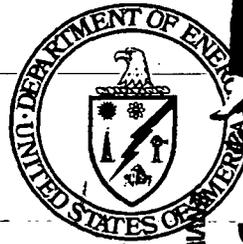


# MOUND



**Environmental  
Restoration  
Program**

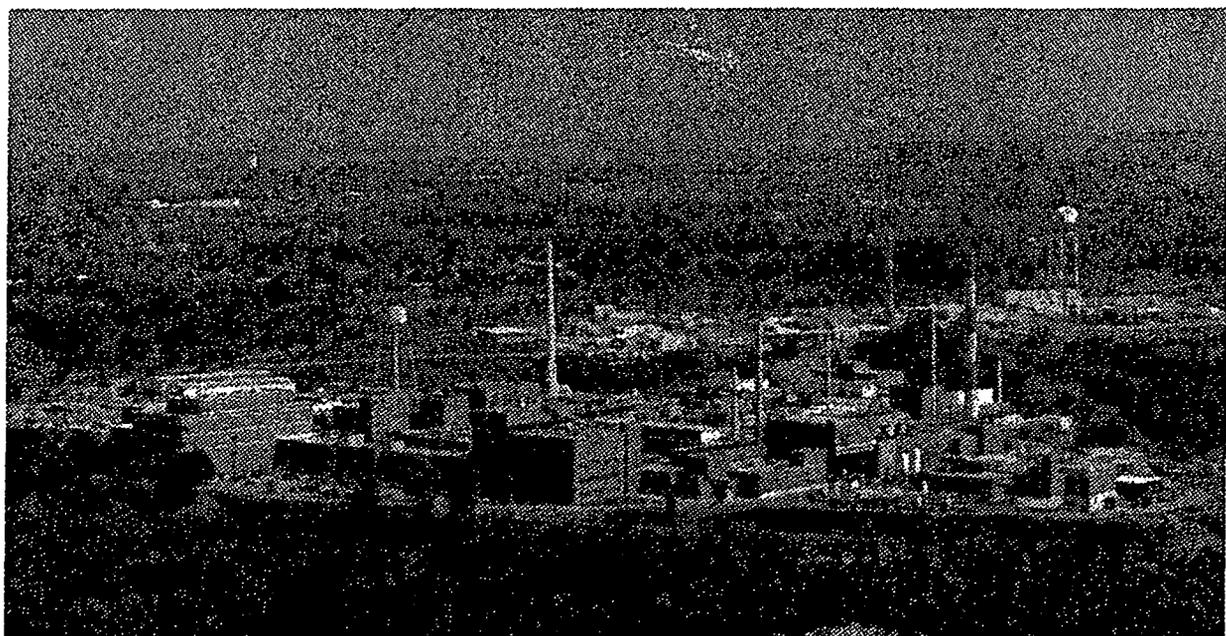


**Ohio EPA**

# MOUND PLANT

## Potential Release Site Package

### PRS # 17



**MOUND**



Environmental  
Restoration  
Program

# MOUND PLANT POTENTIAL RELEASE SITE PACKAGE

## *Notice of Public Review Period*

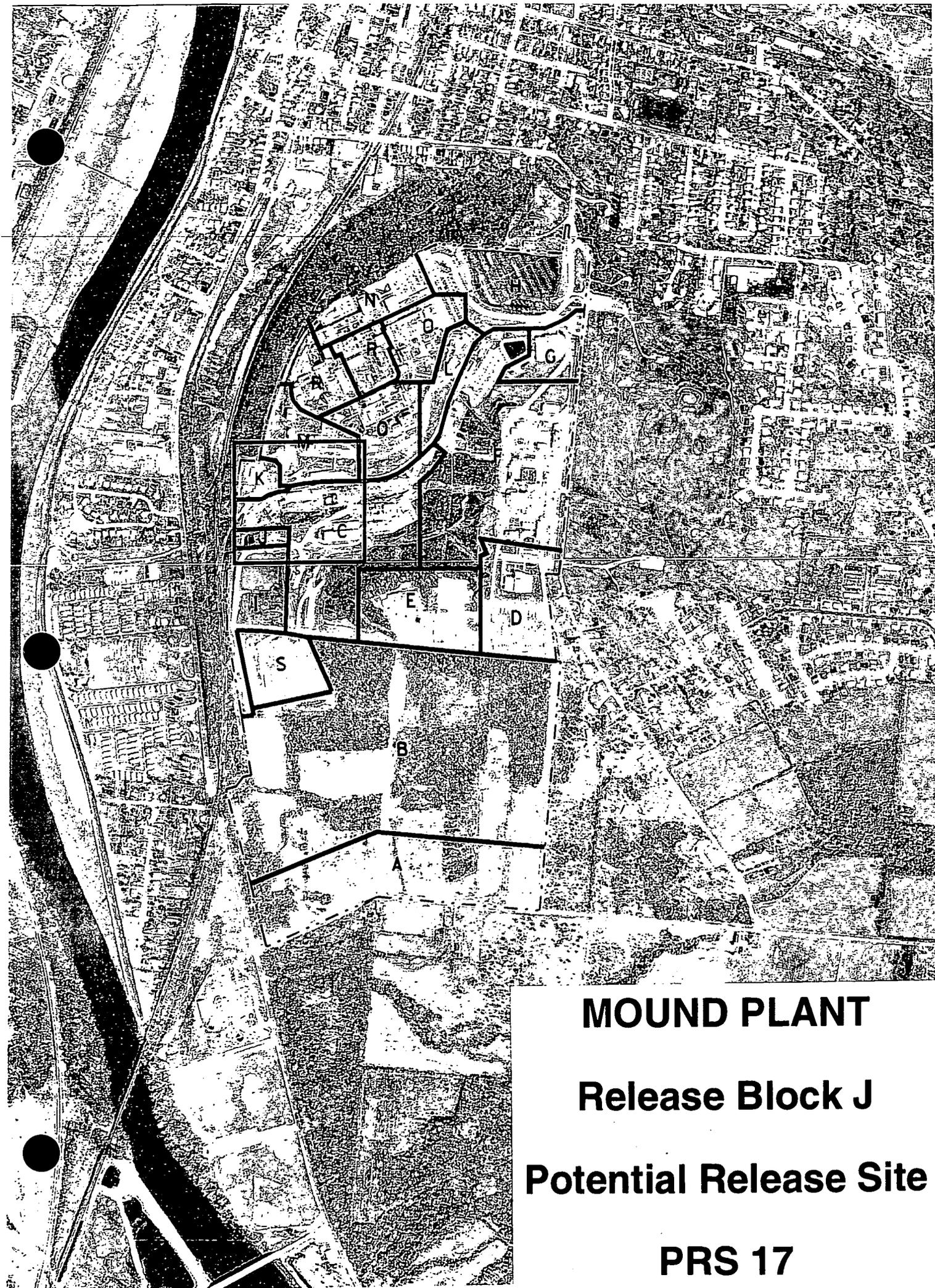


The following potential release site (PRS) packages will be available for public review in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio beginning January 9, 1997. Public comment will be accepted on these packages from January 9, 1997, through February 13, 1997.

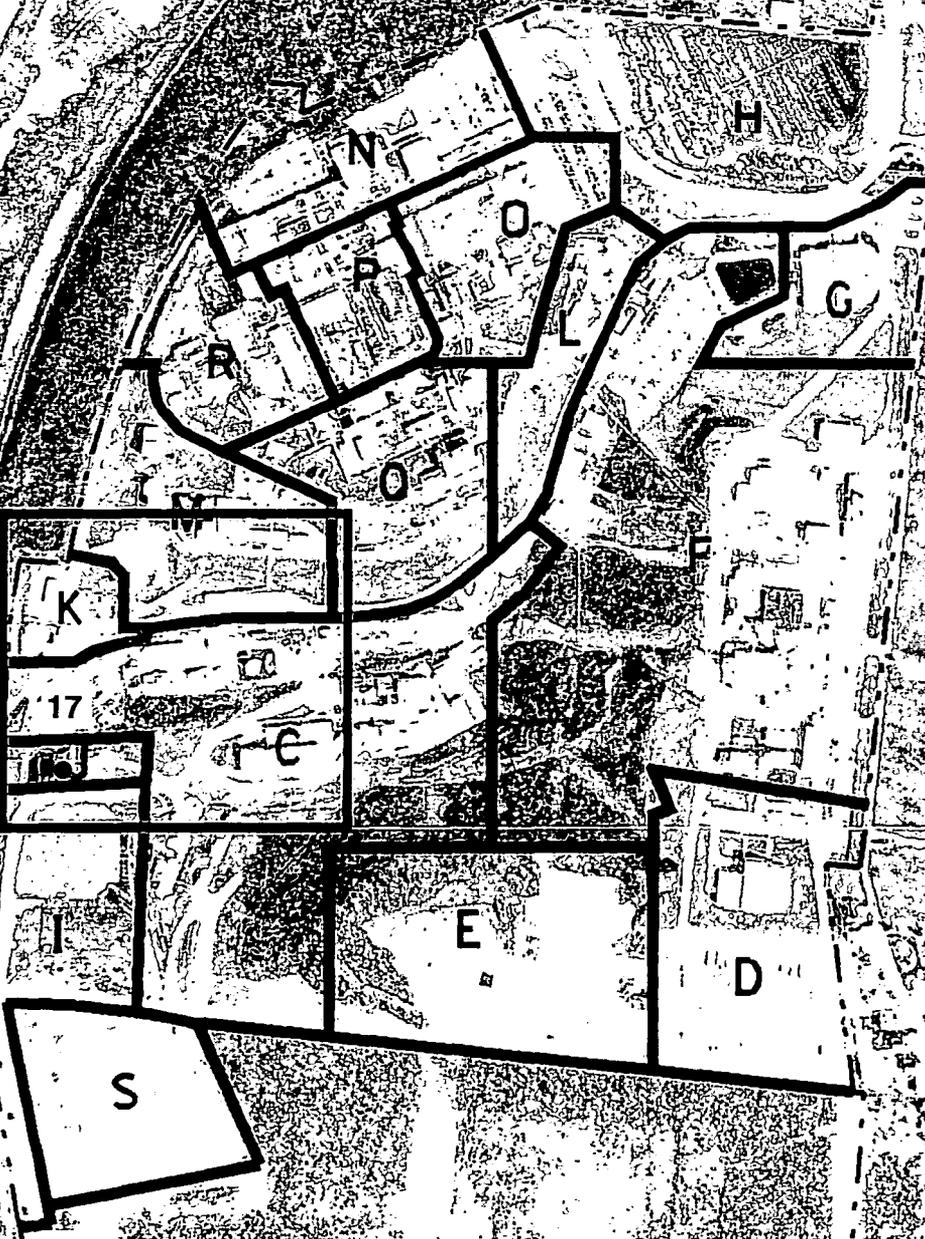
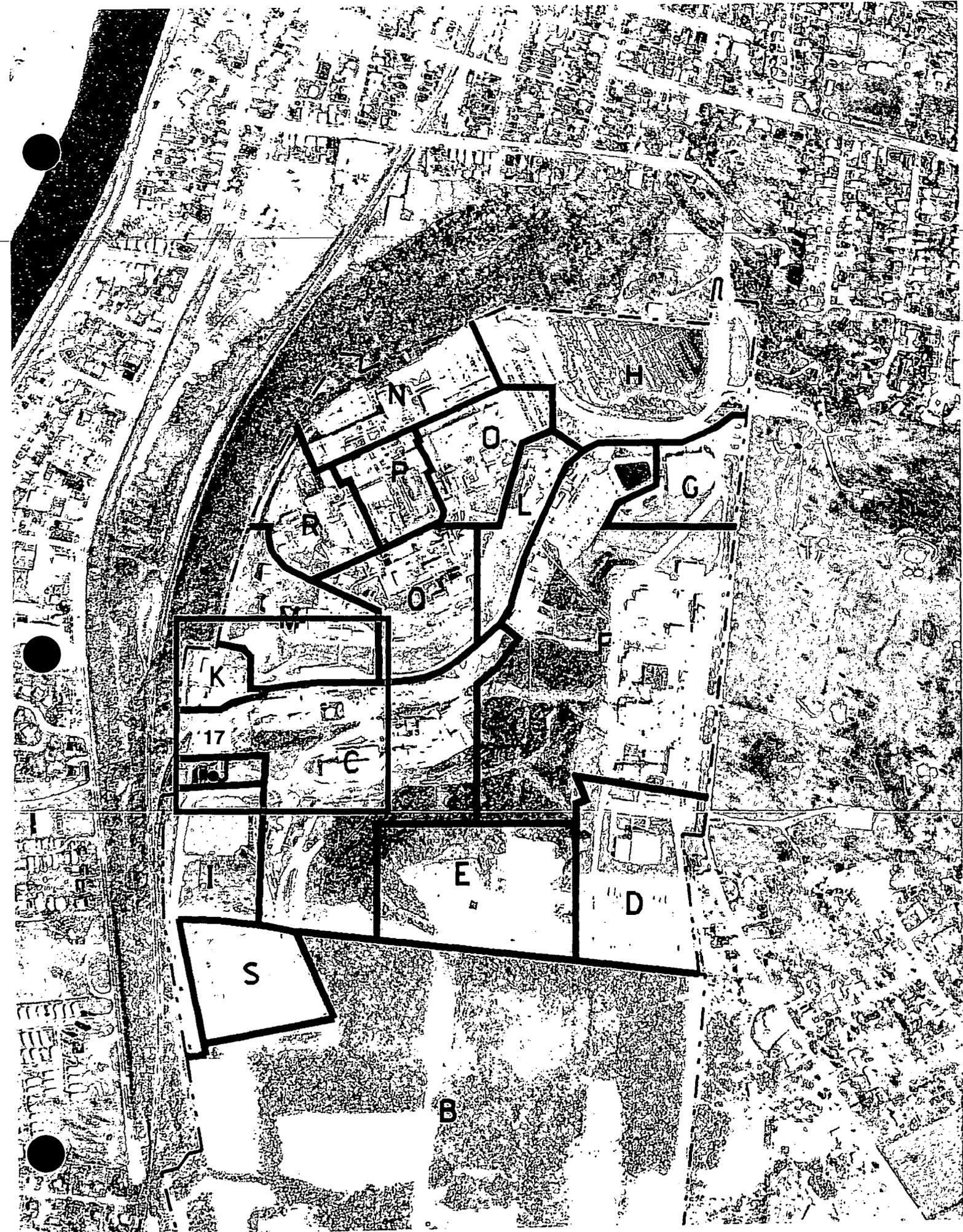
- PRS 17: Oil Burn Structure**
- PRS 20: Aviation Fuel Storage Tank**
- PRS 42: T Building Construction Soil Staging Area**
- PRS 79: Former Waste Storage Site - Warehouse 15**
- PRS 82: Diesel Fuel Storage Tank - Building 56**
- PRS 153: Radioactive Wastewater Sewer Pipeline Break - Area 20**
- PRS 176/177/178/300: Waste Transfer System Line, Tanks and Soil**

Questions can be referred to Mound's Community Relations at (937) 865-4140.

