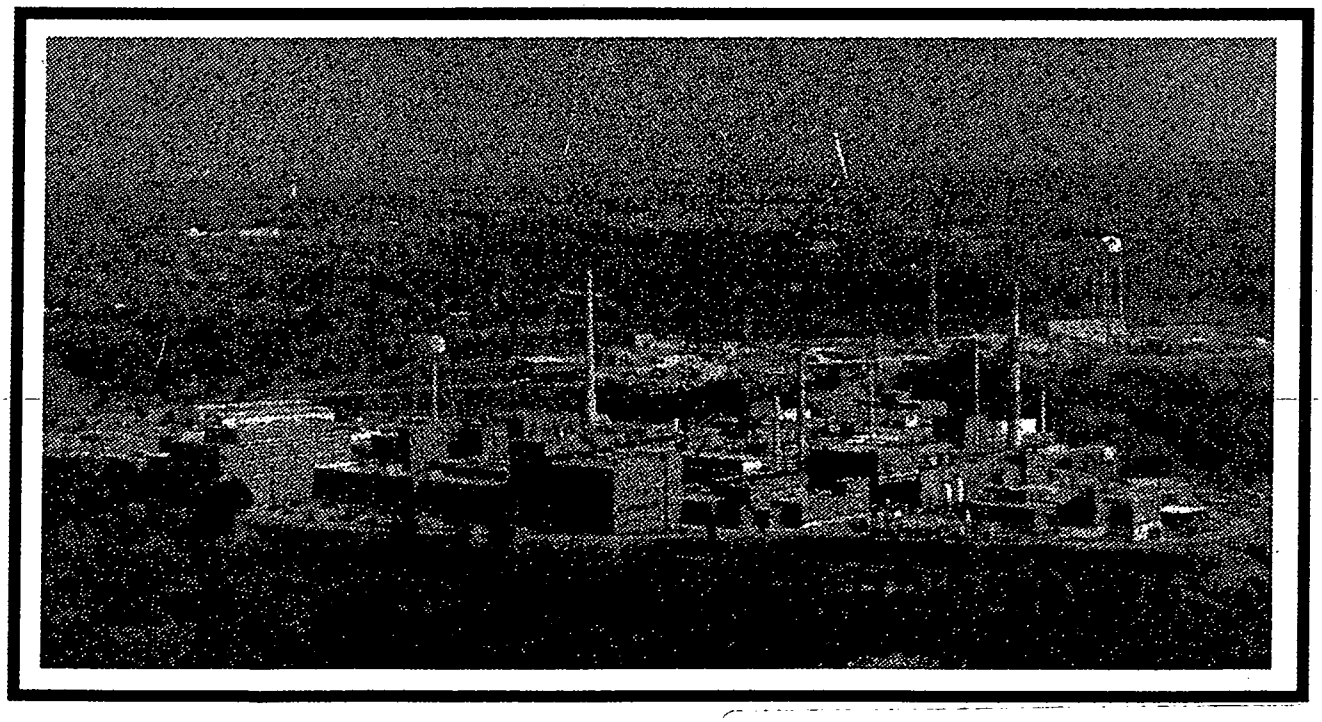
MOUND

Environmental
Restoration
Program

MOUND PLANT
Potential Release Site Package
PRS # 15



EG&G MOUND-30-03-04-02--9705190029

MOUND

Environmental Restoration Program

MOUND PLANT POTENTIAL RELEASE SITE PACKAGE

Notice of Public Review Period

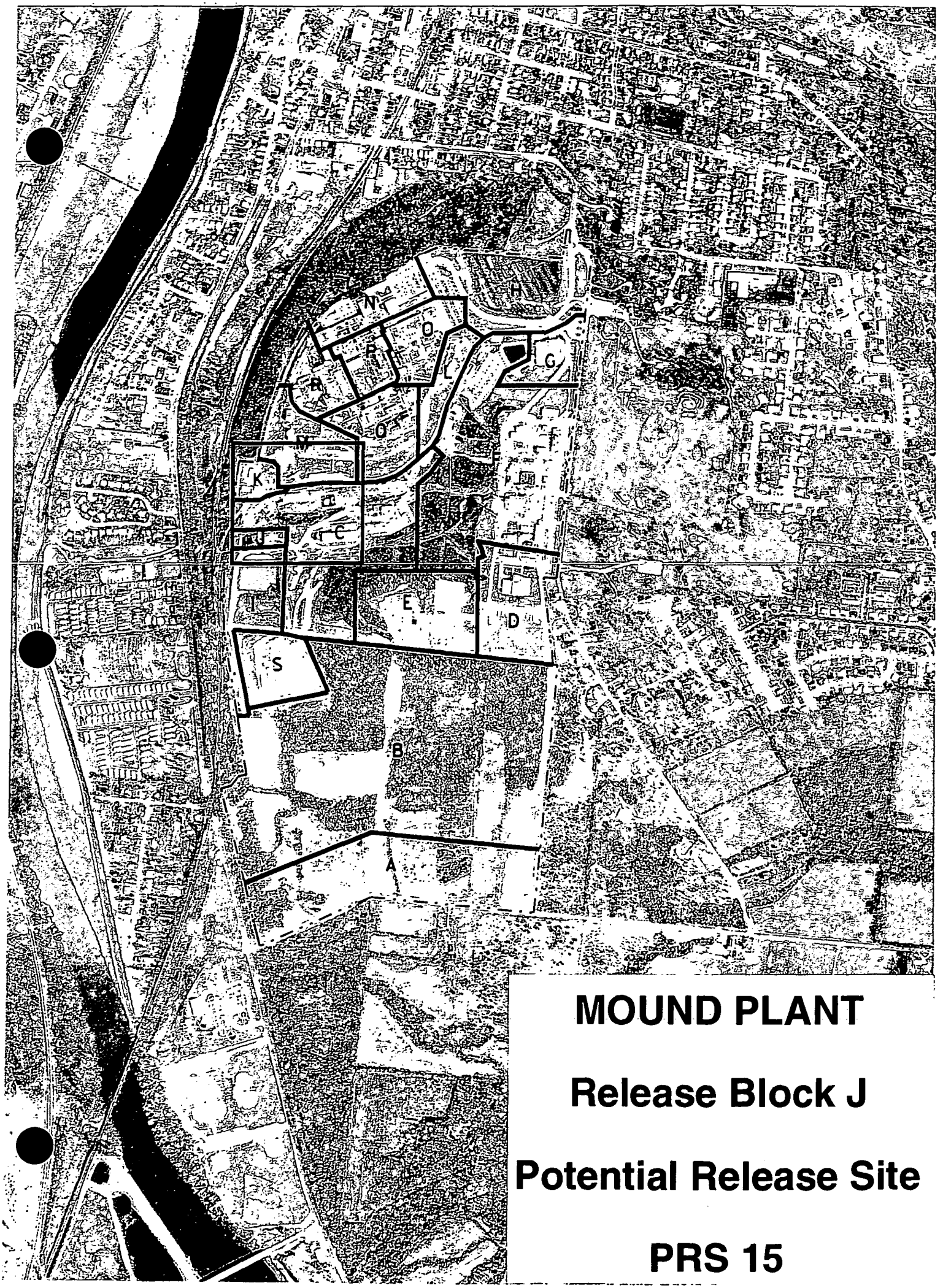
The following potential release site (PRS) packages will be available for public review in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio beginning April 3, 1997. Public comment will be accepted on these packages from April 3, 1997, through May 8, 1997.

PRS 15:	Former Waste Treatment Site - Area C (lithium burn area)
PRS 74:	Former Waste Storage Site - Quonsot Hut
PRS 330:	Former Tank Site - Building 2 Fuel Oil Tank
PRS 349:	Soil Contamination
PRS 371:	Soil Contamination
PRS 391:	Soil Contamination
PRS 395:	Soil Contamination
PRS 396:	Soil Contamination

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

PRS 15

REV	DESCRIPTION	DATE
PUBLIC RELEASE **0**	Available for comments.	**Mar. 4, 1997**
FINAL **1**	Comment period expired. No comments. Recommendation page annotated.	May 13, 1997

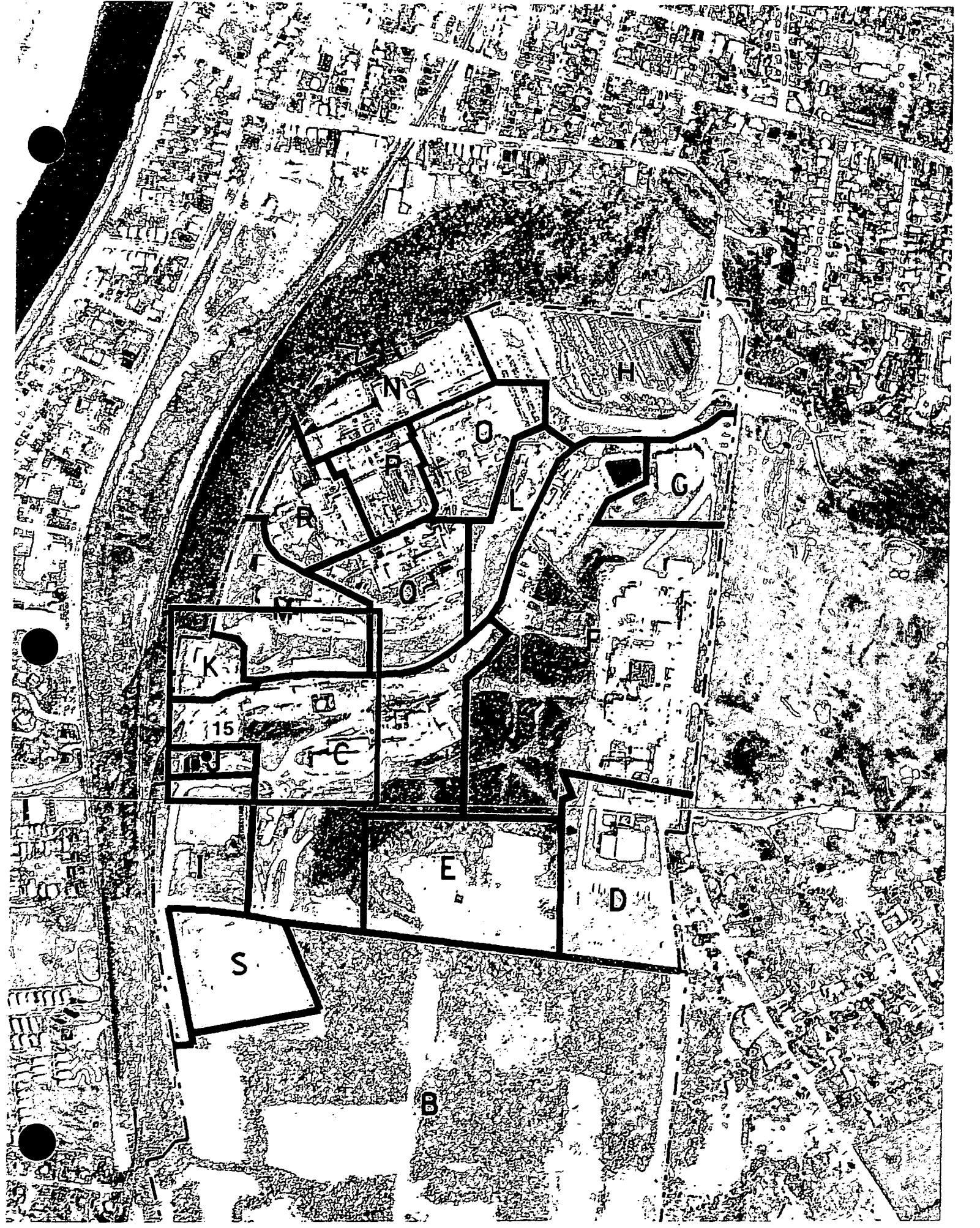


MOUND PLANT

Release Block J

Potential Release Site

PRS 15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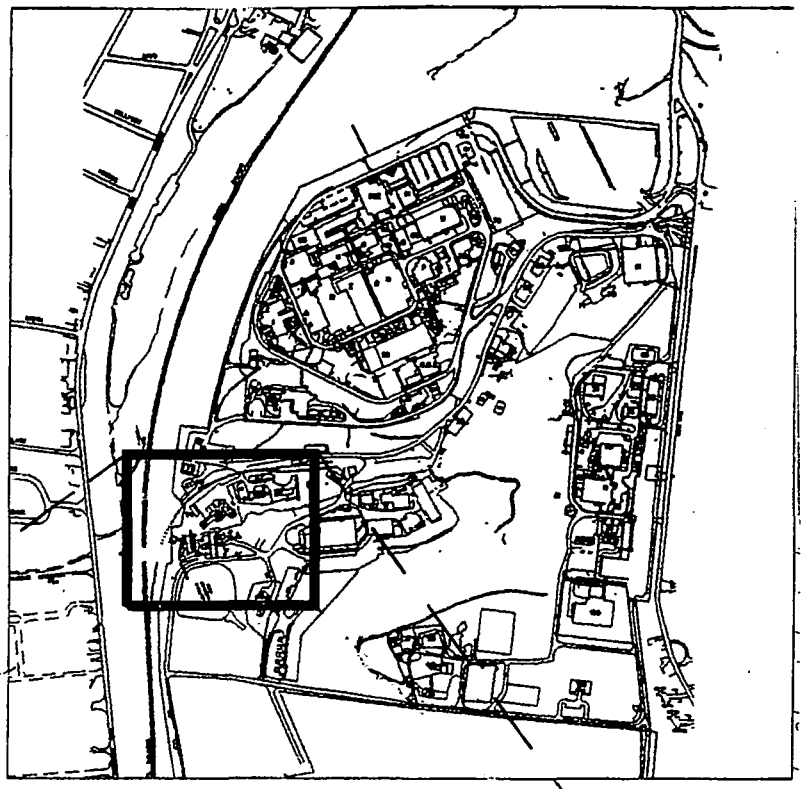
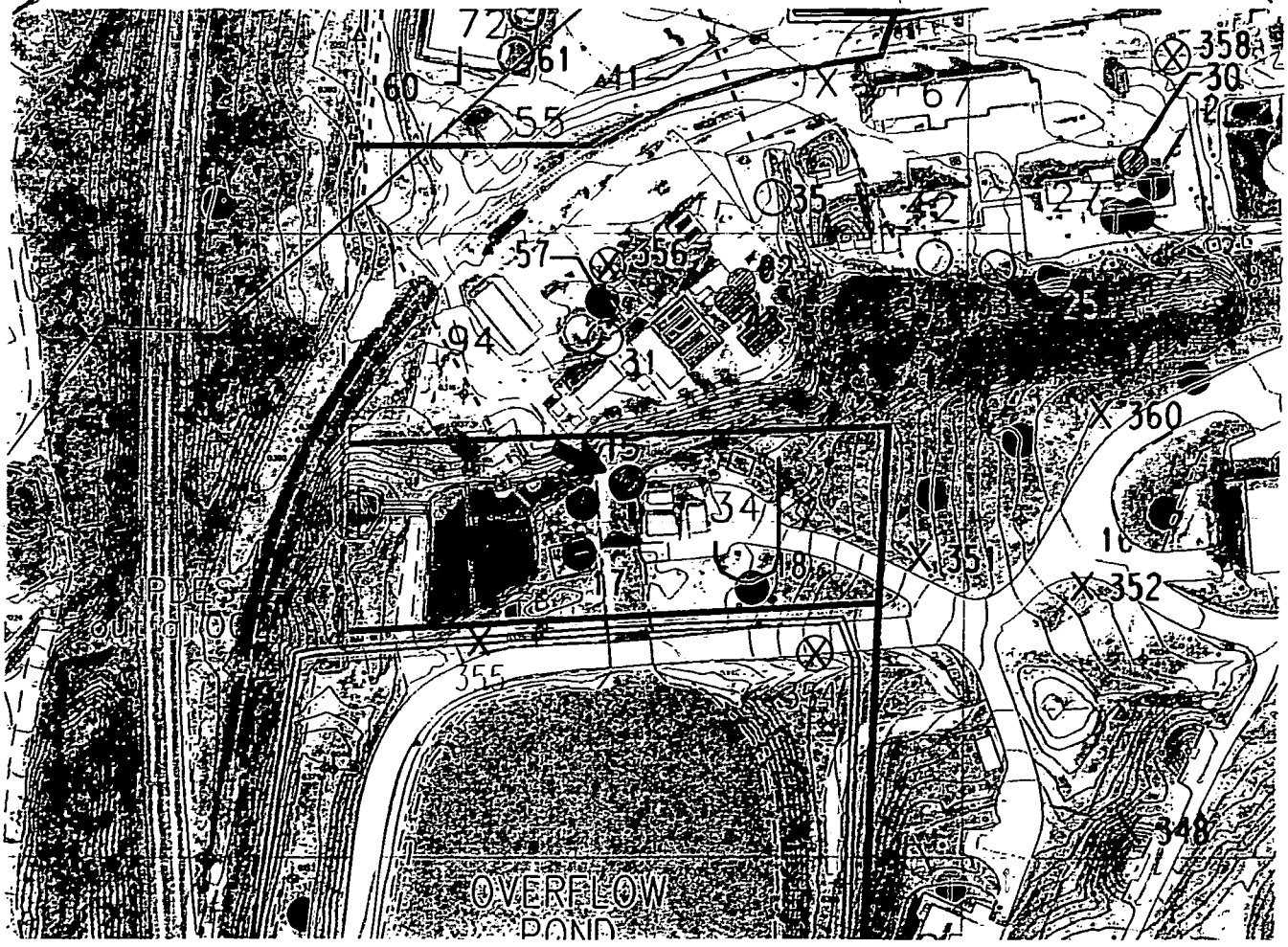
MOUND PLANT

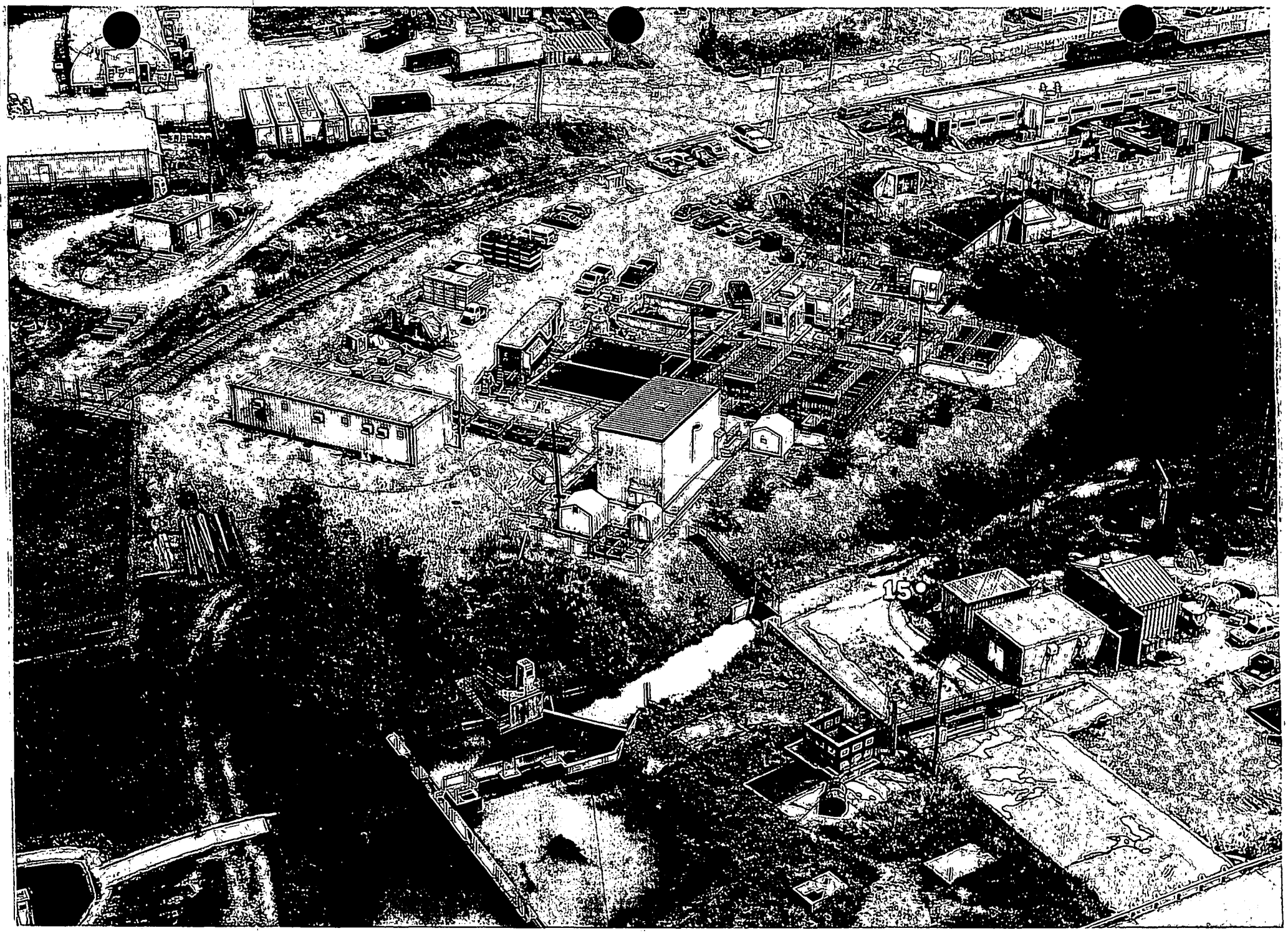
Release Block J

Potential Release Site

PRS 15



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PRS 15

PRS HISTORY:

PRS 15 is also known as Area C or the Lithium Burn Area. The PRS was identified in the Comprehensive Environmental Assessment Response Program, Phase I: Installation Assessment Mound, April 1986. This was a low swampy irregular area about 150 ft. in diameter. This low swampy area was used to dispose of lithium hydride residue left in drums during the mid 1950s.[2] When the drums came in contact with the water, the chemical reaction caused the lithium hydride to burn. The drum was allowed to burn until the lithium hydride was destroyed. Since that time fill material, Building 34, Fire Fighting Training Pits (PRS 18), Historical Fire Fighting Training Pit (PRS 19), the Oil Burn Structure (PRS 17), Aviation Fuel Storage Tank (UST #219) (PRS 20), and the sluiceway (PRS 70) to the overflow pond have been added to the area.[4] The Building 34 Fire Fighting Training Pits and the Aviation Fuel Storage Tank have been removed. The other structures are still in place but are no longer active processes.

