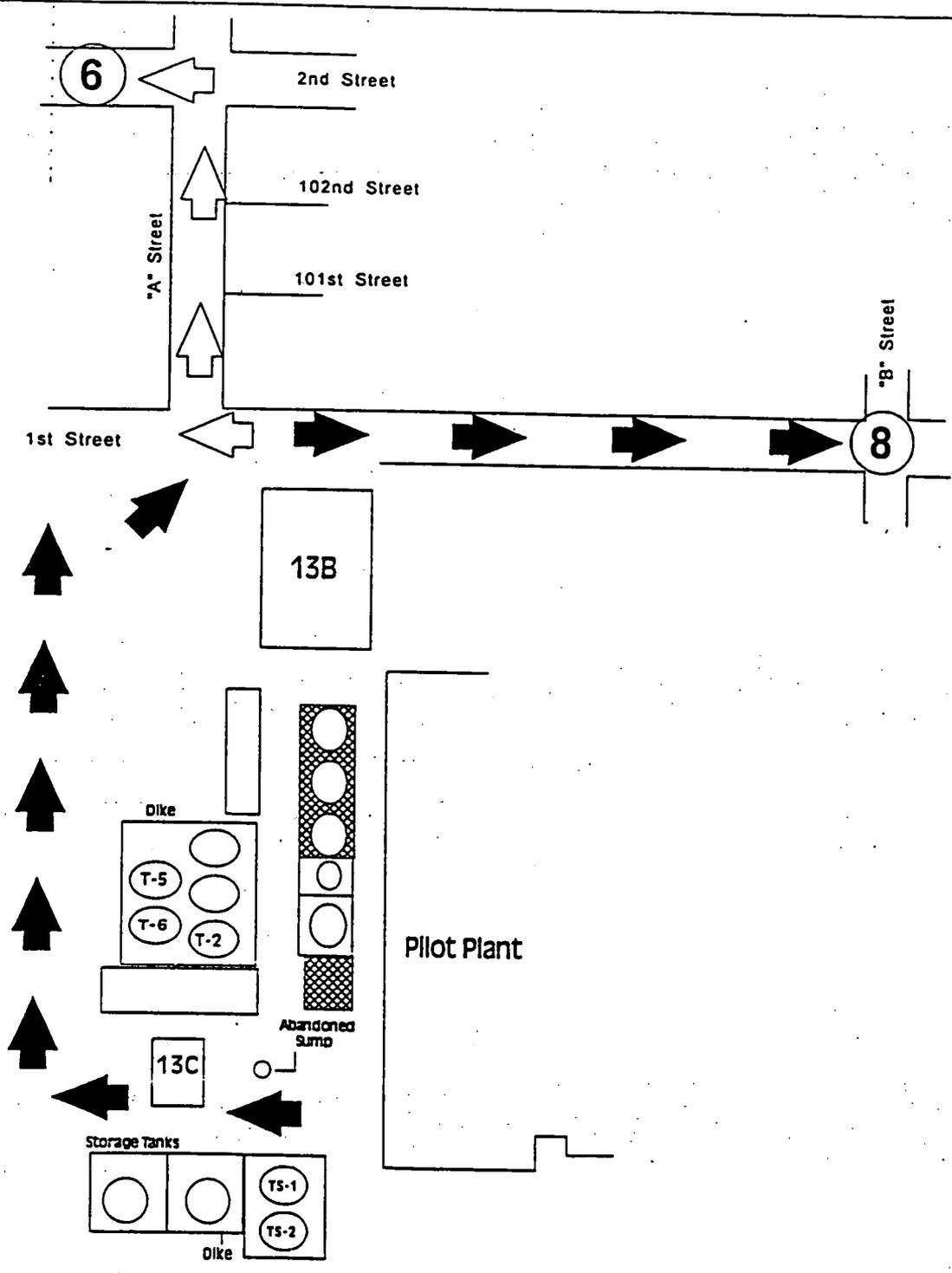
HWMU No. 22 - ABANDONED SUMP WEST OF PILOT PLANT

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. 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.

There is no safety equipment assigned to this HWMU. Communication devices are available for personnel accessing this unit for emergency notification purposes.



**ABANDONED SUMP WEST OF
PILOT PLANT
HWMU #22**

◀ = Alternate Evacuation Route ▶ = Primary Evacuation Route

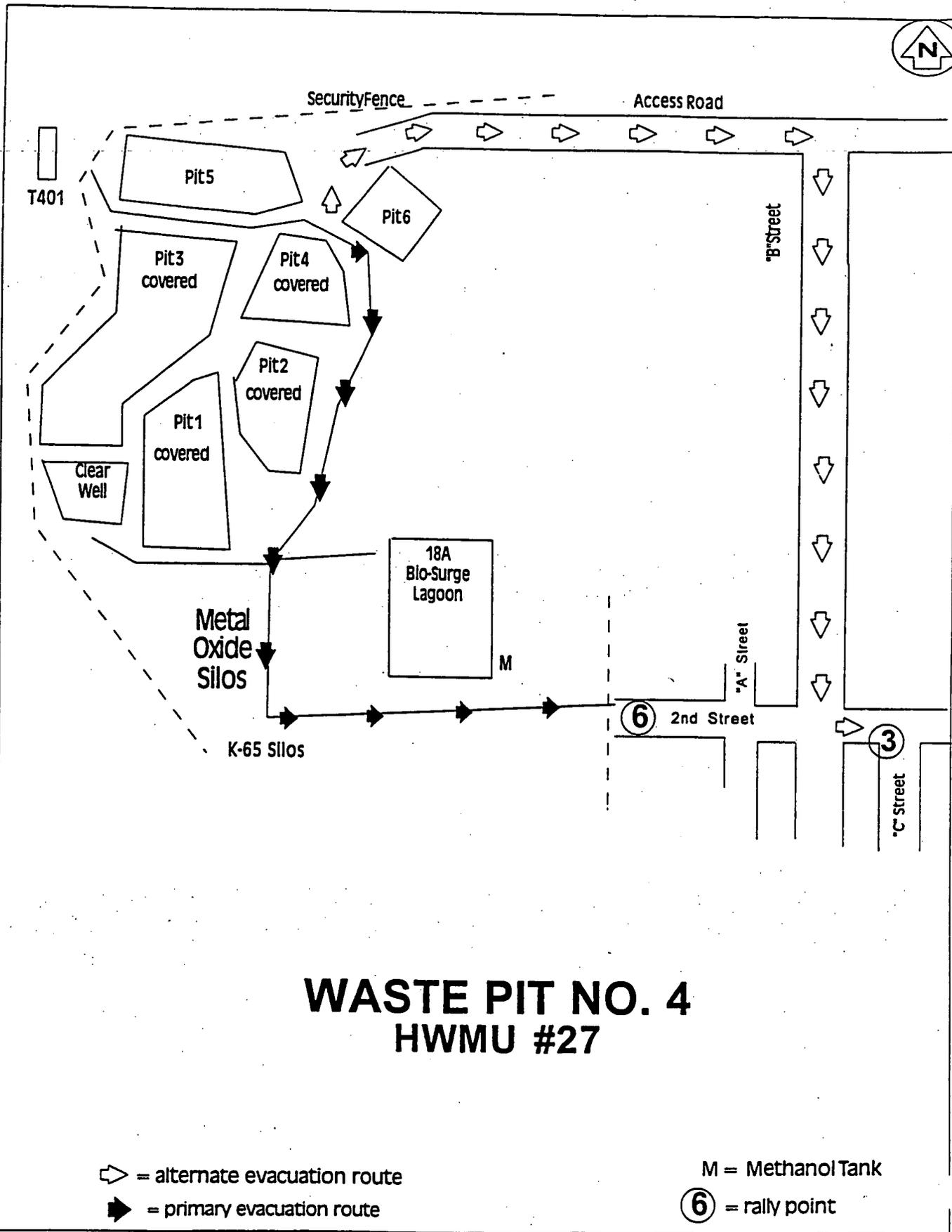
HWMU No. 27 - WASTE PIT No. 4

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. 3. Rally Point No. 3 is located at the Intersection of 2nd Street and "C" Street. Movement is north past Pit 6 on the access road, then east to "B" Street, south on "B" Street to 2nd Street and east on 2nd Street to the Intersection of "C" Street.

There is no safety equipment assigned to this unit. The pit is covered. Communication devices are available for personnel accessing this unit for emergency notification purposes.