REV	DESCRIPTION	DATE
<p>0</p> <p><b>PUBLIC RELEASE</b></p>	<p>Available for comment.</p>	<p><b>Dec. 17, 1996</b></p>
<p>1</p> <p><b>FINAL</b></p>	<p>Comment period expired. No comments. Recommendation page annotated.</p>	<p><b>Feb. 17, 1997</b></p>



**MOUND PLANT**  
**Release Block J**  
**Potential Release Site**  
**PRS 17**



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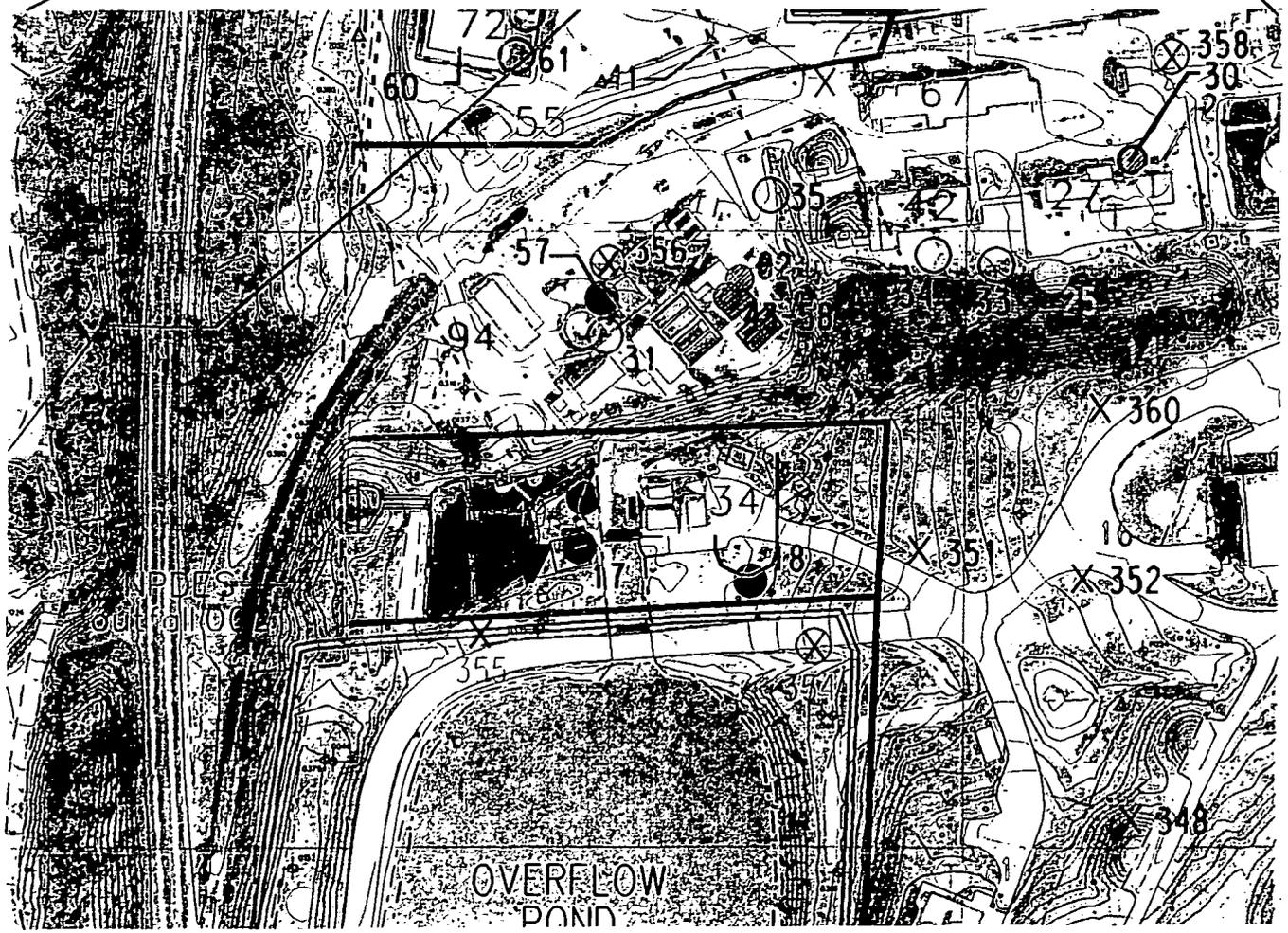
M

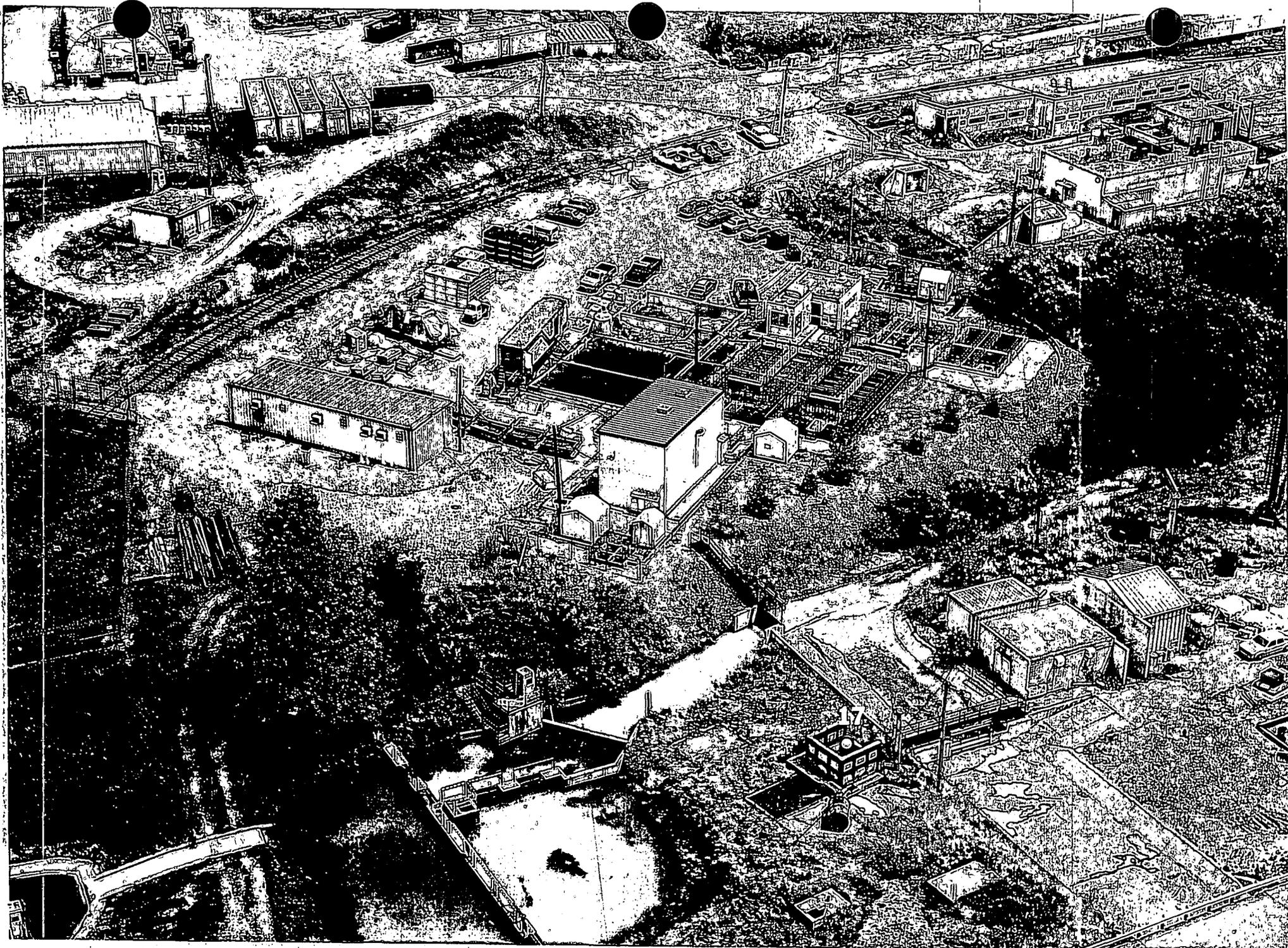
# MOUND PLANT

## Release Block J

### Potential Release Site

PRS 17





## PRS 17

### PRS HISTORY:

PRS 17 is the Building 34, Oil Burn Structure. It was constructed in 1965 and is located west of Building 34, east of the retention basin, and north of the Building 34 Former Aviation Fuel Storage Tank. The Oil Burn Structure is an open square pit, approximately 10 ft. on each side and 8 ft. deep, with 8 ft. high walls. The oil burn structure is constructed of concrete block with brick-lined walls. The bottom is composed of an unknown thickness of concrete. The oil burn structure was removed from service in 1979. An unknown liquid was observed in the bottom of the oil burn structure in 1988. The condition of the concrete floor of the structure was observed as being cracked and broken in spots with enough soil in areas to support plant growth.<sup>2</sup> The structure is currently out of service but still in place.

### PROCESS DESCRIPTION:

The oil burn structure was used to test shipping containers against Department of Transportation requirements by subjecting them to a gas fire for 15 minutes.<sup>5</sup>

### CONTAMINATION:

The contaminants of concern are aviation fuel (benzene, toluene, ethyl benzene, and xylenes). The OU3 Limited Field Investigation (LFI) conducted sampling in and around the Oil Burn Structure in 1991. Samples were taken of the soils around the location as well as water and sediment samples from inside the Oil Burn Structure. Levels of dioxins were detected, but at levels of no concern per the "Position Paper on Dioxin in the Soils at the Mound Facility".<sup>4</sup> Soil sample results indicated that all the analytes found in the soils around the facility were below all the contaminant comparison values with the exception of the inorganic thallium, with a maximum concentration of 0.53 mg/kg and Mound's background value is 0.46 mg/kg. Analytical results of the water collected from inside the structure were also below contaminant comparison values except for thallium which was found at .0024 mg/L. The Drinking Water Standard for thallium is 0.002 mg/L. The sediment from inside the facility contained the Semivolatle Organic Compound, Benzo(g,h,i)perylene whose concentration of 2.2 mg/kg was above the guideline value of 0.41 mg/kg for Benzo(a)pyrene. The guideline value for Benzo(a)pyrene was used as there is no guideline value for Benzo(g,h,i)perylene. This guideline value is the most conservative of any of the Polynuclear Aromatic Hydrocarbon (PAH) compounds. In addition, inorganics were found in the sediment inside the oil burn structure at levels indicated in the table below.<sup>2</sup>

Analyte	Concentration	Comparison Criteria
Cobalt	28 mg/kg	19 mg/kg (Background)
Copper	92.8 mg/kg	26 mg/kg (Background)
Lead	3100 mg/kg	400 mg/kg (USEPA Guidance)

Data from groundwater monitoring well 379 indicated no petroleum compounds (BTEX: benzene, toluene, ethyl benzene, xylenes) were detected in the well which is downgradient of this area. Lead was detected at or below the USEPA Maximum Contaminant Level.<sup>3</sup>

**READING ROOM REFERENCES:**

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- 1) OU9 Site Scoping Report: Volume 12- Site Summary Report, December 1994. (pages 5-14)
- 2) OU3, Miscellaneous Sites Limited Field Investigation Report, July 1993. (pages 15-34)
- 3) OU9, Hydrogeologic Investigation: Groundwater Sweeps Report, Technical Memorandum, April 1995. (pages 35-40)

**OTHER REFERENCES:**

- 4) Position Paper on Dioxin in the Soils at the Mound Facility, March 1993. (pages 41-59)
- 5) Preliminary Review/Visual Site Inspection for RCRA Facility Assessment of Mound Plant, July 1988. (pages 60-63)

**PREPARED BY:**

Dennis J. Gault, Member of EG&G Mound Technical Staff

**MOUND PLANT  
PRS 17  
OIL BURN STRUCTURE**

**RECOMMENDATION:**

This potential release site is the Building 34, Oil Burn Structure. It was identified as a potential release site because aviation fuel was used in the test-burning operation in the structure.

The 1993 OU3, Limited Field Investigation sampled the area in and around the structure. The analytical results of the soils outside the burn structure were below guideline criteria, but the sediment inside the structure showed levels above guideline criteria for cobalt, lead, and copper. Lead was detected at eight times the USEPA residential Guideline Criteria of 400 mg/kg. No petroleum compounds were detected in well 379 which is downgradient of this area. The level of lead in the well samples were at or below the USEPA drinking water Maximum Contamination Level (MCL).

Therefore, since evidence of contamination exists inside PRS 17, a **REMOVAL ACTION** is recommended. Lead concentrations in groundwater are being analyzed separately and will not be included in the response action.

**CONCURRENCE:**

DOE/MB:

Arthur W. Kleinrath 12/2/96  
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA:

Timothy J. Fischer 12/3/96  
Timothy J. Fischer, Remedial Project Manager (date)

OEPA:

Brian K. Nickel 12/17/96  
Brian K. Nickel, Project Manager (date)

**SUMMARY OF COMMENTS AND RESPONSES:**

Comment period from 1/9/97 to 2/13/97

- No comments were received during the comment period.
- Comment responses can be found on page \_\_\_\_\_ of this package.

**Reference Material**  
**PRS 17**

Environmental Restoration Program

**OPERABLE UNIT 9 SITE SCOPING REPORT:  
VOLUME 12 – SITE SUMMARY REPORT**

**MOUND PLANT  
MIAMISBURG, OHIO**

**December 1994**

**Final**

**U.S. Department of Energy  
Ohio Field Office**



**EG&G Mound Applied Technologies**

Description of History and Nature of Waste Handling						Hazardous Conditions and Incidents			Environmental Data		
No.	Site Name	Location	Status	Potential Hazardous Substances	Ref	Releases	Media	Ref	Analytes <sup>a</sup>	Results	Ref
11	Area 2, Thorium and Polonium-Contaminated Wastes (AKA Crusted Drums)	I-4 I-5	Historical	Polonium-210, thorium-contaminated drums, Polonium-210 contaminated sand and debris  Thorium sludge constituents, Plutonium-238	1, 4, 5, 18	Thorium and daughters	S	1, 4	14 2, 3, 4, 5, 6 10, 11, 14, 16	Table B.1 (Table III.1 in Ref. 6) Tables B.6, B.7, B.8 and B.9	6  24
12	Area B Drum Storage Area	I-5	Historical	Chemical wastes	4	None Suspected			2, 3, 4, 5, 6 10, 11, 14, 16	Tables B.6, B.7, B.8 and B.9	24
13	Trash Incinerator	J-5	Historical	Solid Waste	4	None Suspected			No Data		
14	Area C, Waste Storage Area (AKA Drum Staging Area and Chemical Waste Storage Area)	H-6	Historical	VOCs	4, 5, 7	Suspected, not confirmed	S	7	3, 4, 5, 6  14	Tables B.6, B.7, B.8, and B.9  RSS <sup>c</sup> Location S0518 (Appendix E in Ref. 6)	7  6
15	Area C, Lithium Burn Area (AKA Lithium Carbonate Disposal)	H-5	Historical	Lithium Hydride	4	Possible lithium residues, not confirmed	S	4, 7	2, 3, 4, 5, 6, 7, 8, 9, 10  14	Tables B.6, B.7, B.8, and B.9  RSS <sup>c</sup> Locations S0552 and S0553 (Appendix E in Ref. 6)	7  6
16	Area C, Past Hazardous Waste Storage Area (AKA old Building 72) see related site 345	H-6	Historical	Potential contaminants listed under Hazardous Waste Storage Area	4, 5, 18	Minor, historically remediated	S	18	4	Table B.6	18
17	Oil Burn Structure	H-5	Inactive	Aviation fuel, benzene, toluene, ethyl benzene, xylenes	5, 7, 18	Confirmed EPH, dioxin/furans		7, 18	2, 3, 4, 5, 6, 7, 8, 9, 10	Tables B.6, B.7, B.8, and B.9	7
18	Building 34, Fire Fighting Training Facility Pits	H-5	Inactive	Diesel Fuel	5, 7, 18	Confirmed EPH		7, 18	3, 4, 5, 6, 7, 8, 9, 10  14	Tables B.6, B.7, B.8, and B.9  RSS Location S0556 (Appendix E in Ref. 6)	7  6
19	Building 34, Historical Firefighting Training Pit	H-5	Historical	Diesel Fuel		Suspected  Confirmed dioxin/furan	S, SW  S	10  7	2, 3, 4, 5, 6, 7, 8, 9	Tables B.6, B.7, B.8, and B.9	7

Table B.6 - Target Compound List - VOC (a,b)

SITE NAME	Acetone	2-Butanone	Toluene	Benzene	Ethyl Benzene	Xylenes	1,2-Dichloroethane	Methylene Chloride	Perchloroethylene	2-Hexanone	4-Methyl-2-Pentanone	Trichloroethane	1,1,2-Trichloroethane	Carbon Disulfide	1,1,1-Trichloroethane	Chloroform	Freon 11	Freon 113	1,1-Dichloroethane	Bromo-dichloromethane	Bromoform	Reference	
2. Miami-Erie Canal (south pond) (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.0	ND	ND	ND	ND	ND	ND	ND	15
3. Miami-Erie Canal (north canal) (d)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	18
5. Miami-Erie Canal (south canal) (d)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	18
9. G24		ND	ND	ND	ND	ND	ND	ND	ND			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	24
10. Historic Landfill			750	180	200	6100	6700	81				970			ND								24
11. Sanitary Sewer Line				2	2																		24
12. Area B, Drum Storage Area		1	7100	180	35	180	6600		1800			490											24
14. Area C, Waste Storage Area (AKA Drum Staging Area and Chemical Waste Storage Area)			0.016									.01			0.7		0.02	0.13					7
15. Area C, Lithium Burn Area (AKA Lithium Carbonate Disposal) (g)																							7
16. Area C, Past Hazardous Waste Storage Area	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.6	ND	ND	18	ND			ND	ND	ND	ND	18
17. Oil Burn Structure	0.54	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.013	ND	ND	0.007	ND	ND	ND	ND	ND	ND	ND	ND	7
18. Building 34, Fire Fighting Training Facility Pits	0.63	ND	0.028	0.008	0.018	0.15	ND	ND	ND	0.061	0.02	0.012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7
19. Building 34, Historical Firefighting Training Pit	0.17	0.05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7
20. Building 34 Aviation Fuel Storage Tank (Tank 219)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7,22
21. Building 1 Leach Pit (Area 1)	0.27	0.099	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7
25. Building 27 Leach Pit (Area 1)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7

Table B.6 - Target Compound List - VOC (a,b)

SITE NAME	Acetone	2-Butanone	Toluene	Benzene	Ethyl Benzene	Xylenes	1,2-Dichloroethane	Methylene Chloride	Perchloroethylene	2-Hexanone	4-Methyl-2-Pentanone	Trichloroethylene	1,1,1-Trichloroethane	Carbon Disulfide	1,1,1-Trichloroethane	Chloroform	Freon-11	Freon-113	1,1-Dichloroethane	Bromo-dichloromethane	Bromoform	Reference
283. Area 1, Bulk Transfer of Thorium Drums (AKA Plutonium Recoverable Waste Storage)	98		10													24						8
285. Area 11, Contamination from SM Building Operations	23	ND	ND	ND	ND	6	ND	ND	ND	ND	ND	ND	ND	ND	41	ND	ND	ND	ND	ND	ND	8
286. Area 16, SM Building Sanitary Sewage Septic Tank/Leach Basin								38							6	11						8
288. Area 17, SM Building Soils												21			19	10						8
300. Area 19, Underground Waste Transfer Line		13																				8
302. Area D, Land Leach Field	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8
314. Farm Trash Area	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8

- (a) - All units reported in mg/Kg unless noted otherwise.
- (b) - No soil gas data results are presented.
- (c) - Unit of measure is ug/Kg.
- (d) - No volatile organic constituents were detected in the canal. See reference 16.
- (e) - Note deleted in revision.
- (f) - This site is the same as Site #19.
- (g) - Unit of measure in g/kg
- ND - Not detected.
- Blank - Not analyzed for.