CONTAMINATION:

PRS 15 was originally identified by historical information of the process rather than sampling data. Process history indicated the contaminant of concern is lithium hydride.[1] The OU3, Limited Field Investigation (LFI) sampled the Fire Fighting Training Pits, Fire Fighting Training Pits (historical), Oil Burn Structure, and the Aviation Fuel Storage Tank which were believed to be located within the Lithium Burn Area. The OU3, LFI analysis included field screening, EPA CLP methods and gamma spectroscopy including analyzing for lithium. There is no contamination that can be attributed solely to PRS 15.[5] The sampling results of the locations within the area of PRS 15 indicated that the concentration of all analytes including **lithium** were below guideline criteria with the following exception.[5, 6, 7]

OU3 Limited Field Investigation Sampling Results for other Potential Release Sites within PRS 15 (Area C)

PRS	Sample Location	PRS Status	Analyte	Maximum Concentration	Guideline Criteria
17	Inside the Oil Burn Structure	In place Note: This PRS has been binned a Removal	Cobalt	28 mg/kg	19 mg/kg (Background)
			Copper	92.8 mg/kg	26 mg/kg (Background)
			Lead	3,100 mg/kg	400 mg/kg (EPAGuidance)
			Thallium (Soil)	0.53 mg/kg	0.46 mg/kg (Background)
			Thallium (Water)	0.0024 mg/L	0.002 mg/L (MCL*)

NOTE: * USEPA Drinking Water Maximum Contamination Level

READING ROOM REFERENCES:

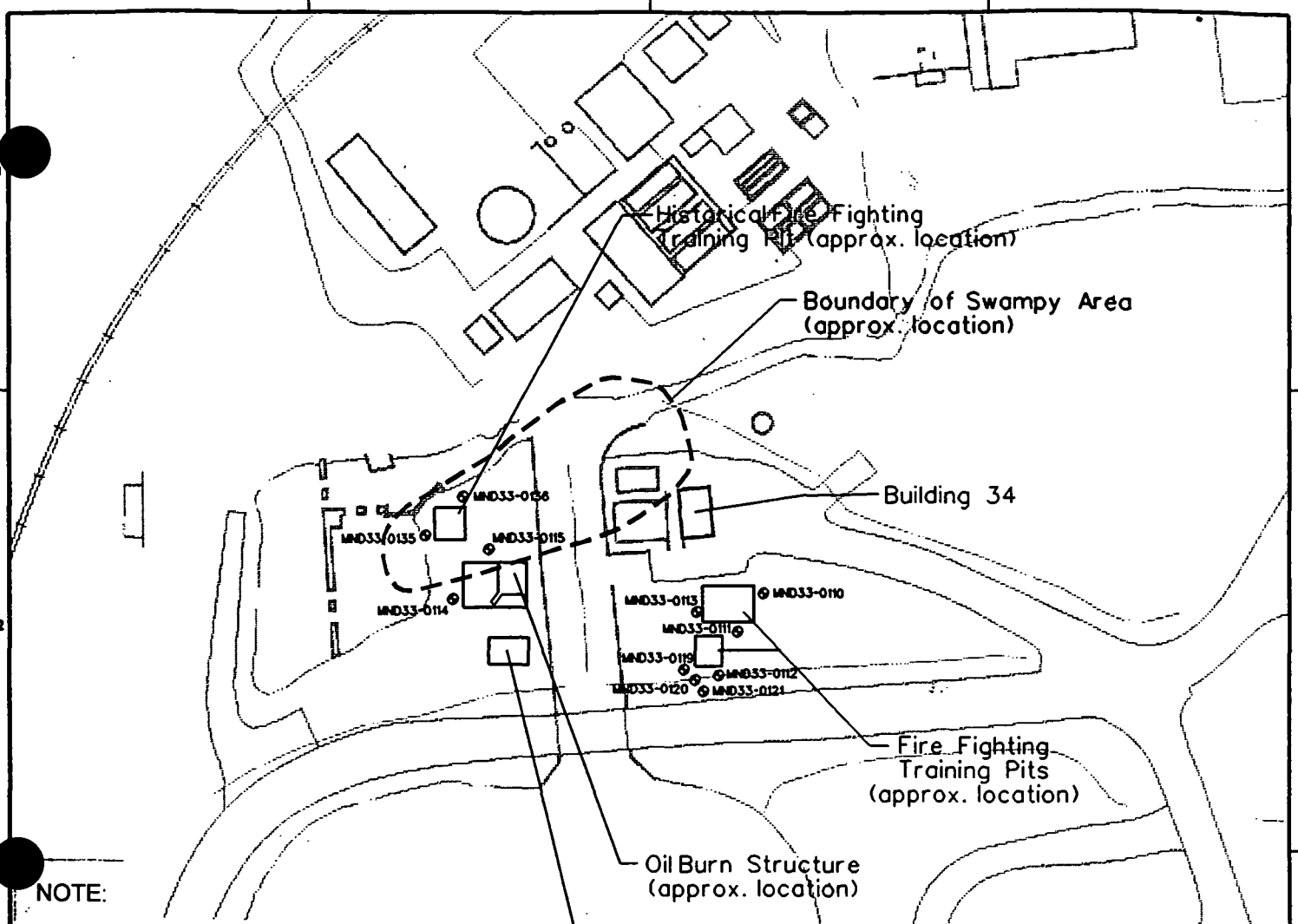
1) OU9, Site Scoping Report: Volume 12 - Site Summary Report, Final, December 1994. (pages 6-15)
2) Comprehensive Environmental Assessment and Response Program, Phase I: Installation Assessment Mound, April 1986. (pages 16-17)
3) RCRA Facility Assessment Visual Site Inspection, July 1988. (pages 18-19)
4) OU9, Site Scoping Report: Volume 7 - Waste Management February 1993. (pages 20-22)
5) OU3, Misc. Sites Limited Field Investigation Report, July 1993. (pages 23-66)

OTHER REFERENCES:

6) Position Paper on Dioxin in the Soils at the Mound Facility. (pages 67-85)
7) Fire Fighting Training Area Response Action On-Scene Coordinator Report, January 1996. (pages 86-95)

PREPARED BY:

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



NOTE:

Historical Fire Fighting Training Pit

Sample	Results
MND33-0135	Pages 55-56
MND33-0136	Pages 57-58

Oil Burn Structure

Sample	Results
MND33-0114	Pages 28-29
MND33-0115	Pages 30-31

0 50
Scale in Feet

MOUND
Environmental Restoration Geographic Information System

PRS 15 Area C
Lithium Burn Area

UNCLASSIFIED

STE ER-GIS MSTATION 5.0

MOUND PLANT
PRS 15
FORMER WASTE TREATMENT SITE - AREA C (lithium burn area)

RECOMMENDATION:

PRS 15 was identified due to process history pertaining to the disposal of lithium hydride residue left in drums during the mid-1950s. There is no soil contamination that can be attributed to PRS 15. PRS 17, the Oil Burn Area that lies within PRS 15, has been binned as a response action. All sampling results, other than those related to PRS 17, showed that all concentrations of volatile compounds, semivolatile compounds, PCBs, pesticides, metals, radionuclides, and explosives in the soils were below their respective ALARA, regulatory or 10^{-6} Risk Based Guideline Criteria. Groundwater contamination in this area is being investigated separately; therefore, NO FURTHER ASSESSMENT is recommended for PRS 15.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath, Remedial Project Manager — 2/19/97 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 2/19/97 (date)

OEPA: Brian K. Nickel, Project Manager — 2/19/97 (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 4/3/97 to 5/8/97

☒ No comments were received during the comment period.

☐ Comment responses can be found on page _____ of this package.

Reference Material
PRS 15

Document Control No. _____

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

Note:
The Site Scop[illegible]eport Volume 7, Waste Management Report misidentified site numbers 14 and 16 as Area C

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[a]	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[c] 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[c] 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
	[illegible]lding 34, Historical [illegible] fighting Training Pit	H-5	Histrorical	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

Note:
The Site Scoping Report Volume 7, Waste Management Report misidentified site numbers 14 and 16 as Area C

MOUND9M9SSDF4.TBB 09/27/94

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	Trichloroethene	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	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	16
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	16
9. G24		ND	ND	ND	ND	ND	ND	ND	ND			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	24
10. Historic Landfill			750	160	200	6100	6700	81				970			ND							24
11. Sanitary Sewer Line				2	2																	24
12. Area B, Drum Storage Area		1	7100	160	35	160	6600		1600			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 Diposal) (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	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	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	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	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	7,22
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	7
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	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	Trichloroethene	1,1,2-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)	96		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		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, Acid 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]

Note:
The Site Scoping Report Volume 7, Waste Management Report misidentified site numbers 14 and 16 as Area C

SITE NAME	SVOC	Polycyclic Aromatic Hydrocarbons (PAH)											Pesticides, Polychlorinated Biphenyls						EPH & TPH		
	Bis(2-ethylhexyl)phthalate	Acenapthene	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, 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			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	16.7		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	Polycyclic Aromatic Hydrocarbons (PAH)											Pesticides, Polychlorinated Biphenyls						EPH & TPH		
	Bis(2-ethylhexyl)phthalate	Acenapthene	Anthracene	Phenanthrene	Pyrene	Fluoranthene	Benzopyrene	Benzofluoranthene	Benzoanthracene	Indeno(1,2,3-CD)pyrene	Chrysene1	Benzo(g,h,i)perelene	PCBs	Chlordane	Endrin	Alpha,Beta,Delta, BHC (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			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			7
279. Old Firing Range Drum Storage Area	4.2	6.8	15	73	83	98	35	39	43	23	55	19	0.56	ND	ND	ND	ND	ND			7
280. Waste Oil Drum Field Area	6.5	ND	2.8	11	9.7	11	3.6	2.8	4.2	1.9	ND	2.1	1.15	0.098	0.023	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	33	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			7

(a) - All units are reported in mg/Kg unless noted otherwise.
(b) - Additional data on ot her 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

Note:
The Site Scoping Report Volume 7, Waste Management Report misidentified site numbers 14 and 16 as Area C

Table B.8. Target Analyte List (TAL) - Inorganics[a]

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	0.6	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	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		26.2	10.5	20.8	13.2	35.9	24.6			17	ND 0.53	62.5	0.14		ND	23.4	7
15. Area C, Lithium Burn Area (AKA Lithium Carbonate Disposal) (c)									92.8	3100						.0014 (d)						7
17. Oil Burn Structure	69	9	131	0.96	24.2		92.1	28	~~3,100~~	~~829~~	107	ND	ND	17.7	0.5313 .5	~~791.53~~	0.7579 1	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	0.26	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	86.4	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	3.6	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	446	15.1	691	50.8			20.5	ND	125	0.14		.53	29.8	7
26. Building 27 Concrete Flume (Tank 217)	27.1	4.8	40.4	0.99	4.8		33.1	17.3	25.3	10.0	766	29.9			15.7	ND	61.7	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 TO THE DATA TABLE DUE TO TRANSPOSITION ERRORS FROM THE OU3 LIMITED FIELD INVESTIGATION

Table B.8. Target Analyte List (TAL) - Inorganics[a]

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		19.8	18.6	17.2	15.1	1,500	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	26.3	8
314. Farm Wash Area	42.4	5.9	32.4	0.71	7.7		30.5	8.5	18	10.1	306	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 avaiable 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[a,b]

Note:
The Site Scoping Report Volume 7, Waste Management Report misidentified site numbers 14 and 16 as Area C

Site Name	Radiological Contaminants															
	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	Reference
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	.06	.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		6.65		5.44	NA	NA	NA	0.901							7
19. Building 34, Historical Firefighting Training Pit	16.8				1.44				1.12							7

Table B.9. Summary of Radiological Data[a,b]

Site Name	Radiological Contaminants															
	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	Reference
308. Site Survey Project Potential Hot Spot Location C0028			11.4		109.											6
309. Site Survey Project Potential Hot Spot Location S0307			5.36		6.46											6
310. Site Survey Project Potential Hot Spot Location S0647				270	[illegible]				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 analzyed 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

ALBUQUERQUE OPERATIONS OFFICE
ENVIRONMENT, SAFETY AND HEALTH DIVISION
ENVIRONMENTAL PROGRAMS BRANCH

COMPREHENSIVE ENVIRONMENTAL ASSESSMENT AND RESPONSE PROGRAM

PHASE I:
INSTALLATION ASSESSMENT
MOUND

NOT FOR PUBLIC DISSEMINATION

May contain unclassified controlled nuclear information subject to Section 148 of the AEA, as amended (42 USC 2168). Approval by the Department of Energy prior to release is required.

April 1986

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Table V.1 (cont)

Area	Planned Future Actions (PFA)
C	Area C was a stagnant water area of about 150 ft in diameter. Lithium containers, probably containing residual lithium carbonate, were dumped in this area during the mid 1950s. Other wastes may have also been dumped in this area, however, the quantity of hazardous substances, if any, would have been limited. It appears that fill has been added to the area. An old warehouse was also located in this area. There is not sufficient information to make a definitive statement on the existence of hazardous substances at area C. (Interviews 1985.) CERCLA Finding--Positive for FFSDIF, PA, and PSI; however, there is not sufficient information to calculate a HRS Migration Mode Score. PFA--A CEARP Phase I supplemental reconnaissance field study will be conducted to determine the presence of hazardous substances and potential for ground water contamination. Based on the results of this study, appropriate action will be taken.
D	Area D served as the leach bed for plutonium operations in PP Bldg. The leach bed received caustic or acidic solutions with plutonium contamination. Residual hazardous substances in the leach bed are probably limited to radioactive contamination. The area is being evaluated under the Site Survey Program. (Interviews 1985; Site Survey Program 1985.) Due to the status of activities (i.e., CEARP Phase IV) a CERCLA finding under FFSDIF, PA, and PSI; and HRS and MHRS scoring are not appropriate for this site. PFA--Area D was submitted to and accepted by the USDOE Surplus Facilities Management Program (SFMP). SFMP remedial action is scheduled.
E	A single contractor waste oil dumping event (<5 gal) occurred in area E. Oil contaminated soil was removed and disposed at a USDOE disposal facility. (Interviews 1985.) CERCLA Finding--Negative for FFSDIF, PA, and PSI; therefore, a HRS Migration Mode Score is not calculated. PFA--No further action is warranted.
F	During 1963 a chromium plating bath (110 gal) was treated with sodium bisulfide and dumped in a trench at area F. The area is currently covered with an asphalt parking lot and the small amount residual chromium does not pose a health hazard. Additionally, the amount of material dumped is substantially below the 24 hour reportable quantity of 1,000 lbs for chromium. (Interviews 1985.) CERCLA Finding--Negative for FFSDIF, PA, and PSI; therefore, a HRS Migration Mode Score is not calculated. PFA--No further action is warranted.

RCRA FACILITY ASSESSMENT
VISUAL SITE INSPECTION AGENDA

FACILITY: U.S. DOE Mound
Miamisburg, Ohio

EPA ID NO.: OH6890008984

FACILITY CONTACT: Dick Janowickie

DATES OF INSPECTION: May 3-6, 1988

PERSONNEL: Kae Lee, U.S. EPA Region V
W.L. Murphy Rohrer, Pope-Reid Associates, Inc.
S. Heikkila, Pope-Reid Associates, Inc.

PURPOSE OF THE VISUAL SITE INSPECTION

The Hazardous and Solid Waste Amendments of 1984 (HSWA) broaden the scope of EPA's authority under RCRA by requiring corrective action for releases of hazardous wastes and constituents at facilities that manage hazardous wastes. The authority requires corrective action for releases to the environment from any Solid Waste Management Unit (SWMU), including hazardous or non-hazardous wastes. The RCRA Facility Assessment includes a desk-top review of available file information of the facility, Visual Site Inspection (VSI), and, if necessary, a sampling visit. The preliminary review (PR) has been completed for this facility and a VSI has been determined to be necessary. The purpose of the VSI is to:

1. Confirm, by visual inspection, information collected during the PR;
2. Survey the site for additional SWMUs and other areas of concern, and identify potential sample points for possible future sampling activities; and
3. Review site information with facility representatives and collect additional information to address the information needs identified during the PR. Photographs are to be taken of all units and areas of concern.

Please note that the proposed agenda is based on information gathered during a desk-top review of the Ohio EPA files. Only units identified in the PR with

34. Unit Information:

A. Unit Name: Stagnant Water Area

Period of Operation: from the 1950's

Waste Type: Lithium carbonate and other smaller quantities of organic solvents.

Hazardous Constituents: Unknown

Regulatory Status: Unknown

B. Unit Description: This unit is described in two different references as being in slightly different locations. Reference 55 states that a 150 foot diameter area of stagnant wastes was used for disposal of barrels of lithium carbonate and other hazardous materials. The area was apparently filled in. The location, as indicated in Figure V, is east of Building 34. Ref. 66, on the other hand, states that "the actual area of disposal was under and around Building 39, not the area to the east of Building 34 that was reported in previous documentation."

Additional Information Needed:

1. Exact location of unit
2. Dates of operation
3. Results of sampling
4. Extent of remedial activities
5. Quantity of material disposed
6. Waste types
7. Hazardous constituents

Circulates

Document Control No. _____

Environmental Restoration Program

OPERABLE UNIT 9, SITE SCOPING REPORT: VOLUME 7 - WASTE MANAGEMENT

MOUND PLANT
MIAMISBURG, OHIO

February 1993

FINAL
(Revision 0)

Department of Energy
Albuquerque Field Office

Environmental Restoration Program
EG&G Mound Applied Technologies

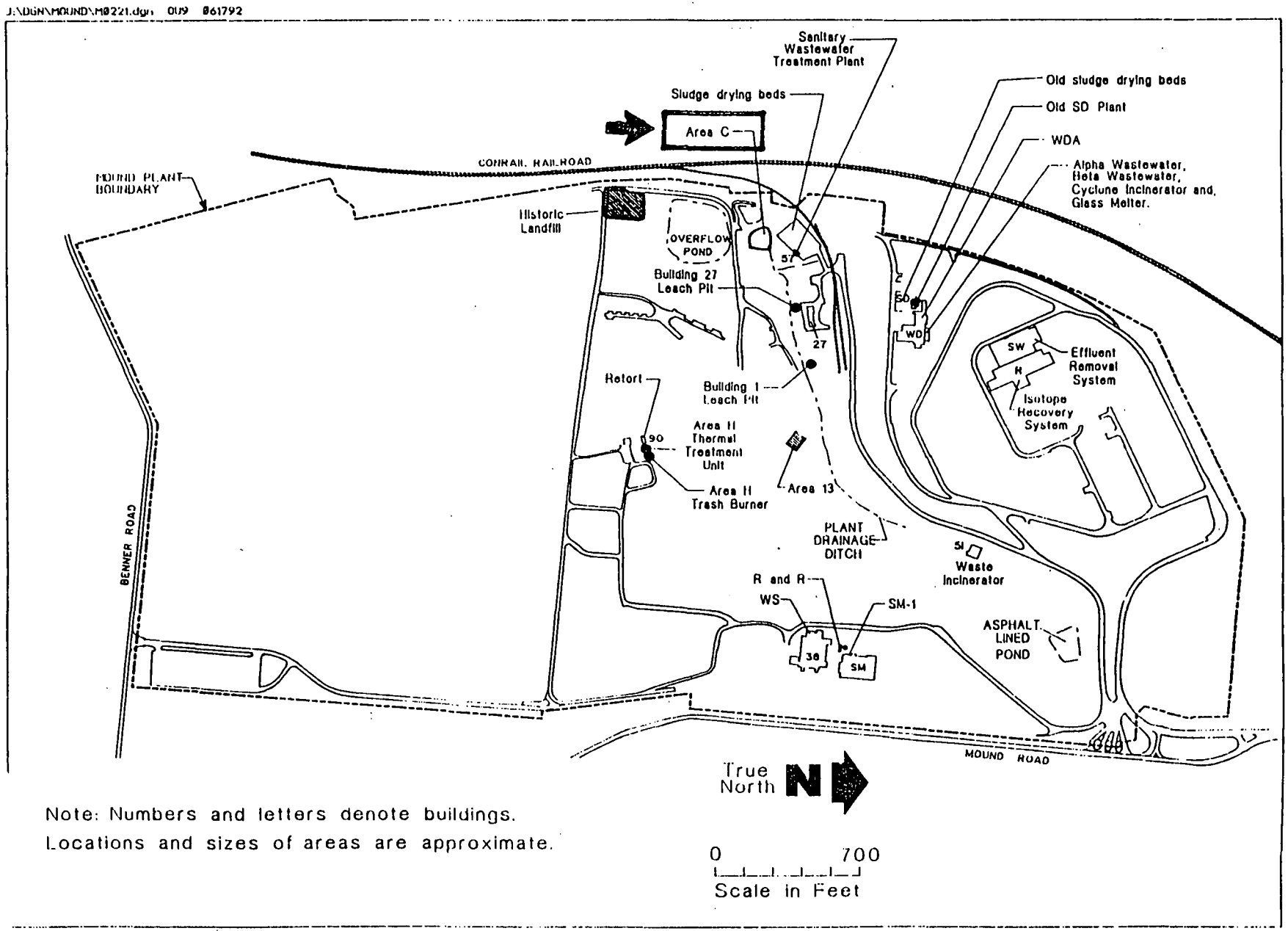
~~The incinerator was used to burn nearly all of the plant's nonradioactive solid wastes and some liquids including paints, oils, and solvents on an experimental basis (Thomas 1991), but most liquids were shipped off-plant for disposal. In an effort to reduce waste disposal costs and find a better way to handle wastes, the "Mound Laboratory Solid Waste Reclamation and Recycling Program" was created. All wastes previously incinerated were eventually handled under this program. The incinerator was operated under interim status from December 30, 1973, to February 15, 1974, when it was completely shut down (Garbe and Wolfe 1974). With the exception of a few janitorial items, the incinerator was disassembled and removed from Mound on May 22, 1979 (Schroeder 1979, Balsmyer 1979). The tank was removed in November 1990 (Burdg 1991). Soil sampling was performed as part of tank removal. Maximum concentrations of approximately 35 to 560 ppm total petroleum hydrocarbons and 200 ppm trichloroethene were found in the samples.~~

4.15. AREA C, LITHIUM BURN AREA (HISTORICAL)

Area C is adjacent to the plant drainage ditch in the lower valley area (Figure 4.1). In the late 1950s and early 1960s, the area collected and ponded stagnant water. It may have been about 150 ft in diameter, but its dimensions were irregular. Area C lay just north of the old hand-dug well in the area occupied by several old farm buildings that predated Mound, as shown on the historical topographic map of 1946 (DOE 1992b).