WASTE PIT NO. 4

HWMU #27

- ⇨ = alternate evacuation route
- ➡ = primary evacuation route

- M = Methanol Tank
- ⑥ = rally point

~~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. No hazardous waste residues remain in this unit.~~

~~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 is west to "A" Street, then south on "A" Street and east on 1st Street to the intersection of "B" Street.~~

~~There is no safety equipment assigned to this HWMU. Communication devices are available for personnel accessing this unit for emergency notification purposes.~~

HWMU No. 29 - PLANT 8 WAREHOUSE (BLDG. 80)

The Plant 8 Warehouse storage unit is a pre-engineered, ribbed, heated building covered by metal roofing. ~~The warehouse is being used for storage of containers of hazardous waste with free liquids.~~
~~There currently are no containers of hazardous waste stored in the Plant 8 Warehouse.~~

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 two (2) at West door~~
- ~~3) 10# ABC two (2) on South wall~~
- ~~4) 10# ABC at Northeast corner on North wall~~
- ~~5) 10# ABC at Southwest corner in Sprinkler Control Room~~

• ~~Eye Wash/Safety Shower Station~~

- ~~1) One (1) Portable Eye Wash Unit in the building~~
- ~~2) Safety Shower/Eye Wash Unit near South wall, middle of building~~

• Spill Cleanup Equipment

- ~~1) Near Southwest corner of building~~
- ~~2) Near Southeast corner of building~~
- ~~1) One Portable spill kit will be kept in the area~~

HWMU No. 29 - PLANT 8 WAREHOUSE (BLDG. 80)

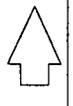
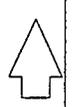
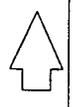
● — ~~Respirator Cabinet~~ —

1) — ~~Two (2) on South wall of building~~



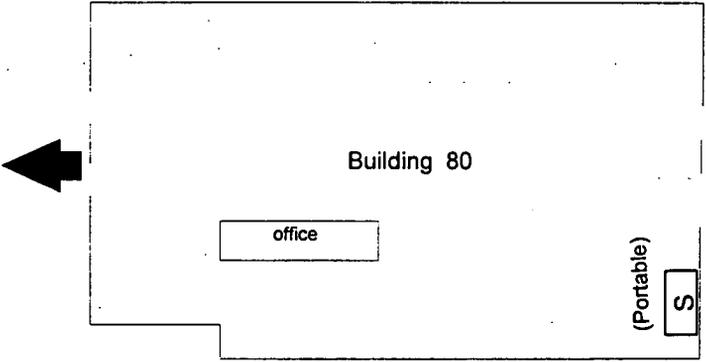
6

2nd Street



102nd Street

101st Street



Building 80

office

(Portable)

S

1st Street

"B" Street

8

"A" Street

PLANT 8 WAREHOUSE (BUILDING 80)

HWMU #29

S = Spill Cleanup Equipment

X = Manual Fire Alarm

= Primary Evacuation Route

= Alternate Evacuation Route

8 = Rally Point

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.~~ There currently are no containers of hazardous waste stored in the Pilot Plant Warehouse. ~~However, samples are being staged in this building under the sample exclusion in OAC 3745-51-04(D).~~

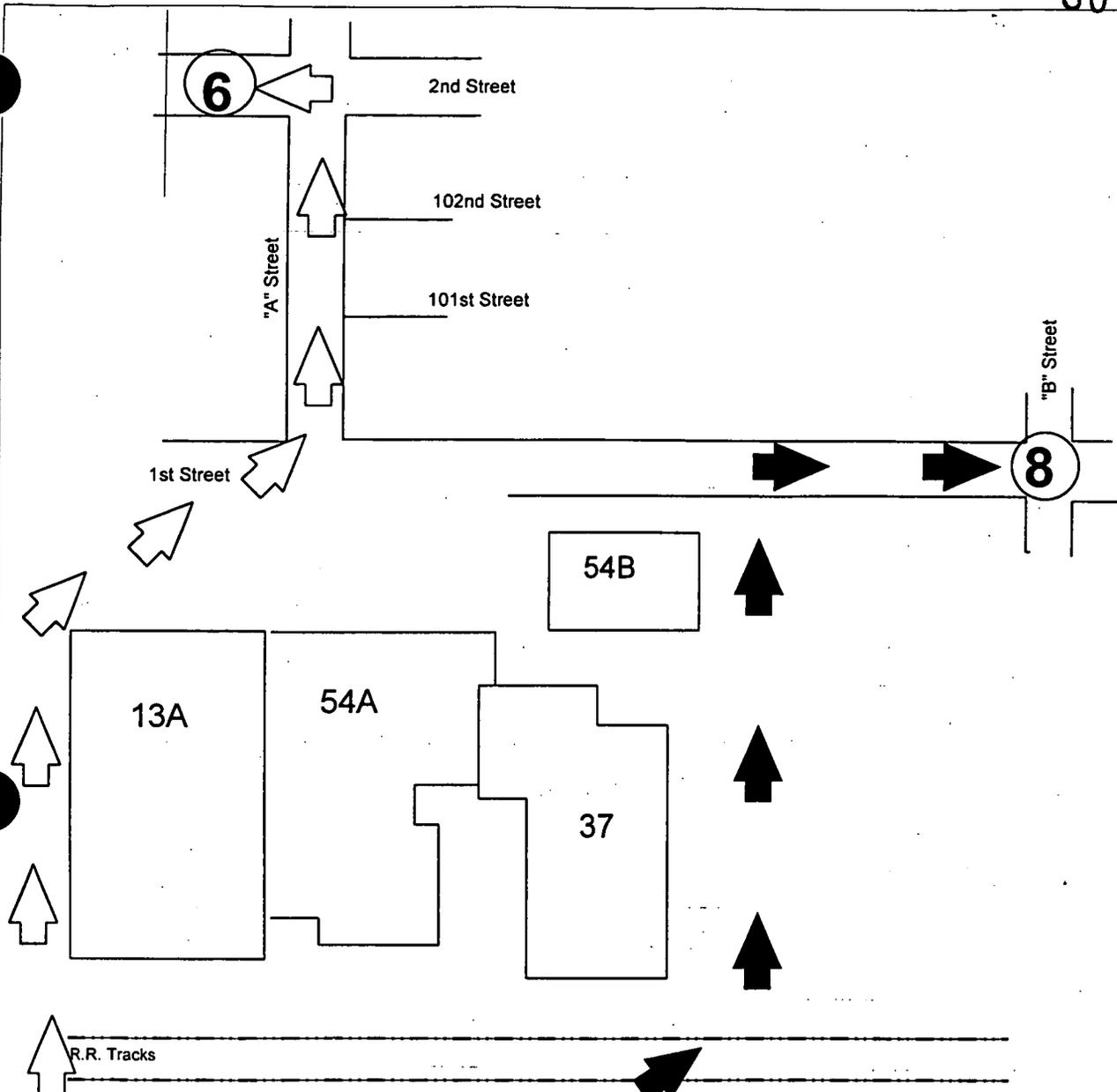
Personnel should evacuate to Rally Point No. 8. Rally Point No. 8 is located at the intersection of 1st and "B" Street. Movement is East, then north to 1st Street then proceed east to the intersection of "B" Street.

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) Inside door on West wall of Building #68
- ~~Spill Cleanup Equipment~~
 - 1) ~~inside door on west wall of Building #68~~
- ~~Fire Extinguishers~~
 - 1) ~~inside, west wall of building~~
 - 2) ~~inside, east wall of building~~

Communication devices are available for personnel accessing this unit for emergency notification purposes.



	Pilot Plant Warehouse (Bldg. 68)

PILOT PLANT WAREHOUSE (BLDG 68)

HWMU #33

- = Fire Extinguisher
- = Spill Cleanup Equipment
- = Manual Fire Alarm
- = Rally Point
- = 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.~~

~~NOTE: Electrical power and water have been permanently shut off at KC 2 Warehouse. Containers of hazardous waste may continue to be stored in the warehouse after this has occurred. However, this unit will no longer be used for the storage of D001-ignitable wastes.~~

~~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, south on "B" Street to 2nd Street, then east on 2nd Street until the intersection at "C" Street.~~

~~The Alternate evacuation route is also to Rally Point No. 3 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:~~

~~Fire Extinguishers~~

- ~~1) 20# ABC inside by West door of Bay 1~~
- ~~2) 20# ABC outside on South wall of Bay 1~~
- ~~3-8) 20# ABC inside North end of Bays 2, 3, 5, 6, 7, 8~~
- ~~9) 20# ABC outside on South wall of Bay 2~~
- ~~10) 20# ABC outside on South wall of Bay 3~~
- ~~11) 20# ABC outside on South wall of Bay 4~~
- ~~12) 20# ABC outside on South wall between Bays 5 and 6~~
- ~~13) 20# ABC outside on South wall of Bay 7~~

~~14) 20# ABC outside on South wall of Bay 8~~

~~• Spill Cleanup Equipment~~

~~1) Inside Bay 5~~

~~2) Inside Bay 6~~

~~3) Inside Bay 7~~

~~4) Inside Bay 8~~

~~• Respirator Cabinets~~

~~1) Inside Bay 1~~

~~2) Inside Bay 8~~

~~Access to equipment inside Building 63 can be gained only by personnel having a key to Bays 1, 5, 6, 7, or 8. Communication devices are available for personnel accessing this unit for emergency notification purposes.~~