- References:
- 7) DOE 1993c
  - 8) DOE 1992d
  - 15) Halford 1990
  - 16) DOE 1993e
  - 18) DOE 1992a
  - 22) DOE 1992i
  - 24) DOE 1994

Table B.7. Target Compound List - SVOC, P/PCB, PAH, and EPH (a)

SITE NAME	SVOC	Polycyclic Aromatic Hydrocarbons (PAH)											Pesticides, Polychlorinated Biphenyls						EPH & TPH			
		Bis(2-ethylhexyl)phthalate	Acenaphthene	Anthracene	Phenanthrene	Pyrene	Fluoranthene	Benzopyrene	Benzo(a)fluoranthene	Benzo(a)anthracene	Indeno(1,2,3-CD)pyrene	Chrysene	Benzo(g,h,i)perylene	PCBs	Chlordane	Endrin	Alpha, Beta, Delta, BHC (Lindane)	Dieldrin	4,4'-DDT, 4,4'-DDE	Extractable Petrol. Hydrocarbons	Total Petrol. Hydrocarbons	Reference
2. Miami-Erie Canal (south pond)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			15
3. Miami-Erie Canal (north canal) (b)	4.1	3.7	9.3	43	55	53	22	25	25	16	24	17	19	6.8	0.22	0.105	0.21	0.007			16	
5. Miami-Erie Canal (south canal) (b)	1.1	1.0	0.81	6.3	6.8	7.0	2.0	2.6	2.8	1.8	2.5	2.2	0.34	0.021	0.034	0.004	0.011	0.013			16	
9. Area 18, Site Sanitary Landfill Cover					120	120	140	190	90	71	95	44										24
10. Historic Landfill		1500		7400	7200	1200	2500	4000	3400	1200	2600	850										24
11. Area 2, Thorium and Polonium Wastes						39																24
12. Area B, Drum Storage Area					140	160	55	80	66		70											24
14. Area C, Waste Storage Area (AKA Drum Staging Area and Chemical Waste Storage Area)	1.1	ND	0.46	2.5	3.1	3.4	1.2	2.0	1.5	0.9	1.9	1.1	ND	ND	ND	ND	ND	ND			7	
15. Area C, Lithium Burn Area (AKA Lithium Carbonate Disposal) (c)																						7
17. Oil Burn Structure	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.2	ND	ND	ND	ND	ND	ND			23	7
18. Building 34, Fire Fighting Training Facility Pits (c)	0.025	ND	38	38	46	7.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			116.7	7
19. Building 34, Historical Firefighter Training Pit	ND	ND	ND	ND	ND	0.91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			39.3	7
20. Building 34, Aviation Fuel Storage Tank (Tank 219)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			ND	7, 22

Table B.7. Target Compound List - SVOC, P/PCB, PAH, and EPH (a)

SITE NAME	SVOC Bis(2-ethylhexyl)phthalate	Polycyclic Aromatic Hydrocarbons (PAH)											Pesticides, Polychlorinated Biphenyls						EPH & TPH		
		Acenaphthene	Anthracene	Phenanthrene	Pyrene	Fluoranthene	Benzopyrene	Benzofluoranthene	Benzoanthracene	Indeno(1,2,3-CD)pyrene	Chrysene 1	Benzo(g,h,i)perylene	PCBs	Chlordane	Endrin	Alpha,Beta,Delta, ETC (Lindane)	Dieldrin	4,4'-DDT, 4,4'-DDE	Extractable Petrol. Hydrocarbons	Total Petrol. Hydrocarbons	Reference
261. Trash Burner	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7
270. Underground Sewer Lines G6 and G7	0.89	ND	ND	3.0	3.2	5.2	1.7	1.5	1.9	1.3	2.2	1.3	ND	ND	ND	ND	ND	ND	ND	ND	7
279. Old Firing Range Drum Storage Area	4.2	6.8	15	73	83	98	35	45	45	23	55	19	0.58	ND	ND	ND	ND	ND	ND	ND	7
280. Waste Oil Drum Field Area	6.5	ND	2.8	11	9.7	11	3.8	2.8	4.2	1.9	ND	2.1	1.15	0.098	0.023	ND	ND	ND	ND	1500	7
283. Area 1, Bulk transfer of Thorium drums (AKA Plutonium recoverable waste storage)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8
285. Area 11, Contamination from SM Building Operations	4700	ND	ND	ND	5000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50	ND	ND	ND	ND	8
286. Area 16, SM Building sanitary sewage septic tank/leach field	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8
288. Area 17, SM Building soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8
300. Area 19, underground waste transfer line			900	790	900	1,000															8
302. Area D, Acid Leach Field														20	12						8
304. Farm Trash Area	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7

(a) - All units are reported in mg/Kg unless noted otherwise.  
 (b) - Additional data on other analytes are available in reference 16.  
 (c) - This site is the same as Site #19.  
 (d) - Groundwater data. Unit of measure is mg/L.  
 (e) - Unit of measure is g/Kg

References:  
 7) DOE 1933c  
 8) DOE 1992d  
 15) Halford 1990  
 16) DOE 1993e  
 18) DOE 1992a  
 24) DOE 1994

Table B.8. Target Analyte List (TAL) - Inorganics<sup>(a)</sup>

SITE NAME		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chloride	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Nitrate	Nitrite	Silver	Thallium	Zinc	Cyanide	Lithium	Mercury	Vanadium	Reference
2.	Miami-Erie Canal (south pond)	ND	9.6	104	ND	ND	NA	18	NA	34	23	NA	22	NA	NA	4.8	ND	58.4	ND	NA	0.20	22	15
3.	Miami-Erie Canal (north canal) (b)	19.7	127	126	1.2	2.4	ND	145	14.3	143	248	928	31.2	ND	ND	11.8	0.8	323	ND	ND	0.76	33.1	16
5.	Miami-Erie Canal (south canal) (b)	37.3	12	178	1.4	1.8	ND	334	14.4	225	579	1430	33.9	ND	ND	16.9	1.4	255	ND	ND	0.74	48.9	16
9.	Area 18, Site Sanitary Landfill Cover	ND	8.8	51.9	.29	ND	9.3	9.1	5.3	14.5	10.3	389	14.9	3.3		3.9	ND	44	ND	11.1	ND	18	24
10.	Historic Landfill	3.8	6.1	104	.51	0.9	32.4	13.1	9.7	681	121	470	28.4	ND		ND	ND	1330	ND	17	2.7	23.7	24
11.	Area 2, Thorium and Polonium Wastes	ND	6	33.2	ND	.22	23.4	ND	ND	11.9	ND	289	ND	ND		ND	.29	ND	ND	16.2	.07	ND	24
12.	Area B, Drum Storage Area	ND	4.4	33.5	ND	.31	81.2	ND	ND	42.7	10.2	372	ND	ND		ND	ND	ND	18.1	.06	ND	24	
14.	Area C, Waste Storage Area (AKA Drum Staging Area and Chemical Waste Storage Area)	31.3	6.3	66.6	0.79	5.8		28.2	10.5	20.8	13.2	35.9	24.6			17	ND	62.5	0.14		ND	23.4	7
15.	Area C, Lithium Burn Area (AKA Lithium Carbonate Disposal) (c)									72.8	3,100						0.53						7
17.	Oil Burn Structure	69	9	131	0.98	24.2		92.1	28	3,100	825	107	ND	ND	17.7	0.5313	791.53	0.7679	29.1	ND	29	41.8	7
18.	Building 34, Fire Fighting Training Facility Pits	36.6	10	74.8	0.77	7.5		26.58	12.3	23.4	12.8	481	29.5	ND	ND	18	ND	71.8	0.28	25.1	ND	48.8	7
19.	Building 34, Historical Firefighting Training Pit	37.7	7.2	119	0.96	8.2		29.9	15.8	22.4	88.4	914	32.4			17.9	ND	66.2	ND	12.3	ND	35	7
20.	Building 34, Aviation Fuel Storage Tank (Tank 219)	4.8	8.67	101	0.43	ND		9.7	5.3	15.1	9.4	264	13			ND	0.37	43.2	ND		ND	16.7	7
21.	Building 1 Leach Pit (Area I)	42.8	3.8	103	0.8	8.3		33.5	16.7	41.4	18.5	862	27.1			21.5	ND	150	0.31		1.2	35.2	7
25.	Building 27 Leach Pit (Area I)	44.6	3.5	43.4	0.97	9.3		112	20.7	448	15.1	691	50.8			20.5	ND	125	0.14		.53	29.8	7
26.	Building 27 Concrete Flume (Tank 217)	27.1	4.0	40.4	0.99	4.8		33.1	17.3	25.3	10.0	766	29.9			15.7	ND	81.7	ND		ND	27.6	7
27.	Building 27 Settling Sump (Tank 218)	20.8	3.9	65.5	0.92	ND		28.4	13.7	25.3	21.5	543	26.1			14.7	ND	62.5	ND		0.13	27.6	7



○ CORRECTIONS MADE TO THE DATA TABLE DUE TO TRANSPOSITION ERRORS FROM THE OUS LIMITED FIELD INVESTIGATIVE REPORT

**Table B.8. Target Analyte List (TAL) - Inorganics<sup>(a)</sup>**

SITE NAME	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chloride	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Nitrate	Nitrite	Silver	Thallium	Zinc	Cyanide	Lithium	Mercury	Vanadium	Reference
300. Area 19, Underground Waste Transfer Line		10.3	521	1.1	4.3		15.8	18.6	17.2	15.7	1500	43.0			4.2		349				20.7	8
302. Area D, Acid Leach Field		11.7	564	1.8	5.5		21	20.1	20.4	25.7	545	41.1			3.9		242			0.79	28.3	8
314. Foam Wash Area	42.4	5.9	32.4	0.71	7.7		30.5	8.5	18	10.1	308	25.8			17	ND	40.4	0.38	ND	24.2	7	

- (a) - All units are reported in mg/Kg unless otherwise noted.
- (b) - Additional data on other analytes are available in reference #19.
- (c) - this site is the same as Site #19.
- (d) - Groundwater data. Unit of measure is mg/L.

ND - Not detected.  
 NA - Not analyzed for.

- References:
- 7) DOE 1993c
  - 8) DOE 1992d
  - 15) Halford 1990
  - 16) DOE 1993e
  - 18) DOE 1992a
  - 24) DOE 1994

Table B.9. Summary of Radiological Data<sup>(a,b)</sup>

Site Name	Radiological Contaminants														Reference	
	Potassium-40	Plutonium-239	Plutonium-238	Cesium-137	Thorium-Total	Tritium	Thorium-232	Cobalt-60	Radium-224, -226, -228	Radon-222	Americium-241	Actinium-227	Uranium-233, -234, -238	Bismuth-210m		Bismuth-207
1. Miami-Erie Canal (north pond)			22.3													19
2. Miami-Erie Canal (south pond)	NA	NA	2.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15
3. Miami-Erie Canal (north canal) (c)	23	7.9	530	0.45	14.9	180	3.2	<0.58	<5.6	NA	<2.0	<5.3	4.54	<0.97	<2.0	16
4. Miami-Erie Canal (runoff hollow)			31.4													19
5. Miami-Erie Canal (south canal) (c)	28	22	1000	0.52	14.3	100	2.7	<0.61	<6.2	NA	<1.6	<3.8	83.7	<1.5	0.58	16
6. Miami-Erie Canal (overflow creek)			270													19
9. Area 18, Site Sanitary Landfill Cover	10.2	.08	.21			.15	.37		.67				.87			24
10. Historic Landfill (d)	15.7	1.2	17.8	.06		32.2	.67		1.1				1.4			24
11. Area 2, Thorium and Polonium Wastes	11.7	.08	2.06	.04		.97	.52		.88				.92			24
12. Area B, Drum Storage Area	11.5	.13	.5	ND		2.1	.41		.84				1.			24
14. Area C, Waste Storage Area (AKA Drum Staging Area and Chemical Waste Storage Area)	NA	NA	1.12	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7
15. Area C, Lithium Burn Area (AKA Lithium Carbonate Disposal) (e)	NA	NA	41.7	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7
17. Oil Burn Structure	19.3			0.163	1.38				1.13							7
18. Building 34, Fire Fighting Training Facility Pits	15.7		6.55		5.44	NA	NA	NA	0.901							7
19. Building 34, Historical Firefighting Training Pit	10.8				1.44				1.12							7

Table B.9. Summary of Radiological Data<sup>(a,b)</sup>

Site Name	Radiological Contaminants													Reference		
	Potassium-40	Plutonium-239	Plutonium-238	Cesium-137	Thorium-Total	Tritium	Thorium-232	Cobalt-60	Radium-224, -226, -228	Radon-222	Americium-241	Actinium-227	Uranium-233, -234, -238		Bismuth-210m	Bismuth-207
308. Site Survey Project Potential Hot Spot Location C0028			11.4		109.											6
309. Site Survey Project Potential Hot Spot Location S0307			5.38		6.46											6
310. Site Survey Project Potential Hot Spot Location S0647				270				1.3								6
311. Site Survey Project Potential Hot Spot Location S0706			28.9													6
312. Site Survey Project Potential Hot Spot Location S0971			0.15		5.02	2										6
313. Site Survey Project Potential Hot Spot Location S0982			0.43		14.94											6
314. Farm Trash Area			0.02				<2									7
319. Epoxy Resin Disposal																7

(a) - All units are reported in pCi/g unless otherwise noted.  
 (b) - Blank spaces implies not sampled.  
 (c) - Additional data on other analytes are available in reference 16.  
 (d) - Groundwater data. Unit of measure is pCi/L.  
 (e) - This site is the same as Site #19.  
 (f) - Groundwater data. Unit of measure is nCi/L.

LDL - Lower Detection Limit.  
 ND - Not detected.  
 NA - Not analyzed for.  
 NR - No result reported.