This swampy area was used to destroy small drums of lithium hydride that came from a research project on the Main Hill. Three to four 20-gallon drums a month were destroyed by burning (Meyer 1991). The water assisted and facilitated the reactions. No radioactive materials were associated with the process (Garner 1991). No other disposals are known to have occurred in the area. In 1964, when Building 34 was constructed, the area was filled and regraded, and the burning activity was relocated to the area of standing water in the bottom of the old landfill (Area B).

The ER Program has in the past assumed that Area C occupied a larger area than it probably occupied. A magnetic survey and two ground-penetrating radar surveys (DOE 1990b) covered much larger areas than had been described by Mound personnel during research for this report (Garner 1991). The multiple reflectors observed in the magnetic survey probably relate to the older farm buildings that were razed in the 1950s. The older buildings and the old hand-dug well are apparent in the historical topographic map of 1946 (DOE 1992b). The hand-dug well was in the approximate location now occupied by the fire fighter training pits, built in the late 1960s or early 1970s (DOE 1991d).



Note: Numbers and letters denote buildings.
Locations and sizes of areas are approximate.

Figure 4.1 Waste treatment facilities.

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

823-9670

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 Type
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: MWD33-0114
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 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
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	Run Type
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

GAMMA SPECTROSCOPY

TABLE III.16
BUILDING 34 OIL BURN STRUCTURE
Location: MWD33-0141
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 Type
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 SPRECTROSCOPY

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	Run Typ
ALUMINUM, TOTAL	0001	W	mg/L	0.06	0.296		1.1E+02	I
BARIUM, TOTAL	0001	W	mg/L	0.002	0.0257		2.6E+00	I
CADMIUM, TOTAL	0001	W	mg/L	0.002	0.0021		1.8E-02	I
CALCIUM, TOTAL	0001	W	mg/L	0.02	30.6		NA	I
CALCIUM, TOTAL	4001	W	mg/L	0.02	0.0373		NA	I
IRON, TOTAL	0001	W	mg/L	0.01	2.61		NA	I
IRON, TOTAL	4001	W	mg/L	0.01	0.0218		NA	I
LEAD, TOTAL	0001	W	mg/L	0.002	0.036		NA	I
MAGNESIUM, TOTAL	0001	W	mg/L	0.05	4.88		NA	I
MANGANESE, TOTAL	0001	W	mg/L	0.002	0.0437		3.7E+00	I
POTASSIUM, TOTAL	0001	W	mg/L	0.1	5.82		NA	I
SODIUM, TOTAL	0001	W	mg/L	0.1	10.5		NA	I
THALLIUM, TOTAL	4001	W	mg/L	0.002	0.0021		NA	I

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

3.13. BUILDING 34 FIRE-FIGHTING TRAINING PITS

The Building 34 Fire-Fighting Training Pits, located south of Building 34, consists of two pits, one approximately 10 ft by 10 ft by 1 ft deep, the other approximately 20 ft by 10 ft by 1 ft deep. These pits were used to conduct fire-fighting training operations for Mound Plant personnel. Approximately 3 to 5 gallons of diesel fuel were reportedly used to start a fire, which was extinguished using water from a nearby hydrant. A summary description of the site history, including the field investigative procedures, is presented in subsection 2.13.

Fourteen soil samples were collected from four soil borings at the fire-fighting training pits and were analyzed for TCL VOCs, SVOCs, P/PCBs; TAL inorganics; dioxin/furans; lithium; and EPH. An additional five soil samples were analyzed only for TCL VOCs, dioxin/furans and lithium, for a total of 19 soil samples, including two duplicate samples. In addition to the above-mentioned analyses, nine surface and near surface soil samples were analyzed via gamma spectroscopy for cesium-137; potassium-40; radium-224, -226, -228; and thorium-234.

A sediment sample was also collected as a composite sample from sediments from both of the pits and was analyzed for TCL VOCs, SVOCs, P/PCBs; TAL inorganics; dioxin/furans; lithium; EPH; and gamma spectroscopy.

A surface water sample was collected from one of the pits and was analyzed for TCL VOCs, SVOCs, P/PCBs; TAL inorganics; dioxin/furans; lithium; and EPH.

Soil, sediment, and surface water sampling and analyses were conducted at the Building 34 Fire-Fighting Training Pits to assess whether the site is or has been a source of hazardous constituents released to the environment. The validated analytical results for all analytes detected at concentrations above the laboratory reporting limits in each sample analyzed are presented in Table III.17.

3.13.1. Volatile Organic Compounds

VOCs were detected at concentrations above laboratory reporting limits in two soil samples, MND33-0110-0003 and MND33-0112-0003. TCE was detected in sample MND33-0110-0003 at concentrations above laboratory reporting limits but below the PRG. BTEX were detected in sample MND33-0112-0003 at concentrations above laboratory reporting limits but below the PRGs. VOCs were not detected in any other soil samples analyzed from the fire-fighting training pits at concentrations above the laboratory reporting limits. The detected concentrations of VOCs in soils at the fire-fighting training pits do not represent an impact to soil quality.

VOCs were detected in the fire-fighting training pits sediment sample. Acetone, 2-hexanone, toluene, ethylbenzene, and total xylenes were detected in the sediment sample at concentrations above the laboratory reporting limits but below the PRGs for these compounds. The detection of these VOCs at the stated concentrations does not reflect an impact to sediment quality at the fire-fighting training pits.

VOCs were not detected in the surface water sample from the fire-fighting training pits at concentrations above the laboratory reporting limits.

3.13.2. Semivolatile Organic Compounds

SVOCs were not detected in any soil samples from the fire-fighting training pits at concentrations above the laboratory reporting limits.

A total of 12 SVOCs were detected at concentrations above the laboratory reporting limits from the fire-fighting training pits sediment sample. The SVOC pyrene was detected at a concentration above the PRG. 2-methylnaphthalene was detected above the laboratory reporting limit, however, a PRG is not established for this compound. The remaining 10 SVOCs detected in the sediment sample were detected at concentrations below respective PRGs. The presence of these SVOCs in the sediment sample may indicate influence from previous site activities involving the burning of fuels at the pits.

Six SVOCs were detected in the surface water sample from the fire-fighting training pits at concentrations above the laboratory reporting limits but below the PRGs. No other SVOCs were detected in the surface water sample at concentrations above the laboratory reporting limits.

3.13.3. Pesticides and Polychlorinated Biphenyls

P/PCBs were not detected in soil, sediment, or surface water samples from the fire-fighting training pits at concentrations above the laboratory reporting limits.

3.13.4. TAL Inorganics

Inorganic compounds were not detected in soil, sediment, or surface water samples collected from the fire-fighting training pits area at concentrations above respective PRGs or proposed action levels.

3.13.5. Dioxin/Furans

Analytical results for dioxin/furan analyses of soil samples from the fire-fighting training pits indicate a detected concentration of octachlorodibenzo-p-dioxin at surface soil sample MND33-0111-0001 at a concentration of 0.31 ng/g. No other dioxin/furans were detected in soil samples from the fire-fighting training pits. The occurrence of dioxin in surface soil at the fire-fighting training pits indicate that site activities involving the burning of flammable liquids at the site may have impacted the soil quality in the area.

Dioxin/furans were not detected in the sediment or surface water samples collected at the Building 34 Fire-Fighting Training Pits.

3.13.6. Lithium

Lithium was detected in all 15 soil samples collected from soil boring locations MND33-0110, -0111, and -0113 at the fire-fighting training pits. Concentrations of lithium exceeded the laboratory reporting limit in all of the above-mentioned samples but were below the PRG. Lithium was not detected above laboratory reporting limits in soil samples from soil boring location MND33-0112. The occurrence of lithium at concentrations above the laboratory reporting limit but below the PRG in the majority of soil samples from the fire-fighting training pits does not indicate impact to soil quality from previous site activities involving the disposal of lithium carbonate.

Concentrations of lithium at levels above the laboratory reporting limit were not detected in sediment or surface water samples collected at the fire-fighting training pits.

3.13.7. Extractable Petroleum Hydrocarbons

Analytical results for EPH analyses indicate concentrations of EPH above laboratory reporting limits in six soil samples collected from three soil boring locations at the fire-fighting training pits. EPH concentrations above laboratory reporting limits but below the PRG were detected at soil samples MND33-0111-0001 and -0003; and MND33-0113-0001. EPH concentrations which were above the PRG were detected in a soil sample and a duplicate sample, from soil boring location MND33-0112 (-0001 and -1001). The occurrence of EPH in site soils at concentrations above the PRG indicates that previous site activities may have impacted soil quality at the site.

Analytical results for EPH analyses of the Building 34 Fire-Fighting Training Pits sediment sample indicate an EPH concentration exceeding the PRG. This elevated concentration of EPH compounds may indicate an impact to sediment quality from previous site activities.

EPHs were not detected at concentrations above laboratory reporting limits in the surface water sample collected at the fire-fighting training pits.

3.13.8. Nitrite/Nitrates

Analyses of nitrite/nitrates was conducted on only one sample, MND33-0110-0001. Analytical results indicate no detectable levels of nitrite/nitrates at concentrations above the laboratory reporting limits.

3.13.9. Gamma Spectroscopy

Nine soil samples were analyzed for radioactive constituents using gamma spectroscopy. As previously discussed, a cleanup of depleted uranium was reported to have occurred in the Building 34 area. Analytical results of gamma spectroscopy indicate that thorium-234, a daughter product of uranium-238, was detected at concentrations above the PRG in surface soil samples MND33-0110-0001 and 0111-0001. The sediment sample collected from the fire-fighting training pits was also analyzed via gamma spectroscopy. Analytical results indicate a concentration of thorium-234 in the sediment sample at 5.41 pCi/g, which is above the 1.1 pCi/g PRG. Potassium-40 concentrations in the soil and sediment samples at the Building 34 Fire-Fighting Training Pits is naturally occurring and is not considered to be a result of previous site activities. Detected concentrations of potassium-40 in soil and sediment samples are within background concentration levels (Eisenbud, 1987). The detection of thorium-234 at concentrations above PRGs may reflect an impact to soil and sediment quality in the area and could be associated with previous site activities. Additional site characterization concerning radionuclide concentrations in soil at the site is recommended.

3.13.10. Summary

Analytical results for soil samples collected at the Building 34 Fire-Fighting Training Pits suggest an impact to soil quality at the site from concentrations of dioxin, EPH, and radionuclides. In addition, an oily product was observed in site soils in close proximity to the southernmost test pit at a depth of approximately 10.0 to 12.0 ft BGS. Analytical results for sediment sample analyses from the fire-fighting training pits indicate a significant impact to sediment quality from elevated concentrations of SVOCs, EPH, and thorium-234. As a result of these findings, further site characterization is recommended for the Building 34 Fire-Fighting Training Pits in order to determine the full extent of site contamination. In addition, remedial activities may be warranted for sediments contained in the training pits and for soils in proximity to the pits.

