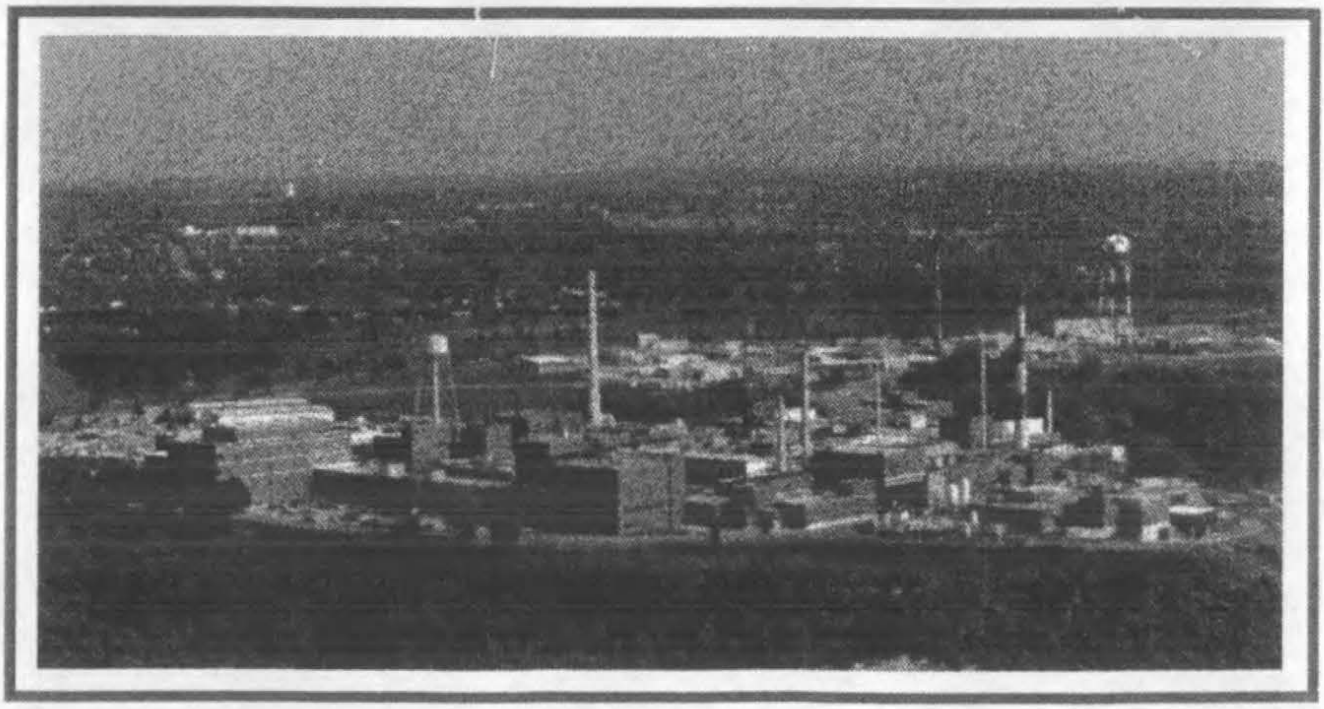
30030402-9612100045

MOUND

Environmental
Restoration
Program

MOUND PLANT
Potential Release Site Package
PRS # 18



PRS 18

REV	DESCRIPTION	DATE
PUBLIC RELEASE **0**	Available for comments.	**Oct. 3, 1996**
FINAL **1**	Comment period expired. No comments. Recommendation page annotated.	**Nov. 27, 1996**