References:  
 6) DOE 1993d  
 7) DOE 1993c  
 11) Styron and Meyer 1981  
 13) DOE 1993d  
 18) DOE 1992a  
 24) DOE 1994

Environmental Restoration Program

**OPERABLE UNIT 3, MISCELLANEOUS SITES  
LIMITED FIELD INVESTIGATION REPORT**

**MOUND PLANT  
MIAMISBURG, OHIO**

**VOLUME I LFI REPORT TEXT (SECTIONS 1-6)**

July 1993

**FINAL**

(Revision 0)

Department of Energy

EG & G Mound Applied Technologies



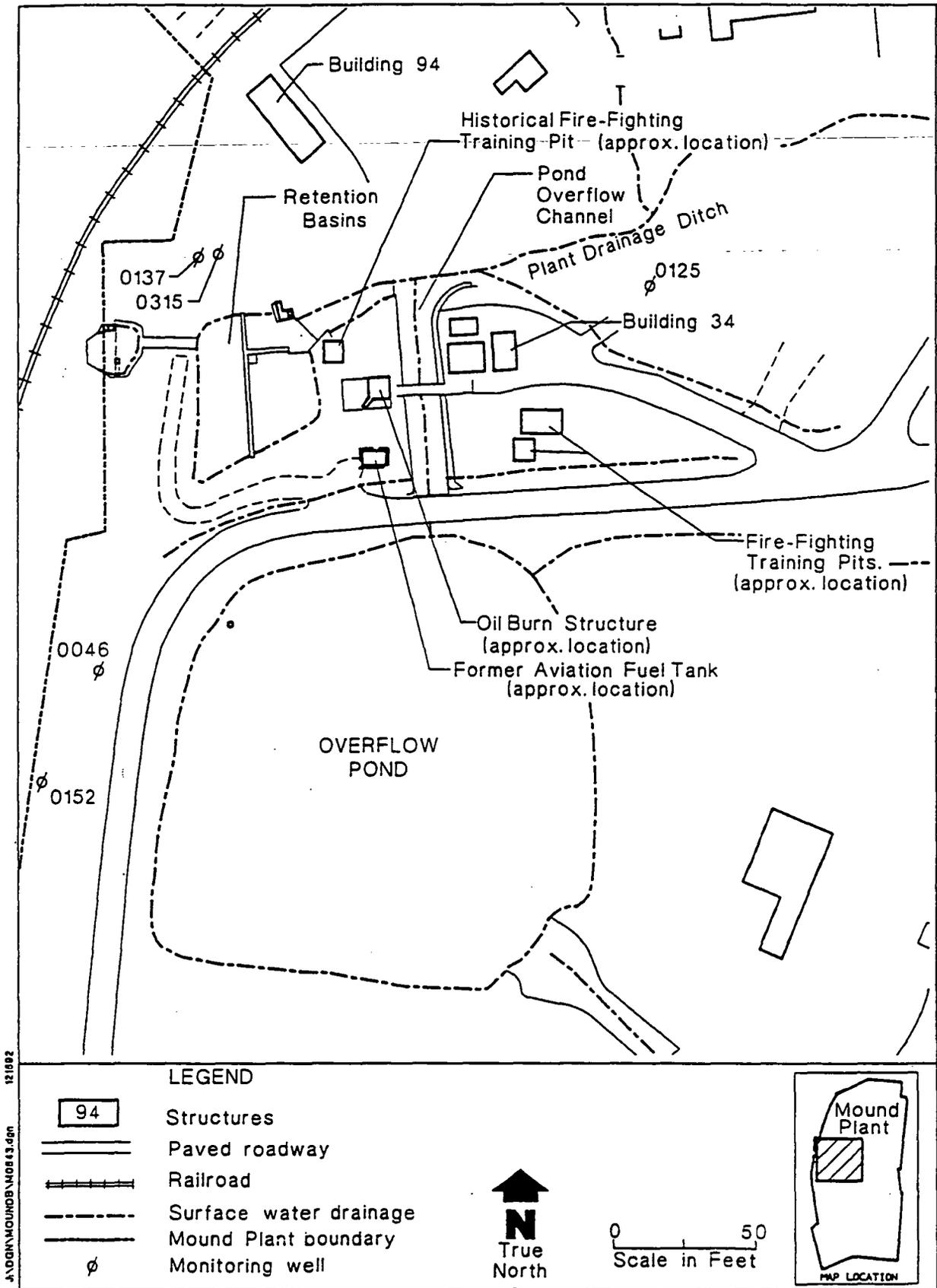
- MND33-0101-0001 — Interval 0.0- to 3.0-ft BGS. TCL VOCs were collected from borehole 0101 at the 0.0- to 2.0-ft BGS interval. Additional samples from the 0.0- to 2.0-ft and 2.0- to 3.0-ft BGS intervals in the offset borehole (0101A) were necessary to obtain required volume of sample.
- MND33-0101-0002 — Interval 3.0 to 7.0 ft BGS. Additional sample from the 5.0- to 7.0-ft BGS interval was necessary to obtain required volume of sample.
- MND33-0101-0003 — Interval 8.0 to 11.5 ft BGS. No recovery in the 8.0- to 10.0-ft interval split spoon from borehole 0101. Additional sample from the 10.0- to 11.5-ft BGS interval of borehole 0101 and the 8.0- to 10.0-ft BGS interval of offset borehole (0101A) was necessary to obtain the required sample volume.
- MND33-0101 — Auger refusal was met in the borehole MND33-0101 at 15.0 ft BGS. Borehole MND33-0101A was offset approximately 2 ft to the north to collect the remaining samples.
- MND33-0105-0001 — Interval 0.0 to 3.0 ft BGS. Additional samples from the 2.0- to 3.0-ft BGS interval of borehole 0105 and from the 0.0- to 2.0-ft BGS intervals of offset boreholes 0105A and 0105B were necessary to obtain the required sample volume.
- MND33-0105-0002 — Interval 3.0 to 5.0 ft BGS. Additional sample from the 3.0- to 5.0-ft BGS interval of offset borehole 0105A was necessary to obtain required sample volume.
- MND33-0105-0003 — Interval 8.5 to 12.5 ft BGS. Additional sample from the 10.5- to 12.5-ft BGS interval was necessary to obtain required sample volume.
- MND33-0109 — No samples were collected at 2.0 ft and 10.0 ft BGS because of insufficient soil recovery. Spoon refusal occurred at 8.0 ft BGS, and auger refusal occurred at 10.0 ft BGS. Drillers were unable to offset and drill additional borings because of interference with underground utilities.
- MND33-0109-0002 — Interval 3.0 to 7.0 ft BGS. Additional sample from the 5.0- to 7.0-ft BGS interval was necessary to obtain the required sample volume.

## ➔ 2.12. BUILDING 34 OIL BURN STRUCTURE

### 2.12.1. Site History

#### 2.12.1.1. Description of the Building 34 Oil Burn Structure

Building 34 is located in the lower valley area of the Mound Plant Site (Figure 2.12(a)). Building 34 was constructed in 1965 near the container testing facility to serve as a center for training emergency personnel. There are four sites associated with Building 34; the oil burn structure, the fire-fighting training pits, the



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Figure 2.12(a). Building 34 sites.

historical fire-fighting training pit, and the former aviation fuel tank. All four sites are located in the area bounded by the overflow pond to the south, the retention basins to the northwest, and Building 34 to the northeast, as shown in Figure 2.12(a). Petroleum products were used or stored in all four of these sites (RFA 1988). The oil burn structure is the only site that will be discussed in this subsection. The three other sites will be discussed in subsequent subsections.

The Building 34 Oil Burn Structure is located west of Building 34, east of the retention basin, and north of the Building 34 Former Aviation Fuel Tank (Figure 2.12(a)). The Building 34 former Aviation Fuel Tank, which was located approximately 50 ft from the oil burn structure, supplied aviation fuel through underground lines to the oil burn structure. The underground lines were located on the west side of the channel to the overflow pond. As part of the removal activities for the Building 34 former Aviation Fuel Tank, an assessment of the underground line was conducted by Bowser-Mormer (Bowser-Mormer 1991). Elevated PID readings up to 160 units were reported by Bowser-Mormer at a location east of the tank near the values for the test fire units. The oil burn structure was used to test barrels against shipping requirements by burning with a fuel fire for 15 minutes.

The oil burn structure is an open square pit, approximately 10 ft on each side and 8 ft deep, with 8-ft high walls. The oil burn structure is constructed of concrete block with brick-lined walls. The bottom is composed of an unknown thickness of concrete. The oil burn structure was removed from service in 1979 (RFA 1988). An unknown liquid was observed in the bottom of the oil burn structure in 1988. The condition of the concrete floor of the structure at the time of OU 3 sampling activities was observed as being cracked and broken in spots with enough soil in areas to support plant growth.

#### 2.12.1.2. Potential Area Contaminants

Aviation fuel was used in the test-burning operations at the oil burn structure. Components of aviation fuel normally include benzene, toluene, ethylbenzene, and xylene (BTEX). No known materials regulated under RCRA were stored or handled at the Building 34 sites. The burning of solvents and oils at the oil burn structure has not been documented. However, burning events involving solvents and oils can result in possible contamination involving dioxin/furans, and these compounds have been considered as potential area contaminants.

Information obtained in July 1991 indicated that the disposal of lithium was not conducted in Area C as described in the OU 3 Work Plan. Instead, disposal occurred in a swampy area at the present location of Building 34. Based upon this information, lithium analysis was included for all the soil samples collected at the Building 34 Oil Burn Structure.

Recently obtained information provided by EG&G indicates that the Building 34 area was the location of a cleanup of a small amount of depleted uranium. The exact location of the cleanup or the amount of radioactive material is not known. Based on the information concerning a cleanup of depleted uranium at

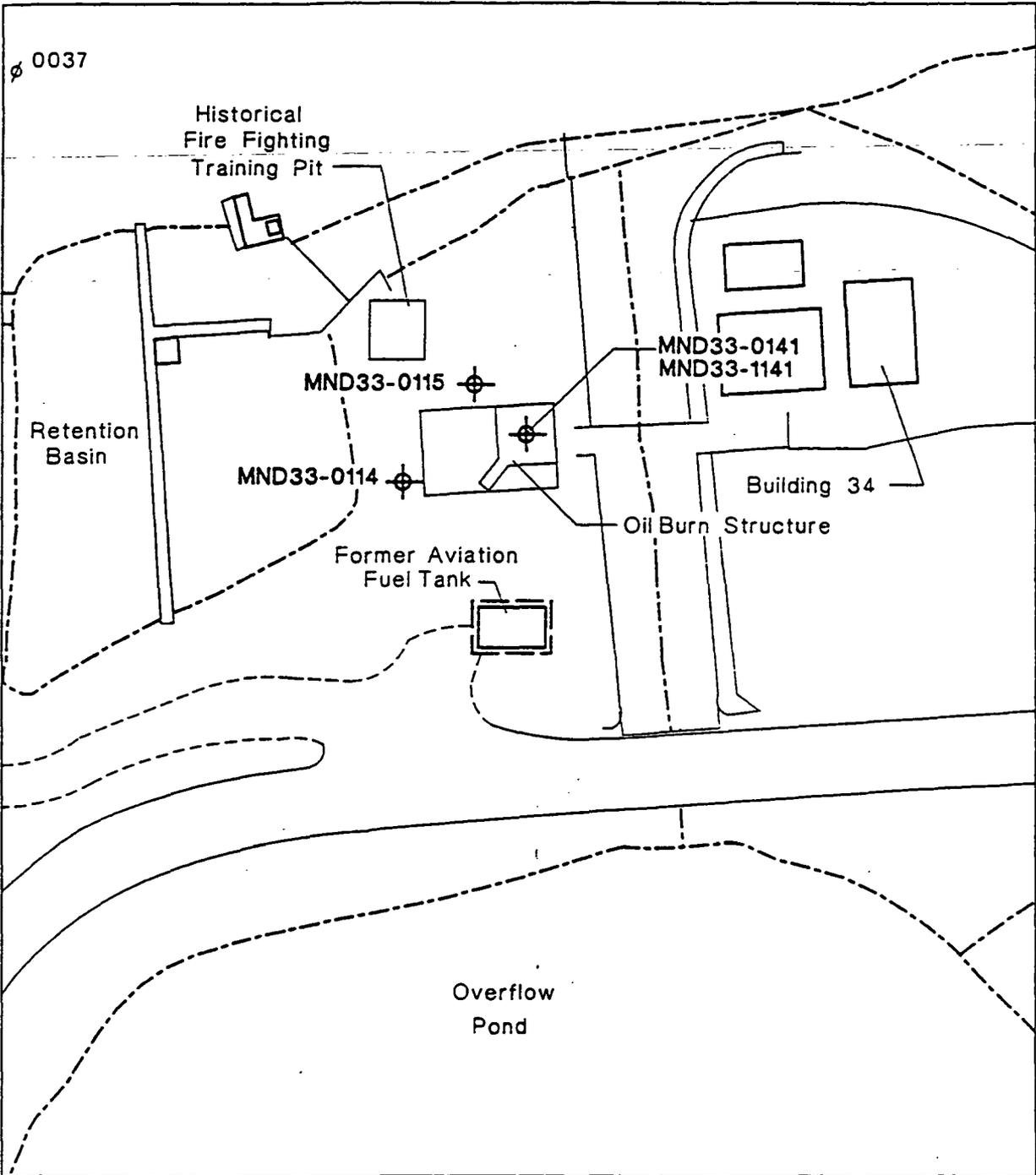
the Building 34 area, surface and near surface soil samples and sediment samples were analyzed via gamma spectroscopy at IT Laboratories. The samples were analyzed by gamma spectroscopy to detect cesium-137; potassium-40; radium-224, -226, and -228; and thorium-234, a daughter of uranium-238. The analysis of thorium-234 was performed to detect any traces of depleted uranium.

Prior environmental soil gas samples have been collected near Building 34, one at Station 31 near the fire-fighting training pits, and at Station 30, which was near the former aviation fuel tank. The samples were collected as part of the Area B OU 1 Investigation. The samples were analyzed for TCE, 1,2-trans-dichloroethene, chloroethene, toluene, benzene, and ethylbenzene. At Station 30, near the former aviation fuel tank, toluene was detected at 0.24 µg/L.

### **2.12.2. Field Investigation Procedures**

The objective of sampling at the Building 34 Oil Burn Structure was to assess whether the site is or has been a source of hazardous contaminant releases to the environment. The Building 34 Oil Burn Structure sampling activities were conducted by hollow stem auger drilling techniques and surface sampling with a stainless steel scoop. Surface water was also collected for laboratory analyses from inside the oil burn structure. Soil sample collection from two boreholes at the Building 34 site was conducted by WESTON representatives on 27 and 28 January 1992. Soil boring locations are shown in Figure 2.12(b). The soils in the vicinity of the Building 34 Oil Burn Structure are generally composed of a gravelly, silty, sandy clay to a gravelly silty clay to a depth of 11.0 ft BGS. Groundwater was not encountered in the soil borings during sampling. Groundwater was encountered nearby at the Building 34 Fire-Fighting Training Pits soil boring MND33-0112 at a depth of approximately 12.0 ft BGS. Sampling of surface water and sediment at the oil burn structure was conducted on 20 February 1992. All samples were shipped to IT Laboratories for analysis. A summary of samples collected at each location listing the sample identification number, sampling depth interval, date sampled, and requested analytical parameters is presented in Table II.12.

Soil, sediment, and surface water sampling for dioxin/furan analyses was conducted at the Building 34 Oil Burn Structure as requested by U.S. EPA during review of Revision 2 of the OU 3 LFI Work Plan. Dioxin/furan analyses were requested at sites where the burning of solvents and oils may have occurred. Dioxin/furan analyses were performed on subsurface soil samples from locations MND33-0114 and -0115 and on the sediment sample from inside the oil burn structure (MND33-0141). All samples collected were analyzed for dioxin/furan congener totals (tetra-octa) and for all 2,3,7,8- substituted isomers of dioxin/furans. All detections of 2,3,7,8- substituted isomers on the primary column were subjected to secondary column confirmation except for octa isomers of dioxin/furans.



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**LEGEND**

	Structures
	Paved roadway
	Unpaved roadway
	Surface water drainage
	Sample location
	Monitoring well

True North

Scale in Feet

Mound Plant

MPP LOCATION

Figure 2.12(b). Building 34 Oil Burn Structure soil sample locations.

**Table II.12. Building 34 Oil Burn Structure Sample Summary**

Sample Location	Sample Number	Matrix	Date Sampled	Sample Interval (ft BGS)	Parameters Analyzed
MND33-0114	MND33-0114-0001	Soil	1/28/92	3.0-7.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
	MND33-0114-1001	Soil	1/28/92	3.0-7.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH.
	MND33-0114-0002	Soil	1/28/92	7.0-11.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
MND33-0115	MND33-0115-0001	Soil	1/28/92	3.0-7.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
	MND33-0115-0002	Soil	1/28/92	7.0-11.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxins/furans, nitrite/nitrate; EPH; gamma spec.
	MND33-0115-4002	Water	1/28/92	---	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH.
MND33-0141	MND33-0141-0001	Sediment	2/15/92	---	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
MND33-1141	MND33-1141-0001	Surface Water	2/20/92	---	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH.
	MND33-1141-4001	Water	2/20/92	---	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH.
	MND33-1141-2001	Water	2/20/92	---	TCL VOCs.
	MND33-1141-2002	Water	2/20/92	---	TCL VOCs.