TABLE III.17
BUILDING 34 FIRE-FIGHTING TRAINING PIT
Location: MND33-0110
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
ALUMINUM, TOTAL	0001	S	mG/Kg	6.	8790.		7.8E+05	I
ALUMINUM, TOTAL	0002	S	mG/Kg	6.	3950.		7.8E+05	I
ALUMINUM, TOTAL	0003	S	mG/Kg	6.	4410.		7.8E+05	I
ALUMINUM, TOTAL	1002	S	mG/Kg	6.	4020.		7.8E+05	I
ANTIMONY, TOTAL	0001	S	mG/Kg	3.	16.3	J	1.1E+02	I
ANTIMONY, TOTAL	0002	S	mG/Kg	3.	26.3	J	1.1E+02	I
ANTIMONY, TOTAL	0003	S	mG/Kg	3.	28.4	J	1.1E+02	I
ANTIMONY, TOTAL	1002	S	mG/Kg	3.	29.3	J	1.1E+02	I
ARSENIC, TOTAL	0001	S	mG/Kg	.2	10.0	J	2.1E+03	I
ARSENIC, TOTAL	0002	S	mG/Kg	.2	4.1	J	2.1E+03	I
ARSENIC, TOTAL	0003	S	mG/Kg	.2	3.7	J	2.1E+03	I
ARSENIC, TOTAL	1002	S	mG/Kg	.2	5.0	J	2.1E+03	I
BARIUM, TOTAL	0001	S	mG/Kg	.2	74.8	J	1.9E+04	I
BARIUM, TOTAL	0002	S	mG/Kg	.2	33.5	J	1.9E+04	I
BARIUM, TOTAL	0003	S	mG/Kg	.2	26.1	J	1.9E+04	I
BARIUM, TOTAL	1002	S	mG/Kg	.2	31.3	J	1.9E+04	I
BERYLLIUM	0001	S	mG/Kg	.2	0.77	J	1.5E-01	I
BERYLLIUM	0002	S	mG/Kg	.2	0.60	J	1.5E-01	I
BERYLLIUM	0003	S	mG/Kg	.2	0.61	J	1.5E-01	I
BERYLLIUM	1002	S	mG/Kg	.2	0.62	J	1.5E-01	I
CADMIUM, TOTAL	0001	S	mG/Kg	.2	4.2		1.4E+02	I
CADMIUM, TOTAL	0002	S	mG/Kg	.2	5.7	J	1.4E+02	I
CADMIUM, TOTAL	0003	S	mG/Kg	.2	6.1	J	1.4E+02	I
CADMIUM, TOTAL	1002	S	mG/Kg	.2	6.1	J	1.4E+02	I
CALCIUM, TOTAL	0001	S	mG/Kg	2.	52500.		NA	I
CALCIUM, TOTAL	0002	S	mG/Kg	2.	118000.		NA	I
CALCIUM, TOTAL	0003	S	mG/Kg	2.	105000.		NA	I
CALCIUM, TOTAL	1002	S	mG/Kg	2.	104000.		NA	I
CHROMIUM, TOTAL	0001	S	mG/Kg	1.	26.5		1.4E+03	I
CHROMIUM, TOTAL	0002	S	mG/Kg	1.	25.3	J	1.4E+03	I
CHROMIUM, TOTAL	0003	S	mG/Kg	1.	25.2	J	1.4E+03	I
CHROMIUM, TOTAL	1002	S	mG/Kg	1.	24.6	J	1.4E+03	I
COBALT, TOTAL	0001	S	mG/Kg	1.	12.3		3.9E+01	I
COBALT, TOTAL	0002	S	mG/Kg	1.	8.9	J	3.9E+01	I
COBALT, TOTAL	0003	S	mG/Kg	1.	7.8	J	3.9E+01	I
COBALT, TOTAL	1002	S	mG/Kg	1.	9.4	J	3.9E+01	I
COPPER, TOTAL	0001	S	mG/Kg	1.	20.9		1.0E+04	I
COPPER, TOTAL	0002	S	mG/Kg	1.	17.7	J	1.0E+04	I
COPPER, TOTAL	0003	S	mG/Kg	1.	17.2	J	1.0E+04	I
COPPER, TOTAL	1002	S	mG/Kg	1.	17.8	J	1.0E+04	I
IRON, TOTAL	0001	S	mG/Kg	1.	19800.	J	NA	I
IRON, TOTAL	0002	S	mG/Kg	1.	9800.		NA	I
IRON, TOTAL	0003	S	mG/Kg	1.	9910.		NA	I
IRON, TOTAL	1002	S	mG/Kg	1.	11600.	J	NA	I
LEAD, TOTAL	0001	S	mG/Kg	.2	12.8		5.3E+01	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.17
BUILDING 34 FIRE-FIGHTING TRAINING PIT
Location: MWD33-0110
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
LEAD, TOTAL	0002	S	mG/Kg	.2	5.4		5.3E+01	I
LEAD, TOTAL	0003	S	mG/Kg	.2	4.9		5.3E+01	I
LEAD, TOTAL	1002	S	mG/Kg	.2	5.1		5.3E+01	I
LITHIUM, TOTAL	0001	S	mG/Kg	5.	7.		5.4E+03	I
LITHIUM, TOTAL	0002	S	mG/Kg	5.	6.		5.4E+03	I
LITHIUM, TOTAL	0003	S	mG/Kg	5.	6.6		5.4E+03	I
LITHIUM, TOTAL	1002	S	mG/Kg	5.	6.6		5.4E+03	I
LITHIUM, TOTAL	0004	S	mG/Kg	5.	21.4		5.4E+03	I
LITHIUM, TOTAL	0005	S	mG/Kg	5.	23.7		5.4E+03	I
MAGNESIUM, TOTAL	0001	S	mG/Kg	5.	21800.		NA	I
MAGNESIUM, TOTAL	0002	S	mG/Kg	5.	39000.		NA	I
MAGNESIUM, TOTAL	0003	S	mG/Kg	5.	43400.		NA	I
MAGNESIUM, TOTAL	1002	S	mG/Kg	5.	43600.		NA	I
MANGANESE, TOTAL	0001	S	mG/Kg	.2	481.	J	2.7E+04	I
MANGANESE, TOTAL	0002	S	mG/Kg	.2	278.	J	2.7E+04	I
MANGANESE, TOTAL	0003	S	mG/Kg	.2	182.	J	2.7E+04	I
MANGANESE, TOTAL	1002	S	mG/Kg	.2	236.	J	2.7E+04	I
NICKEL, TOTAL	0001	S	mG/Kg	2.	29.5		5.4E+03	I
NICKEL, TOTAL	0002	S	mG/Kg	2.	25.3	J	5.4E+03	I
NICKEL, TOTAL	0003	S	mG/Kg	2.	23.4	J	5.4E+03	I
NICKEL, TOTAL	1002	S	mG/Kg	2.	25.0	J	5.4E+03	I
POTASSIUM, TOTAL	0001	S	mG/Kg	10.	1170.		NA	I
POTASSIUM, TOTAL	0002	S	mG/Kg	10.	774.		NA	I
POTASSIUM, TOTAL	0003	S	mG/Kg	10.	867.		NA	I
POTASSIUM, TOTAL	1002	S	mG/Kg	10.	773.		NA	I
POTASSIUM-40	0001	S	pCi/g	.5	15.7		NA	I
POTASSIUM-40	0002	S	pCi/g	.5	10.9		NA	I
RADIUM-224	0001	S	pCi/g	.1	.849		5.0E+00	I
RADIUM-224	0002	S	pCi/g	.1	.529		5.0E+00	I
RADIUM-226	0001	S	pCi/g	.1	.901		5.0E+00	I
RADIUM-226	0002	S	pCi/g	.1	.663		5.0E+00	I
RADIUM-228	0001	S	pCi/g	.2	.685		5.0E+00	I
RADIUM-228	0002	S	pCi/g	.2	.513		5.0E+00	I
SILVER, TOTAL	0001	S	mG/Kg	1.	11.5		1.4E+03	I
SILVER, TOTAL	0002	S	mG/Kg	1.	16.5	J	1.4E+03	I
SILVER, TOTAL	0003	S	mG/Kg	1.	16.0	J	1.4E+03	I
SILVER, TOTAL	1002	S	mG/Kg	1.	15.9	J	1.4E+03	I
SODIUM, TOTAL	0001	S	mG/Kg	10.	143.		NA	I
SODIUM, TOTAL	0002	S	mG/Kg	10.	146.	J	NA	I
SODIUM, TOTAL	0003	S	mG/Kg	10.	149.	J	NA	I
SODIUM, TOTAL	1002	S	mG/Kg	10.	151.	J	NA	I
THORIUM-234	0001	S	pCi/g	.5	1.23		1.1E+00	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.17
BUILDING 34 FIRE-FIGHTING TRAINING PIT
Location: MND33-0110
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
THORIUM-234	0002	S	pCi/g	.5	.739		1.1E+00	I
TRICHLOROETHENE	0003	S	mG/Kg	0.006	0.012		5.8E+01	I
VANADIUM, TOTAL	0001	S	mG/Kg	1.	30.8		1.9E+03	I
VANADIUM, TOTAL	0002	S	mG/Kg	1.	22.3	J	1.9E+03	I
VANADIUM, TOTAL	0003	S	mG/Kg	1.	23.5	J	1.9E+03	I
VANADIUM, TOTAL	1002	S	mG/Kg	1.	22.7	J	1.9E+03	I
ZINC, TOTAL	0001	S	mG/Kg	.5	56.9	J	5.4E+04	I
ZINC, TOTAL	0002	S	mG/Kg	.5	33.3	J	5.4E+04	I
ZINC, TOTAL	0003	S	mG/Kg	.5	34.3	J	5.4E+04	I
ZINC, TOTAL	1002	S	mG/Kg	.5	36.6	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.17
BUILDING 34 FIRE-FIGHTING TRAINING PIT
Location: MWD33-0111
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
ALUMINUM, TOTAL	0001	S	mG/Kg	6.	2260.		7.8E+05	I
ALUMINUM, TOTAL	0002	S	mG/Kg	6.	3680.		7.8E+05	I
ALUMINUM, TOTAL	0003	S	mG/Kg	6.	3650.		7.8E+05	I
ANTIMONY, TOTAL	0001	S	mG/Kg	3.	36.2	J	1.1E+02	I
ANTIMONY, TOTAL	0002	S	mG/Kg	3.	26.8	J	1.1E+02	I
ANTIMONY, TOTAL	0003	S	mG/Kg	3.	28.4	J	1.1E+02	I
ARSENIC, TOTAL	0001	S	mG/Kg	.2	4.8	J	2.1E+03	I
ARSENIC, TOTAL	0002	S	mG/Kg	.2	3.9	J	2.1E+03	I
ARSENIC, TOTAL	0003	S	mG/Kg	.2	3.5	J	2.1E+03	I
BARIUM, TOTAL	0001	S	mG/Kg	.2	24.5		1.9E+04	I
BARIUM, TOTAL	0002	S	mG/Kg	.2	29.8		1.9E+04	I
BARIUM, TOTAL	0003	S	mG/Kg	.2	39.2		1.9E+04	I
BERYLLIUM	0001	S	mG/Kg	.2	.60	J	1.5E-01	I
BERYLLIUM	0002	S	mG/Kg	.2	.62	J	1.5E-01	I
BERYLLIUM	0003	S	mG/Kg	.2	.6	J	1.5E-01	I
CADMIUM, TOTAL	0001	S	mG/Kg	.2	7.5	J	1.4E+02	I
CADMIUM, TOTAL	0002	S	mG/Kg	.2	5.9	J	1.4E+02	I
CADMIUM, TOTAL	0003	S	mG/Kg	.2	6.0	J	1.4E+02	I
CALCIUM, TOTAL	0001	S	mG/Kg	2.	131000.		NA	I
CALCIUM, TOTAL	0002	S	mG/Kg	2.	101000.		NA	I
CALCIUM, TOTAL	0003	S	mG/Kg	2.	104000.		NA	I
CHROMIUM, TOTAL	0001	S	mG/Kg	1.	24.9	J	1.4E+03	I
CHROMIUM, TOTAL	0002	S	mG/Kg	1.	24.3	J	1.4E+03	I
CHROMIUM, TOTAL	0003	S	mG/Kg	1.	24.5	J	1.4E+03	I
COBALT, TOTAL	0001	S	mG/Kg	1.	7.1	J	3.9E+01	I
COBALT, TOTAL	0002	S	mG/Kg	1.	7.6	J	3.9E+01	I
COBALT, TOTAL	0003	S	mG/Kg	1.	8.4	J	3.9E+01	I
COPPER, TOTAL	0001	S	mG/Kg	1.	16.8	J	1.0E+04	I
COPPER, TOTAL	0002	S	mG/Kg	1.	15.7	J	1.0E+04	I
COPPER, TOTAL	0003	S	mG/Kg	1.	16.6	J	1.0E+04	I
EXTRACTABLE HYD AS DIESEL FUEL	0001	S	mG/Kg	5.	38.1		105. total	I
EXTRACTABLE HYD AS DIESEL FUEL	0003	S	mG/Kg	5.	9.2		105. total	I
IRON, TOTAL	0001	S	mG/Kg	1.	6290.		NA	I
IRON, TOTAL	0002	S	mG/Kg	1.	9480.		NA	I
IRON, TOTAL	0003	S	mG/Kg	1.	9390.		NA	I
LEAD, TOTAL	0001	S	mG/Kg	.2	5.6	J	5.3E+01	I
LEAD, TOTAL	0002	S	mG/Kg	.2	5.8	J	5.3E+01	I
LEAD, TOTAL	0003	S	mG/Kg	.2	5.9	J	5.3E+01	I
LITHIUM, TOTAL	0001	S	mG/Kg	5.	12.2		5.4E+03	I
LITHIUM, TOTAL	0002	S	mG/Kg	5.	16.8		5.4E+03	I
LITHIUM, TOTAL	0003	S	mG/Kg	5.	14.6		5.4E+03	I
MAGNESIUM, TOTAL	0001	S	mG/Kg	5.	59300.		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 III.17
BUILDING 34 FIRE-FIGHTING TRAINING PIT
Location: MND33-0111
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.	43000.		NA	I
MAGNESIUM, TOTAL	0003	S	mG/Kg	5.	42500.		NA	I
MANGANESE, TOTAL	0001	S	mG/Kg	.2	208.	J	2.7E+04	I
MANGANESE, TOTAL	0002	S	mG/Kg	.2	206.	J	2.7E+04	I
MANGANESE, TOTAL	0003	S	mG/Kg	.2	204.	J	2.7E+04	I
NICKEL, TOTAL	0001	S	mG/Kg	2.	20.5	J	5.4E+03	I
NICKEL, TOTAL	0002	S	mG/Kg	2.	22.1	J	5.4E+03	I
NICKEL, TOTAL	0003	S	mG/Kg	2.	21.8	J	5.4E+03	I
OCTACHLORODIBENZO-P-DIOXIN	0001	S	NG/G	0.	.31		NA	I
POTASSIUM, TOTAL	0001	S	mG/Kg	10.	359.		NA	I
POTASSIUM, TOTAL	0002	S	mG/Kg	10.	651.		NA	I
POTASSIUM, TOTAL	0003	S	mG/Kg	10.	740.		NA	I
POTASSIUM-40	0001	S	pCi/g	.5	8.25		NA	I
POTASSIUM-40	0002	S	pCi/g	.5	10.2		NA	I
RADIUM-224	0001	S	pCi/g	.1	.421		5.0E+00	I
RADIUM-224	0002	S	pCi/g	.1	.596		5.0E+00	I
RADIUM-226	0001	S	pCi/g	.1	.613		5.0E+00	I
RADIUM-226	0002	S	pCi/g	.1	.715		5.0E+00	I
RADIUM-228	0001	S	pCi/g	.2	.405		5.0E+00	I
RADIUM-228	0002	S	pCi/g	.2	.522		5.0E+00	I
SILVER, TOTAL	0001	S	mG/Kg	1.	17.5	J	1.4E+03	I
SILVER, TOTAL	0002	S	mG/Kg	1.	15.4	J	1.4E+03	I
SILVER, TOTAL	0003	S	mG/Kg	1.	15.8	J	1.4E+03	I
SODIUM, TOTAL	0001	S	mG/Kg	10.	194.		NA	I
SODIUM, TOTAL	0002	S	mG/Kg	10.	142.	J	NA	I
SODIUM, TOTAL	0003	S	mG/Kg	10.	137.	J	NA	I
THORIUM-234	0001	S	pCi/g	.5	1.03		1.1E+00	I
THORIUM-234	0002	S	pCi/g	.5	.827		1.1E+00	I
VANADIUM, TOTAL	0001	S	mG/Kg	1.	21.2	J	1.9E+03	I
VANADIUM, TOTAL	0002	S	mG/Kg	1.	21.7	J	1.9E+03	I
VANADIUM, TOTAL	0003	S	mG/Kg	1.	22.3	J	1.9E+03	I
ZINC, TOTAL	0001	S	mG/Kg	.5	47.4		5.4E+04	I
ZINC, TOTAL	0002	S	mG/Kg	.5	34.1		5.4E+04	I
ZINC, TOTAL	0003	S	mG/Kg	.5	30.2	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.17
BUILDING 34 FIRE-FIGHTING TRAINING PIT
Location: MND33-0112
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
ALUMINUM, TOTAL	0001	S	mG/Kg	6.	1430.	J	7.8E+05	I
ALUMINUM, TOTAL	0002	S	mG/Kg	6.	3690.		7.8E+05	I
ALUMINUM, TOTAL	0003	S	mG/Kg	6.	3730.		7.8E+05	I
ALUMINUM, TOTAL	1001	S	mG/Kg	6.	2160.	J	7.8E+05	I
ANTIMONY, TOTAL	0001	S	mG/Kg	3.	36.6	J	1.1E+02	I
ANTIMONY, TOTAL	0002	S	mG/Kg	3.	26.5	J	1.1E+02	I
ANTIMONY, TOTAL	0003	S	mG/Kg	3.	27.8	J	1.1E+02	I
ANTIMONY, TOTAL	1001	S	mG/Kg	3.	28.4	J	1.1E+02	I
ARSENIC, TOTAL	0001	S	mG/Kg	.2	3.8	J	2.1E+03	I
ARSENIC, TOTAL	0002	S	mG/Kg	.2	4.7	J	2.1E+03	I
ARSENIC, TOTAL	0003	S	mG/Kg	.2	3.3	J	2.1E+03	I
ARSENIC, TOTAL	1001	S	mG/Kg	.2	3.8	J	2.1E+03	I
BARIUM, TOTAL	0001	S	mG/Kg	.2	16.6		1.9E+04	I
BARIUM, TOTAL	0002	S	mG/Kg	.2	27.		1.9E+04	I
BARIUM, TOTAL	0003	S	mG/Kg	.2	18.9		1.9E+04	I
BARIUM, TOTAL	1001	S	mG/Kg	.2	19.7		1.9E+04	I
BENZENE	0003	S	mG/Kg	0.006	0.008		2.2E+01	I
BERYLLIUM	0001	S	mG/Kg	.2	0.54	J	1.5E-01	I
BERYLLIUM	0002	S	mG/Kg	.2	0.59	J	1.5E-01	I
BERYLLIUM	0003	S	mG/Kg	.2	0.63	J	1.5E-01	I
BERYLLIUM	1001	S	mG/Kg	.2	0.53	J	1.5E-01	I
CADMIUM, TOTAL	0001	S	mG/Kg	.2	7.5	J	1.4E+02	I
CADMIUM, TOTAL	0002	S	mG/Kg	.2	6.0	J	1.4E+02	I
CADMIUM, TOTAL	0003	S	mG/Kg	.2	6.0	J	1.4E+02	I
CADMIUM, TOTAL	1001	S	mG/Kg	.2	6.5	J	1.4E+02	I
CALCIUM, TOTAL	0001	S	mG/Kg	2.	141000.		NA	I
CALCIUM, TOTAL	0002	S	mG/Kg	2.	102000.		NA	I
CALCIUM, TOTAL	0003	S	mG/Kg	2.	112000.		NA	I
CALCIUM, TOTAL	1001	S	mG/Kg	2.	117000.		NA	I
CHROMIUM, TOTAL	0001	S	mG/Kg	1.	24.4	J	1.4E+03	I
CHROMIUM, TOTAL	0002	S	mG/Kg	1.	24.7	J	1.4E+03	I
CHROMIUM, TOTAL	0003	S	mG/Kg	1.	25.0	J	1.4E+03	I
CHROMIUM, TOTAL	1001	S	mG/Kg	1.	24.7	J	1.4E+03	I
COBALT, TOTAL	0001	S	mG/Kg	1.	5.9	J	3.9E+01	I
COBALT, TOTAL	0002	S	mG/Kg	1.	8.2	J	3.9E+01	I
COBALT, TOTAL	0003	S	mG/Kg	1.	7.6	J	3.9E+01	I
COBALT, TOTAL	1001	S	mG/Kg	1.	6.0	J	3.9E+01	I
COPPER, TOTAL	0001	S	mG/Kg	1.	23.4	J	1.0E+04	I
COPPER, TOTAL	0002	S	mG/Kg	1.	15.7	J	1.0E+04	I
COPPER, TOTAL	0003	S	mG/Kg	1.	15.8	J	1.0E+04	I
COPPER, TOTAL	1001	S	mG/Kg	1.	14.3	J	1.0E+04	I
ETHYLBENZENE	0003	S	mG/Kg	0.006	0.018		2.7E+04	I
EXTRACTABLE HYD AS DIESEL FUEL	0001	S	mG/Kg	5.	498.		105. total	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 III.17
BUILDING 34 FIRE-FIGHTING TRAINING PIT
Location: MWD33-0112
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
EXTRACTABLE HYD AS DIESEL FUEL	0002	S	mG/Kg	5.	8.7		105. total	I
EXTRACTABLE HYD AS DIESEL FUEL	0003	S	mG/Kg	5.	66.5		105. total	I
EXTRACTABLE HYD AS DIESEL FUEL	1001	S	mG/Kg	5.	208.		105. total	I
IRON, TOTAL	0001	S	mG/Kg	1.	5070.		NA	I
IRON, TOTAL	0002	S	mG/Kg	1.	9790.		NA	I
IRON, TOTAL	0003	S	mG/Kg	1.	8320.		NA	I
IRON, TOTAL	1001	S	mG/Kg	1.	6310.		NA	I
LEAD, TOTAL	0001	S	mG/Kg	.2	5.6	J	5.3E+01	I
LEAD, TOTAL	0002	S	mG/Kg	.2	6.0	J	5.3E+01	I
LEAD, TOTAL	0003	S	mG/Kg	.2	6.1	J	5.3E+01	I
LEAD, TOTAL	1001	S	mG/Kg	.2	5.2	J	5.3E+01	I
LITHIUM, TOTAL	0001	S	mG/Kg	5.	10.8		5.4E+03	I
LITHIUM, TOTAL	0002	S	mG/Kg	5.	15.3		5.4E+03	I
LITHIUM, TOTAL	0003	S	mG/Kg	5.	20.2		5.4E+03	I
LITHIUM, TOTAL	1001	S	mG/Kg	5.	10.7		5.4E+03	I
MAGNESIUM, TOTAL	0001	S	mG/Kg	5.	61100.		NA	I
MAGNESIUM, TOTAL	0002	S	mG/Kg	5.	41400.		NA	I
MAGNESIUM, TOTAL	0003	S	mG/Kg	5.	43100.		NA	I
MAGNESIUM, TOTAL	1001	S	mG/Kg	5.	45200.		NA	I
MANGANESE, TOTAL	0001	S	mG/Kg	.2	210.	J	2.7E+04	I
MANGANESE, TOTAL	0002	S	mG/Kg	.2	206.	J	2.7E+04	I
MANGANESE, TOTAL	0003	S	mG/Kg	.2	203.	J	2.7E+04	I
MANGANESE, TOTAL	1001	S	mG/Kg	.2	187.	J	2.7E+04	I
NICKEL, TOTAL	0001	S	mG/Kg	2.	20.2	J	5.4E+03	I
NICKEL, TOTAL	0002	S	mG/Kg	2.	21.4	J	5.4E+03	I
NICKEL, TOTAL	0003	S	mG/Kg	2.	22.0	J	5.4E+03	I
NICKEL, TOTAL	1001	S	mG/Kg	2.	17.6	J	5.4E+03	I
POTASSIUM, TOTAL	0001	S	mG/Kg	10.	311.		NA	I
POTASSIUM, TOTAL	0002	S	mG/Kg	10.	709.		NA	I
POTASSIUM, TOTAL	0003	S	mG/Kg	10.	839.		NA	I
POTASSIUM, TOTAL	1001	S	mG/Kg	10.	429.		NA	I
POTASSIUM-40	0001	S	pCi/g	.5	6.07		NA	I
POTASSIUM-40	0002	S	pCi/g	.5	9.23		NA	I
POTASSIUM-40	1001	S	pCi/g	.5	7.51		NA	I
RADIUM-224	0001	S	pCi/g	.1	.313		5.0E+00	I
RADIUM-224	0002	S	pCi/g	.1	.439		5.0E+00	I
RADIUM-224	1001	S	pCi/g	.1	.375		5.0E+00	I
RADIUM-226	0001	S	pCi/g	.1	.449		5.0E+00	I
RADIUM-226	0002	S	pCi/g	.1	.630		5.0E+00	I
RADIUM-226	1001	S	pCi/g	.1	.456		5.0E+00	I
RADIUM-228	0001	S	pCi/g	.2	.299		5.0E+00	I
RADIUM-228	0002	S	pCi/g	.2	.424		5.0E+00	I
RADIUM-228	1001	S	pCi/g	.2	.391		5.0E+00	I
SILVER, TOTAL	0001	S	mG/Kg	1.	17.7	J	1.4E+03	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.17
BUILDING 34 FIRE-FIGHTING TRAINING PIT
Location: MND33-0112
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
SILVER, TOTAL	0002	S	mG/Kg	1.	15.4	J	1.4E+03	I
SILVER, TOTAL	0003	S	mG/Kg	1.	16.3	J	1.4E+03	I
SILVER, TOTAL	1001	S	mG/Kg	1.	16.1	J	1.4E+03	I
SODIUM, TOTAL	0001	S	mG/Kg	10.	180.	J	NA	I
SODIUM, TOTAL	0002	S	mG/Kg	10.	189.		NA	I
SODIUM, TOTAL	0003	S	mG/Kg	10.	197.		NA	I
SODIUM, TOTAL	1001	S	mG/Kg	10.	155.	J	NA	I
THORIUM-234	0001	S	pCi/g	.5	.626		1.1E+00	I
THORIUM-234	0002	S	pCi/g	.5	.853		1.1E+00	I
THORIUM-234	1001	S	pCi/g	.5	.535		1.1E+00	I
TOLUENE	0003	S	mG/Kg	0.006	0.02		5.4E+04	I
TOTAL XYLENES	0003	S	mG/Kg	0.006	0.12		5.4E+05	I
VANADIUM, TOTAL	0001	S	mG/Kg	1.	19.8	J	1.9E+03	I
VANADIUM, TOTAL	0002	S	mG/Kg	1.	21.7	J	1.9E+03	I
VANADIUM, TOTAL	0003	S	mG/Kg	1.	22.5	J	1.9E+03	I
VANADIUM, TOTAL	1001	S	mG/Kg	1.	20.1	J	1.9E+03	I
ZINC, TOTAL	0001	S	mG/Kg	.5	32.		5.4E+04	I
ZINC, TOTAL	0002	S	mG/Kg	.5	31.4	J	5.4E+04	I
ZINC, TOTAL	0003	S	mG/Kg	.5	27.0	J	5.4E+04	I
ZINC, TOTAL	1001	S	mG/Kg	.5	35.6		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

TABLE III.17
BUILDING 34 FIRE-FIGHTING TRAINING PIT
Location: MWD33-0113
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
ALUMINUM, TOTAL	0001	S	mG/Kg	6.	4300.		7.8E+05	I
ALUMINUM, TOTAL	0002	S	mG/Kg	6.	3680.		7.8E+05	I
ALUMINUM, TOTAL	0003	S	mG/Kg	6.	2670.		7.8E+05	I
ANTIMONY, TOTAL	0001	S	mG/Kg	3.	26.8	J	1.1E+02	I
ANTIMONY, TOTAL	0002	S	mG/Kg	3.	25.5	J	1.1E+02	I
ANTIMONY, TOTAL	0003	S	mG/Kg	3.	26.8	J	1.1E+02	I
ARSENIC, TOTAL	0001	S	mG/Kg	.2	5.0	J	2.1E+03	I
ARSENIC, TOTAL	0002	S	mG/Kg	.2	6.3	J	2.1E+03	I
ARSENIC, TOTAL	0003	S	mG/Kg	.2	2.7	J	2.1E+03	I
BARIUM, TOTAL	0001	S	mG/Kg	.2	28.2	J	1.9E+04	I
BARIUM, TOTAL	0002	S	mG/Kg	.2	25.3	J	1.9E+04	I
BARIUM, TOTAL	0003	S	mG/Kg	.2	30.7	J	1.9E+04	I
BENZOIC ACID	0003	S	mG/Kg	3.6	5.8	J	1.1E+06	I
BERYLLIUM	0001	S	mG/Kg	.2	.66	J	1.5E-01	I
BERYLLIUM	0002	S	mG/Kg	.2	.66	J	1.5E-01	I
BERYLLIUM	0003	S	mG/Kg	.2	0.64	J	1.5E-01	I
CADMIUM, TOTAL	0001	S	mG/Kg	.2	5.9	J	1.4E+02	I
CADMIUM, TOTAL	0002	S	mG/Kg	.2	6.8	J	1.4E+02	I
CADMIUM, TOTAL	0003	S	mG/Kg	.2	6.1	J	1.4E+02	I
CALCIUM, TOTAL	0001	S	mG/Kg	2.	120000.		NA	I
CALCIUM, TOTAL	0002	S	mG/Kg	2.	156000.		NA	I
CALCIUM, TOTAL	0003	S	mG/Kg	2.	117000.		NA	I
CHROMIUM, TOTAL	0001	S	mG/Kg	1.	24.5	J	1.4E+03	I
CHROMIUM, TOTAL	0002	S	mG/Kg	1.	26.8	J	1.4E+03	I
CHROMIUM, TOTAL	0003	S	mG/Kg	1.	24.8	J	1.4E+03	I
COBALT, TOTAL	0001	S	mG/Kg	1.	8.1	J	3.9E+01	I
COBALT, TOTAL	0002	S	mG/Kg	1.	7.9	J	3.9E+01	I
COBALT, TOTAL	0003	S	mG/Kg	1.	7.7	J	3.9E+01	I
COPPER, TOTAL	0001	S	mG/Kg	1.	19.	J	1.0E+04	I
COPPER, TOTAL	0002	S	mG/Kg	1.	16.6	J	1.0E+04	I
COPPER, TOTAL	0003	S	mG/Kg	1.	16.6	J	1.0E+04	I
EXTRACTABLE HYD AS DIESEL FUEL	0003	S	mG/Kg	5.	9.7		105. total	I
IRON, TOTAL	0001	S	mG/Kg	1.	9730.		NA	I
IRON, TOTAL	0002	S	mG/Kg	1.	9550.		NA	I
IRON, TOTAL	0003	S	mG/Kg	1.	8820.		NA	I
LEAD, TOTAL	0001	S	mG/Kg	.2	5.5		5.3E+01	I
LEAD, TOTAL	0002	S	mG/Kg	.2	6.2		5.3E+01	I
LEAD, TOTAL	0003	S	mG/Kg	.2	5.6		5.3E+01	I
LITHIUM, TOTAL	0001	S	mG/Kg	5.	17.5		5.4E+03	I
LITHIUM, TOTAL	0002	S	mG/Kg	5.	17.8		5.4E+03	I
LITHIUM, TOTAL	0003	S	mG/Kg	5.	21.		5.4E+03	I