MOUND

Environmental Restoration Program

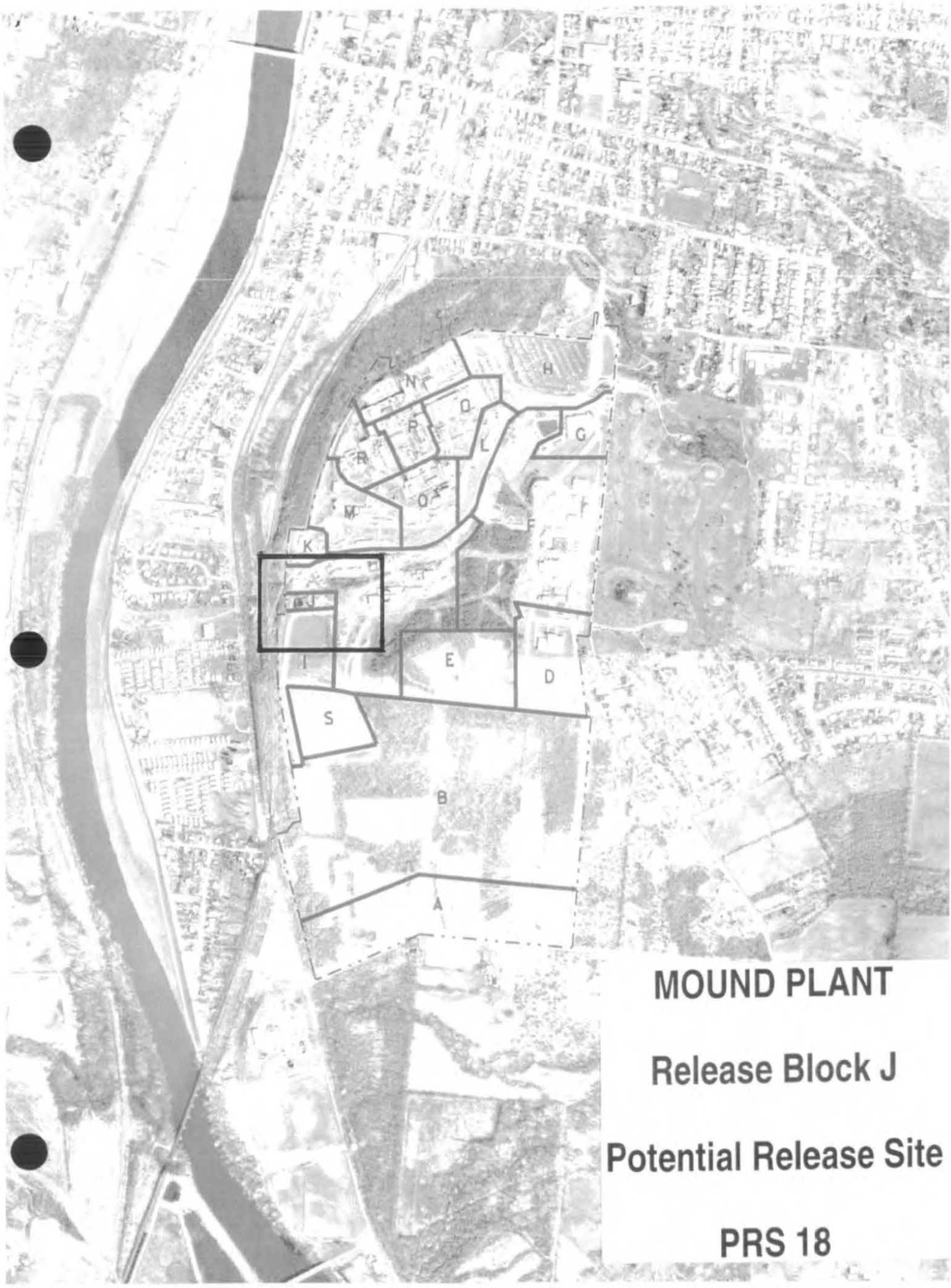
MOUND PLANT POTENTIAL RELEASE SITE PACKAGE

Notice of Public Review Period

The following potential release site (PRS) package will be available for public review in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio beginning October 15, 1996. Public comment will be accepted on these package from October 15, 1996 through November 15, 1996.