BGS - Below Ground Surface  
 EPH - Extractable Petroleum Hydrocarbons  
 ft - Feet  
 P/PCBs - Pesticides/Polychlorinated Biphenyls  
 SVOCs - Semivolatile Organic Compounds  
 TAL - Target Analyte List  
 TCL - Target Compound List  
 VOCs - Volatile Organic Compounds

Every effort was made to comply with approved sampling protocol; however, some deviations were necessary in order to obtain the required sample. A summary of deviations for samples collected at the Building 34 Oil Burn Structure is presented below:

- MND33-0114-0001 — Interval 3.0 to 7.0 ft BGS. Additional sample from the 5.0- to 7.0-ft BGS split spoon was necessary to obtain the required sample volume.
- MND33-0114-0002 — Interval 7.0 to 11.0 ft BGS. Split spoon samples from the 7.0- to 9.0-ft and 9.0- to 11.0-ft BGS intervals were necessary to obtain required sample volume.
- MND33-0115-0001 — Interval 3.0 to 7.0 ft BGS. Additional sample from the 5.0- to 7.0-ft BGS split spoon was necessary to obtain the required sample volume.
- MND33-0115-0002 — Interval 7.0 to 11.0 ft BGS. Split spoon samples from the 7.0- to 9.0-ft and 9.0- to 11.0-ft BGS intervals were necessary to obtain required sample volume.

## ~~2.13. BUILDING 34 FIRE-FIGHTING TRAINING PITS~~

### ~~2.13.1. Site History~~

#### ~~2.13.1.1. Description of the Building 34 Fire-Fighting Training Pits~~

~~There are four sites associated with Building 34; the fire-fighting training pits, the oil burn structure, the former aviation fuel tank, and the historical fire-fighting training pit. All four sites are located in the area bounded by the overflow pond to the south, the retention basin to the northwest, and Building 34 to the northeast (Figure 2.12(a)). Petroleum products were used or stored in all four of these sites (RFA 1988). The fire-fighting training pits are the only sites that will be discussed in this subsection.~~

~~The Building 34 Fire-Fighting Training Pits are located south of Building 34, north of the overflow pond, and east of the retention basins and the channel to the overflow pond (Figure 2.12(a)). The Building 34 Fire-Fighting Training Pits consist of two concrete pits, one approximately 10 ft by 10 ft by 1 ft deep, and the second approximately 20 ft by 10 ft by 1 ft deep. Three to five gallons of diesel fuel were used to create fires for fire-fighting training purposes. The fires were extinguished with water from a nearby hydrant. The operation period of the fire-fighting training pits is not documented. Black residue and rainwater have been observed in the smaller pit. Black residue has been observed in the larger pit, but water has not been observed in the pit. The concrete floors in both pits were cracked and broken in spots, and partially covered with sediment. Black-stained soils surround both of the pits.~~



### 3.12. BUILDING 34 OIL BURN STRUCTURE

The Building 34 Oil Burn Structure is located west of Building 34 in the lower valley area in the west central portion of Mound Plant. The oil burn structure is an open pit approximately 10 ft on each side, with 8-ft-high walls. The structure is composed of concrete block lined with brick. The thickness of bottom construction materials is not known.

The oil burn structure was used to test barrels against shipping requirements by burning a fuel fire for 15 minutes. Fuel for burning was transported from the former aviation fuel tank through underground piping. Aviation fuel was used in the test burning operations at the oil burn structure. The oil burn structure was removed from service in 1979. A description of the Building 34 Oil Burn Structure, including the field investigative procedures, is presented in subsection 2.12.

Two soil borings (five samples, one duplicate), one sediment sample, and one surface water sample was collected at the oil burn structure to assess potential environmental releases of contaminants during previous site activities. All soil samples from the oil burn structure were analyzed for TCL VOCs, SVOCs, P/PCBs; TAL inorganics; dioxin/furans; lithium; and EPH. In addition, soil samples MND33-0114-0001 and -0002; and MND33-0115-0001 and 0002 were analyzed for radionuclides using gamma spectroscopy, and soil sample MND33-0115-0002 was analyzed for nitrite/nitrate. The sediment sample collected from within the oil burn structure was analyzed for TCL VOCs, SVOCs, P/PCBs; TAL inorganics; dioxin/furans; lithium; EPH; and gamma spectroscopy. The surface water sample collected from within the oil burn structure was analyzed for TCL VOCs, SVOCs, P/PCBs; TAL inorganics; dioxin/furans; lithium; and EPH. The validated analytical results for all analytes detected above laboratory reporting limits for each sample analyzed are presented in Table III.16.

#### 3.12.1. Volatile Organic Compounds

VOC analyses for soil samples at the oil burn structure indicates that three VOCs, 4-methyl-2-pentanone, acetone, and carbon disulfide, were detected in sample MND33-0115-0002 at concentrations above laboratory reporting limits but well below PRGs. No other VOCs were detected in soils collected at the oil burn structure at concentrations above laboratory reporting limits. The detection of these compounds at concentrations below respective PRGs does not represent a significant impact to site soils.

VOCs were not detected at concentrations above the laboratory reporting limits in the sediment sample collected at the oil burn structure. Laboratory analysis for the oil burn structure surface water sample indicated that no VOCs were detected at concentrations above laboratory reporting limits.

### **3.12.2. Semivolatile Organic Compounds**

Analytical results for soil samples from the oil burn structure indicate that only one SVOC, bis(2-ethylhexyl)phthalate, was detected at concentrations above laboratory reporting limits but well below the PRG from one sample location MND33-0114-0002 and duplicate -1002. SVOCs were not detected at concentrations above laboratory reporting limits in any other soil sample from the oil burn structure. The presence of bis(2-ethylhexyl)phthalate in only one soil sample from the oil burn structure at a concentration well below the PRG does not represent a significant impact to soil quality at this site.

Analytical results for the oil burn structure sediment sample indicated a detected concentration of SVOC benzo(g,h,i)perylene at a concentration above the laboratory reporting limit but below the PRG. No other SVOCs were detected in the sediment sample at concentrations above the laboratory reporting limits. The presence of benzo(g,h,i)perylene at a concentration above the laboratory reporting limit and below the PRG does not represent a significant impact to sediment quality at the oil burn structure.

Laboratory analyses for the oil burn structure surface water sample indicate that SVOCs were not detected at concentrations above laboratory reporting limits.

### **3.12.3. Pesticides and Polychlorinated Biphenyls**

Analytical results for P/PCB analyses indicate that P/PCBs were not detected in oil burn structure soil, sediment, or surface water samples at concentrations above the laboratory reporting limits.

### **3.12.4. TAL Inorganics**

Inorganic compounds were not detected in soil samples from the oil burn structure at concentrations above the PRGs or proposed action levels.

Inorganic analytical results for the sediment sample collected at the oil burn structure show a concentration of lead detected at levels above the PRG. No other inorganic compounds were detected at concentrations above PRGs or proposed action levels. The elevated concentration of lead may represent an impact to sediment quality from previous site activities.

Inorganic analytical results for the surface water sample collected at the oil burn structure indicate that of the 11 metals detected at levels above the laboratory reporting limits, none of the detected metals were present at concentrations above PRGs. Six of the 11 metals: calcium, iron, lead, magnesium, potassium, and sodium, for which PRGs and toxicity values have not been established, were detected above the

laboratory reporting limits. However, these metals are not considered to reflect an impact to surface water quality because they are naturally occurring constituents and are present in soil and sediment samples in the area. The remaining five metals, aluminum, barium, cadmium, manganese, and thallium, were detected at concentrations well below the respective PRGs.

### 3.12.5. Dioxin/Furans

Dioxin/furans were not detected above laboratory reporting limits in any of the soil samples analyzed from the oil burn structure. Dioxin compounds were detected in the oil burn structure sediment sample. The compounds 1,2,3,4,6,7,8 heptachlorodibenzo-p-dioxin and octachlorodibenzo-p-dioxin were detected at concentrations above the laboratory reporting limits. Heptachlorodibenzo-p-dioxin was detected in the oil burn structure sediment sample at a concentration of 4.1 mg/Kg, which exceeds the PRG of 0.0001 mg/Kg.

The confirmation and quantification of all 2,3,7,8-substituted isomers of dioxin/furans was conducted by secondary column confirmation as verbally agreed with U.S. EPA on 13 February 1992. However, due to a combination of instrumental and extract regeneration problems, the IT Laboratory was unable to confirm the initial results. The presence of concentrations of dioxins in the oil burn structure sediment indicates that additional site characterization should be considered.

Dioxin/furans were not detected in the surface water sample collected for analyses from the oil burn structure.

### 3.12.6. Lithium

Analytical results for lithium analyses for soil samples collected at the oil burn structure indicate concentrations of lithium present in each soil sample at levels above the laboratory reporting limits but well below the PRG.

Concentrations of lithium were not detected in the oil burn structure sediment sample at levels above the laboratory reporting limit. Lithium was not detected in the oil burn structure surface water sample at concentrations above the laboratory reporting limit.

The detected concentrations of lithium does not represent an impact to soil quality as a result of previous site activities involving the disposal of lithium carbonate.

### **3.12.7. Extractable Petroleum Hydrocarbons**

EPH compounds were not detected in soil samples from the oil burn structure at concentrations above the laboratory reporting limits. EPH compounds were detected in the oil burn structure sediment sample at a concentration above the laboratory reporting limit but below the PRG. EPH compounds were not detected at concentrations above the laboratory reporting limit in the oil burn structure surface water sample.

### **3.12.8. Nitrite/Nitrates**

A single soil sample (MND33-0115-0002) was analyzed for nitrite/nitrates. Concentrations of nitrite/nitrates were not detected in this sample at levels above the laboratory reporting limits.

### **3.12.9. Gamma Spectroscopy**

Recently obtained information reported that a cleanup of depleted uranium was conducted at Building 34. As a result of this information, surface and near surface soil samples from the oil burn structure area and the sediment sample from inside the structure were analyzed using gamma spectroscopy. Laboratory analyses via gamma spectroscopy detects the radionuclide thorium-234 which is the decay product and daughter of uranium-238. Thorium-234 was detected at soil sample MND33-0114-0001 at a concentration of 1.38 pCi/g, which is slightly above the PRG of 1.1 pCi/g. No other radionuclides were detected in soil samples from the site at concentrations above the PRGs. Thorium-234 was detected in one of the two sediment samples analyzed from sediment inside the structure at a concentration of 1.38 pCi/g and cesium-137 was detected at a concentration of .163 pCi/g, which is slightly above the PRG. Detected concentrations of potassium-40 in soil and sediment samples are within background concentration levels. (Eisenbud, 1987). Radionuclides were not detected in the surface water sample collected from the oil burn structure at concentrations above laboratory reporting limits.

The detection of radionuclides at the oil burn structure, particularly thorium-234, indicates the need for further characterization at the site to determine possible impact to site soil and sediment from previous site activities.

### **3.12.10. Summary**

The analytical results for soil, sediment, and surface water samples collected at the Building 34 Oil Burn Structure indicate that previous site activities may have impacted site conditions. Sediment from the Building 34 Oil Burn Structure contains detectable concentrations of dioxins, radionuclides, and lead. Further characterization of soil and sediment quality at the site is recommended.

TABLE III.16  
 BUILDING 34 OIL BURN STRUCTURE  
 Location: MND33-0114  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/17/93

Parameter	Sample Id	Matrix	Units of Measure	Laboratory Reporting Limit	Validated Result (1)	Data Validation Qualifier	PRG	Run Typ
ALUMINUM, TOTAL	0001	S	mG/Kg	6.	7900.	J	7.8E+05	I
ALUMINUM, TOTAL	0002	S	mG/Kg	6.	3370.		7.8E+05	I
ALUMINUM, TOTAL	1001	S	mG/Kg	6.	4210.	J	7.8E+05	I
ANTIMONY, TOTAL	0001	S	mG/Kg	3.	12.6	J	1.1E+02	I
ANTIMONY, TOTAL	0002	S	mG/Kg	3.	31.9	J	1.1E+02	I
ANTIMONY, TOTAL	1001	S	mG/Kg	3.	31.2	J	1.1E+02	I
ARSENIC, TOTAL	0001	S	mG/Kg	.2	9.0	J	2.1E+03	I
ARSENIC, TOTAL	0002	S	mG/Kg	.2	4.3	J	2.1E+03	I
ARSENIC, TOTAL	1001	S	mG/Kg	.2	7.3	J	2.1E+03	I
BARIUM, TOTAL	0001	S	mG/Kg	.2	55.6	J	1.9E+04	I
BARIUM, TOTAL	0002	S	mG/Kg	.2	29.1	J	1.9E+04	I
BARIUM, TOTAL	1001	S	mG/Kg	.2	29.1	J	1.9E+04	I
BERYLLIUM	0001	S	mG/Kg	.2	.69		1.5E-01	I
BERYLLIUM	0002	S	mG/Kg	.2	0.65	J	1.5E-01	I
BERYLLIUM	1001	S	mG/Kg	.2	0.73	J	1.5E-01	I
BIS(2-ETHYLHEXYL)PHTHALATE	0002	S	mG/Kg	0.74	1.9	J	4.6E+01	I
BIS(2-ETHYLHEXYL)PHTHALATE	1001	S	mG/Kg	0.77	1.1	J	4.6E+01	I
CADMIUM, TOTAL	0001	S	mG/Kg	.2	3.6	J	1.4E+02	I
CADMIUM, TOTAL	0002	S	mG/Kg	.2	6.7	J	1.4E+02	I
CADMIUM, TOTAL	1001	S	mG/Kg	.2	7.1	J	1.4E+02	I
CALCIUM, TOTAL	0001	S	mG/Kg	2.	41900.	J	NA	I
CALCIUM, TOTAL	0002	S	mG/Kg	2.	118000.		NA	I
CALCIUM, TOTAL	1001	S	mG/Kg	2.	128000.	J	NA	I
CHROMIUM, TOTAL	0001	S	mG/Kg	1.	22.3		1.4E+03	I
CHROMIUM, TOTAL	0002	S	mG/Kg	1.	24.3	J	1.4E+03	I
CHROMIUM, TOTAL	1001	S	mG/Kg	1.	27.3	J	1.4E+03	I
COBALT, TOTAL	0001	S	mG/Kg	1.	11.3		3.9E+01	I
COBALT, TOTAL	0002	S	mG/Kg	1.	8.6	J	3.9E+01	I
COBALT, TOTAL	1001	S	mG/Kg	1.	8.9	J	3.9E+01	I
COPPER, TOTAL	0001	S	mG/Kg	1.	20.3		1.0E+04	I
COPPER, TOTAL	0002	S	mG/Kg	1.	16.9	J	1.0E+04	I
COPPER, TOTAL	1001	S	mG/Kg	1.	17.4	J	1.0E+04	I
IRON, TOTAL	0001	S	mG/Kg	1.	18000.	J	NA	I
IRON, TOTAL	0002	S	mG/Kg	1.	8590.		NA	I
IRON, TOTAL	1001	S	mG/Kg	1.	10000.	J	NA	I
LEAD, TOTAL	0001	S	mG/Kg	.2	9.8		5.3E+01	I
LEAD, TOTAL	0002	S	mG/Kg	.2	5.6		5.3E+01	I
LEAD, TOTAL	1001	S	mG/Kg	.2	7.5		5.3E+01	I
LITHIUM, TOTAL	0001	S	mG/Kg	5.	29.		5.4E+03	I
LITHIUM, TOTAL	0002	S	mG/Kg	5.	18.5		5.4E+03	I
LITHIUM, TOTAL	1001	S	mG/Kg	5.	23.5		5.4E+03	I
MAGNESIUM, TOTAL	0001	S	mG/Kg	5.	16900.	J	NA	I

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mG/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

General  
 Chemistry

TABLE III.16  
 BUILDING 34 OIL BURN STRUCTURE  
 Location: MN033-0114  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/17/93