PRG - Preliminary Remediation Goals (Risk Based)
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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 III.17
BUILDING 34 FIRE-FIGHTING TRAINING PIT
Location: MND33-0113
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
LITHIUM, TOTAL	0004	S	mG/Kg	5.	21.8		5.4E+03	I
LITHIUM, TOTAL	0005	S	mG/Kg	5.	22.2		5.4E+03	I
LITHIUM, TOTAL	0006	S	mG/Kg	5.	25.1		5.4E+03	I
MAGNESIUM, TOTAL	0001	S	mG/Kg	5.	41800.		NA	I
MAGNESIUM, TOTAL	0002	S	mG/Kg	5.	37800.		NA	I
MAGNESIUM, TOTAL	0003	S	mG/Kg	5.	43600.		NA	I
MANGANESE, TOTAL	0001	S	mG/Kg	.2	216.		2.7E+04	I
MANGANESE, TOTAL	0002	S	mG/Kg	.2	247.		2.7E+04	I
MANGANESE, TOTAL	0003	S	mG/Kg	.2	218.		2.7E+04	I
NICKEL, TOTAL	0001	S	mG/Kg	2.	26.	J	5.4E+03	I
NICKEL, TOTAL	0002	S	mG/Kg	2.	19.8	J	5.4E+03	I
NICKEL, TOTAL	0003	S	mG/Kg	2.	22.4	J	5.4E+03	I
POTASSIUM, TOTAL	0001	S	mG/Kg	10.	767.		NA	I
POTASSIUM, TOTAL	0002	S	mG/Kg	10.	703.		NA	I
POTASSIUM, TOTAL	0003	S	mG/Kg	10.	856.		NA	I
POTASSIUM-40	0001	S	pCi/g	.5	8.61		NA	I
POTASSIUM-40	0002	S	pCi/g	.5	10.5		NA	I
RADIUM-224	0001	S	pCi/g	.1	.445		5.0E+00	I
RADIUM-224	0002	S	pCi/g	.1	.616		5.0E+00	I
RADIUM-226	0001	S	pCi/g	.1	.530		5.0E+00	I
RADIUM-226	0002	S	pCi/g	.1	.657		5.0E+00	I
RADIUM-228	0001	S	pCi/g	.2	.376		5.0E+00	I
RADIUM-228	0002	S	pCi/g	.2	.433		5.0E+00	I
SILVER, TOTAL	0001	S	mG/Kg	1.	16.3	J	1.4E+03	I
SILVER, TOTAL	0002	S	mG/Kg	1.	18.	J	1.4E+03	I
SILVER, TOTAL	0003	S	mG/Kg	1.	16.3	J	1.4E+03	I
SODIUM, TOTAL	0001	S	mG/Kg	10.	173.	J	NA	I
SODIUM, TOTAL	0002	S	mG/Kg	10.	168.	J	NA	I
SODIUM, TOTAL	0003	S	mG/Kg	10.	158.	J	NA	I
THORIUM-234	0001	S	pCi/g	.5	.738		1.1E+00	I
THORIUM-234	0002	S	pCi/g	.5	.617		1.1E+00	I
VANADIUM, TOTAL	0001	S	mG/Kg	1.	22.5	J	1.9E+03	I
VANADIUM, TOTAL	0002	S	mG/Kg	1.	23.9	J	1.9E+03	I
VANADIUM, TOTAL	0003	S	mG/Kg	1.	22.4	J	1.9E+03	I
ZINC, TOTAL	0001	S	mG/Kg	.5	31.2	J	5.4E+04	I
ZINC, TOTAL	0002	S	mG/Kg	.5	29.4	J	5.4E+04	I
ZINC, TOTAL	0003	S	mG/Kg	.5	29.2	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.17
BUILDING 34 FIRE-FIGHTING TRAINING PIT
Location: MND33-0140
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
2,4-DIMETHYLPHENOL	0001	SE	mG/Kg	5.4	31.	J	5.4E+03	I
2-HEXANONE	0001	SE	mG/Kg	0.016	0.061	J	NA	I
2-METHYLNAPHTHALENE	0001	SE	mG/Kg	5.4	23.	J	NA	I
2-METHYLPHENOL	0001	SE	mG/Kg	5.4	13.	J	1.4E+04	I
4-METHYL-2-PENTANONE	0001	SE	mG/Kg	0.016	0.02		1.4E+04	I
4-METHYLPHENOL	0001	SE	mG/Kg	5.4	25.	J	1.4E+04	I
ACETONE	0001	SE	mG/Kg	0.016	0.063	J	2.7E+04	I
ALUMINUM, TOTAL	0001	SE	mG/Kg	6.	450.		7.8E+05	I
ANTHRACENE	0001	SE	mG/Kg	5.4	38.	J	8.1E+04	I
ARSENIC, TOTAL	0001	SE	mG/Kg	.2	0.81	J	2.1E+03	I
BARIUM, TOTAL	0001	SE	mG/Kg	.2	15.1		1.9E+04	I
BENZYL ALCOHOL	0001	SE	mG/Kg	5.4	17.	J	8.1E+04	I
CADMIUM, TOTAL	0001	SE	mG/Kg	.2	1.3		1.4E+02	I
CALCIUM, TOTAL	0001	SE	mG/Kg	2.	12200.		NA	I
CHROMIUM, TOTAL	0001	SE	mG/Kg	1.	15.5		1.4E+03	I
COPPER, TOTAL	0001	SE	mG/Kg	1.	14.		1.0E+04	I
CYANIDE	0001	SE	mG/Kg	.2	.26		5.4E+03	I
ETHYLBENZENE	0001	SE	mG/Kg	0.008	0.017		2.7E+04	I
EXTRACTABLE HYD AS DIESEL FUEL	0001	SE	mG/Kg	5.	116700.		105. total	I
FLUORANTHENE	0001	SE	mG/Kg	5.4	7.3	J	1.1E+04	I
FLUORENE	0001	SE	mG/Kg	5.4	21.	J	1.1E+04	I
IRON, TOTAL	0001	SE	mG/Kg	1.	4650.		NA	I
LEAD, TOTAL	0001	SE	mG/Kg	.2	11.6		5.3E+01	I
MAGNESIUM, TOTAL	0001	SE	mG/Kg	5.	3500.		NA	I
MANGANESE, TOTAL	0001	SE	mG/Kg	.2	45.1		2.7E+04	I
NICKEL, TOTAL	0001	SE	mG/Kg	2.	17.		5.4E+03	I
PHENANTHRENE	0001	SE	mG/Kg	5.4	38.	J	7.8E+03	I
PHENOL	0001	SE	mG/Kg	5.4	22.	J	1.6E+05	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.17
BUILDING 34 FIRE-FIGHTING TRAINING PIT
Location: MND33-0140
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
POTASSIUM, TOTAL	0001	SE	mG/Kg	10.	190.		NA	I
POTASSIUM-40	0001	SE	pCi/g	.5	3.31		NA	I
PYRENE	0001	SE	mG/Kg	5.4	46.	J	1.1E+00	I
RADIUM-224	0001	SE	pCi/g	.1	.236		5.0E+00	I
SILVER, TOTAL	0001	SE	mG/Kg	1.	3.4	J	1.4E+03	I
SODIUM, TOTAL	0001	SE	mG/Kg	10.	184.		NA	I
THORIUM-234	0001	SE	pCi/g	.5	5.41		1.1E+00	I
TOLUENE	0001	SE	mG/Kg	0.008	0.028		5.4E+04	I
TOTAL XYLENES	0001	SE	mG/Kg	0.008	0.15		5.4E+05	I
VANADIUM, TOTAL	0001	SE	mG/Kg	1.	48.8		1.9E+03	I
ZINC, TOTAL	0001	SE	mG/Kg	.5	71.8		5.4E+04	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

GAMMA SPRCTROSCOPY

TABLE III.17
BUILDING 34 FIRE FIGHTING TRAINING PITS
Location: MND33-1140
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	Run Type
2,4-DIMETHYLPHENOL	0001	W	mg/L	0.01	0.041		7.3E-01	I
2,4-DIMETHYLPHENOL	1001	W	mg/L	0.01	0.047		7.3E-01	I
2-METHYLPHENOL	0001	W	mg/L	0.01	0.039		1.8E+00	I
2-METHYLPHENOL	1001	W	mg/L	0.01	0.046		1.8E+00	I
4-METHYLPHENOL	0001	W	mg/L	0.01	0.04		1.8E+00	I
4-METHYLPHENOL	1001	W	mg/L	0.01	0.044		1.8E+00	I
ALUMINUM, TOTAL	0001	W	mg/L	0.06	0.123		1.1E+02	I
ALUMINUM, TOTAL	1001	W	mg/L	0.06	0.129		1.1E+02	I
BARIUM, TOTAL	0001	W	mg/L	0.002	0.0071		2.6E+00	I
BARIUM, TOTAL	1001	W	mg/L	0.002	0.0071		2.6E+00	I
BENZOIC ACID	0001	W	mg/L	0.05	0.15	J	1.5E+02	I
BENZOIC ACID	1001	W	mg/L	0.05	0.16	J	1.5E+02	I
BIS(2-ETHYLHEXYL)PHTHALATE	1001	W	mg/L	0.01	0.025		7.3E-01	I
CALCIUM, TOTAL	0001	W	mg/L	0.02	26.8		NA	I
CALCIUM, TOTAL	1001	W	mg/L	0.02	28.		NA	I
IRON, TOTAL	0001	W	mg/L	0.01	1.98		NA	I
IRON, TOTAL	1001	W	mg/L	0.01	2.13		NA	I
LEAD, TOTAL	0001	W	mg/L	0.002	0.0129		NA	I
LEAD, TOTAL	1001	W	mg/L	0.002	0.0124		NA	I
MAGNESIUM, TOTAL	0001	W	mg/L	0.05	3.75		NA	I
MAGNESIUM, TOTAL	1001	W	mg/L	0.05	3.9		NA	I
MANGANESE, TOTAL	0001	W	mg/L	0.002	0.0659		3.7E+00	I
MANGANESE, TOTAL	1001	W	mg/L	0.002	0.0682		3.7E+00	I
PHENOL	0001	W	mg/L	0.01	0.052		2.2E+01	I
PHENOL	1001	W	mg/L	0.01	0.055		2.2E+01	I
POTASSIUM, TOTAL	0001	W	mg/L	0.1	5.11		NA	I
POTASSIUM, TOTAL	1001	W	mg/L	0.1	5.4		NA	I
SODIUM, TOTAL	0001	W	mg/L	0.1	23.3		NA	I
SODIUM, TOTAL	1001	W	mg/L	0.1	24.3		NA	I

PRG - Preliminary Remediation Goals (Risk Based)
J - The associated value is an estimated quantity
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

3.14. BUILDING 34 HISTORICAL FIRE-FIGHTING TRAINING PIT

The Building 34 Historical Fire-Fighting Training Pit is located 25 ft northwest of the oil burn structure between the oil burn structure and Plant drainage ditch, and east of the retention basin in the west central portion of Mound Plant. Dimensions of the pit are approximately 15 ft by 10 ft. Diesel fuel was reportedly used in the historical fire-fighting training pit to create demonstration fires.

No known RCRA-regulated materials were stored or handled at the site. A summary description of the Building 34 Historical Fire-Fighting Training Pit history and field investigation procedures is presented in subsection 2.14.

Four soil samples and one duplicate soil sample were collected from two soil borings located adjacent to the pit and were analyzed for TCL VOCs, SVOCs; TAL inorganics; dioxin/furans; EPH; and lithium. Four of the soil samples were also analyzed for radioactive constituents using gamma spectroscopy. The validated analytical results for all analytes detected above the laboratory reporting limits in each sample are presented in Table III.18.

3.14.1. Volatile Organic Compounds

VOCs were detected in two soil samples collected at the historical fire-fighting training pit. Acetone and 2-butanone were detected in samples MND33-0135-0001 and MND33-0136-0001 at concentrations above detection limits but below the PRGs. The occurrence of these compounds at concentrations substantially below the PRGs does not reflect an impact to soil quality in the area. No other VOCs were detected at concentrations above laboratory reporting limits in soils from the historical fire-fighting training pit.

3.14.2. Semivolatile Organic Compounds

The SVOC fluoranthene was detected in soils from location MND33-0135-0001 at a concentration above the laboratory reporting limit but below the PRG. No other SVOCs were detected in soil samples from the site at concentrations above laboratory reporting limits. The detection of fluoranthene in one soil sample at a concentration below the PRG level is not considered an impact to soil quality in the area.

3.14.3. Pesticides and Polychlorinated Biphenyls

P/PCBs were not detected in soil samples analyzed from the Building 34 Historical Fire-Fighting Training Pit at concentrations above laboratory reporting limits.

3.14.4. TAL Inorganics

Inorganic compounds were not detected in soil samples from the Building 34 Historical Fire-Fighting Training Pit at concentrations above PRGs or proposed action levels, except for concentrations of lead in surface soil sample MND33-0135-0001 at levels above the PRG. The occurrence of lead at the reported concentration may indicate an impact to soil quality from previous site activities involving the burning of fuels.

3.14.5. Dioxin/Furans

Six dioxin/furan compounds were detected in soil samples from the Building 34 Historical Fire- Fighting Pit. The compounds heptachlorodibenzo-p-dioxin and 1,2,3,6,7,8-heptachlorodibenzo-p-dioxin were detected in samples MND33-0135-0001 and MND33-0136-0001 at concentrations above laboratory reporting limits. Heptachlorodibenzo-p-dioxin concentrations in these two samples were also above the PRG. Additional dioxin/furan compounds (octachlorodibenzo-p-dioxin, octachlorodibenzofuran, heptachlorodibenzofuran, and hexachlorodibenzofuran), were detected in soil sample MND33-0135-0001 at concentrations at least two times greater than the laboratory reporting limits.

The presence of dioxin/furan compounds in soils adjacent to the historical fire-fighting training pit indicates that site activities involving burning activities may have impacted soil quality in the area.

3.14.6. Lithium

Lithium was detected in both soil samples from sample location MND33-0135 at concentrations above the laboratory reporting limit, but below the PRG. Lithium was not detected in soils from location MND33-0136. The detected concentrations of lithium in site soils is not considered an impact to site soils from previous site activities involving disposal of lithium carbonate.

3.14.7. Extractable Petroleum Hydrocarbons

EPHs were detected in soil samples MND33-0135-0001 and -0002 at concentrations above laboratory reporting limits but below the PRG. EPH compounds were not detected in soils from sample location MND33-0136 at concentrations above laboratory reporting limits. The detected concentrations (below the PRG) of EPH do not represent an impact on area soil quality.

3.14.8. Gamma Spectroscopy

Four soil samples were analyzed for radionuclides via gama spectroscopy. As previously discussed, a cleanup of depleted uranium was reported to have occurred in the Building 34 area. Analytical results for the samples analyzed from tne Building 34 Historical Fire-Fighting Training Pit reported concentrations of thorium-234 in all four samples at levels above the laboratory reporting limit. Thorium-234 concentrations at sample MND33-0136-0001, -0002 were slightly above the PRG of 1.1 pCi/g. Detected concentrations of potassium-40 in soil and sediment samples are within background concentration levels (Eisenbud, 1987).

The detection of thorium-234 at concentrations above PRGs may reflect an impact to soil and sediment quality in the area and could be associated with previous site activities. Additional site characterization concerning radionuclide concentrations in soils at the site is recommended.

3.14.9. Summary

Analytical results for soil samples collected at the Building 34 Historical Fire-Fighting Training Pit indicate that site soil quality may have been impacted from previous site activities. Elevated levels of dioxin/furan compounds, lead, and thorium-234 were reported in site soils. Based upon these results, further site characterization to determine the extent of soil contamination is recommended.

TABLE III.18
BUILDING 34 HISTORICAL FIRE-FIGHTING TRAINING PIT
Location: MND33-0135
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
1,2,3,4,6,7,8-HpCDD	0001	S	NG/G	.11	1.1		NA	I
2-BUTANONE	0001	S	mG/Kg	0.012	0.023	J	1.4E+04	I
ACETONE	0001	S	mG/Kg	0.012	0.094	J	2.7E+04	I
ALUMINUM, TOTAL	0001	S	mG/Kg	12.	9090.		7.8E+05	I
ALUMINUM, TOTAL	0002	S	mG/Kg	12.	3360.		7.8E+05	I
ANTIMONY, TOTAL	0001	S	mG/Kg	6.	12.0	J	1.1E+02	I
ANTIMONY, TOTAL	0002	S	mG/Kg	6.	37.7	J	1.1E+02	I
ARSENIC, TOTAL	0001	S	mG/Kg	.4	7.2		2.1E+03	I
ARSENIC, TOTAL	0002	S	mG/Kg	.4	4.7	J	2.1E+03	I
BARIUM, TOTAL	0001	S	mG/Kg	.4	77.8		1.9E+04	I
BARIUM, TOTAL	0002	S	mG/Kg	.4	28.3		1.9E+04	I
BERYLLIUM	0001	S	mG/Kg	.4	.81		1.5E-01	I
BERYLLIUM	0002	S	mG/Kg	.4	.68		1.5E-01	I
CADMIUM, TOTAL	0001	S	mG/Kg	.4	4.		1.4E+02	I
CADMIUM, TOTAL	0002	S	mG/Kg	.4	8.2		1.4E+02	I
CALCIUM, TOTAL	0001	S	mG/Kg	4.	29000.		NA	I
CALCIUM, TOTAL	0002	S	mG/Kg	4.	122000.		NA	I
CHROMIUM, TOTAL	0001	S	mG/Kg	2.	29.9		1.4E+03	I
CHROMIUM, TOTAL	0002	S	mG/Kg	2.	27.1		1.4E+03	I
COBALT, TOTAL	0001	S	mG/Kg	2.	12.3		3.9E+01	I
COBALT, TOTAL	0002	S	mG/Kg	2.	8.7		3.9E+01	I
COPPER, TOTAL	0001	S	mG/Kg	2.	22.4		1.0E+04	I
COPPER, TOTAL	0002	S	mG/Kg	2.	16.2		1.0E+04	I
EXTRACTABLE HYD AS DIESEL FUEL	0001	S	mG/Kg	10.	39.3	J	105. total	I
EXTRACTABLE HYD AS DIESEL FUEL	0002	S	mG/Kg	10.	21	J	105. total	I
FLUORANTHENE	0001	S	mG/Kg	0.83	0.91	J	1.1E+04	I
HEPTACHLORODIBENZO-P-DIOXIN	0001	S	NG/G	.11	2.9		1.0E-04	I
HEPTACHLORODIBENZOFURAN	0001	S	NG/G	.11	.73		NA	I
HEXACHLORODIBENZOFURAN	0001	S	NG/G	.14	.36	J	NA	I
IRON, TOTAL	0001	S	mG/Kg	2.	17100.		NA	I
IRON, TOTAL	0002	S	mG/Kg	2.	8420.		NA	I
LEAD, TOTAL	0001	S	mG/Kg	.4	86.4		5.3E+01	I
LEAD, TOTAL	0002	S	mG/Kg	.4	8.4		5.3E+01	I
LITHIUM, TOTAL	0001	S	mG/Kg	.2	12.3		5.4E+03	I
LITHIUM, TOTAL	0002	S	mG/Kg	.2	9.2		5.4E+03	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.18
BUILDING 34 HISTORICAL FIRE-FIGHTING TRAINING PIT
Location: MND33-0135
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	0001	S	mG/Kg	10.	12000.		NA	I
MAGNESIUM, TOTAL	0002	S	mG/Kg	10.	55800.		NA	I
MANGANESE, TOTAL	0001	S	mG/Kg	.4	676.		2.7E+04	I
MANGANESE, TOTAL	0002	S	mG/Kg	.4	200.		2.7E+04	I
NICKEL, TOTAL	0001	S	mG/Kg	4.	32.4		5.4E+03	I
NICKEL, TOTAL	0002	S	mG/Kg	4.	28.5		5.4E+03	I
OCTACHLORODIBENZO-P-DIOXIN	0001	S	NG/G	.16	11.		NA	I
OCTACHLORODIBENZOFURAN	0001	S	NG/G	.14	.54		NA	I
POTASSIUM, TOTAL	0001	S	mG/Kg	20.	1150.		NA	I
POTASSIUM, TOTAL	0002	S	mG/Kg	20.	692.		NA	I
POTASSIUM-40	0001	S	pCi/g	.5	16.7		NA	I
POTASSIUM-40	0002	S	pCi/g	.5	11.6		NA	I
RADIUM-224	0001	S	pCi/g	.1	.991		5.0E+00	I
RADIUM-224	0002	S	pCi/g	.1	.484		5.0E+00	I
RADIUM-226	0001	S	pCi/g	.1	.782		5.0E+00	I
RADIUM-226	0002	S	pCi/g	.1	.646		5.0E+00	I
RADIUM-228	0001	S	pCi/g	.2	1.12		5.0E+00	I
RADIUM-228	0002	S	pCi/g	.2	.465		5.0E+00	I
SILVER, TOTAL	0001	S	mG/Kg	2.	8.2	J	1.4E+03	I
SILVER, TOTAL	0002	S	mG/Kg	2.	17.9	J	1.4E+03	I
SODIUM, TOTAL	0001	S	mG/Kg	20.	157.		NA	I
SODIUM, TOTAL	0002	S	mG/Kg	20.	276.		NA	I
THORIUM-234	0001	S	pCi/g	.5	.909		1.1E+00	I
THORIUM-234	0002	S	pCi/g	.5	.948		1.1E+00	I
VANADIUM, TOTAL	0001	S	mG/Kg	2.	28.3		1.9E+03	I
VANADIUM, TOTAL	0002	S	mG/Kg	2.	24.		1.9E+03	I
ZINC, TOTAL	0001	S	mG/Kg	1.	66.2		5.4E+04	I
ZINC, TOTAL	0002	S	mG/Kg	1.	29.8		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.18
BUILDING 34 HISTORICAL FIRE-FIGHTING TRAINING PIT
Location: MND33-0136
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
1,2,3,4,6,7,8-HpCDD	0001	S	NG/G	.11	.21		NA	I
2-BUTANONE	0001	S	mG/Kg	0.013	0.046		1.4E+04	I
ACETONE	0001	S	mG/Kg	0.013	0.17	J	2.7E+04	I
ALUMINUM, TOTAL	0001	S	mG/Kg	6.	14700.		7.8E+05	I
ALUMINUM, TOTAL	0002	S	mG/Kg	6.	5500.		7.8E+05	I
ANTIMONY, TOTAL	0001	S	mG/Kg	3.	9.1	J	1.1E+02	I
ANTIMONY, TOTAL	0002	S	mG/Kg	3.	30.1	J	1.1E+02	I
ARSENIC, TOTAL	0001	S	mG/Kg	.2	6.2		2.1E+03	I
ARSENIC, TOTAL	0002	S	mG/Kg	.2	5.3		2.1E+03	I
BARIUM, TOTAL	0001	S	mG/Kg	.2	119.		1.9E+04	I
BARIUM, TOTAL	0002	S	mG/Kg	.2	41.7		1.9E+04	I
BERYLLIUM	0001	S	mG/Kg	.2	.96		1.5E-01	I
BERYLLIUM	0002	S	mG/Kg	.2	0.68	J	1.5E-01	I
CADMIUM, TOTAL	0001	S	mG/Kg	.2	2.9		1.4E+02	I
CADMIUM, TOTAL	0002	S	mG/Kg	.2	5.8	J	1.4E+02	I
CALCIUM, TOTAL	0001	S	mG/Kg	2.	11900.		NA	I
CALCIUM, TOTAL	0002	S	mG/Kg	2.	106000.		NA	I
CHROMIUM, TOTAL	0001	S	mG/Kg	1.	25.1		1.4E+03	I
CHROMIUM, TOTAL	0002	S	mG/Kg	1.	28.2	J	1.4E+03	I
COBALT, TOTAL	0001	S	mG/Kg	1.	15.8		3.9E+01	I
COBALT, TOTAL	0002	S	mG/Kg	1.	11.3	J	3.9E+01	I
COPPER, TOTAL	0001	S	mG/Kg	1.	18.7		1.0E+04	I
COPPER, TOTAL	0002	S	mG/Kg	1.	17.9	J	1.0E+04	I
HEPTACHLORODIBENZO-P-DIOXIN	0001	S	NG/G	.11	.5		1.0E-04	I
IRON, TOTAL	0001	S	mG/Kg	1.	23800.	J	NA	I
IRON, TOTAL	0002	S	mG/Kg	1.	14900.	J	NA	I
LEAD, TOTAL	0001	S	mG/Kg	.2	15.2		5.3E+01	I
LEAD, TOTAL	0002	S	mG/Kg	.2	7.9		5.3E+01	I
MAGNESIUM, TOTAL	0001	S	mG/Kg	5.	5330.		NA	I
MAGNESIUM, TOTAL	0002	S	mG/Kg	5.	32600.		NA	I
MANGANESE, TOTAL	0001	S	mG/Kg	.2	914.		2.7E+04	I
MANGANESE, TOTAL	0002	S	mG/Kg	.2	444.		2.7E+04	I
NICKEL, TOTAL	0001	S	mG/Kg	2.	26.3		5.4E+03	I
NICKEL, TOTAL	0002	S	mG/Kg	2.	28.5	J	5.4E+03	I
POTASSIUM, TOTAL	0001	S	mG/Kg	10.	1740.		NA	I
POTASSIUM, TOTAL	0002	S	mG/Kg	10.	866.		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 III.18
BUILDING 34 HISTORICAL FIRE-FIGHTING TRAINING PIT
Location: MND33-0136
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
POTASSIUM-40	0001	S	pCi/g	.5	16.8		NA	I
POTASSIUM-40	0002	S	pCi/g	.5	13.4		NA	I
RADIUM-224	0001	S	pCi/g	.1	1.01		5.0E+00	I
RADIUM-224	0002	S	pCi/g	.1	.696		5.0E+00	I
RADIUM-226	0001	S	pCi/g	.1	.736		5.0E+00	I
RADIUM-226	0002	S	pCi/g	.1	.872		5.0E+00	I
RADIUM-228	0001	S	pCi/g	.2	.996		5.0E+00	I
RADIUM-228	0002	S	pCi/g	.2	.621		5.0E+00	I
SELENIUM, TOTAL	0001	S	mG/Kg	.2	0.83	J	1.4E+03	I
SILVER, TOTAL	0001	S	mG/Kg	1.	4.9	J	1.4E+03	I
SILVER, TOTAL	0002	S	mG/Kg	1.	17.5	J	1.4E+03	I
SODIUM, TOTAL	0001	S	mG/Kg	10.	363.		NA	I
SODIUM, TOTAL	0002	S	mG/Kg	10.	363.		NA	I
THORIUM-234	0001	S	pCi/g	.5	1.25		1.1E+00	I
THORIUM-234	0002	S	pCi/g	.5	1.44		1.1E+00	I
VANADIUM, TOTAL	0001	S	mG/Kg	1.	35.		1.9E+03	I
VANADIUM, TOTAL	0002	S	mG/Kg	1.	27.7	J	1.9E+03	I
ZINC, TOTAL	0001	S	mG/Kg	.5	65.5		5.4E+04	I
ZINC, TOTAL	0002	S	mG/Kg	.5	43.1		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