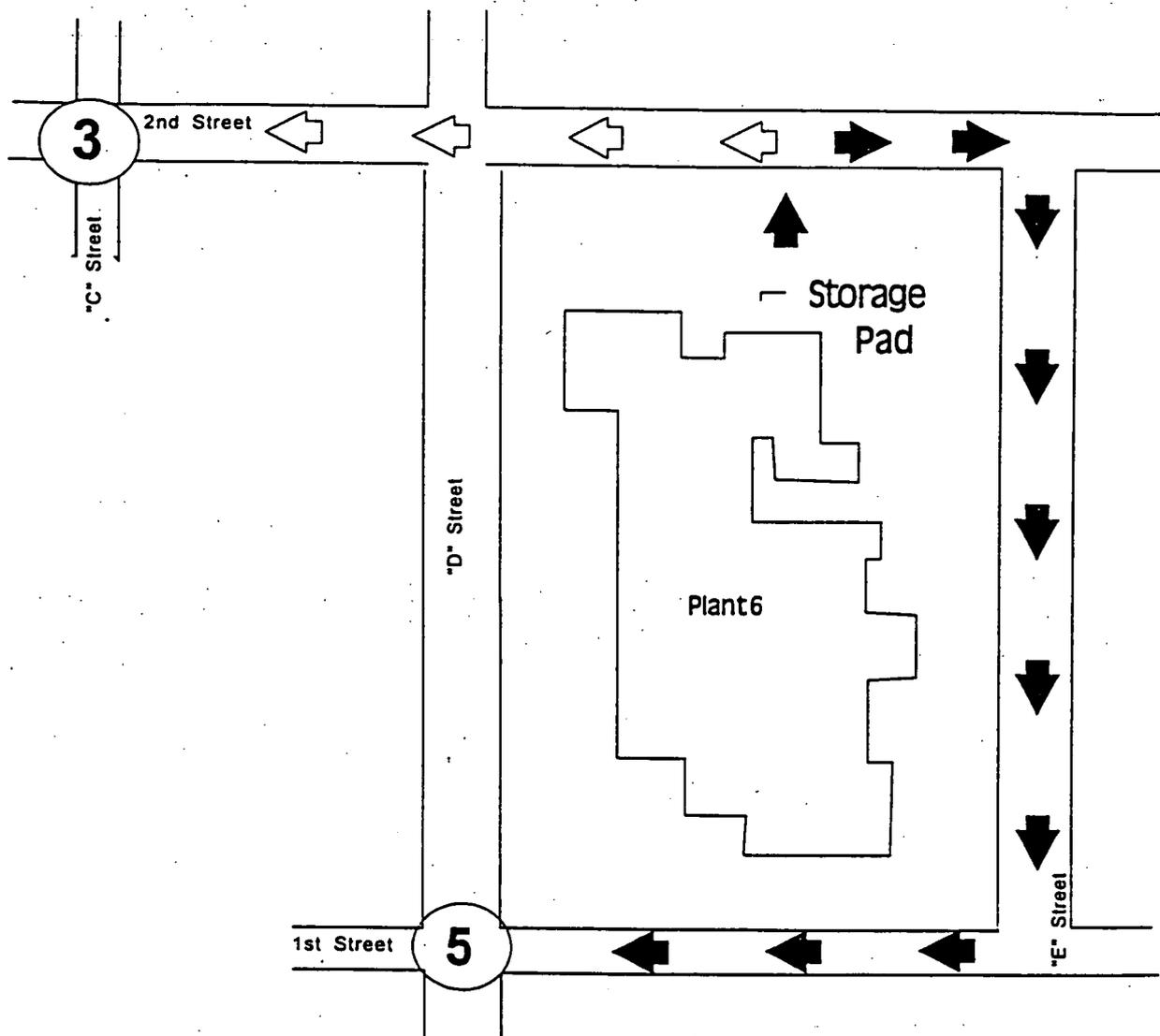
HWMU No. 36 - STORAGE PAD NORTH OF PLANT 6

This area is North of and adjacent to Plant 6. Containers of hazardous waste are no longer stored in this unit.

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 on 2nd Street to south on "E" Street, then 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 west on 2nd Street to the intersection of "C" Street.

There is no safety equipment assigned to this HWMU. Communication devices are available for personnel accessing this unit for emergency notification purposes.



STORAGE PAD NORTH OF PLANT 6 HWMU #36

- primary route
- alternate route
- rally point

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. The Liquid Mixed Waste Project Bulk Tanks, which are used to bulk PCBs/ignitable wastes, are currently located northwest of the Plant 6 Warehouse. ~~These tanks will be moved to a location near the Plant 1 Pad (HWMU No. 20) by September 1999.~~

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 Rally 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 Sprinkler Control Room. Sprinkler Control Room is located in the Southeast corner of Building 79.

- 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 West wall near the North end
 - 4) 20# ABC on the West 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) 20# ABC near Sprinkler Control Room at Southeast corner of building

HWMU No. 37 - PLANT 6 WAREHOUSE (BLDG. 79)

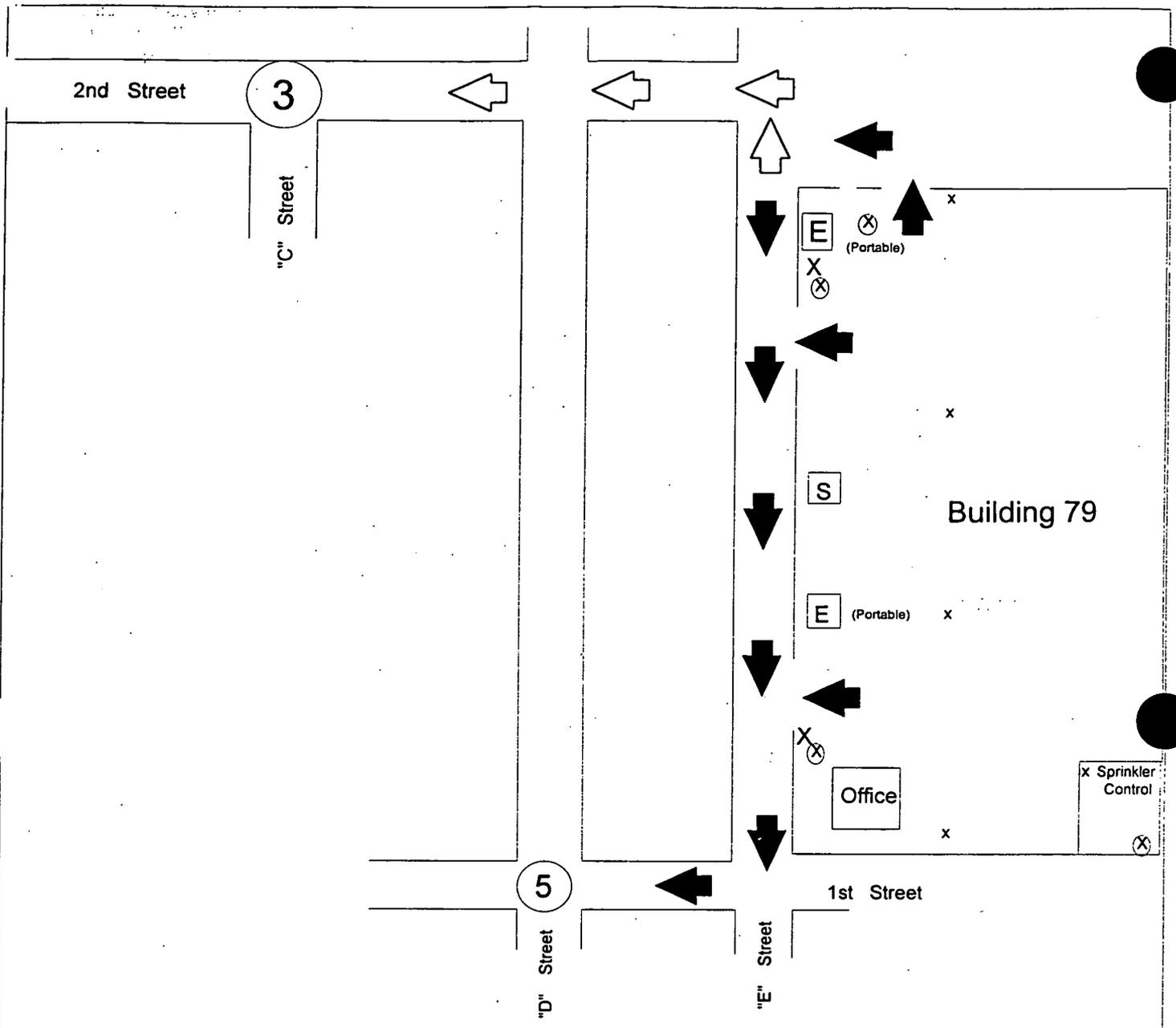
- Eye Wash/Safety Shower Station
 - 1) There are two (2) Portable Eye Wash Units in the building

- ~~Respirator Cabinet~~
 - 1) ~~At North end, near center of building~~

- Spill Cleanup Equipment (Middle of West wall)
 - 1) Pigs and absorbent pads
 - 2) All purpose absorbent material
 - 3) Four 55-gallon Salvage drums
 - 4) Four 85-gallon overpack salvage drum
 - 5) Cleaning utensils (shovels and brooms)
 - 6) Portable HEPA vacuum industrial cleaner
 - 7) Drum straps

000337

0104



PLANT 6 WAREHOUSE (BLDG. 79)

HWMU #37

- X = fire extinguisher
- (X) = manual fire alarm
- ↳ = alternative route
- ↳ = primary route
- (5) = rally point
- (E) = eye wash / safety shower.
- (S) = spill cleanup equipment

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. Communication devices are available for personnel accessing this unit for emergency notification purposes.