Parameter	Sample Id	Matrix	Units of Measure	Laboratory Reporting Limit	Validated Result (1)	Data Validation Qualifier	PRG	Run Type
MAGNESIUM, TOTAL	0002	S	mG/Kg	5.	50500.		NA	I
MAGNESIUM, TOTAL	1001	S	mG/Kg	5.	52600.	J	NA	I
MANGANESE, TOTAL	0001	S	mG/Kg	.2	458.	J	2.7E+04	I
MANGANESE, TOTAL	0002	S	mG/Kg	.2	204.		2.7E+04	I
MANGANESE, TOTAL	1001	S	mG/Kg	.2	214.	J	2.7E+04	I
NICKEL, TOTAL	0001	S	mG/Kg	2.	28.5		5.4E+03	I
NICKEL, TOTAL	0002	S	mG/Kg	2.	21.8	J	5.4E+03	I
NICKEL, TOTAL	1001	S	mG/Kg	2.	23.4	J	5.4E+03	I
POTASSIUM, TOTAL	0001	S	mG/Kg	10.	907.		NA	I
POTASSIUM, TOTAL	0002	S	mG/Kg	10.	633.		NA	I
POTASSIUM, TOTAL	1001	S	mG/Kg	10.	775.		NA	I
POTASSIUM-40	0001	S	pCi/g	.5	16.9		NA	I
POTASSIUM-40	0002	S	pCi/g	.5	11.3		NA	I
RADIUM-224	0001	S	pCi/g	.1	.742		5.0E+00	I
RADIUM-224	0002	S	pCi/g	.1	.543		5.0E+00	I
RADIUM-226	0001	S	pCi/g	.1	.845		5.0E+00	I
RADIUM-226	0002	S	pCi/g	.1	.738		5.0E+00	I
RADIUM-228	0001	S	pCi/g	.2	.801		5.0E+00	I
RADIUM-228	0002	S	pCi/g	.2	.476		5.0E+00	I
SILVER, TOTAL	0001	S	mG/Kg	1.	9.5	J	1.4E+03	I
SILVER, TOTAL	0002	S	mG/Kg	1.	16.8	J	1.4E+03	I
SILVER, TOTAL	1001	S	mG/Kg	1.	17.7	J	1.4E+03	I
SODIUM, TOTAL	0001	S	mG/Kg	10.	98.4		NA	I
SODIUM, TOTAL	0002	S	mG/Kg	10.	175.	J	NA	I
SODIUM, TOTAL	1001	S	mG/Kg	10.	177.	J	NA	I
THALLIUM, TOTAL	0001	S	mG/Kg	.2	0.53	J	NA	I
THALLIUM, TOTAL	0002	S	mG/Kg	.2	0.52	J	NA	I
THORIUM-234	0001	S	pCi/g	.5	1.38		1.1E+00	I
THORIUM-234	0002	S	pCi/g	.5	1.07		1.1E+00	I
VANADIUM, TOTAL	0001	S	mG/Kg	1.	26.1		1.9E+03	I
VANADIUM, TOTAL	0002	S	mG/Kg	1.	22.3	J	1.9E+03	I
VANADIUM, TOTAL	1001	S	mG/Kg	1.	25.3	J	1.9E+03	I
ZINC, TOTAL	0001	S	mG/Kg	.5	50.7	J	5.4E+04	I
ZINC, TOTAL	0002	S	mG/Kg	.5	31.	J	5.4E+04	I
ZINC, TOTAL	1001	S	mG/Kg	.5	31.4	J	5.4E+04	I

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mG/Kg - Milligrams per Kilogram  
 pCi/g - Picocuries per Gram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

## General Chemistry

GAMMA SPECTROSCOPY

TABLE III.16  
 BUILDING 34 OIL BURN STRUCTURE  
 Location: MND33-0115  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/17/93

Parameter	Sample Id	Matrix	Units of Measure	Laboratory Reporting Limit	Validated Result (1)	Data Validation Qualifier	PRG	Run Type
4-METHYL-2-PENTANONE	0002	S	mG/Kg	0.011	0.013		1.4E+04	I
ACETONE	0002	S	mG/Kg	0.011	0.054		2.7E+04	I
ALUMINUM, TOTAL	0001	S	mG/Kg	6.	12600.		7.8E+05	I
ALUMINUM, TOTAL	0002	S	mG/Kg	6.	4540.		7.8E+05	I
ANTIMONY, TOTAL	0002	S	mG/Kg	3.	25.6	J	1.1E+02	I
ARSENIC, TOTAL	0001	S	mG/Kg	.2	7.3	J	2.1E+03	I
ARSENIC, TOTAL	0002	S	mG/Kg	.2	8.2	J	2.1E+03	I
BARIUM, TOTAL	0001	S	mG/Kg	.2	131.	J	1.9E+04	I
BARIUM, TOTAL	0002	S	mG/Kg	.2	36.4	J	1.9E+04	I
BERYLLIUM	0001	S	mG/Kg	.2	.96		1.5E-01	I
BERYLLIUM	0002	S	mG/Kg	.2	.66	J	1.5E-01	I
CADMIUM, TOTAL	0001	S	mG/Kg	.2	2.2	J	1.4E+02	I
CADMIUM, TOTAL	0002	S	mG/Kg	.2	6.1	J	1.4E+02	I
CALCIUM, TOTAL	0001	S	mG/Kg	2.	4300.		NA	I
CALCIUM, TOTAL	0002	S	mG/Kg	2.	100000.		NA	I
CARBON DISULFIDE	0002	S	mG/Kg	0.006	0.007		2.7E+04	I
CHROMIUM, TOTAL	0001	S	mG/Kg	1.	18.		1.4E+03	I
CHROMIUM, TOTAL	0002	S	mG/Kg	1.	24.6	J	1.4E+03	I
COBALT, TOTAL	0001	S	mG/Kg	1.	16.		3.9E+01	I
COBALT, TOTAL	0002	S	mG/Kg	1.	9.2	J	3.9E+01	I
COPPER, TOTAL	0001	S	mG/Kg	1.	18.3		1.0E+04	I
COPPER, TOTAL	0002	S	mG/Kg	1.	18.4	J	1.0E+04	I
IRON, TOTAL	0001	S	mG/Kg	1.	21700.	J	NA	I
IRON, TOTAL	0002	S	mG/Kg	1.	11800.	J	NA	I
LEAD, TOTAL	0001	S	mG/Kg	.2	13.5		5.3E+01	I
LEAD, TOTAL	0002	S	mG/Kg	.2	6.5		5.3E+01	I
LITHIUM, TOTAL	0001	S	mG/Kg	5.	29.1		5.4E+03	I
LITHIUM, TOTAL	0002	S	mG/Kg	5.	15.1		5.4E+03	I
MAGNESIUM, TOTAL	0001	S	mG/Kg	5.	2950.		NA	I
MAGNESIUM, TOTAL	0002	S	mG/Kg	5.	42600.		NA	I
MANGANESE, TOTAL	0001	S	mG/Kg	.2	709.		2.7E+04	I
MANGANESE, TOTAL	0002	S	mG/Kg	.2	237.		2.7E+04	I
NICKEL, TOTAL	0001	S	mG/Kg	2.	24.7		5.4E+03	I
NICKEL, TOTAL	0002	S	mG/Kg	2.	24.0	J	5.4E+03	I
POTASSIUM, TOTAL	0001	S	mG/Kg	10.	1460.		NA	I
POTASSIUM, TOTAL	0002	S	mG/Kg	10.	892.		NA	I

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mG/Kg - Milligrams per Kilogram  
 pCi/g - Picocuries per Gram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

# General Chemistry

TABLE 111.16  
 BUILDING 34 OIL BURN STRUCTURE  
 Location: MND33-0115  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/17/93

Parameter	Sample Id	Matrix	Units of Measure	Laboratory Reporting Limit	Validated Result (1)	Data Validation Qualifier	PRG	Ru Ty
POTASSIUM-40	0001	S	pCi/g	.5	19.3		NA	I
POTASSIUM-40	0002	S	pCi/g	.5	11.5		NA	I
RADIUM-224	0001	S	pCi/g	.1	1.0		5.0E+00	I
RADIUM-224	0002	S	pCi/g	.1	.575		5.0E+00	I
RADIUM-226	0001	S	pCi/g	.1	.879		5.0E+00	I
RADIUM-226	0002	S	pCi/g	.1	.686		5.0E+00	I
RADIUM-228	0001	S	pCi/g	.2	1.13		5.0E+00	I
RADIUM-228	0002	S	pCi/g	.2	.483		5.0E+00	I
SILVER, TOTAL	0002	S	mG/Kg	1.	15.4	J	1.4E+03	I
SODIUM, TOTAL	0001	S	mG/Kg	10.	79.4		NA	I
SODIUM, TOTAL	0002	S	mG/Kg	10.	151.	J	NA	I
THALLIUM, TOTAL	0002	S	mG/Kg	.2	0.50	J	NA	I
THORIUM-234	0001	S	pCi/g	.5	.973		1.1E+00	I
THORIUM-234	0002	S	pCi/g	.5	.548		1.1E+00	I
VANADIUM, TOTAL	0001	S	mG/Kg	1.	27.7		1.9E+03	I
VANADIUM, TOTAL	0002	S	mG/Kg	1.	23.6	J	1.9E+03	I
ZINC, TOTAL	0001	S	mG/Kg	.5	59.		5.4E+04	I
ZINC, TOTAL	0002	S	mG/Kg	.5	38.7		5.4E+04	I

- PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mG/Kg - Milligrams per Kilogram  
 pCi/g - Picocuries per Gram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

## General Chemistry

### GAMMA SPECTROSCOPY

TABLE III.16  
 BUILDING 34 OIL BURN STRUCTURE  
 Location: MND33-0141  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/17/93

Parameter	Sample Id	Matrix	Units of Measure	Laboratory Reporting Limit	Validated Result (1)	Data Validation Qualifier	PRG	Ru Typ
1,2,3,4,6,7,8-HpCDD	0001	SE	NG/G	0.	2.3		NA	I
ALUMINUM, TOTAL	0001	SE	mG/Kg	6.	7140.		7.8E+05	I
ANTIMONY, TOTAL	0001	SE	mG/Kg	3.	69.0	J	1.1E+02	I
ARSENIC, TOTAL	0001	SE	mG/Kg	.2	3.3	J	2.1E+03	I
BARIUM, TOTAL	0001	SE	mG/Kg	.2	90.7		1.9E+04	I
BENZO(G,H,I)PERYLENE	0001	SE	mG/Kg	1.2	2.2	J	4.0E+00	I
BERYLLIUM	0001	SE	mG/Kg	.2	.68		1.5E-01	I
CADMIUM, TOTAL	0001	SE	mG/Kg	.2	24.2		1.4E+02	I
CALCIUM, TOTAL	0001	SE	mG/Kg	2.	49400.		NA	I
CESIUM-137	0001	SE	pCi/g	.1	.163		2.1E-02	I
CHROMIUM, TOTAL	0001	SE	mG/Kg	1.	92.1		1.4E+03	I
COBALT, TOTAL	0001	SE	mG/Kg	1.	28.		3.9E+01	I
COPPER, TOTAL	0001	SE	mG/Kg	1.	92.8		1.0E+04	I
CYANIDE	0001	SE	mG/Kg	.2	.75		5.4E+03	I
EXTRACTABLE HYD AS DIESEL FUEL	0001	SE	mG/Kg	5.	23.		105. total	I
HEPTACHLORODIBENZO-P-DIOXIN	0001	SE	NG/G	0.	4.1		1.0E-04	I
IRON, TOTAL	0001	SE	mG/Kg	1.	100000.		NA	I
LEAD, TOTAL	0001	SE	mG/Kg	.2	3100.		5.3E+01	I
MAGNESIUM, TOTAL	0001	SE	mG/Kg	5.	17200.		NA	I
MANGANESE, TOTAL	0001	SE	mG/Kg	.2	829.		2.7E+04	I
NICKEL, TOTAL	0001	SE	mG/Kg	2.	107.		5.4E+03	I
OCTACHLORODIBENZO-P-DIOXIN	0001	SE	NG/G	0.	16.6		NA	I
POTASSIUM, TOTAL	0001	SE	mG/Kg	10.	1270.		NA	I
POTASSIUM-40	0001	SE	pCi/g	.5	10.8		NA	I
RADIUM-224	0001	SE	pCi/g	.1	.922		5.0E+00	I
RADIUM-226	0001	SE	pCi/g	.1	.830		5.0E+00	I
RADIUM-228	0001	SE	pCi/g	.2	.944		5.0E+00	I
SILVER, TOTAL	0001	SE	mG/Kg	1.	13.5	J	1.4E+03	I

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 SE - Sediment  
 mG/Kg - Milligrams per Kilogram  
 pCi/g - Picocuries per Gram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

## General Chemistry

TABLE III.16  
 BUILDING 34 OIL BURN STRUCTURE  
 Location: MND33-0141  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/17/93

Parameter	Sample Id	Matrix	Units of Measure	Laboratory Reporting Limit	Validated Result (1)	Data Validation Qualifier	PRG	Run Typ
SODIUM, TOTAL	0001	SE	mG/Kg	10.	560.		NA	I
THORIUM-234	0001	SE	pCi/g	.5	1.26		1.1E+00	I
VANADIUM, TOTAL	0001	SE	mG/Kg	1.	41.8		1.9E+03	I
ZINC, TOTAL	0001	SE	mG/Kg	.5	791.		5.4E+04	I

- PRG - Preliminary Remediation Goals (Risk Based)
- I - Initial Analysis
- SE - Sediment
- mG/Kg - Milligrams per Kilogram
- pCi/g - Picocuries per Gram
- (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

# General Chemistry

## GAMMA SPECTROSCOPY

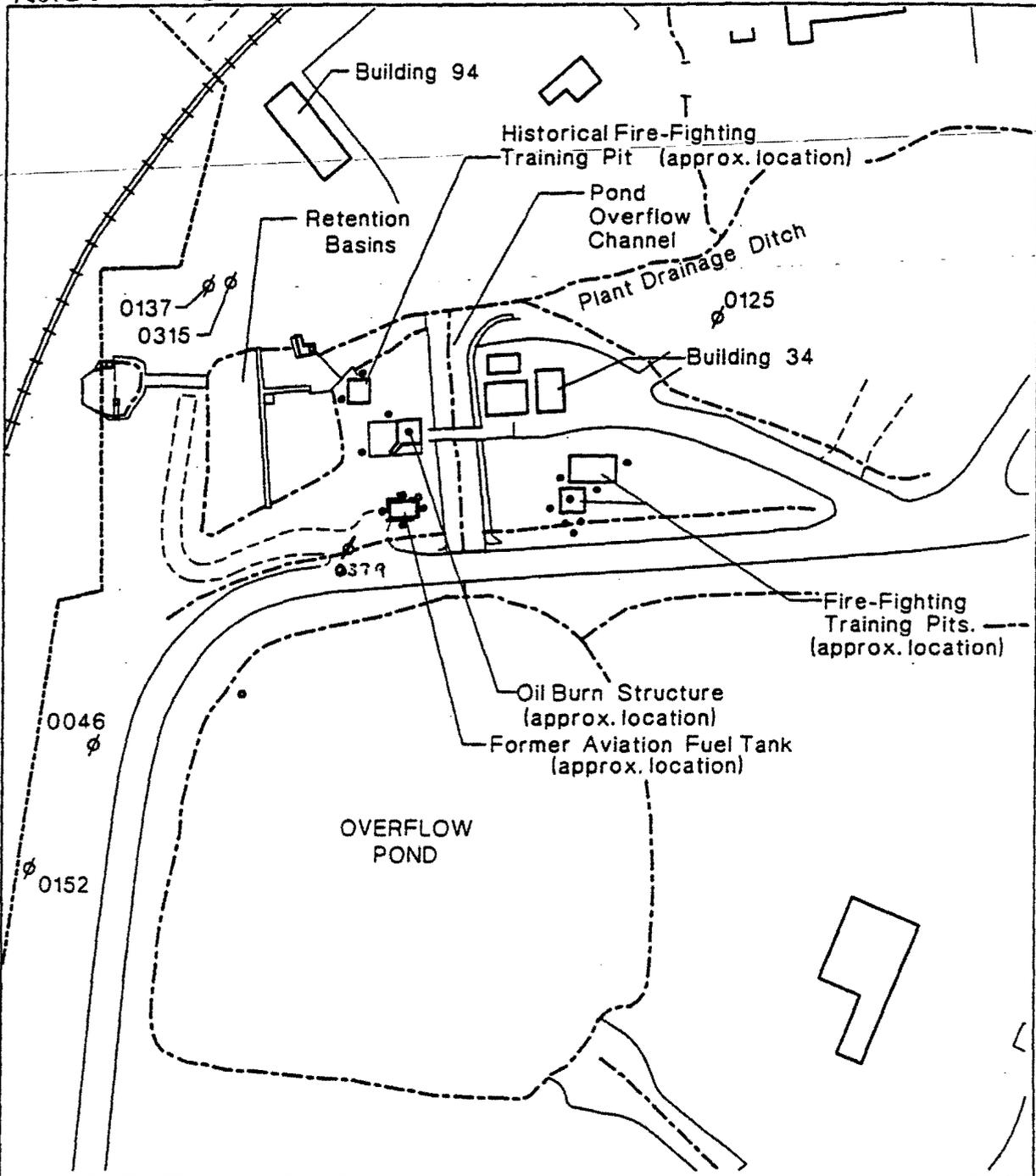
TABLE III.16  
 BUILDING 34 OIL BURN STRUCTURE  
 Location: MND33-1141  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

Parameter	Sample Id	Matrix	Units of Measure	Laboratory Reporting Limit	Validated Result (1)	Data Validation Qualifier	PRG
ALUMINUM, TOTAL	0001	W	mg/L	0.06	0.296		1.1E+02
BARIUM, TOTAL	0001	W	mg/L	0.002	0.0257		2.6E+00
CADMIUM, TOTAL	0001	W	mg/L	0.002	0.0021		1.8E-02
CALCIUM, TOTAL	0001	W	mg/L	0.02	30.6		NA
CALCIUM, TOTAL	4001	W	mg/L	0.02	0.0373		NA
IRON, TOTAL	0001	W	mg/L	0.01	2.61		NA
IRON, TOTAL	4001	W	mg/L	0.01	0.0218		NA
LEAD, TOTAL	0001	W	mg/L	0.002	0.036		NA
MAGNESIUM, TOTAL	0001	W	mg/L	0.05	4.88		NA
MANGANESE, TOTAL	0001	W	mg/L	0.002	0.0437		3.7E+00
POTASSIUM, TOTAL	0001	W	mg/L	0.1	5.82		NA
SODIUM, TOTAL	0001	W	mg/L	0.1	10.5		NA
THALLIUM, TOTAL	4001	W	mg/L	0.002	0.0021		NA

- PRG - Preliminary Remediation Goals (Risk Based)
- I - Initial Analysis
- mg/L - Micrograms per Liter
- (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

## General Chemistry

NOTE: • OUS LIMITED FIELD INVESTIGATION SAMPLE POINT



121592  
J:\DDM\KOUNDB\MDB83.dwg

<b>LEGEND</b>				
	Structures			
	Paved roadway			
	Railroad			
	Surface water drainage			
	Mound Plant boundary			
	Monitoring well			

Figure 2.12(a). Building 34 sites.