3.15. BUILDING 34 FORMER AVIATION FUEL TANK

The Building 34 Former Aviation Fuel Tank is located southwest of Building 34 and north of the overflow pond in the lower valley in the west central portion of Mound Plant.

The former aviation fuel tank was a 5,000-gallon underground tank that supplied aviation fuel through an underground pipe to the oil burn structure. The tank was put in service in the early 1970s; service was discontinued in 1975. The former aviation fuel tank was removed on 29 November 1990 as part of Mound Plant tank removal activities. At that time, initial sampling was conducted. A summary description of the Building 34 Aviation Fuel Tank history and the field investigation procedures is presented in subsection 2.15.

Additional soil sampling took place at the former aviation fuel tank as part of the OU 3 LFI on 29 August 1991. The original excavation was not completely backfilled; some side wall collapse had occurred since tank removal. Soils were excavated to expose the 10-ft by 17-ft concrete pad on which the tank was located. Five samples and one duplicate sample were collected for analyses. Samples were analyzed for TCL VOCs, SVOCs, and P/PCBs; TAL inorganics; and EPH to assess whether the site is or has been a source of environmental contamination through spillage or leakage. The validated analytical results for all analytes detected above the laboratory reporting limits in each sample are presented in Table III.19.

3.15.1. Volatile Organic Compounds

VOCs were not detected in soil samples from the former aviation fuel tank at concentrations above laboratory reporting limits.

3.15.2. Semivolatile Organic Compounds

SVOCs were not detected in site soil samples at concentrations above laboratory reporting limits.

3.15.3. Pesticides and Polychlorinated Biphenyls

P/PCBs were not detected in site soil samples at concentrations above laboratory reporting limits.

3.15.4. Extractable Petroleum Hydrocarbons

EPH compounds were not detected in site soils at concentrations above laboratory reporting limits.

3.15.5. TAL Inorganics

Inorganic compounds were not detected in soil samples from the Building 34 Former Aviation Fuel Tank at concentrations above PRGs or proposed action levels.

3.15.6. Summary

Analytical results for soil samples collected at the Building 34 Former Aviation Fuel Tank indicate that previous site activities involving the former aviation fuel tank have not impacted soil quality in the area, and therefore. no further action involving site characterization or soil remediation is recommended.

TABLE III.19
BUILDING 34 FORMER AVIATION FUEL TANK
Location: MND33-0020
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	Run Type
ALUMINUM, TOTAL	0001	S	mG/Kg	.06	7010.		7.8E+05	I
ARSENIC, TOTAL	0001	S	mG/Kg	.002	5.57		2.1E+03	I
BARIUM, TOTAL	0001	S	mG/Kg	.002	31.3	J	1.9E+04	I
BERYLLIUM	0001	S	mG/Kg	.002	.24		1.5E-01	I
CALCIUM, TOTAL	0001	S	mG/Kg	.02	161000.		NA	I
CHROMIUM, TOTAL	0001	S	mG/Kg	.01	7.6		1.4E+03	I
COBALT, TOTAL	0001	S	mG/Kg	.01	4.1		3.9E+01	I
COPPER, TOTAL	0001	S	mG/Kg	.01	11.9	J	1.0E+04	I
EXTRACTABLE HYD AS DIESEL FUEL	0001	S	mG/Kg	5.00	6.		105. total	I
IRON, TOTAL	0001	S	mG/Kg	.01	11500.	J	NA	I
LEAD, TOTAL	0001	S	mG/Kg	.002	8.		5.3E+01	I
MAGNESIUM, TOTAL	0001	S	mG/Kg	.05	62400.		NA	I
MANGANESE, TOTAL	0001	S	mG/Kg	.002	237.		2.7E+04	I
NICKEL, TOTAL	0001	S	mG/Kg	.02	11.7	J	5.4E+03	I
POTASSIUM, TOTAL	0001	S	mG/Kg	.1	2230.		NA	I
SODIUM, TOTAL	0001	S	mG/Kg	.1	225.		NA	I
THALLIUM, TOTAL	0001	S	mG/Kg	.002	.37		NA	I
VANADIUM, TOTAL	0001	S	mG/Kg	.01	14.1		1.9E+03	I
ZINC, TOTAL	0001	S	mG/Kg	.005	35.6		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
(1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

General Chemistry

TABLE III.19
BUILDING 34 FORMER AVIATION FUEL TANK
Location: MWD33-0021
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	Run Type
ALUMINUM, TOTAL	0001	S	mG/Kg	.06	7250.		7.8E+05	I
ANTIMONY, TOTAL	0001	S	mG/Kg	.03	4.4		1.1E+02	I
ARSENIC, TOTAL	0001	S	mG/Kg	.002	4.7		2.1E+03	I
BARIUM, TOTAL	0001	S	mG/Kg	.002	66.3	J	1.9E+04	I
BERYLLIUM	0001	S	mG/Kg	.002	.29		1.5E-01	I
CALCIUM, TOTAL	0001	S	mG/Kg	.02	162000.		NA	I
CHROMIUM, TOTAL	0001	S	mG/Kg	.01	7.6		1.4E+03	I
COBALT, TOTAL	0001	S	mG/Kg	.01	3.5		3.9E+01	I
COPPER, TOTAL	0001	S	mG/Kg	.01	11.2	J	1.0E+04	I
EXTRACTABLE HYD AS DIESEL FUEL	0001	S	mG/Kg	5.00	17.	J	105. total	I
IRON, TOTAL	0001	S	mG/Kg	.01	11900.	J	NA	I
LEAD, TOTAL	0001	S	mG/Kg	.002	7.4		5.3E+01	I
MAGNESIUM, TOTAL	0001	S	mG/Kg	.05	58400.		NA	I
MANGANESE, TOTAL	0001	S	mG/Kg	.002	226.		2.7E+04	I
NICKEL, TOTAL	0001	S	mG/Kg	.02	9.7	J	5.4E+03	I
POTASSIUM, TOTAL	0001	S	mG/Kg	.1	2270.		NA	I
SODIUM, TOTAL	0001	S	mG/Kg	.1	195.		NA	I
THALLIUM, TOTAL	0001	S	mG/Kg	.002	.32		NA	I
VANADIUM, TOTAL	0001	S	mG/Kg	.01	14.3		1.9E+03	I
ZINC, TOTAL	0001	S	mG/Kg	.005	36.		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
(1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

General Chemistry

TABLE III.19
BUILDING 34 FORMER AVIATION FUEL TANK
Location: MWD33-0022
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	Run Type
ALUMINUM, TOTAL	0001	S	mG/Kg	.06	8550.		7.8E+05	I
ARSENIC, TOTAL	0001	S	mG/Kg	.002	8.67		2.1E+03	I
BARIUM, TOTAL	0001	S	mG/Kg	.002	69.6	J	1.9E+04	I
BERYLLIUM	0001	S	mG/Kg	.002	.43		1.5E-01	I
CALCIUM, TOTAL	0001	S	mG/Kg	.02	132000.		NA	I
CHROMIUM, TOTAL	0001	S	mG/Kg	.01	8.9		1.4E+03	I
COBALT, TOTAL	0001	S	mG/Kg	.01	4.8		3.9E+01	I
COPPER, TOTAL	0001	S	mG/Kg	.01	15.1	J	1.0E+04	I
IRON, TOTAL	0001	S	mG/Kg	.01	14600.	J	NA	I
LEAD, TOTAL	0001	S	mG/Kg	.002	8.2		5.3E+01	I
MAGNESIUM, TOTAL	0001	S	mG/Kg	.05	44300.		NA	I
MANGANESE, TOTAL	0001	S	mG/Kg	.002	255.		2.7E+04	I
NICKEL, TOTAL	0001	S	mG/Kg	.02	12.1	J	5.4E+03	I
POTASSIUM, TOTAL	0001	S	mG/Kg	.1	2620.		NA	I
SELENIUM, TOTAL	0001	S	mG/Kg	.002	0.12	J	1.4E+03	I
SODIUM, TOTAL	0001	S	mG/Kg	.1	185.		NA	I
THALLIUM, TOTAL	0001	S	mG/Kg	.002	.35		NA	I
VANADIUM, TOTAL	0001	S	mG/Kg	.01	16.4		1.9E+03	I
ZINC, TOTAL	0001	S	mG/Kg	.005	43.2		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
(1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

General Chemistry

TABLE III.19
BUILDING 34 FORMER AVIATION FUEL TANK
Location: MND33-0023
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	Run Type
ALUMINUM, TOTAL	0001	S	mG/Kg	.06	6220.		7.8E+05	I
ALUMINUM, TOTAL	1001	S	mG/Kg	.06	5950.		7.8E+05	I
ANTIMONY, TOTAL	1001	S	mG/Kg	.03	4.8		1.1E+02	I
ARSENIC, TOTAL	0001	S	mG/Kg	.002	4.14		2.1E+03	I
ARSENIC, TOTAL	1001	S	mG/Kg	.002	5.74		2.1E+03	I
BARIUM, TOTAL	0001	S	mG/Kg	.002	101.	J	1.9E+04	I
BARIUM, TOTAL	1001	S	mG/Kg	.002	51.1	J	1.9E+04	I
BERYLLIUM	0001	S	mG/Kg	.002	.18		1.5E-01	I
BERYLLIUM	1001	S	mG/Kg	.002	.21		1.5E-01	I
CALCIUM, TOTAL	0001	S	mG/Kg	.02	149000.		NA	I
CALCIUM, TOTAL	1001	S	mG/Kg	.02	138000.		NA	I
CHROMIUM, TOTAL	0001	S	mG/Kg	.01	6.1		1.4E+03	I
CHROMIUM, TOTAL	1001	S	mG/Kg	.01	6.1		1.4E+03	I
COBALT, TOTAL	0001	S	mG/Kg	.01	3.7		3.9E+01	I
COBALT, TOTAL	1001	S	mG/Kg	.01	4.6		3.9E+01	I
COPPER, TOTAL	0001	S	mG/Kg	.01	11.6	J	1.0E+04	I
COPPER, TOTAL	1001	S	mG/Kg	.01	10.6	J	1.0E+04	I
EXTRACTABLE HYD AS DIESEL FUEL	0001	S	mG/Kg	5.00	8.	J	105. total	I
EXTRACTABLE HYD AS DIESEL FUEL	1001	S	mG/Kg	5.00	7.	J	105. total	I
IRON, TOTAL	0001	S	mG/Kg	.01	10400.	J	NA	I
IRON, TOTAL	1001	S	mG/Kg	.01	10700.	J	NA	I
LEAD, TOTAL	0001	S	mG/Kg	.002	7.7		5.3E+01	I
LEAD, TOTAL	1001	S	mG/Kg	.002	8.9		5.3E+01	I
MAGNESIUM, TOTAL	0001	S	mG/Kg	.05	61600.		NA	I
MAGNESIUM, TOTAL	1001	S	mG/Kg	.05	53500.		NA	I
MANGANESE, TOTAL	0001	S	mG/Kg	.002	234.		2.7E+04	I
MANGANESE, TOTAL	1001	S	mG/Kg	.002	249.		2.7E+04	I
NICKEL, TOTAL	0001	S	mG/Kg	.02	12.3	J	5.4E+03	I
NICKEL, TOTAL	1001	S	mG/Kg	.01	13.0	J	5.4E+03	I
POTASSIUM, TOTAL	0001	S	mG/Kg	.1	2010.		NA	I
POTASSIUM, TOTAL	1001	S	mG/Kg	.1	1710.		NA	I
SODIUM, TOTAL	0001	S	mG/Kg	.1	273.		NA	I
SODIUM, TOTAL	1001	S	mG/Kg	.1	223.		NA	I
THALLIUM, TOTAL	0001	S	mG/Kg	.002	.35		NA	I
THALLIUM, TOTAL	1001	S	mG/Kg	.002	.24		NA	I
VANADIUM, TOTAL	0001	S	mG/Kg	.01	11.7		1.9E+03	I
VANADIUM, TOTAL	1001	S	mG/Kg	.01	12.4		1.9E+03	I

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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.19
BUILDING 34 FORMER AVIATION FUEL TANK
Location: MWD33-0023
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	Run Type
ZINC, TOTAL	0001	S	mG/Kg	.005	33.		5.4E+04	I
ZINC, TOTAL	1001	S	mG/Kg	.005	35.9		5.4E+04	I

PRG - Preliminary Remediation Goals (Risk Based)
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.19
BUILDING 34 FORMER AVIATION FUEL TANK
Location: MND33-0024
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	Run Type
ALUMINUM, TOTAL	0001	S	mG/Kg	.06	9030.		7.8E+05	I
ANTIMONY, TOTAL	0001	S	mG/Kg	.03	4.6		1.1E+02	I
ARSENIC, TOTAL	0001	S	mG/Kg	.002	7.62		2.1E+03	I
BARIUM, TOTAL	0001	S	mG/Kg	.002	40.7	J	1.9E+04	I
BERYLLIUM	0001	S	mG/Kg	.002	.34		1.5E-01	I
CALCIUM, TOTAL	0001	S	mG/Kg	.02	129000.		NA	I
CHROMIUM, TOTAL	0001	S	mG/Kg	.01	9.7		1.4E+03	I
COBALT, TOTAL	0001	S	mG/Kg	.01	5.3		3.9E+01	I
COPPER, TOTAL	0001	S	mG/Kg	.01	13.4	J	1.0E+04	I
IRON, TOTAL	0001	S	mG/Kg	.01	14600.	J	NA	I
LEAD, TOTAL	0001	S	mG/Kg	.002	9.4		5.3E+01	I
MAGNESIUM, TOTAL	0001	S	mG/Kg	.05	48000.		NA	I
MANGANESE, TOTAL	0001	S	mG/Kg	.01	264.		2.7E+04	I
NICKEL, TOTAL	0001	S	mG/Kg	.01	12.7	J	5.4E+03	I
POTASSIUM, TOTAL	0001	S	mG/Kg	.01	2380.		NA	I
SODIUM, TOTAL	0001	S	mG/Kg	.1	182.		NA	I
THALLIUM, TOTAL	0001	S	mG/Kg	.002	.22		NA	I
VANADIUM, TOTAL	0001	S	mG/Kg	.01	16.7		1.9E+03	I
ZINC, TOTAL	0001	S	mG/Kg	.005	42.2		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
(1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

General Chemistry

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).

<u>OU3</u>

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.