PRS 18, PRS 19, PRS 126/127, PRS 246, PRS 302, PRS 331, PRS 376

Questions can be referred to Mound's Community Relations at (513) 865-4140.



MOUND PLANT

Release Block J

Potential Release Site

PRS 18

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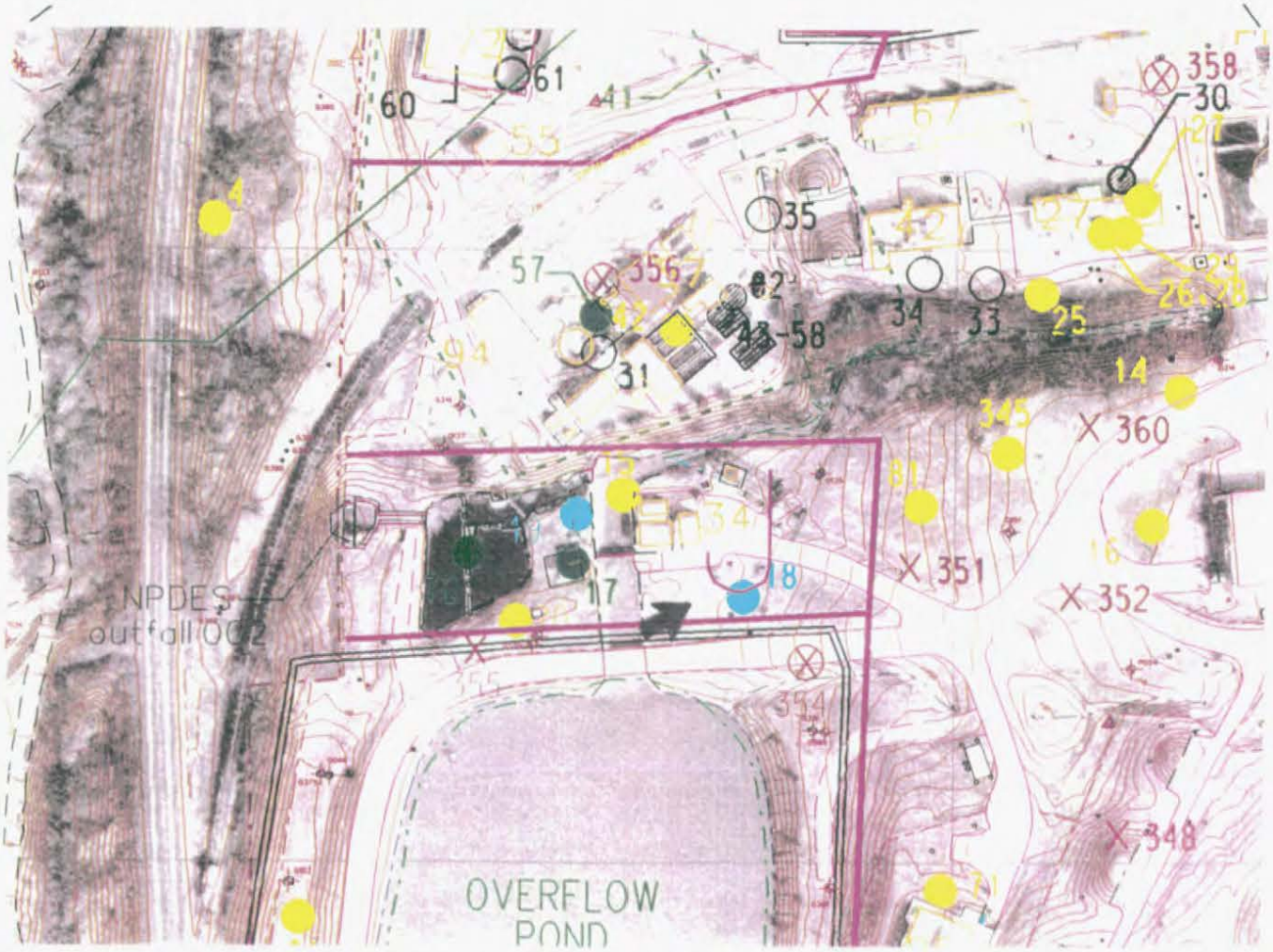
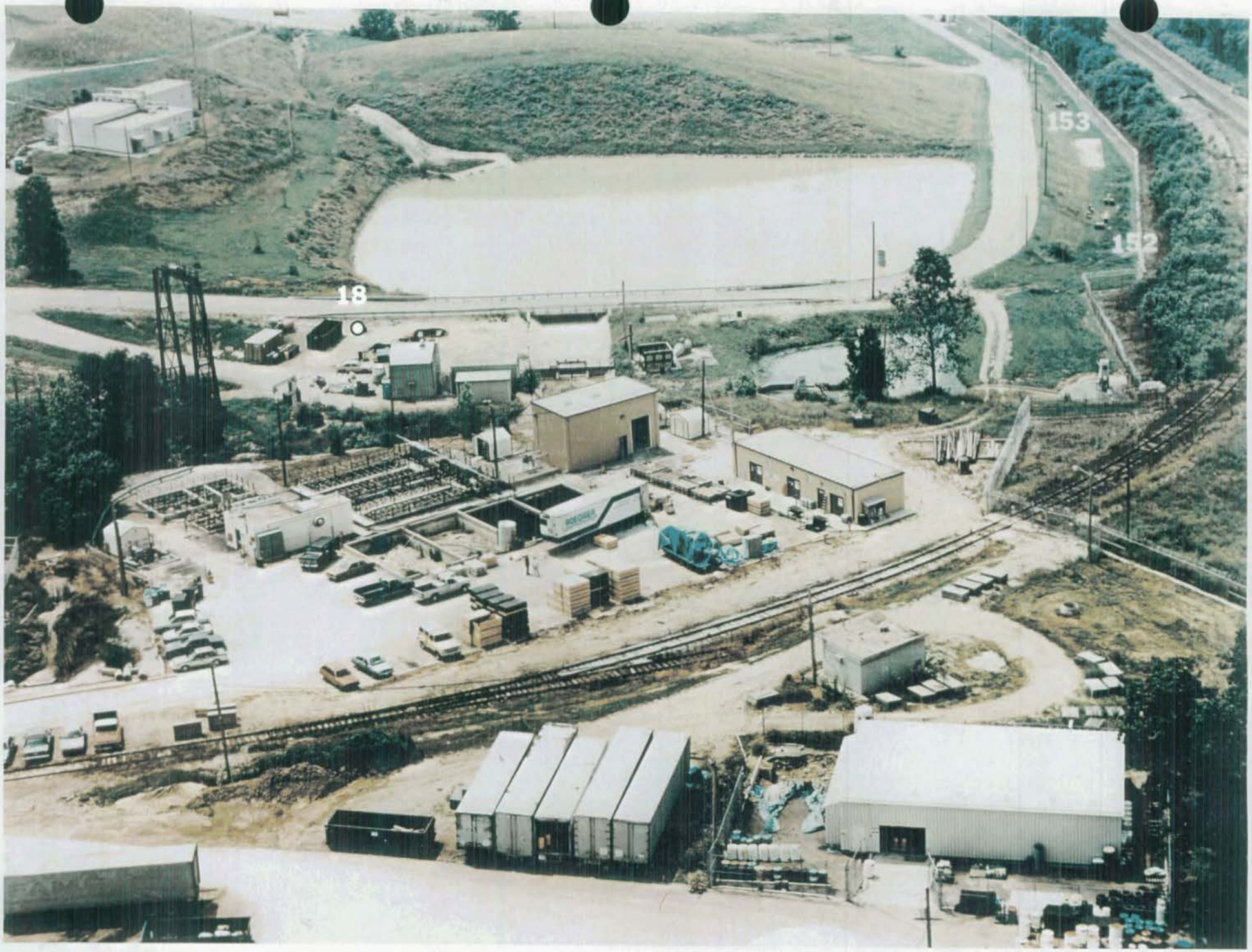
MOUND PLANT