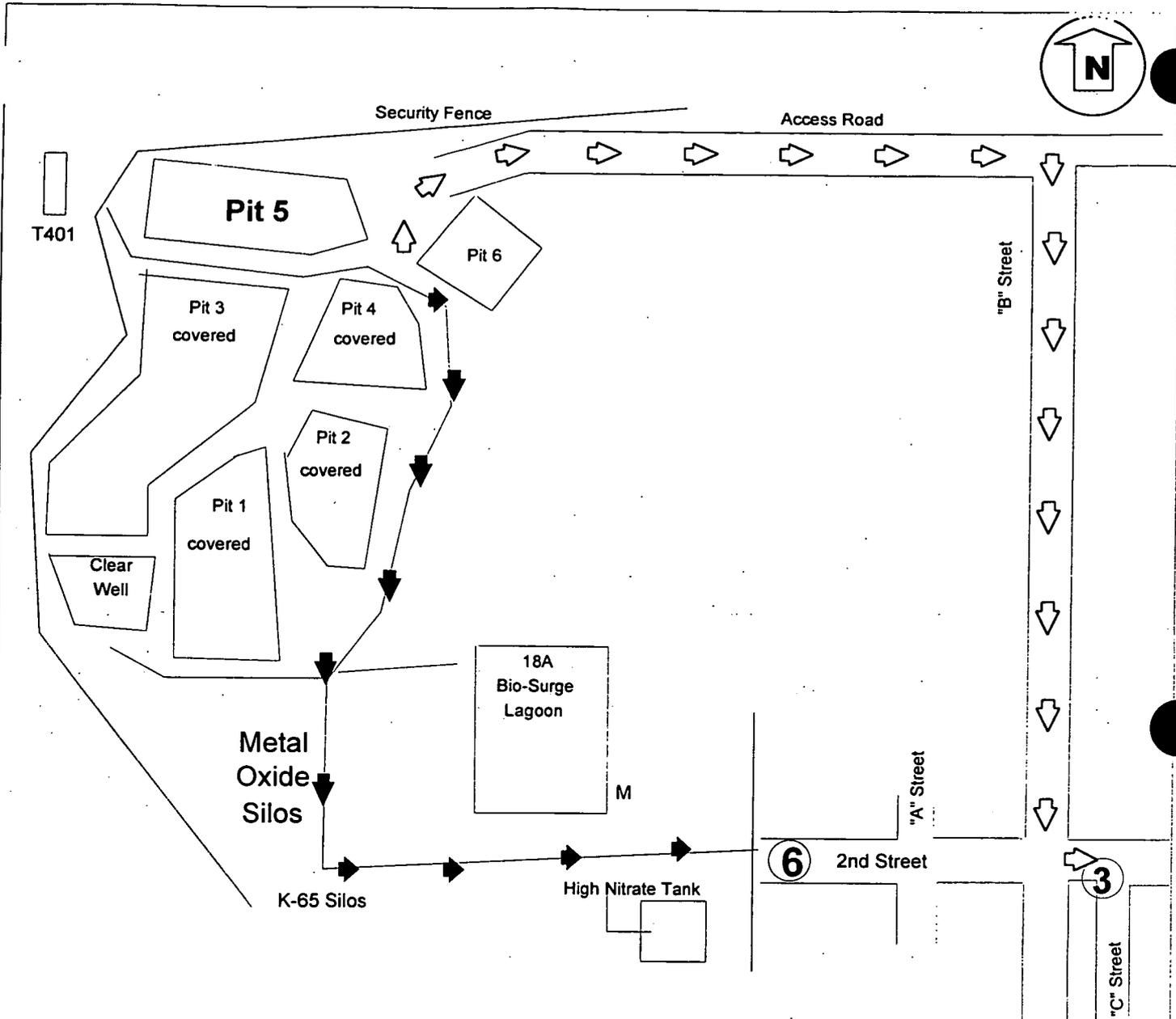
HWMU No. 42 - WASTE PIT NO. 5

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. 3. Rally Point No. 3 is located at the intersection of 2nd Street and "C" Street. Movement is north past Pit 6 on the access road, then east to "B" Street, south on "B" Street to 2nd Street and east on 2nd Street to the intersection of "C" Street.

There is no safety equipment assigned to this unit. Communication devices are available for personnel accessing this unit for emergency notification purposes.



WASTE PIT NO. 5 HWMU #42

-  = alternate evacuation route
-  = primary evacuation route

- M = Methanol Tank
-  = rally point

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FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN - ATTACHMENT G-1

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 38 OF 42

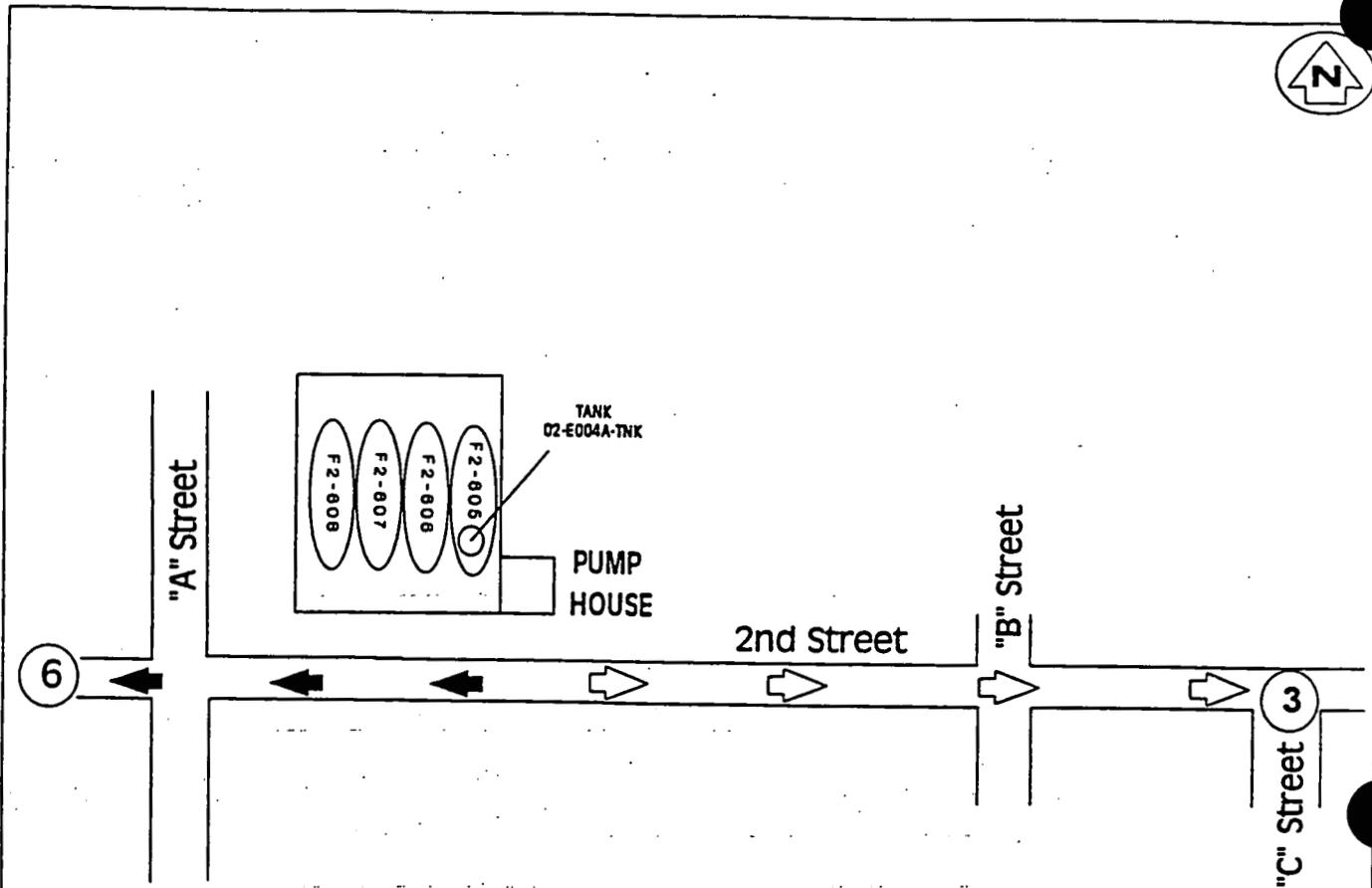
HWMU No. 46 - URANYL NITRATE TANKS (NFS STORAGE AREA)

This unit consists of five above ground UNH Tanks. These tanks are empty.

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.

There is no safety equipment assigned to this HWMU. Communication devices are available for personnel accessing this unit for emergency notification purposes. This area is restricted from entry unless personnel are wearing protective clothing due to asbestos contamination.