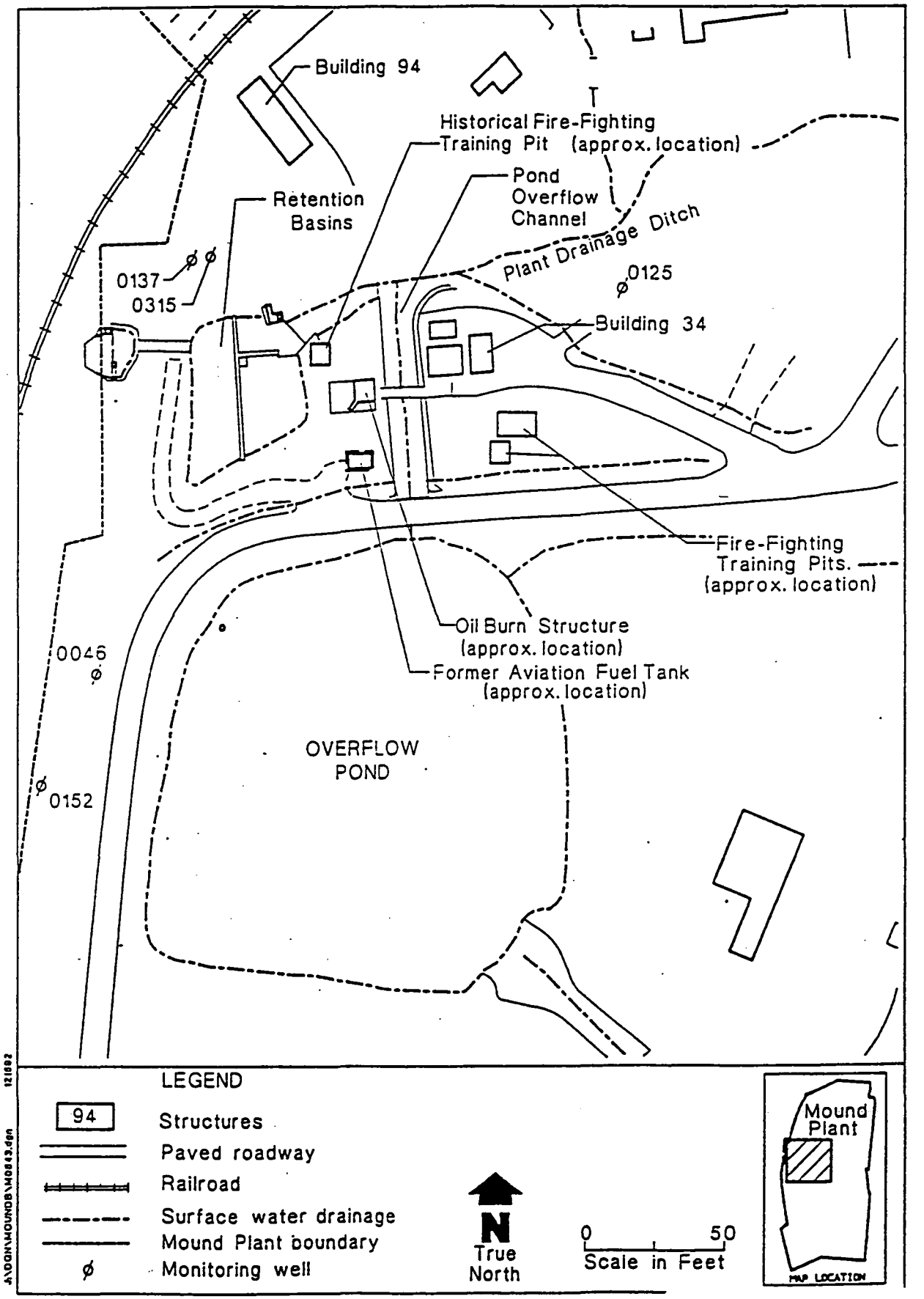

Figure 1 Building 34 sites.

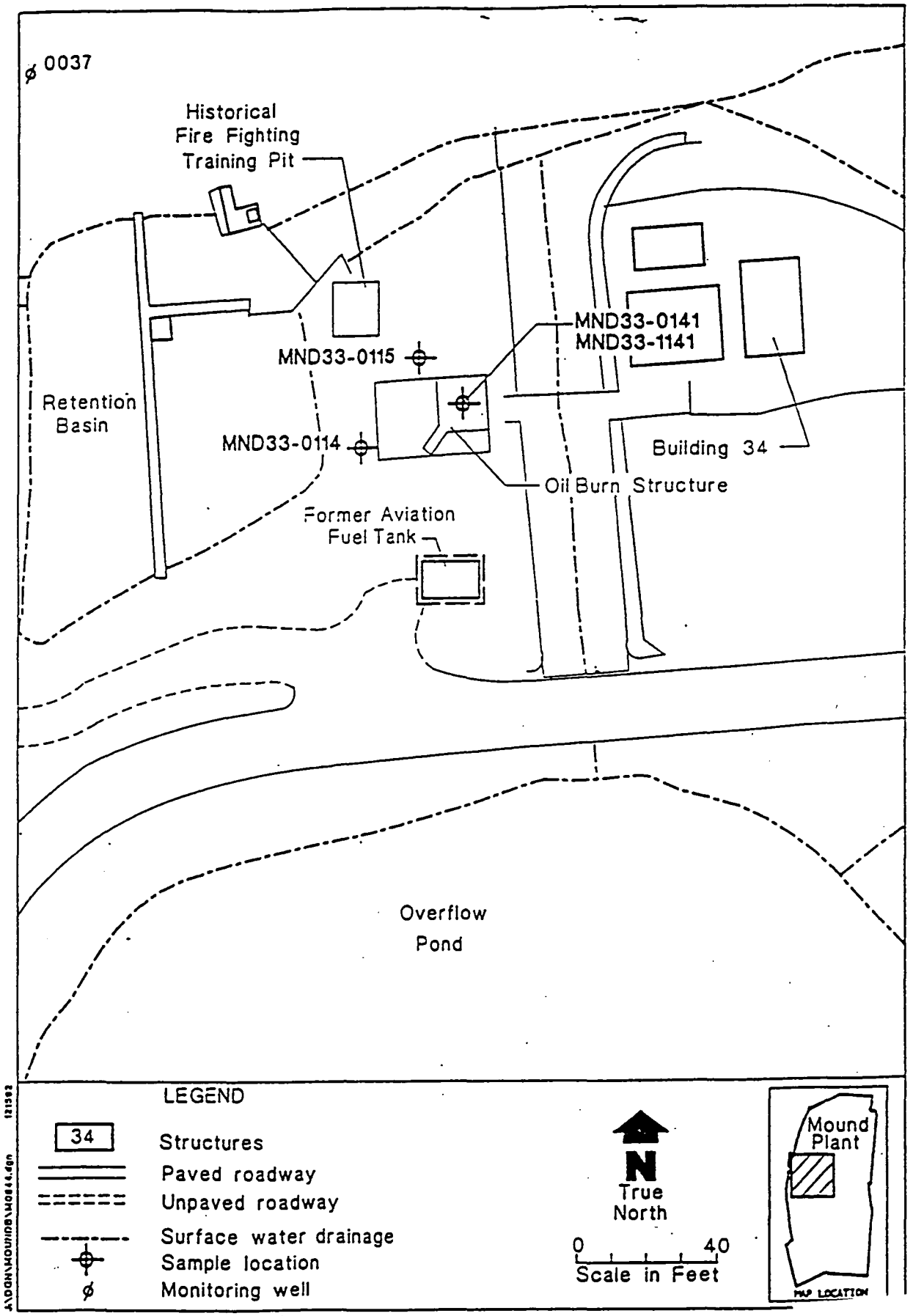

Figure 2 Building 34 Oil Burn Structure soil sample location:

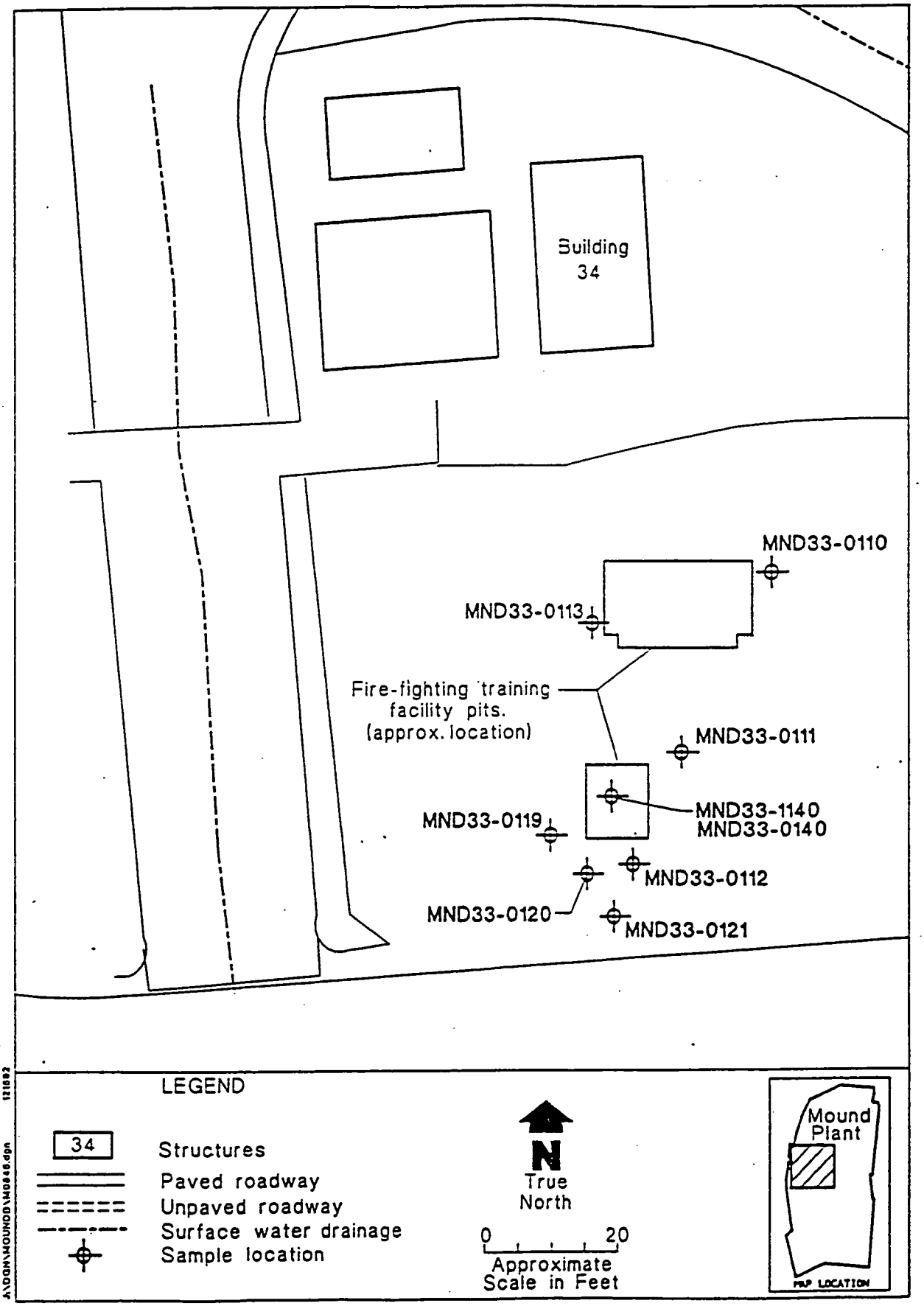

Figure 3 Building 34 Fire Fighting Training Pits soil sample locatic

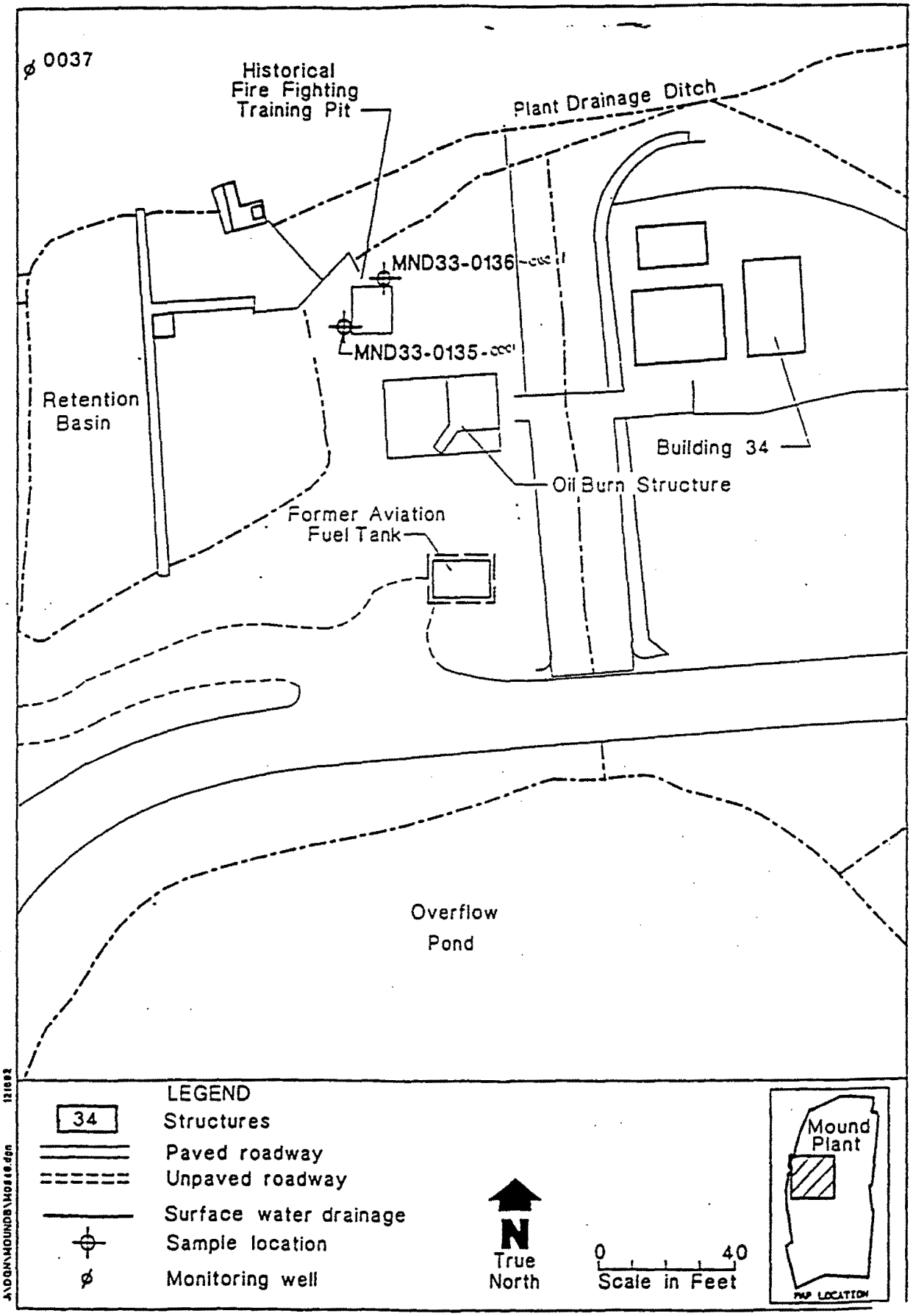

Figure 4 Building 34 Historical Fire Fighting Training Pits soil sample locations.

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.

The positive detection at the oil burn structure is only in the sediment within the structure itself (Figure 2). The soils adjacent to the structure show no detectable contamination. Analytical results for dioxin/furan analyses of soil samples from the fire-fighting pits indicate a detected dioxin concentration at surface sample MND33-0111-0001 (Figure 3). No other dioxin/furans were detected in soil samples from the fire-fighting training pits. Two soil samples, MND33-0135-0001 and MND33-0136-0001, from the Building 34 Historical fire-fighting pit (Figure 4) also had positive dioxin/furan detections. All other samples from this location did not have any detectable dioxin or furan concentrations.

OU1

The soils around the overflow pond, the sanitary landfill, and the soils spoils area have all been moved and relocated due to construction activities at the Mound Plant. Some of these soils were possibly affected by the burning activities in the historical landfill. Due to the allochthonous nature of these soils, however, a precise location for possible dioxin contaminated soils cannot be determined. For this reason a total of 30 soil samples from 10 soil borings were collected and sampled for dioxins/furans (Table 2 & Figure 5).

DISCUSSION & CONCLUSION

The collection of additonal samples for dioxin and furan analyses is not necessary due to the extremely low levels that have been observed in the solvent and fuel burn areas. None of the analyzed samples at the Mound Plant have TEF adjusted concentrations close to the 1 ppb (1000pg/g) level.

Some of the guidelines previously used at other sites are summarized in a 1987 memo from the Center of Environmental Health to ATSDR:

> Residential sites: Where surface soil in residential areas exceeds one part per billion of 2,3,7,8-TCDD (hereinafter referred to generically as dioxin), removal of the surface soil to a level 1 foot is recommended. If at 1 foot deep, the residual dioxin is 5 to 10 parts per billion, then addition of clean soil to the original grade will be sufficient. In no case is it necessary to remove the soil to a depth of more than 4 feet, provided 4 feet of clean soil is added to reestablish the original grade.

> Industrial sites: In Industrial sites in areas where worker contact to contaminated soil does not occur, it would be acceptable for the average dioxin levels up to 20 parts per billion remain in place. Areas exceeding 20 parts per billion would be evacuated until the residual concentration of less than 20 parts per billion is reached. Then the evacuated areas would be backfilled with appropriate noncontaminated material to the original grade. In no case would evacuation need to proceed beyond a depth of 4 feet.

Although this 1 ppb level is not currently a proposed regulatory guideline, it does provide a reference for comparison to other superfund site cleanup criteria. Note that it has been considered sufficient to clean up dioxins to a depth no greater than 4 feet as the exposure pathway from soils is from the surficial deposits.

Dioxin/furan analytical results, when converted to the equivalent concentration of 2,3,7,8 TCDD (Table 3) and summed, yield the Toxicity Equivalency Factor Adjusted Concentration (TEF Concentration). All the dioxin/furan samples analyzed at the Mound Plant have TEF Concentrations well below the 1 ppb concentration level. The highest level observed in the soils is 165.9 pg/g (.1659 ppb) in sample P004-0031 at a depth of 31 feet below ground surface in fill material. The majority of samples near Building 34, including 4 surface samples, had no dioxin or furan detections.

A dioxin and furan contamination problem does not exist at the Mound Facility due to the extremely low levels of dioxin/furan compounds that have been detected. Further dioxin/furan sampling is not warranted.

Table 2. Toxicity Equivalency Factors of Soil Samples Analyzed for Dioxin/Furans

Sample Number	TEF Concentration	Units
P006-0010	1.73980	pg/g
P006-0015	0.00196	pg/g
P006-0025	0.00510	pg/g
P015-0014	7.6722	pg/g
P015-0045	0.00681	pg/g
B002-0015	0.04212	pg/g
B003-0026	0.02730	pg/g
B003-1026	0.00210	pg/g
B001-0007	0.07800	pg/g
B001-0015	0.01640	pg/g
P003-0006	46.7669	pg/g
P003-0016	2.57820	pg/g
P003-0026	0.00170	pg/g
P001-0036	0.14853	pg/g
P004-0005	0.00790	pg/g
P004-0025	4.4225	pg/g
P004-0031	165.937	pg/g
P004-0038	4.44470	pg/g
P004-0045	0.00540	pg/g
0393-0005	11.2973	pg/g
0393-0021	0.00650	pg/g
0393-1021	0.00630	pg/g
0394-0003	5.59550	pg/g
0394-0011	1.81168	pg/g
P005-0003	0.01670	pg/g
P005-0009	0.83043	pg/g
P005-0018	0.74390	pg/g
P005-0045	0.01890	pg/g
P005-0056	0.11010	pg/g
P005-1056	0.00692	pg/g

NOTE: Action levels may be 1 ppb (1000 pg/g) in soils and a MCL of 50 ppq (pg/L) in water.

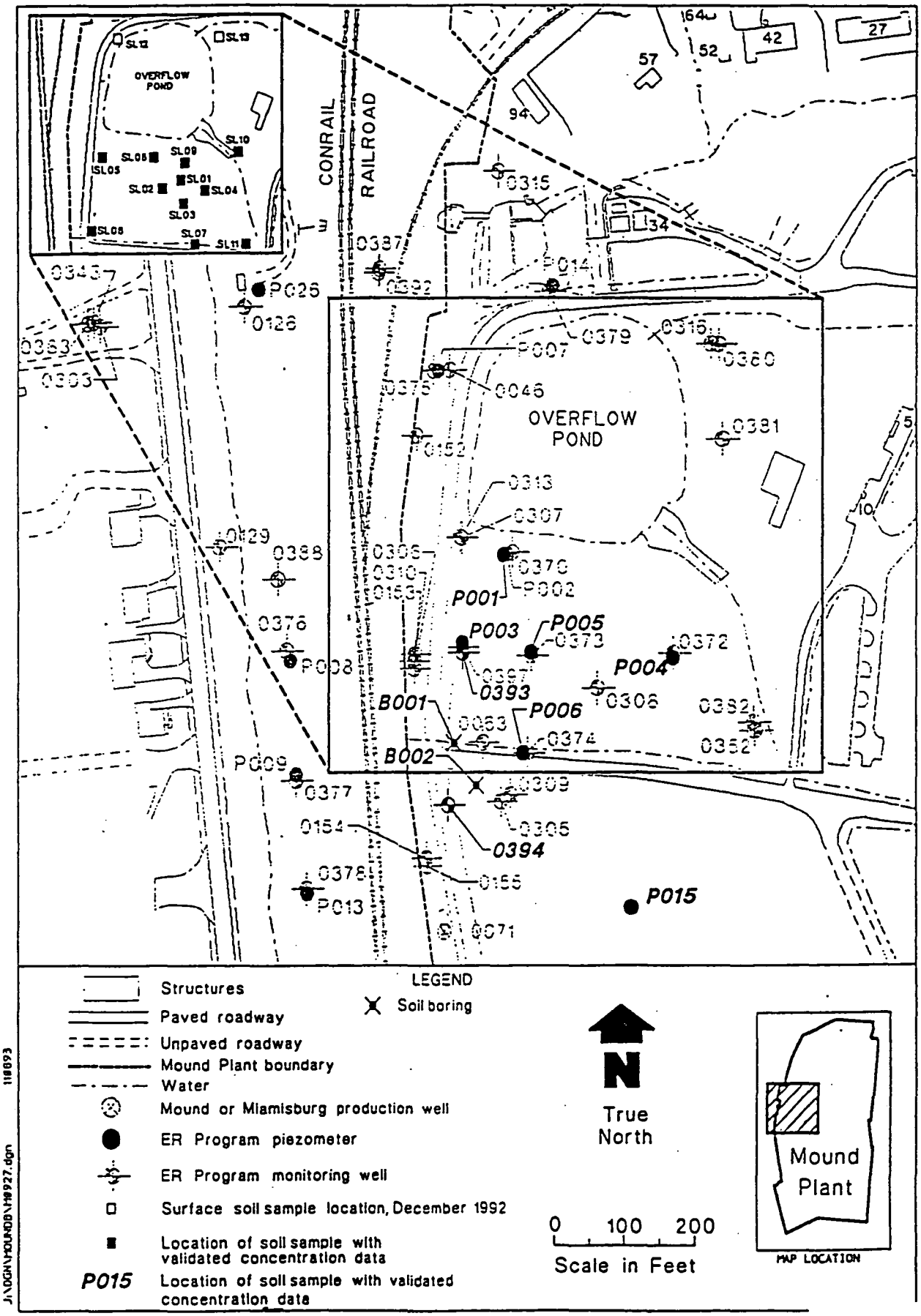

Figure 5 Soil sample locations with validated dioxin and furan compound concentrations, November/December 1992.