Release Block J

Potential Release Site

PRS 18




153
152
18

PRS 18

PRS HISTORY:

The site, between Building 34 and the road south of Building 34, is a former fire fighting training area (FFTA).[1,3] Training operations were conducted on the flames from burning 3 - 5 gallons of diesel fuel contained in a pit. The fuel was pumped into the pits from an above-ground storage tank through underground pipes.[3] The pits were operated between 1978 - 1989. The FFTA was identified as a potential release site when it was listed as a solid waste management unit (SWMU) in the July 1988 "Preliminary Review/Visual Site Inspection Report for RCRA Facility of Mound Plant".[5] Uranium contamination was detected during routine surveys being conducted as part of the repair of a water line adjacent to Building 34 in January 1988. The source of the uranium contamination is unknown. Cleanup of the uranium contamination in the fire fighting training pit area occurred in the spring of 1989.[2]

CONTAMINATION:

Total Petroleum Hydrocarbon (TPH) contamination was confirmed during the OU3 Limited Field Investigation in 1992.[3] Prior to remediation, the maximum soil concentration of TPH was 1300 mg/kg.[3] The levels of benzene, toluene, ethylbenzene, and xylene in the TPH contaminated soils did not exceed the guideline values. Removal of TPH contaminated soils was completed in 1995. The remediation goal required these soils to be removed until the TPH residuals were less than 105 ppm.[6] The excavated soil was processed in Mound's bioremediation facility. The treated soils were disposed in the Mound spoils area.[6]

Cleanup of the uranium contamination discovered in the fire fighter training pit area occurred in the spring of 1989. The uranium contaminated soil was removed and shipped off site for disposal.[2] The OU3, Limited Field Investigation analyzed soil samples from this area for thorium-234, which is a daughter product of uranium-238 and is used as an indicator. The analysis was completed using gamma spectroscopy. Results revealed that soils in the area had a maximum concentration of 1.23 pCi/g and the sediment inside pit #2 had a concentration of 5.41 pCi/g thorium-234. This is below the guideline value of 11 pCi/g for uranium-238.[3]

Three surface soil samples were collected from the FFTA and analyzed for radioactivity. The maximum contamination levels detected by this Radiological Site Survey was 2 pCi/g of thorium and 6.65 pCi/g of plutonium-238.[2] The Mound As Low As Reasonably Achievable (ALARA) guideline value for plutonium-238 is 25 pCi/g and for thorium is 5 pCi/g.

Data from groundwater monitoring well 379 indicated no petroleum compounds (BTEX: benzene, toluene, ethyl benzene, xylenes) were detected in the well which is downgradient of this area. Lead was detected at or below the USEPA Maximum Contaminant Level.[4]

READING ROOM REFERENCES:

1) Operable Unit 9 Site Scoping Report: Volume 12 - Site Summary Report, December 1994. (pages 6-7.1)
2) Operable Unit 9 Site Scoping Report: Volume 3 - Radiological Site Survey, June 1993. (pages 8-26)
3) Operate Unit 3 - Miscellaneous Sites Limited Field Investigation Report, Volume I, Sections 1-6, July 1993. (Pages 27-50)
4) OU9, Hydrogeologic Investigation: Groundwater Sweeps Report, Technical Memorandum, April 1995 (Pages 51-56)

OTHER REFERENCES:

5) Preliminary Review/Visual Site Inspection Report For RCRA Facility of Mound Plant, July 1988. (pages 57-64)
6) Fire Fighting Training Area Response Action, On-Scene Coordinator Report, January 1996. (pages 65-75)