URANYL NITRATE TANKS (NFS STORAGE AREA) HWMU #46

-  = primary evacuation route
-  = alternate evacuation route
-  = rally point

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN - ATTACHMENT G-1

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 39 OF 42

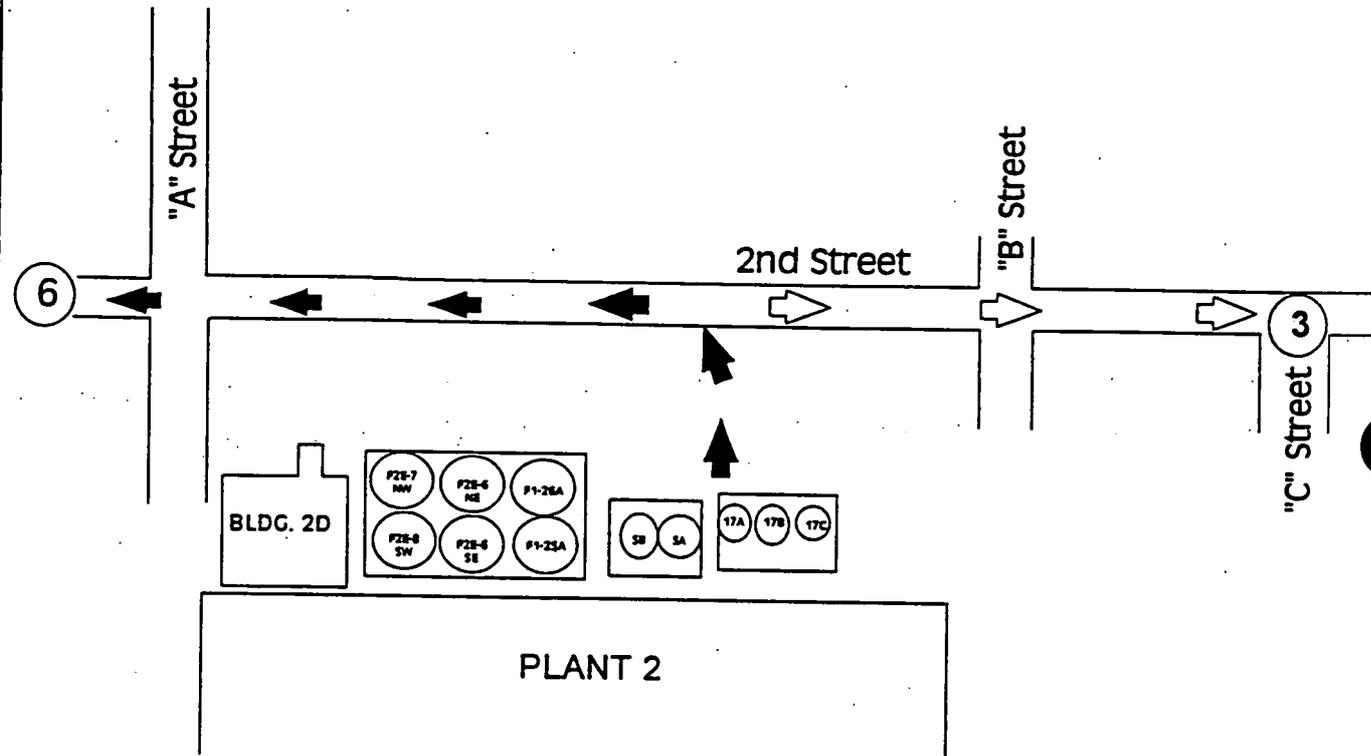
HWMU No. 47 - URANYL NITRATE TANKS (NORTH OF PLANT 2)

This unit consists of three above ground UNH Tanks. These tanks are empty.

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.

There is no safety equipment assigned to this HWMU. Communications devices are available for personnel accessing this unit for emergency notification purposes. This area is restricted from entry unless personnel are wearing protective clothing due to asbestos contamination.



URANYL NITRATE TANKS (NORTH OF PLANT 2) HWMU #47

-  = primary evacuation route
-  = alternate evacuation route
-  = rally point

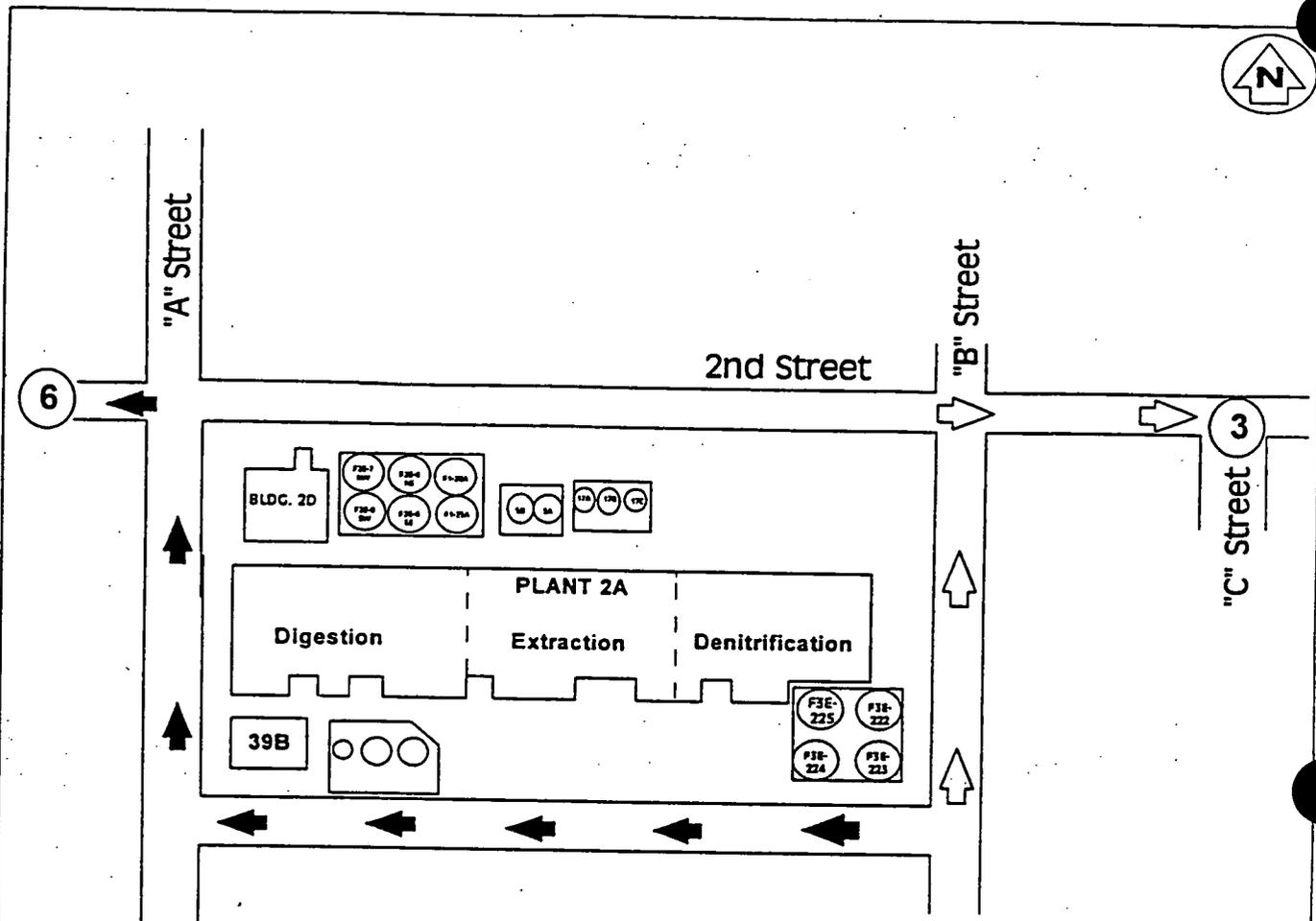
HWMU No. 48 - URANYL NITRATE TANKS (SOUTHEAST OF PLANT 2)

This unit is near the southeast corner of Plant 2 and consists of one above ground storage tank. This tank is empty.

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.

There is no safety equipment assigned to this HWMU. Communication devices are available for personnel accessing this unit for emergency notification purposes. This area is restricted from entry unless personnel are wearing protective clothing due to asbestos contamination.



URANYL NITRATE TANKS (SOUTHEAST OF PLANT 2) HWMU #48

- = primary evacuation route
- = alternate evacuation route
- = rally point

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FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION G: CONTINGENCY PLAN - ATTACHMENT G-1