Environmental Restoration Program

**Operable Unit 9  
Hydrogeologic Investigation:  
Groundwater Sweeps Report**

**MOUND PLANT  
MIAMISBURG, OHIO**

April 1995

**Technical Memorandum  
(Revision 1)**

**U.S. Department of Energy  
Ohio Field Office**

EG&G Mound Applied Technologies



3. ANALYTICAL RESULTS

Table III.2. (page 7 of 9)



ANALYTE	0356	0370	0372	0373	0375	0376	0377	0378	0379	0380	0381	0382	0383
Arsenic, Soluble													
Arsenic, Total													
Barium, Soluble													
Barium, Total													
Cadmium, Soluble	/•									/•			
Cadmium, Total													
Chromium, Soluble				/•			•/•				/•		
Chromium, Total				/•			•/•						
Lead, Soluble												/•	
Lead, Total		•	/•	•		•	•		•	•			
Mercury, Soluble													
Mercury, Total													
Selenium, Soluble													
Selenium, Total													
Silver, Soluble										/•			
Silver, Total													
Tritium	/•	•/•		•/•	/•	•/•	•/•	•/•	•/•				
Plutonium-238													
Uranium-234	/•												
Uranium-235/236								•					
Uranium-238	•/•	•/•		•									
1,1,1-Trichloroethane							•/•	•/•					
1,2-cis-Dichloroethene		•/•		•/•									
1,2-trans-Dichloroethene		•											
Bis(2-ethylhexyl)phthalate				•						•			
Tetrachloroethene		•/•		•/•									
Trichloroethene		•/•		•/•	•/•				•/•				
Trichlorofluoromethane		•		•/•									
Trichloromethane		•/•		•/•									
Vinyl Chloride													

Notes:

- - indicates an analyte detection during the Fall sampling event
- /• - indicates an analyte detection during the Spring sampling event
- /• - shading indicates analyte detections above maximum contaminant levels

GROUNDWATER QUALITY DATA BY LOCATION  
 SITE: SWP98 GROUNDWATER SWEEPS  
 LOCATION: 0379  
 NORTH COORDINATE: 597179.70 FT  
 EAST COORDINATE: 1495153.92 FT  
 09/10/93 TO 10/15/93  
 REPORT DATE: 04/03/95

FORMATION OF COMPLETION: ALLUVIUM (AL)  
 HYDRAULIC FLOW RELATIONSHIP: ON SITE (O)

PARAMETER NAME	LOG DATE	SAMPLE ID	UNITS OF MEASURE	PVI	LAB VALUE	PVI	VALIDATED VALUE	RUN TYPE
AMERICIUM-241	09/26/93	0001	PCI/L		.0783		REJECT	I
ANTIMONY, SOLUBLE	09/26/93	0001	UG/L	B	2.0		2.0	I
BARIUM, SOLUBLE	09/26/93	0001	UG/L	B	147.		147.	I
BARIUM, TOTAL	09/26/93	0001	UG/L	B	158.0		158.0	I
CALCIUM, SOLUBLE	09/26/93	0001	UG/L		146000.	J	146000.	I
CALCIUM, TOTAL	09/26/93	0001	UG/L		160000.	J	160000.	I
CHLORIDE	09/26/93	0001	MG/L		427.		427.	I
CHROMIUM, TOTAL	09/26/93	0001	UG/L		71.7	J	71.7	I
FLUORIDE	09/26/93	0001	MG/L		0.48		0.48	I
IRON, SOLUBLE	09/26/93	0001	UG/L		117.		117.	I
IRON, TOTAL	09/26/93	0001	UG/L		1360.	J	1360.	I
LEAD, TOTAL	09/26/93	0001	UG/L		16.0		16.0	I
LITHIUM, SOLUBLE	09/26/93	0001	UG/L	B	26.9	J	26.9	I
LITHIUM, TOTAL	09/26/93	0001	UG/L	B	28.6	J	28.6	I
MAGNESIUM, SOLUBLE	09/26/93	0001	UG/L		59700.	J	59700.	I
MAGNESIUM, TOTAL	09/26/93	0001	UG/L		63000.	J	63000.	I
MANGANESE, SOLUBLE	09/26/93	0001	UG/L	B	11.6		11.6	I
MANGANESE, TOTAL	09/26/93	0001	UG/L	B	12.7		12.7	I
MOLYBDENUM	09/26/93	0001	UG/L	B	4.6		4.6	I
MOLYBDENUM, SOLUBLE	09/26/93	0001	UG/L	B	4.0		4.0	I
NICKEL, SOLUBLE	09/26/93	0001	UG/L	B	26.3		26.3	I
NICKEL, TOTAL	09/26/93	0001	UG/L		40.9		40.9	I
NITRATE NITRITE	09/26/93	0001	MG/L		0.053		0.053	I
PLUTONIUM-239/240	09/26/93	0001	PCI/L		.136		REJECT	I
POTASSIUM, SOLUBLE	09/26/93	0001	UG/L	B	4010.		4010.	I
POTASSIUM, TOTAL	09/26/93	0001	UG/L	B	4060.		4060.	I
SODIUM, SOLUBLE	09/26/93	0001	UG/L		138000.	J	138000.	I
SODIUM, TOTAL	09/26/93	0001	UG/L		146000.	J	146000.	I
TETRACHLOROETHENE	09/26/93	0001	UG/L		2.4	J	2.4	I

PARAMETER VALUE INDICATOR (PVI): U - LESS THAN DETECTION LIMIT

GROUNDWATER QUALITY DATA BY LOCATION  
 SITE: SWP98 GROUNDWATER SWEEPS  
 LOCATION: 0379  
 NORTH COORDINATE: 597179.70 FT  
 EAST COORDINATE: 1495153.92 FT  
 09/10/93 TO 10/15/93  
 REPORT DATE: 04/03/95

FORMATION OF COMPLETION: ALLUVIUM (AL)  
 HYDRAULIC FLOW RELATIONSHIP: ON SITE (O)

PARAMETER NAME	LOG DATE	SAMPLE ID	UNITS OF MEASURE	PVI	LAB VALUE	PVI	VALIDATED VALUE	RUN TYPE
TETRACHLOROMETHANE (CCL4)	09/26/93	0001	UG/L		2.6	J	2.6	I
THORIUM-228	09/26/93	0001	PCI/L		.625		REJECT	I
THORIUM-230	09/26/93	0001	PCI/L		.365		REJECT	I
TIN, SOLUBLE	09/26/93	0001	UG/L	B	21.5		21.5	I
TIN, TOTAL	09/26/93	0001	UG/L	B	18.8		18.8	I
TOTAL DISSOLVED SOLIDS	09/26/93	0001	MG/L		1230.		1230.	I
TOTAL ORGANIC CARBON	09/26/93	0001	MG/L		0.60		0.60	I
TOTAL PHOSPHATE	09/26/93	0001	MG/L		0.11		0.11	I
TOTAL SUSPENDED SOLIDS	09/26/93	0001	MG/L		9.0		9.0	I
TRICHLOROETHENE	09/26/93	0001	UG/L		1.4	J	1.4	I
TRITIUM	09/26/93	0001	PCI/L		5680.		5680.	I
URANIUM-234	09/26/93	0001	PCI/L		.52		.52	I
URANIUM-238	09/26/93	0001	PCI/L		.44		.44	I
VANADIUM, SOLUBLE	09/26/93	0001	UG/L		16.5		16.5	I
VANADIUM, TOTAL	09/26/93	0001	UG/L		17.1		17.1	I

PARAMETER VALUE INDICATOR (PVI): U - LESS THAN DETECTION LIMIT

GROUNDWATER QUALITY DATA BY LOCATION  
 SITE: SWP99 GROUNDWATER SWEEPS  
 LOCATION: 0379  
 NORTH COORDINATE: 597179.70 FT  
 EAST COORDINATE: 1495153.92 FT  
 03/08/94 TO 04/14/94  
 REPORT DATE: 04/03/95

FORMATION OF COMPLETION: ALLUVIUM (AL)  
 HYDRAULIC FLOW RELATIONSHIP: ON SITE (O)

PARAMETER NAME	LOG DATE	SAMPLE ID	UNITS OF MEASURE	PVI	LAB VALUE	PVI	VALIDATED VALUE	RUN TYPE
BARIUM, SOLUBLE	03/15/94	0001	UG/L	B	142.		142.	I
BARIUM, TOTAL	03/15/94	0001	UG/L	B	143.		143.	I
BERYLLIUM, SOLUBLE	03/15/94	0001	UG/L		0.58		0.58	I
BERYLLIUM, TOTAL	03/15/94	0001	UG/L		0.46		0.46	I
CALCIUM, SOLUBLE	03/15/94	0001	UG/L		139000.		139000.	I
CALCIUM, TOTAL	03/15/94	0001	UG/L		138000.		138000.	I
CHLORIDE	03/15/94	0001	MG/L		477.		477.	I
CHROMIUM, TOTAL	03/15/94	0001	UG/L		104.		104.	I
DIETHYL PHTHALATE	03/15/94	0001	UG/L	J	2.	J	2.	I
FLUORIDE	03/15/94	0001	MG/L		0.51		0.51	I
IRON, SOLUBLE	03/15/94	0001	UG/L		162.		162.	I
IRON, TOTAL	03/15/94	0001	UG/L		2090.		2090.	I
LITHIUM, SOLUBLE	03/15/94	0001	UG/L	B	38.8		38.8	I
LITHIUM, TOTAL	03/15/94	0001	UG/L	B	38.8		38.8	I
MAGNESIUM, SOLUBLE	03/15/94	0001	UG/L		57700.		57700.	I
MAGNESIUM, TOTAL	03/15/94	0001	UG/L		57300.		57300.	I
MANGANESE, SOLUBLE	03/15/94	0001	UG/L	B	6.6		6.6	I
MANGANESE, TOTAL	03/15/94	0001	UG/L	B	12.3		12.3	I
MOLYBDENUM	03/15/94	0001	UG/L	B	2.0		2.0	I
MOLYBDENUM, SOLUBLE	03/15/94	0001	UG/L	B	2.0		2.0	I
NICKEL, SOLUBLE	03/15/94	0001	UG/L	B	35.1		35.1	I
NICKEL, TOTAL	03/15/94	0001	UG/L		73.1		73.1	I
NITRATE NITRITE	03/15/94	0001	MG/L		0.15		0.15	I
POTASSIUM, SOLUBLE	03/15/94	0001	UG/L	B	3370.	J	3370.	I
POTASSIUM, TOTAL	03/15/94	0001	UG/L	B	3470.	J	3470.	I
RADIUM-226	03/15/94	0001	PCI/L		0.31		0.31	I
SODIUM, SOLUBLE	03/15/94	0001	UG/L		133000.		133000.	I
SODIUM, TOTAL	03/15/94	0001	UG/L		135000.		135000.	I
SULFATE	03/15/94	0001	MG/L		50.0		50.0	I

PARAMETER VALUE INDICATOR (PVI): U - LESS THAN DETECTION LIMIT

GROUNDWATER QUALITY DATA BY LOCATION  
 SITE: SWP99 GROUNDWATER SWEEPS  
 LOCATION: 0379  
 NORTH COORDINATE: 597179.70 FT  
 EAST COORDINATE: 1495153.92 FT  
 03/08/94 TO 04/14/94  
 REPORT DATE: 04/03/95

FORMATION OF COMPLETION: ALLUVIUM (AL)  
 HYDRAULIC FLOW RELATIONSHIP: ON SITE (O)

PARAMETER NAME	LOG DATE	SAMPLE ID	UNITS OF MEASURE	PVI	LAB VALUE	PVI	VALIDATED VALUE	RUN TYPE
TETRACHLOROETHENE	03/15/94	0001	UG/L		3.2		3.2	I
TETRACHLOROMETHANE (CCL4)	03/15/94	0001	UG/L		2.8		2.8	I
THORIUM-228	03/15/94	0001	PCI/L		0.026		0.026	I
THORIUM-230	03/15/94	0001	PCI/L		0.009		0.009	I
TOTAL DISSOLVED SOLIDS	03/15/94	0001	MG/L		1260.		1260.	I
TOTAL ORGANIC CARBON	03/15/94	0001	MG/L		0.92		0.92	I
TOTAL PHOSPHATE	03/15/94	0001	MG/L		0.086		0.086	I
TRICHLOROETHENE	03/15/94	0001	UG/L		1.4		1.4	I
TRITIUM	03/15/94	0001	PCI/L		6070.		6070.	I
URANIUM-234	03/15/94	0001	PCI/L		0.450		0.450	I
URANIUM-235	03/15/94	0001	PCI/L		0.015		0.015	I
URANIUM-238	03/15/94	0001	PCI/L		0.358		0.358	I