Table 3.

2,3,7,8-TCDD Toxicity Equivalency Factors (TEFs) for the Polychlorinated Dibenzodioxins and Dibenzofurans.

Number	Compound(s)	TEF
1	2,3,7,8-TCDD	1.00
2	1,2,3,7,8-PeCDD	0.50
3	1,2,3,6,7,8-HxCDD	0.10
4	1,2,3,7,8,9-HxCDD	0.10
5	1,2,3,4,7,8-HxCDD	0.10
6	1,2,3,4,6,7,8-HpCDD	0.01
7	1,2,3,4,6,7,8,9-OCDD	0.001
8	2,3,7,8-TCDF	0.1
9	1,2,3,7,8-PeCDF	0.05
10	2,3,4,7,8-PeCDF	0.5
11	1,2,3,6,7,8-HxCDF	0.1
12	1,2,3,7,8,9-HxCDF	0.1
13	1,2,3,4,7,8-HxCDF	0.1
14	2,3,4,6,7,8-HxCDF	0.1
15	1,2,3,4,6,7,8-HpCDF	0.01
16	1,2,3,4,7,8,9-HpCDF	0.01
17	1,2,3,4,6,7,8,9-OCDF	0.001

REFERENCES

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EPA. 1989. "Update of Toxicity Equivalency Factors (TEFs) for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and Dibenzofurans (CDD-CDF)"; U.S. Environmental Protection Agency, Washington, DC. EPA 625/3-89/016. March 1989.

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OU3; Operable Unit 3; "Miscellaneous Sites Limited Field Investigation Report", July, 1993. U.S. Department of Energy, Albuquerque Field Office, Albuquerque, NM.

Paustenback, D. J., Shu, H. P., Murray, F. J. 1986. "A Critical Examination of Assumptions Used in Risk Assessments of Dioxin Contaminated Soil". Regulatory Toxicology and Pharmacology, 1986.

APPENDIX I

Building 34 Historical Fire–Fighting Training Pit Sample Summary

Sample Location	Sample Number	Matrix	Date Sampled	Sample Interval (ft BGS)	Parameters Analyzed
MND33–0135	MND33–0135–0001	Soil	2/12/92	3.0–6.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
	MND33–0135–0002	Soil	2/12/92	8.0–10.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
	MND33–0135–5001	Water	2/12/92	---	TCL VOCs.
MND33–0136	MND33–0136–0001	Soil	2/13/92	3.0–6.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
	MND33–0136–1001	Soil	2/13/92	3.0–6.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH.
	MND33–0136–0002	Soil	2/13/92	8.0–12.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
	MND33–0136–4001	Water	2/13/92	---	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH.

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

Building 34 Fire-Fighting Training Pits Sample Summary

Sample Location	Sample Number	Matrix	Date Sampled	Sample Interval (ft BGS)	Parameters Analyzed
MND33-0110	MND33-0110-0001	Soil	1/21/92	0.0-2.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; nitrite/nitrate; gamma spec.
	MND33-0110-0002	Soil	1/21/92	3.0-7.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; nitrite/nitrate; gamma spec.
	MND33-0110-1002	Soil	1/21/92	3.0-7.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; nitrite/nitrate.
	MND33-0110-0003	Soil	1/21/92	8.0-10.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; nitrite/nitrate.
	MND33-0110-5003	Water	1/21/92	Ambient blank	TCL VOCs.
	MND33-0110-0004	Soil	1/22/92	13.0-15.0	TCL VOCs; dioxins/furans; lithium.
	MND33-0110-0005	Soil	1/22/92	17.0-19.0	TCL VOCs; dioxins/furans; lithium.
MND33-0111	MND33-0111-0001	Soil	1/22/92	0.0-2.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
	MND33-0111-0002	Soil	1/22/92	3.0-5.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
	MND33-0111-0003	Soil	1/22/92	8.0-10.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH.
MND33-0112	MND33-0112-0001	Soil	1/22/92	0.0-2.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
	MND33-0112-1001	Soil	1/22/92	0.0-2.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
	MND33-0112-0002	Soil	1/22/92	3.0-7.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
	MND33-0112-0003	Soil	1/22/92	8.0-10.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH.
	MND33-0112-4003	Water	1/27/92	---	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH.
MND33-0113	MND33-0113-0001	Soil	1/27/92	0.0-2.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
	MND33-0113-0002	Soil	1/27/92	3.0-5.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
	MND33-0113-0003	Soil	1/27/92	9.0-11.0	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH.
	MND33-0113-0004	Soil	1/27/92	13.0-15.0	TCL VOCs; lithium; dioxin/furans.
	MND33-0113-0005	Soil	1/27/92	15.0-17.0	TCL VOCs; lithium; dioxin/furans.
	MND33-0113-0006	Soil	1/27/92	17.0-20.0	TCL VOCs; lithium; dioxin/furans.
MND33-0119	No sample collected				
MND33-0120	No sample collected				
MND33-0121	No sample collected				
MND33-0140	MND33-0140-0001	Sediment	2/16/92	---	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH; gamma spec.
MND33-1140	MND33-1140-0001	Surface Water	2/20/92	---	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH.
	MND33-1140-1001	Surface Water	2/20/92	---	TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; lithium; dioxin/furans; EPH.
	MND33-1140-2001	Water	2/20/92	---	TCL VOCs.
	MND33-1140-5001	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

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

Validated Positive Detections - Dioxin/Furan

Sample Location	Depth (ft)	1,2,3,4,6,7,8-HpCDF (pg/g)	1,2,3,4,6,7,8-HpCDD (pg/g)	1,2,3,4,7,8,9-HpCDF (pg/g)	1,2,3,4,7,8-HxCDF (pg/g)	Reason for Qualification
B001	5.0-7.0 15.0-16.5	0.45 -	3.2 0.85	- -	- -	
B003	22.0-26.0	.22	-	-	-	
0393	3.0-5.0	3.3J	12.2J	-	2.J	Extraction holding time out 16 days. No impact on data.
0394	2.0-3.0 10.5-11.0	6.3 -	30.3 0.52	0.62 -	2.2 -	
P001	34.5-36.0	-	0.59	-	0.18	
P003	5.0-6.5 15.0-17.0	56.4J 2.8	259.J 4.4	6. -	41.J 1.8	Internal standard recovery high for estimated results, due to ion suppression of recovery standard. Since IS areas appear unaffected, data are probably not affected.
P004	23.0-25.0 30.0-31.5 37.0-38.0	10.4 214. 3.1	84.6J 230. 9.2	1.8 41.4 -	1.7 209. 1.4	MS recovery for HpCDD was high (151%). Possible low bias in reported sample result.
P005	7.5-9.0 16.5-18.0 55.0-59.0	0.36 1. 1.5	- - -	- - -	- 0.49 -	
P006	9.0-10.0	8.	53.4	0.48	1.4	
P015	12.0-14.0	17.3	246.	1.5	1.3	

Validated Positive Detections - Dioxin/Furan

Sample Location	Depth (ft)	2,3,4,6,7,8-HxCDF (pg/g)	2,3,4,7,8-PeCDF (pg/g)	2,3,7,8-TCDD (pg/g)	2,3,7,8-TCDF (pg/g)	OCDD (pg/g)	OCDF (pg/g)	Reason for Qualification
B001	5.0-7.0	0.22	-	-	-	-	0.6	
B002	13.0-15.0	-	-	-	-	-	0.22	
B003	22.0-26.0	-	-	-	-	-	1.1	
0393	3.0-5.0 20-22	0.77J	1.6J	9.6J	2.4J	96.J 6.5J	3.3J	Extraction holding time out by 16 days. No impact on data.
0394	2.0-3.0 10.5-11.0	1. -	1.5 -	3. 1.8	2.8 -	273 -	10.3 0.28	
P001	34.5-36.0	-	0.24	-	-	-	0.33J	Associated MS/MSD recovery for OCDF low (10/18%). Reported results possibly biased low by factor of 5-10.
P003	5.0-6.5 15.0-17.0	11.1 0.92	46.2 1.	- 1.5	59. 0.39	1780.J -	7.9 1.5	Internal standard recovery high for OCDD, due to ion suppression of recovery standard. Since IS area appears unaffected, result is probably not affected.
P004	23.0-25.0 30.0-31.5 37.0-38.0	0.76 64.1 0.66	0.71 150. 0.77	1.3 22.5 3.4	1.6 132. 1.4	1010J 1660J 86.9	6.5J 163.J 1.3	MS/MSD recoveries for OCDF low (10/18%). Reported results possibly biased low by factor of 5-10. MS/MSD recovery for OCDD, 590/-88%, indicates inhomogeneity of soil. Wide variability may affect sample result.
P005	7.5-9.0 16.5-18.0 55.0-59.0	0.21 0.41 0.15	- - -	0.78 0.62 -	- - -	- - -	- - 3.	
P006	9.0-10.0	1.2	-	-	0.99	371	15.	
P015	12.0-14.0	0.99	-	-	-	2110	50.2	

Validated Positive Detections - Dioxin/Furan

Sample Location	Depth (ft)	1,2,3,6,7,8-HxCDF (pg/g)	1,2,3,6,7,8-HxCDD (pg/g)	1,2,3,7,8,9-HxCDD (pg/g)	1,2,3,7,8-PeCDD (pg/g)	1,2,3,7,8-PeCDF (pg/g)	Reason for Qualification
0393	3.0-5.0	0.78J	-	-	-	0.96J	Extraction holding time out by 16 days. No impact on data.
0394	2.0-3.0	1.2	1.7	1.8	-	1.1	
P003	5.0-6.5	15.6	11.9	21.2	2.7	9.7	
	15.0-17.0	0.58	-	0.89	-	0.42	
P004	23.0-25.0	1.3	2.1	-	-	0.74	
	30.0-31.5	63.2	28.3	39.7	11	43.2	
	37.0-38.0	0.65	-	-	-	0.75	
P006	9.0-10.0	0.75	1.3	1.5	-	0.42	
P015	12.0-14.0	2.5	13.7	4.7	0.71	-	

ENVIRONMENTAL RESTORATION PROGRAM

RELEASE BLOCK J

POTENTIAL RELEASE SITE 18

FIRE FIGHTING TRAINING AREA RESPONSE ACTION

ON-SCENE COORDINATOR REPORT

MOUND PLANT

MIAMISBURG, OHIO

January 1996

U.S. Department of Energy

EG&G Mound Applied Technologies

DRAFT

(Revision 0)

EXECUTIVE SUMMARY

SITE: EG&G Mound

LOCATION: Miamisburg, Ohio

PROJECT DATES: February 6,1994 - October 31, 1995

INCIDENT DESCRIPTION: The Mound Plant site is a 306-acre Department of Energy (DOE) research and development facility on the border of the City of Miamisburg in Montgomery County, Ohio. The USEPA placed the Mound Plant in Miamisburg, Ohio on the National Priorities List (NPL), as listed in 40 CFR Part 300, Appendix B, by publication in the Federal Register on 21 November 1989.

The Mound Plant initiated a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) program in 1984 to assess over 400 potential release sites (PRS). A release of petroleum hydrocarbons into the environment occurred sometime between 1978 and 1989 at the Fire Fighting Training Area (FFTA) site, PRS No. 18, as part of normal operations during training exercises. On the basis of this consideration, the provisions of the NCP and CERCLA were implemented by the U.S. Department of Energy, Miamisburg Area Office (MB), Miamisburg, Ohio.

ACTIONS: A Removal Site Evaluation (RSE) provided an assessment and basis for a removal action of the FFTA site to mitigate potential petroleum hydrocarbon contaminant exposure to human or animal populations. The Action Memorandum/Removal Site Evaluation (AM/RSE) quantified the contamination present at the FFTA Site based on a Limited Field Investigation (LFI) conducted in 1992 and recommended that the contamination should be removed and treated by ex-situ biological remediation. A request for an Implementation Plan was submitted to contractors on 26 October 1993. A construction sub-contractor was hired on 25 May 1994 and construction began on 8 June 1994. Construction of the FFTA Remedial Action was completed on 30 June 1995.

Actual excavation extended beyond the limits defined in the AM/RSE due to the presence of total petroleum hydrocarb (TPH). Excavation was terminated when sample results showed TPH levels below the removal criteria stated in the AM/RSE and NCP. Thus the potential for exposure as defined in the AM/RSE is no longer present. Approximately 170 cubic yards of excavated soils

excavated soils were placed on the treatment pads. In August 1995, results of TPH sample analysis showed concentrations in two of sixteen samples to be above 40 ppm but below 105 ppm. In September 1995, samples were taken from the treatment pads for Benzene, Toluene, Ethyl Benzene, Xylene, (BTEX) analysis, and from the storage pile for TPH and BTEX. All BTEX results were below the action level. All TPH results were below 105 ppm, the revised action level agreed to be DOE and Ohio EPA.

Arthur Kleinrath, OSC
U.S. Department of Energy
Miamisburg, Ohio

Tim Fischer
U.S. EPA
Miamisburg, Ohio

Brian Nickel
Ohio EPA

Post-it™ brand fax transmittal memo 7671	# of pages ▸
To Glenn Dixon	From Gary Coons
Co. BWSSC	Co. EG&G
Dept.	Phone #
Fax # 438-0379	Fax #

ound

:Gordon S. Horn
HORN
pt. :
l. No :513/825-3440
ite :06-Feb-1996 12:09pm EST
bject :FFTA Training Pits

) :GARY L. COONS (COONGL)

e data you are looking for is included in Appendix C4. There seems to be a ttle confusion on our part as to whether its Training Pit #1 or #2. I assume e info you are looking for concerns the training pit closest to the building ere we only removed the concrete pit and no soi The samples from this pit are mbered TP 17, TP 18, MND55-0017-0008, MND55-0018-0008,1008,3008, and 4008. 08 is a duplicate, 3008 is a soil MS/MSD, and 4008 is a rinsate/field blank. e info in AppendiC4 shows TPH values. We had run BTEX but they were not cluded in the data set. I'll look for them and we can include it in the final an added page.

APPENDIX C4

Pit Closure Sampling Results (4 August 1994)

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 12/13/94

CLIENT: EG & G MOUND PFTA

WESTON BATCH #: 9412L293

WORK ORDER: 05376-045-002-0400-02

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	MND55 TP-02A	% Solids	91.8	%	0.10	1.0
		Petroleum Hydrocarbons	29.0	MG/KG	3.6	1.0
-002	MND55 TP-02B	% Solids	89.9	%	0.10	1.0
		Petroleum Hydrocarbons	11.2	MG/KG	3.7	1.0
-003	MND55 TP-04A	% Solids	90.8	%	0.10	1.0
		Petroleum Hydrocarbons	9.9	MG/KG	3.7	1.0
-004	MND55 TP-04B	% Solids	91.7	%	0.10	1.0
		Petroleum Hydrocarbons	9.0	MG/KG	3.6	1.0
-005	MND55 TP-10A	% Solids	92.0	%	0.10	1.0
		Petroleum Hydrocarbons	9.8	MG/KG	3.6	1.0
-006	MND55 TP-10B	% Solids	91.3	%	0.10	1.0
		Petroleum Hydrocarbons	13.8	MG/KG	3.7	1.0

General Chemistry

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 12/06/94

CLIENT: BG & G MOUND FFTA

WESTON BATCH # 9411L184

WORK ORDER: 05376-045-002-0400-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	TP 16 A R	% Solids	90.6	%	0.10	1.0
		Petroleum Hydrocarbons	33.3	MG/KG	3.7	1.0
-002	TP 16 B L	% Solids	90.3	%	0.10	1.0
		Petroleum Hydrocarbons	23.5	MG/KG	3.7	1.0

General Chemistry

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 01/13/95

CLIENT: EG&G-MOUND

WESTON BATCH #: 95011590

WORK ORDER: 05376-045-002-0400-005

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	MND 55 TP-12	% Solids	88.6	%	0.10	1.0
		Petroleum Hydrocarbons	22.8	MG/KG	3.8	1.0
-002	MND 55 TP-17	% Solids	91.2	%	0.10	1.0
		Petroleum Hydrocarbons	11.9	MG/KG	3.7	1.0
-003	MND 55 TP-18	% Solids	90.1	%	0.10	1.0
		Petroleum Hydrocarbons	8.8	MG/KG	3.7	1.0

General Chemistry

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 01/18/95

CLIENT: EG&G-MOUND

WESTON BATCH #: 9501L612

WORK ORDER: 05376-045-002-0400-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	MMDS5-0007-0005	% Solids	90.4	%	0.10	1.0
		Petroleum Hydrocarbons	24.2	MG/KG	3.7	1.0
-002	MMDS5-0017-0008	% Solids	89.1	%	0.10	1.0
		Petroleum Hydrocarbons	20.2	MG/KG	3.7	1.0
-003	MMDS5-0018-0008	% Solids	89.3	%	0.10	1.0
		Petroleum Hydrocarbons	4.1	MG/KG	3.7	1.0
-004	MMDS5-0018-1008	% Solids	90.1	%	0.10	1.0
		Petroleum Hydrocarbons	6.8	MG/KG	3.7	1.0
-005	MMDS5-0018-3008	% Solids	89.7	%	0.10	1.0
		Petroleum Hydrocarbons	5.2	MG/KG	3.7	1.0
006	MMDS5-0018-4008	Petroleum Hydrocarbons	1.1 u	MG/L	1.1	1.0

General Chemistry

CLIENT/SUBJECT FPTA W.O. NO. 05376-045-002

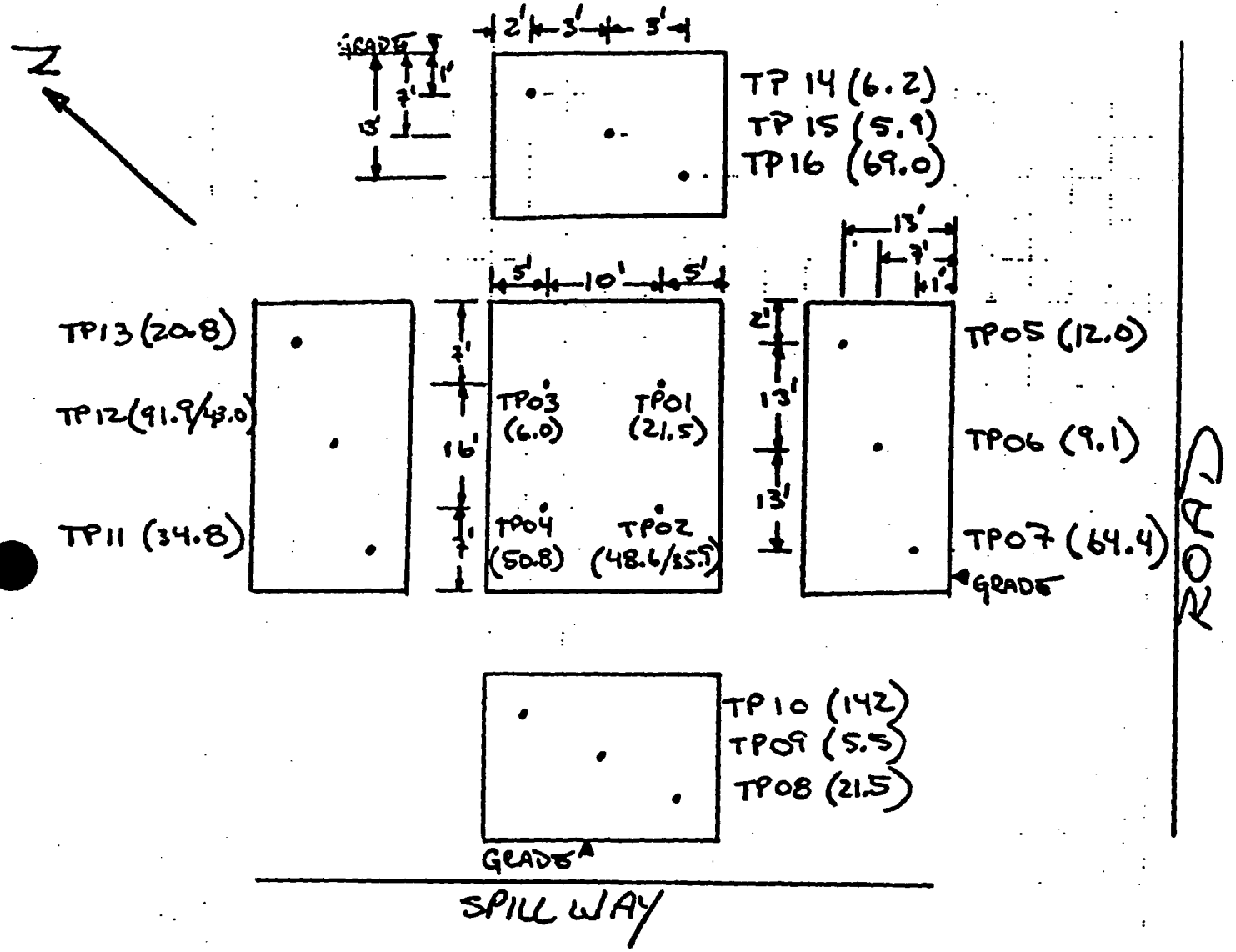
TASK DESCRIPTION CLOSURE SAMPLING RESULTS TASK NO. 0400

PREPARED BY GBH DEPT ____ DATE 8/24/94

MATH CHECK BY ____ DEPT ____ DATE ____

METHOD REV. BY ____ DEPT ____ DATE ____

APPROVED BY ____ DEPT ____ DATE ____



LEGEND

TPXX (XXXX)

SAMPLE NUMBER — CONCENTRATION (MG/KG)

SAMPLES > 40

TP02
TP04
TP07
TP12
TP16
TP10

RFW 10-05-003/A-5 85