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 41 OF 42

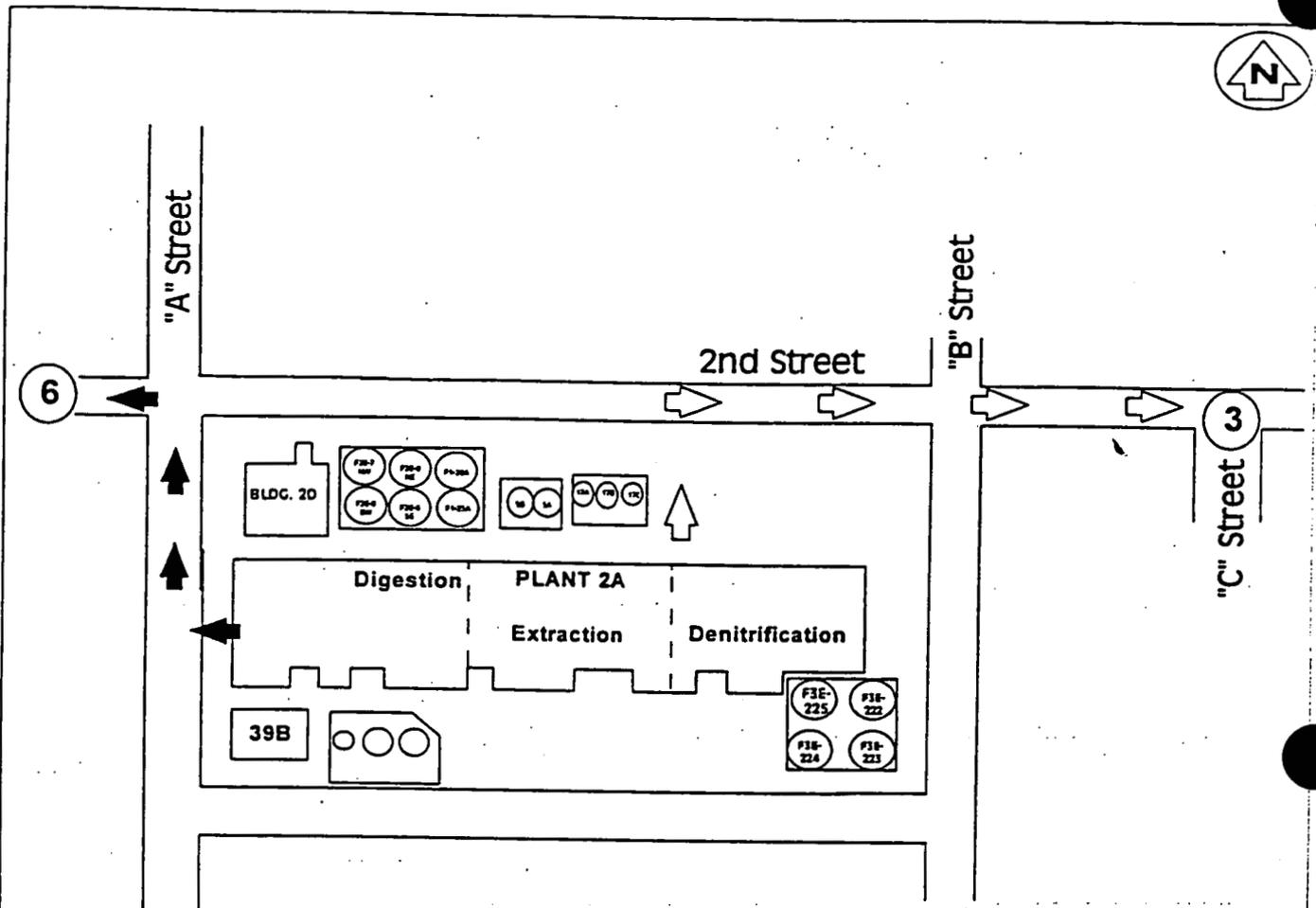
HWMU No. 49 - URANYL NITRATE TANKS (DIGESTION AREA)

This unit consists of eight above ground steel tanks located within Plant 2 at the western end in the Digestion Area. These tanks are empty.

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.

There is no safety equipment assigned to this HWMU. Communication devices are available for personnel accessing this unit for emergency notification purposes. This area is restricted from entry unless personnel are wearing protective clothing due to asbestos contamination.



URANYL NITRATE TANKS (DIGESTION AREA) HWMU #49

- = primary evacuation route
- = alternate evacuation route
- = rally point

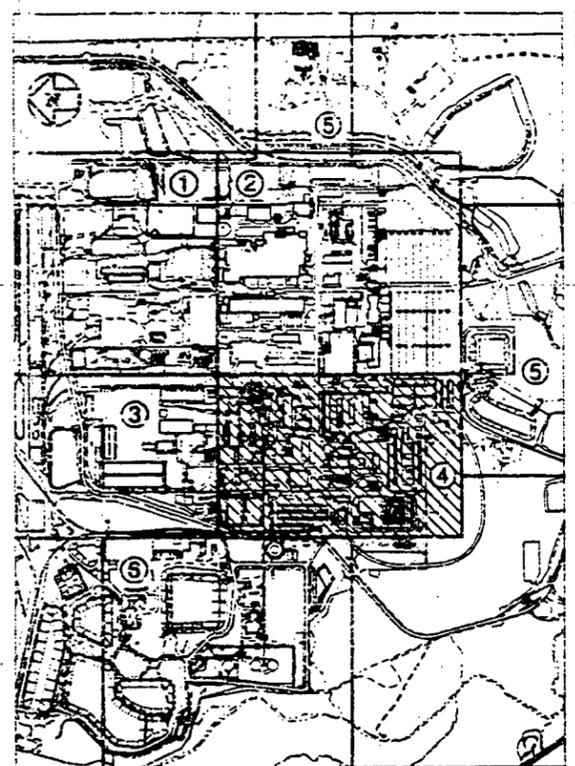
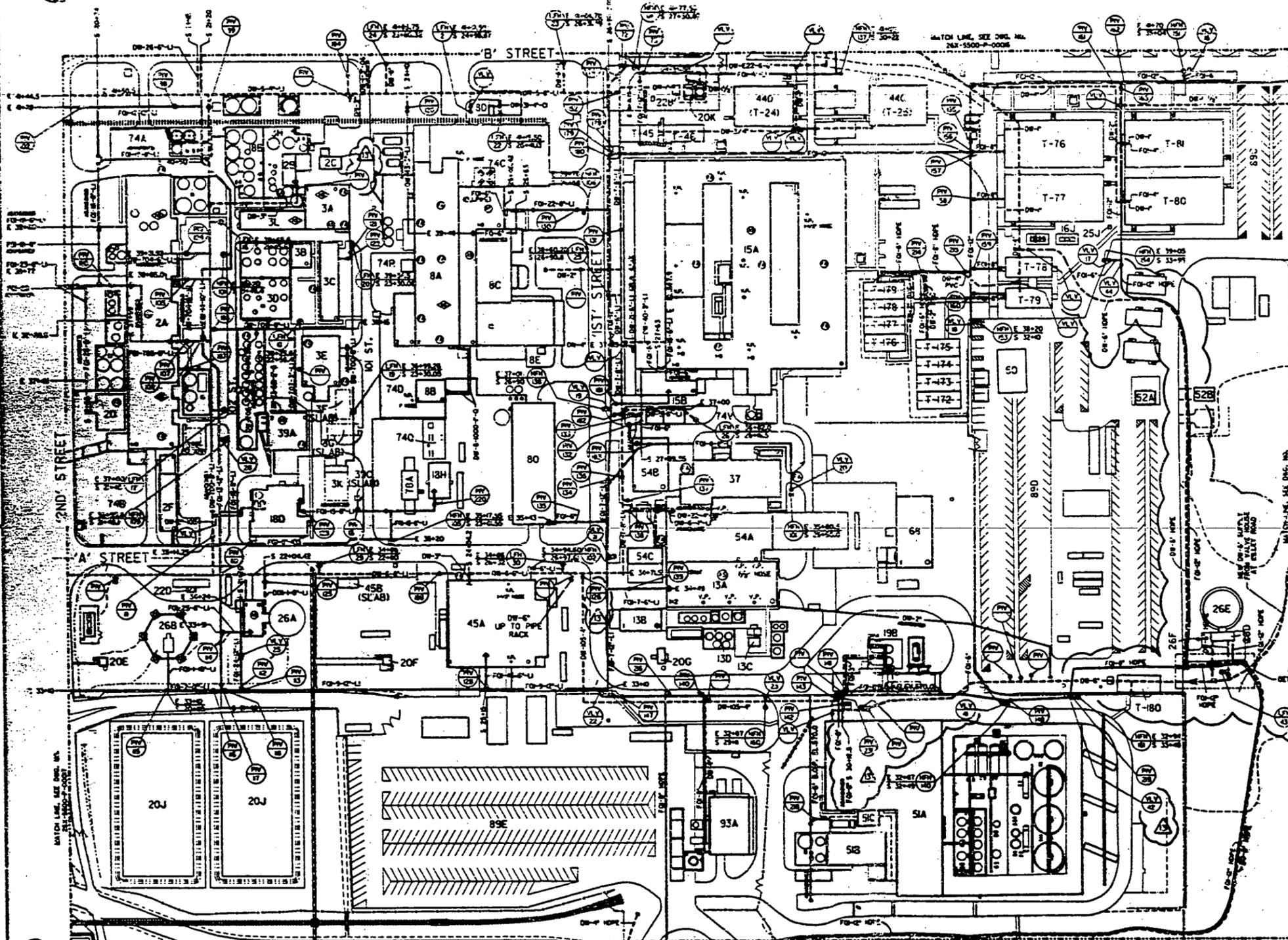
~~HWMU No. 50 - URANYL NITRATE TANKS (RAFFINATE BUILDING)~~

~~This unit consists of four storage tanks located on the Eastern bay and South central area of Building 3E. These tanks are empty.~~

~~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.~~

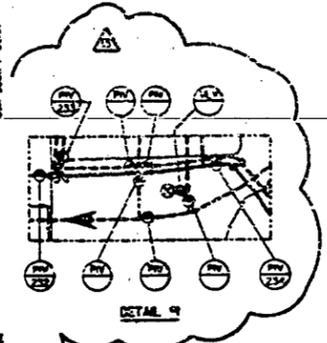
~~The Alternate Rally Point is No. 6. Rally Point No. 6 is located North of the West Water Tower. Movement is west to "A" Street, north on "A" Street to 2nd Street, then west to the point.~~

~~There is no safety equipment assigned to this HWMU. Communication devices are available for personnel accessing this unit for emergency notification purposes. This area is restricted from entry unless personnel are wearing protective clothing due to asbestos contamination.~~