PARAMETER VALUE INDICATOR (PVI): U - LESS THAN DETECTION LIMIT

# POSITION PAPER ON DIOXIN IN THE SOILS AT THE MOUND FACILITY

## INTRODUCTION

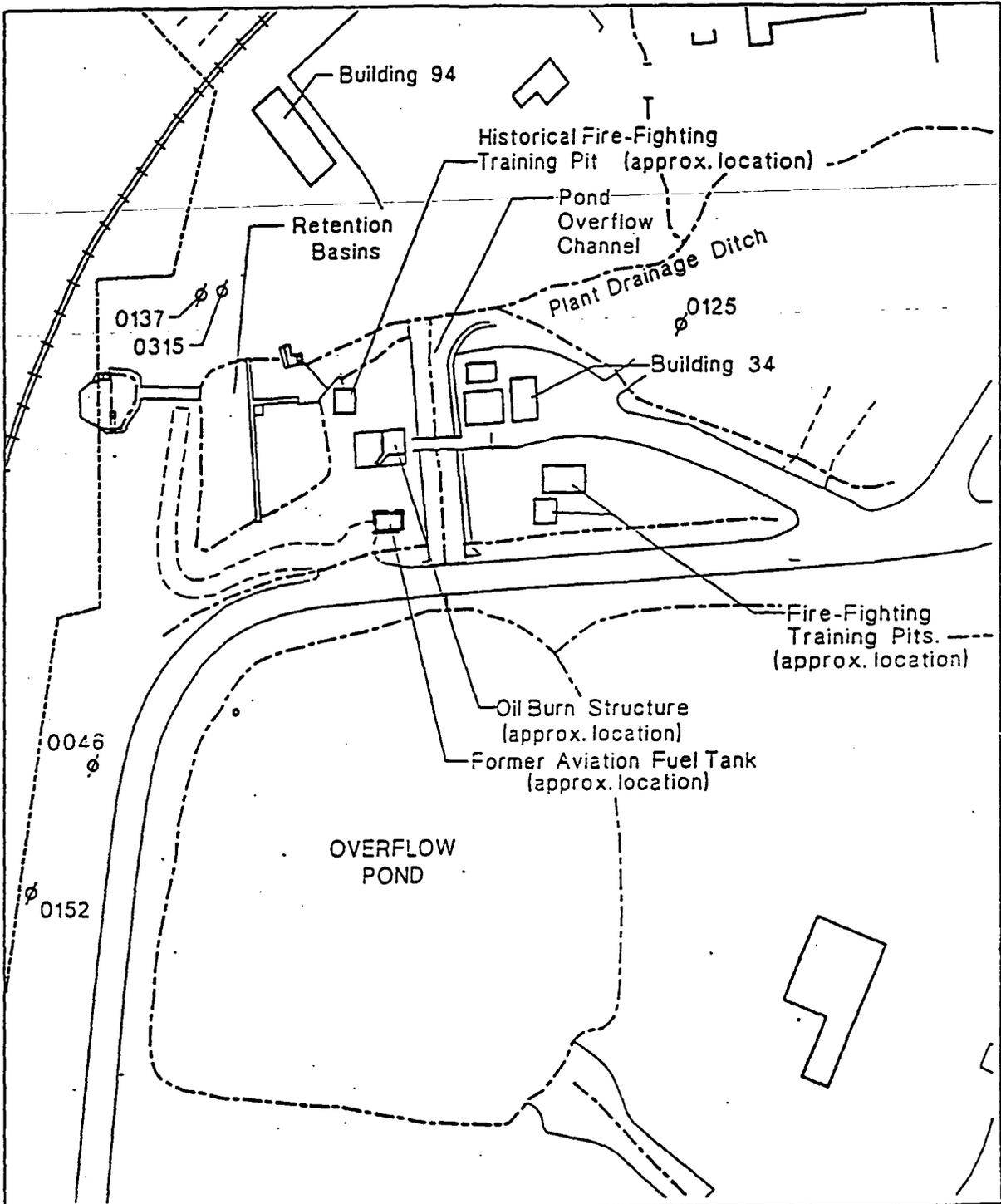
This paper summarizes the dioxin/furan analytical results at the Mound Facility. There has been concern that the burning of solvents in the OU1 historical landfill may have caused widespread surface soil dioxin/furan contamination. This paper will show that there are minor local areas of elevated soil dioxin and furan concentrations intimately associated with localized burning activities. These levels are well below typical guideline cleanup levels. Widespread air-borne dissemination of dioxin and furans from burning activities has not occurred.

## EXISTING DATA

Soil, sediment, and surface water sampling for dioxin/furan analyses was conducted at the Building 34 Oil Burn Structure, the Building 34 Fire-Fighting Training Pits, and the Building 34 Historical Fire-Fighting Training Pit (OU3 Limited Field Investigation Report) as requested by the U.S. EPA. Dioxin/furan analyses were requested at sites where the burning of solvents and oils may have occurred (Figure 1). Soil samples from boreholes in OU1 were also analyzed for dioxin and furans (OU1 Remedial Investigation Report).

### OU3

Dioxins and furans were not detected in any of the 7 surface water and groundwater samples analyzed under OU3 investigations. Out of the 31 soil and sediment samples collected (Appendix I), only 4 samples had detectable dioxin/furan concentrations (Table 1). The TEF adjusted concentration values (EPA 1989) are all well below the typically proposed (CDC guidelines, Paustenbach *et al*, 1986) action levels of 1 ppb (1000pg/g) for surface soils (within 1 ft of the ground surface). Proposed action levels are typically 20-25 ppb for contaminants deeper than 1 ft. The locations of all samples are shown in figures 2, 3, 4.



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<b>LEGEND</b>		<p>Mound Plant</p> <p>MAP LOCATION</p>
	Structures	
	Paved roadway	
	Railroad	
	Surface water drainage	
	Mound Plant boundary	
	Monitoring well	
<p>Scale in Feet</p>		

Figure 1 Building 34 sites.

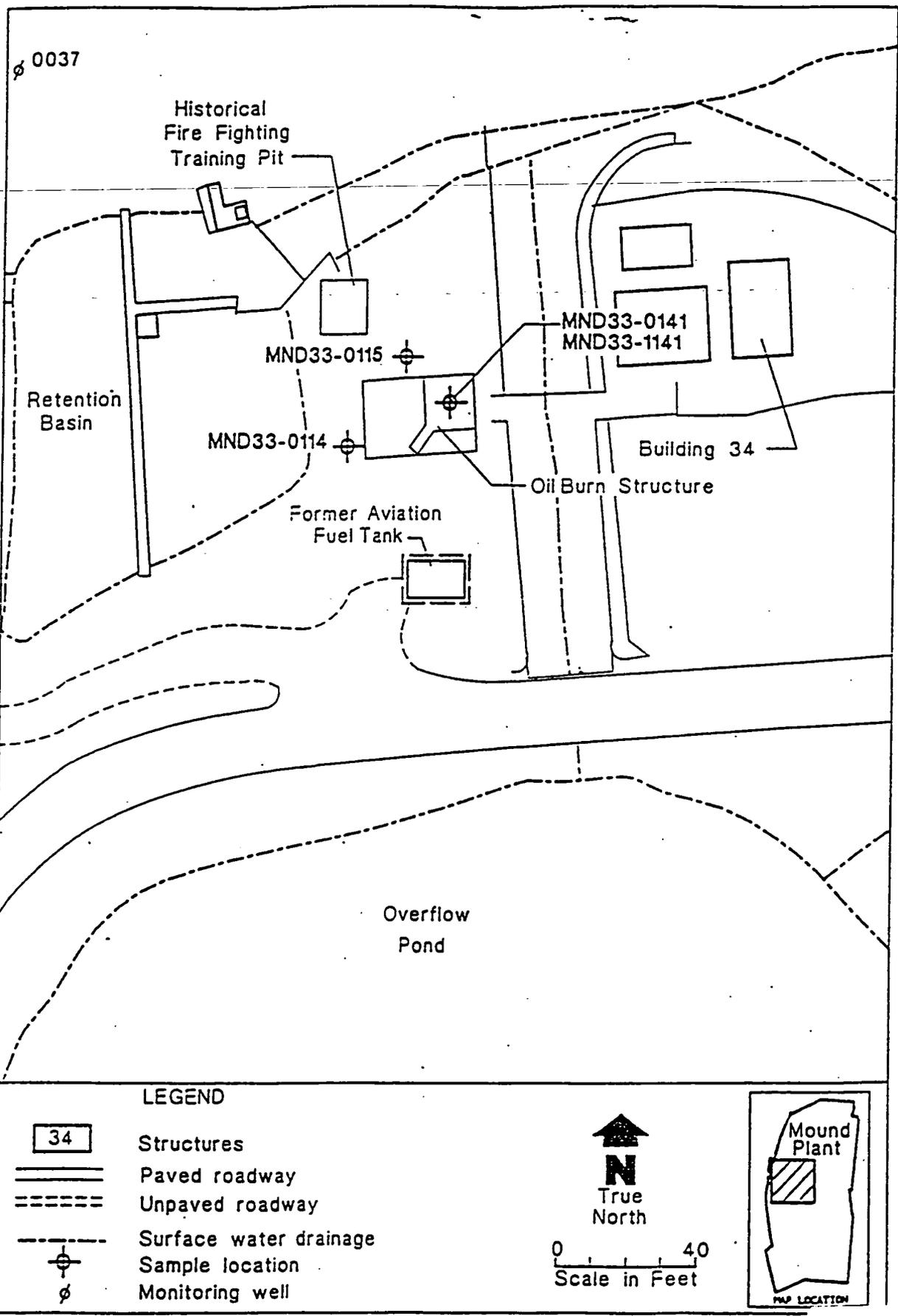


Figure 2 Building 34 Oil Burn Structure soil sample locations.

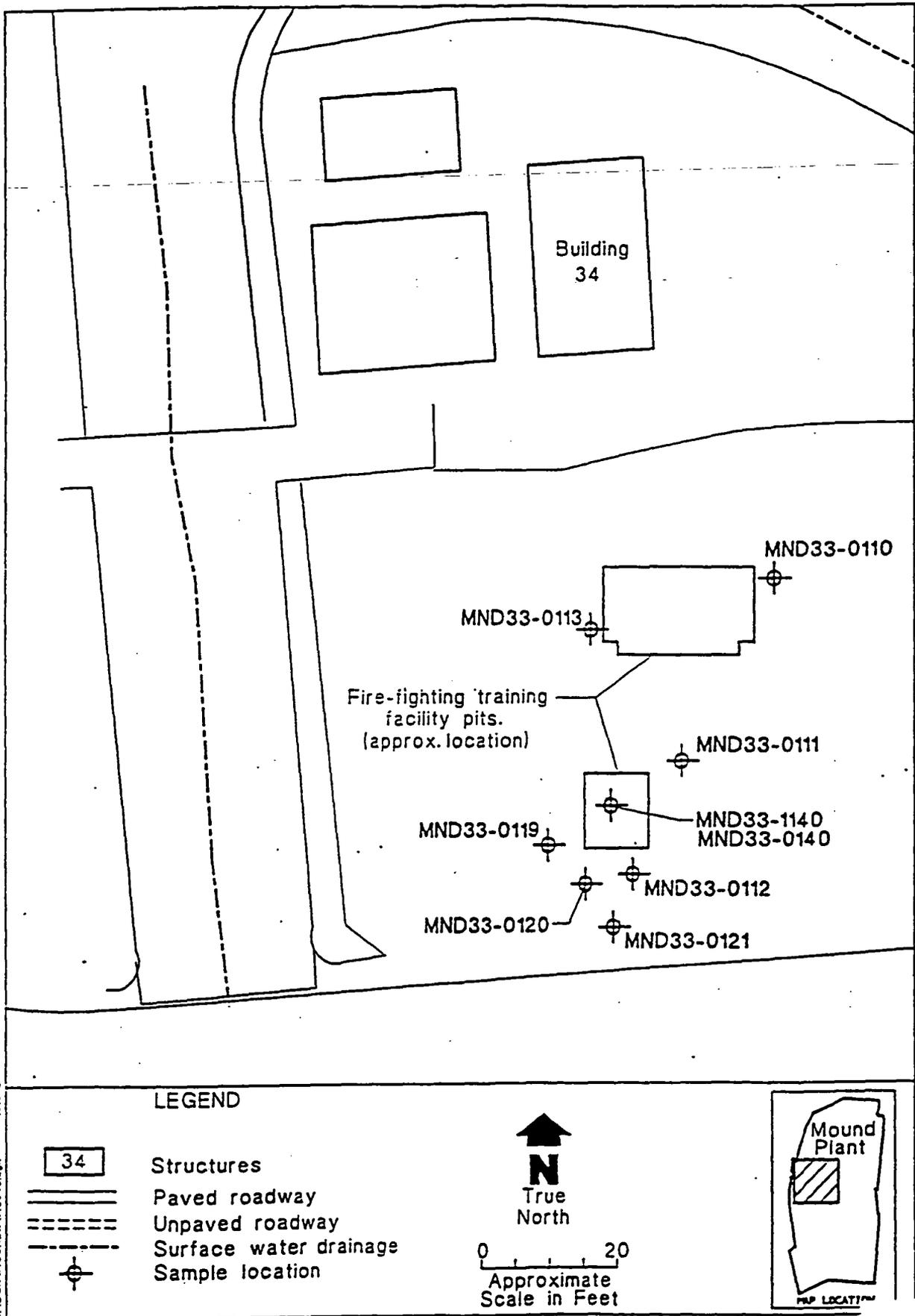


Figure 3 Building 34 Fire Fighting Training Pits soil sample locations.

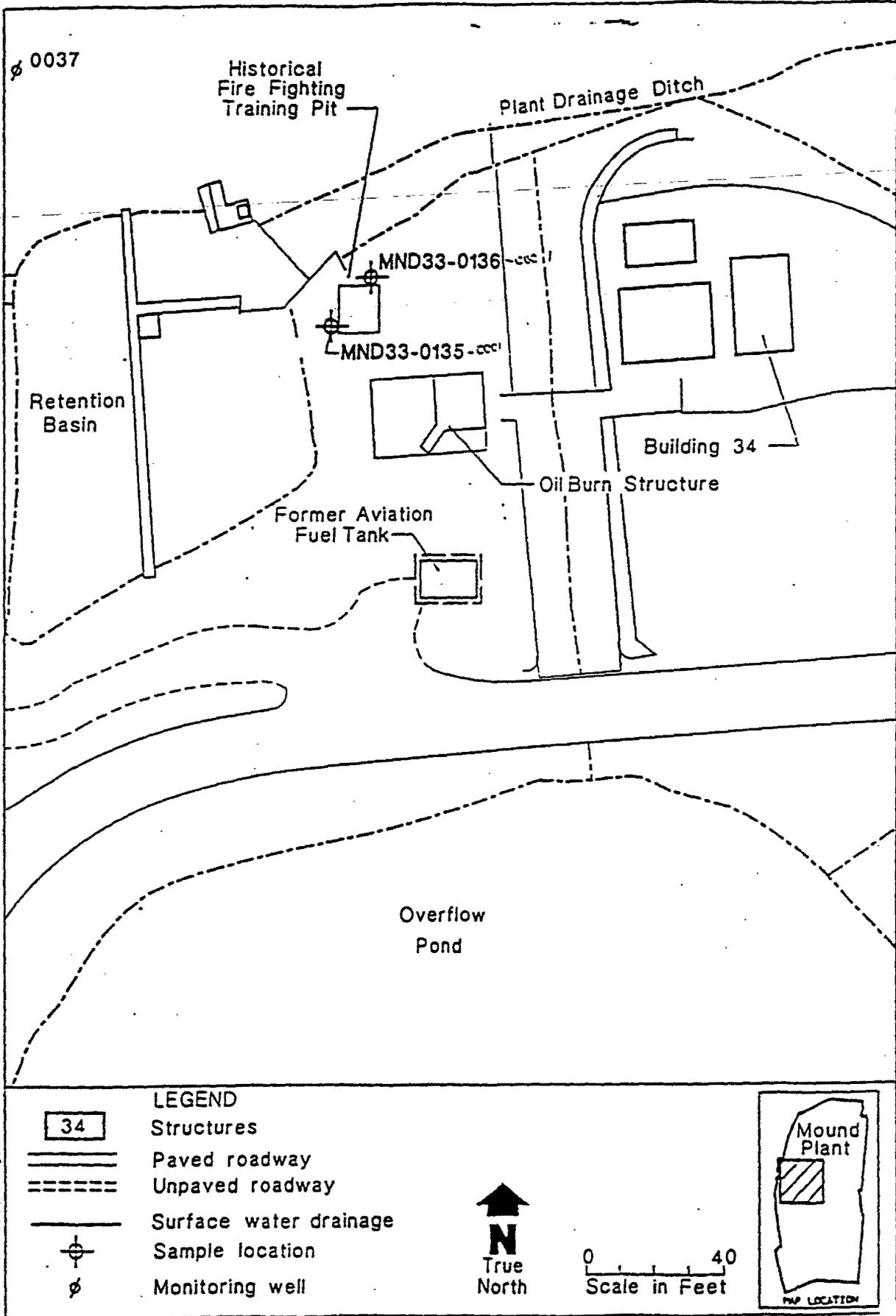


Figure 4 Building 34 Historical Fire Fighting Training Pits soil sample locations.

**TABLE 1**  
**OU3 POSITIVE DIOXIN/FURAN DETECTIONS**

Sample ID	Sample Type	Chemical Name	Conc pg/g	TEF	TEF Adj Conc. pg/g
MND33-0141	Sediment	1,2,3,4,6,7,8-HpCDD	2300	0.01	23
		OCDD	16600	0.001	16.6
		1,2,3,7,8-TCDD equiv.			39.6
MND33-0111-001	Soil 0-2' bgs	OCDD	310	0.001	.31
		1,2,3,7,8-TCDD equiv.			.31
MND33-0135-001	Soil 3-6' bgs	1,2,3,4,6,7,8-HpCDD	110	0.01	1.1
		OCDD	11000	0.001	11
		OCDF	540	0.001	.54
		1,2,3,7,8-TCDD equiv.			12.64
MND33-0136-001	Soil 3-6' bgs	1,2,3,4,6,7,8-HpCDD	210	0.01	2.1
		1,2,3,7,8-TCDD equiv.			2.1

Proposed action levels typically are 1,000pg/g (1ppb) for surface soil and 20,000 to 25,000pg/g (20- 25ppb) for soil below 1ft bgs.