LOCATION MAP 3010

- ① 26X-5500-P-0005
- ② 26X-5500-P-0006
- ③ 26X-5500-P-0007
- ④ 26X-5500-P-0008
- ⑤ 26X-5500-P-0009
- ⑥ 26X-5500-P-0010



- LEGEND**
- FO HIGH PRESSURE WATER MAIN
 - LO LOW PRESSURE WATER MAIN
 - AS AUTOMATIC SPRINKLER
 - NS NON-SPRINKLERED
 - FA FIRE ALARM BOX
 - ST STANDPIPE
 - HYR HYDRANT
 - PIV POST INDICATOR VALVE
 - SVT WET SPRINKLER VALVE
 - SDV DRY SPRINKLER VALVE
 - 1 NUMBER OF FLOORS
 - FR FRAME ROOF CONSTRUCTION
 - BU BUILT-UP ROOF CONSTRUCTION
 - NC NON-COMBUSTIBLE ROOF CONSTRUCTION
 - AM AUTOMATIC MANUAL
 - HP HIGH PRESSURE
 - LP LOW PRESSURE
 - AB ABANDONED
 - PIV POST INDICATOR VALVE
 - VB VALVE BOX
 - CB CLAP BOX

CONFIGURATION MANAGEMENT

INFORMATION ONLY

NO.	REVISIONS	DATE	BY	APPROV.	NO.	REVISIONS	DATE	BY	APPROV.
13	ADDED DR & FG LINES TO BLDG 26A	10/4/81	SJS	31/81	10	GENERAL REVISIONS	10/8/81	SJS	CEP
	GENERAL REVISIONS				9	UPDATED PER RES 1342	10/8/81	SJS	CEP
12	CHG'D QUADRANT 44 TO AREA 44 B	10/1/81	SJS	31/81	8	UPDATED	10/1/81	SJS	CEP
	DRAWING TITLE BLOCK, GENERAL REVISIONS				7	UPDATED	9/26/81	C.E.S.	CEP
11	GENERAL REVISIONS, COMPLETED NUMBERING	10/1/81	SJS	31/81	6	UPDATED	10/1/81	SJS	CEP
	FOR PYS & NUMBERED FOR N.Y.S.				5	UPDATED	10/1/81	SJS	CEP
					4	REDRAWN & UPDATED	10/1/81	T.A.B.	CEP

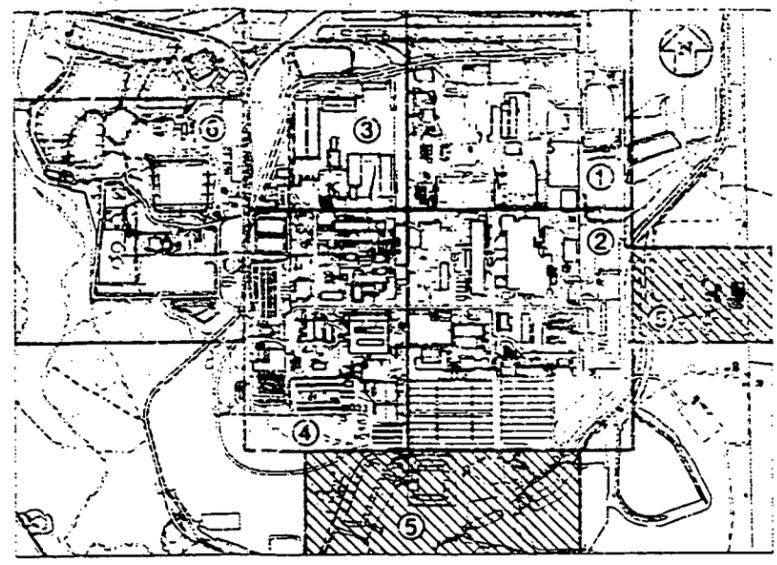
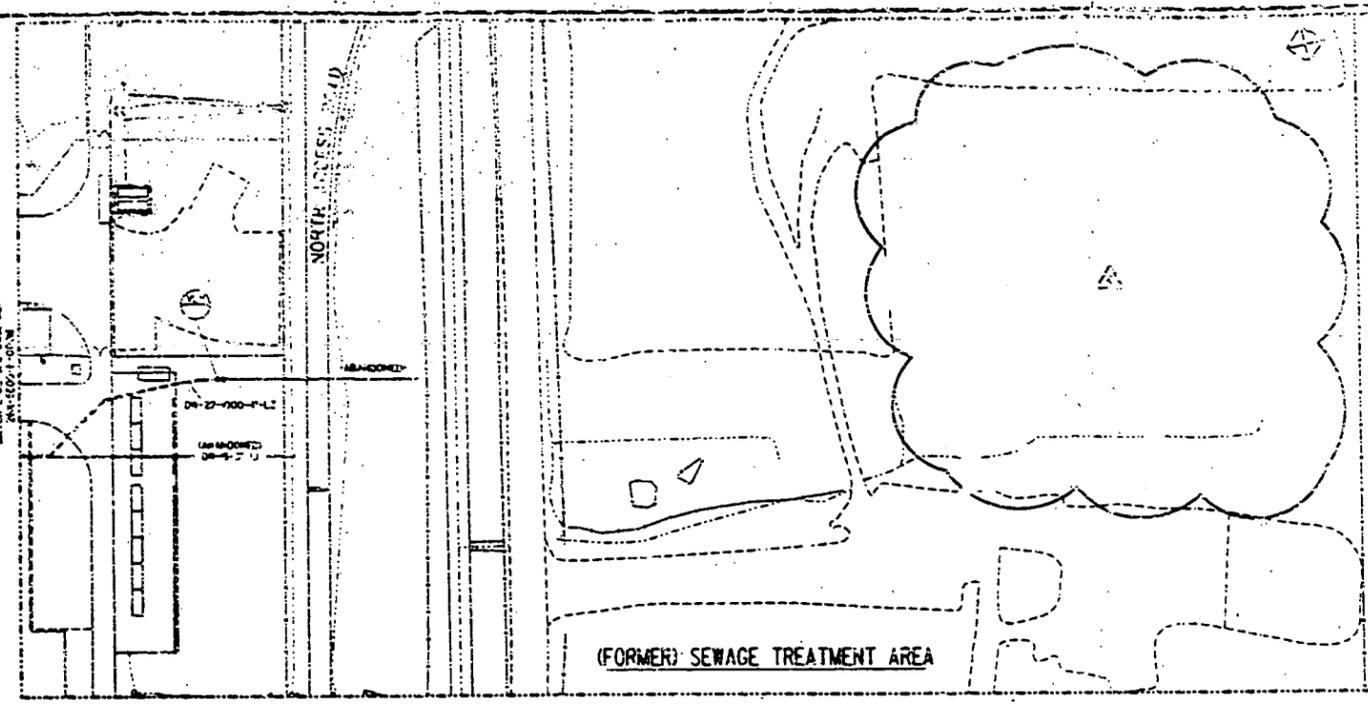
NO.	REVISIONS	DATE	BY	APPROV.
1	ISSUED FOR CONSTRUCTION	10/1/81	SJS	CEP
2	ISSUED FOR CONSTRUCTION	10/1/81	SJS	CEP
3	ISSUED FOR CONSTRUCTION	10/1/81	SJS	CEP
4	ISSUED FOR CONSTRUCTION	10/1/81	SJS	CEP
5	ISSUED FOR CONSTRUCTION	10/1/81	SJS	CEP
6	ISSUED FOR CONSTRUCTION	10/1/81	SJS	CEP
7	ISSUED FOR CONSTRUCTION	10/1/81	SJS	CEP
8	ISSUED FOR CONSTRUCTION	10/1/81	SJS	CEP
9	ISSUED FOR CONSTRUCTION	10/1/81	SJS	CEP
10	ISSUED FOR CONSTRUCTION	10/1/81	SJS	CEP

Fernald Environmental Management Project
AMMUS
 U.S. DEPARTMENT OF ENERGY

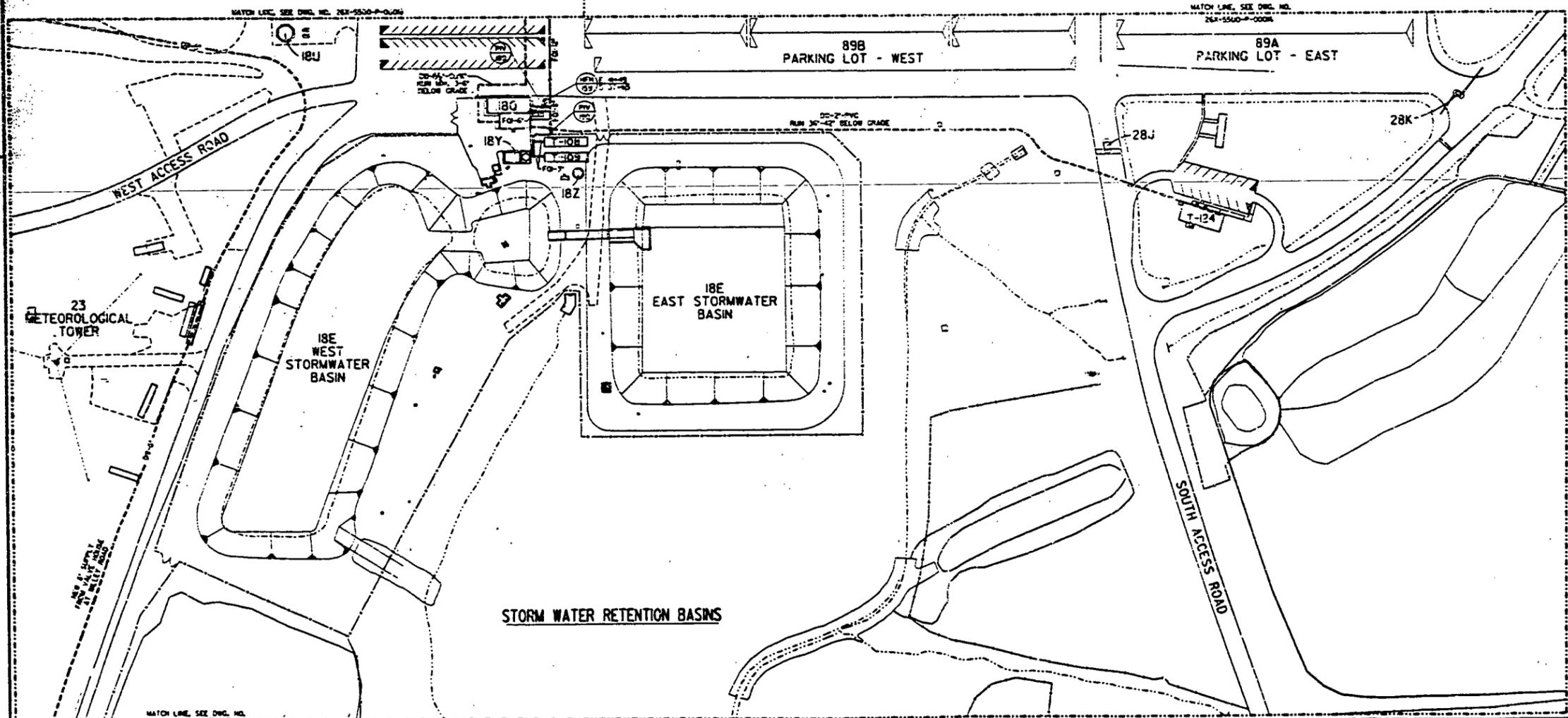
000355
 NOTES:
 THIS DRAWING IS FOR INFORMATION ONLY.
 FOR AS-BUILT CONDITIONS CONTACT FIRE & SAFETY.

HIGH & LOW PRESSURE (FO & LO) PLANTWIDE
 FIRE PROTECTION SYSTEM
 AREA #4
 SCALE: 1" = 60'-0"

26X-5500-P-00018 13



- LOCATION MAP 30 10
- ① - 26X-5500-P-0005
 - ② - 26X-5500-P-0005
 - ③ - 26X-5500-P-0007
 - ④ - 26X-5500-P-0008
 - ⑤ - 26X-5500-P-0017
 - ⑥ - 26X-5500-P-0012



INFORMATION ONLY
CONFIGURATION MANAGEMENT

- LEGEND
- FO HIGH PRESSURE WATER MAIN
 - OW LOW PRESSURE WATER MAIN
 - ⊕ AUTOMATIC SPRINKLER
 - ⊖ NON-SPRINKLER
 - ⊙ FIRE ALARM BOX
 - ⊚ STANDPIPE
 - ⊛ HYDRANT
 - ⊜ POST INDICATOR VALVE
 - ⊝ WET SPRINKLER VALVE
 - ⊞ DRY SPRINKLER VALVE
 - NUMBER OF FLOORS
 - ▣ FRAME ROOF CONSTRUCTION
 - ⊕ BUILT-UP ROOF CONSTRUCTION
 - NON-COMBUSTIBLE ROOF CONSTRUCTION
 - ⊕ AUTOMATIC MAREL
 - HIGH PRESSURE
 - - - LOW PRESSURE
 - ABANDONED
 - ⊕ POST INDICATOR VALVE
 - ⊕ VALVE BOX
 - ⊕ CLAP BOX

000356

NOTE: THIS DRAWING IS FOR INFORMATION ONLY. FOR AS-BUILT CONDITIONS CONTACT FIRE & SAFETY.

NO.	REVISIONS	DATE	BY	APPRO.	NO.	REVISIONS	DATE	BY	APPRO.	NO.	REF. Dwg. NO.
4	REMOVED SEWAGE TREAT. AREA, GENERAL REVISIONS	10/80	SJS	UJW	26X-5500-P-00173						
3	CHG'D QUADRANT #5 TO AREA #5 IN DRAWING TITLE	10/80	SJS	UJW	26X-5500-P-00008						
	BLOCK, GENERAL REVISIONS				26X-5500-P-00017						
2	GENERAL REVISIONS	8/79	SJS	UJW	26X-5500-P-00008						
1	GENERAL REVISIONS	10/78	SJS	CEP	26X-5500-P-00008						

CONSTRUCTION PROJECT

APPROVED: [Signature]

DATE: 10/80

Fernald Environmental Management Project

EMMS

U.S. DEPARTMENT OF ENERGY

HIGH & LOW PRESSURE (FO & OW) PLANTSIDE FIRE PROTECTION SYSTEM

AREA #5

SCALE: 1" = 60'-0"

26X-5500-P-00137 4

The University Hospital

Health Alliance™

3010

234 Goodman Street
Cincinnati, OH
45219-2316
513-584-1000

Feb. 29, 2000

Jack Craig, Director
Department of Energy
Fernald Environmental Management Project
P.O. Box 538705
Cincinnati, OH 45253-8705

FERNALD _____
LOG ASSTIA
Mar 6 8 36 AM '00
FILE: 5488
LIBRARY: _____

Dear Mr. Craig:

This letter will serve to acknowledge our continued commitment to provide emergency medical care to your employees in the event of a medical emergency arising at the Fernald Environmental Management Project (FEMP), located near Fernald, Ohio.

This commitment is a further extension of the letter of agreement, last revised in December 1992 (Terry White to Milan Marshall, Dec. 29, 1992). While our management has changed from the University of Cincinnati to the University Hospital, Inc. (a part of the Health Alliance of Greater Cincinnati), we will continue to honor this commitment. In the case of an emergency that requires our support, University Hospital will provide treatment in our Center for Emergency Care. If deemed necessary and appropriate, care and/or transport can be made by our University Air Care emergency air medical helicopters.

University Hospital is a verified Level I Trauma Center and Level I Burn Center. As such we are committed to serving the needs of the ill and injured throughout the tri-state, including the employees and visitors at the FEMP site. We are pleased to have this opportunity to provide our services to you and your staff should the need arise.

Sincerely,



Elliot G. Cohen
Senior Vice President

000358

SECTION H - PERSONNEL TRAINING

TABLE OF CONTENTS

INTRODUCTION 1

H-1 OUTLINE OF THE TRAINING PROGRAM 1

 H-1a Job Title/Job Description 2

 H-1b Training Content, Frequency, and Techniques 3

 H-1b(1) Training Content 4

 H-1b(2) Training Frequency 5

 H-1b(3) Training Techniques..... 5

 H-1c Training Director 6

 H-1d Relevance of Training to Job Position 6

 H-1e Training for Emergency Response..... 7

H-2 IMPLEMENTATION OF TRAINING PROGRAM 8

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
EPA ID NO. OH6890008976
SECTION H: PERSONNEL TRAINING

RCRA PART B PERMIT APPLICATION
FEMP REVISION 6.0 05/00
PAGE 1 OF 8

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) 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 outlined through Job Specific Training and Qualification Program Descriptions inside and 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 Generator Services ~~Waste Programs Management~~ Division 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 Generator Services ~~Waste Programs Management~~ Division 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 ~~step 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 ~~interviewed~~ 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 ~~requirements~~, ~~requirement~~ and project future requalification dates. From the results of the Job Assignment Profile process, the employee is then entered into the TRMS database.

The TRMS database allows for a systematic approach for increasing 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. The Job Assignment Profiling System determines what type of training requirements the employee will be required 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 employee's worksite under the direction of those managers with oversight and handling responsibilities for hazardous waste activities. The training is designed to enhance the background that the employee has already received on RCRA hazardous waste operations and focus specifically on hazardous waste operations in 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
- Waste Management
- Emergencies and RCRA contingency plan
- Quality assurance program

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)
- Engineering controls
- Legal/Regulatory aspects

Annual Refresher training on the topics taught in GET, SWT, and RAD is provided in the Site Worker Refresher Training and GET Refresher. 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 employee's job assignment. The program is designed to ensure ~~measure~~ the employee's ability to effectively respond to emergency situations such as fires, spills, or explosions; ground-water contamination events, shutdown operations, and methods for communicating and responding to site wide alarm systems.

H-1b(2) Training Frequency

All 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 Functional Area Manager for Training 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 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/Emergency Plan as appropriately identified in each individual employee's Profile described in Section H-1a. This training ensures that every employee recognizes real or potential emergencies and how to report such occurrences to the proper 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. A software program called the Training Records Management System (TRMS) database is used by the FEMP to record and track employee training records. These records include the individual employee Profiles for all waste management positions; a list of courses required for each position; and dates of course completion. Course descriptions are also maintained by the Training Department. All of the backup information regarding certification, qualification, and examination, tests and training rosters are maintained at the FEMP Records Center. Training records of current personnel are kept by the FEMP until closure. Records of former employees are kept by the FEMP 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.