PREPARED BY:

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

MOUND PLANT
PRS 18
FORMER FIRE FIGHTING TRAINING AREA

RECOMMENDATION:

This Potential Release Site (PRS) is the former location of the fire fighting training area. It became a PRS due to its identification as a potential release site in the 1988 *Preliminary Review/Visual Site Inspection Report for the RCRA facilities of the Mound Plant.*

In 1989, a clean-up operation was performed at PRS 18 to remove uranium contamination in soil. Post clean-up sampling during the OU3, Limited Field Investigation showed that the maximum concentration of thorium-234 (thorium-234 is a daughter product of uranium and is used as an indicator of uranium contamination) was 5.4 pCi/g which is less than the 10^{-6} Risk Based Guideline Criteria of 11 pCi/g for uranium-238.

In 1995, a second clean-up operation was performed at PRS 18 to remove petroleum contamination in soil. Post clean-up sampling results found the maximum concentration of total petroleum hydrocarbons to be 91.9 ppm which is below the State Regulatory (BUSTR) Guideline Criteria of 105 ppm.

Therefore, since the removal verification results found no remaining evidence of contamination above levels of concern and since no history or evidence of additional contamination exists at PRS 18, PRS 18 requires NO FURTHER ASSESSMENT.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath, Remedial Project Manager — 10/3/96 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 10/3/96 (date)

OEPA: Brian K. Nickel, Project Manager — 10/3/96 (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 10/15/96 to 11/15/96

☒ No comments were received during the comment period.

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

REFERENCE MATERIAL
PRS 18

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

Table A.1. Comprehensive Tabulation of Potential Release Sites

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
19	Building 34, Historical Firefighting 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

1 - Soil Gas Survey - Freon 11, Freon 113, Trans-1,2-Dichloroethylene, Cis-1,2-Dichloroethylene, 1,1,1-Trichloroethane, Perchloroethylene, Trichloroethylene, Toluene
2 - Gamma Spectroscopy - Thorium-228, -230, Cobalt-60, Cesium-137, Radium-224, -226, -228, Americium-241, Actinium-227, Bismuth-207, Bismuth-210m, Potassium-40
3 - Target Analyte List
4 - Target Compound List (VOC)
5 - Target Compound List (SVOC)
6 - Target Compound List (Pesticides/Polychlorinated Biphenyl)
7 - Dioxins/Furans
8 - Extractable Petroleum Hydrocarbons (EPH)/Total Petroleum Hydrocarbons (TPH)
9 - Lithium
10 - Nitrate/Nitrite
11 - Chloride
12 - Explosives
13 - Plutonium-238
14 - Plutonium-238, Thorium-232
15 - Cobalt-60, Cesium-137, Radium-226, Americium-241
16 - Tritium

Reference List

1. DOE 1986 "Phase I Installation Assessment Mound (DRAFT)."
2. DOE 1992a "Remedial Investigation/Feasibility Study, Operable Unit 9, Site-Wide Work Plan (Final)."
3. DOE 1992c "Mound Plant Underground Storage Tank Program Plan & Regulatory Status Review (Final)."
4. DOE 1993a "Site Scoping Report: Volume 7 - Waste Management (Final)."
5. EPA 1988a "Preliminary Review/Visual Site Inspection for RCRA Facility Assessment of Mound Plant."
6. DOE 1993d "Operable Unit 9, Site Scoping Report: Volume 3 - Radiological Site Survey (Final)."
7. DOE 1993c "Operable Unit 3, Miscellaneous Sites Limited Field Investigation Report."
8. DOE 1992d "Reconnaissance Sampling Report Decontamination & Decommissioning Areas, OU6, (Final)."
9. Fentiman 1990 "Characterization of Mound's Hazardous, Radioactive and Mixed Wastes."
10. DOE 1992f "Operable Unit 9, Site Scoping Report: Volume 11 - Spills and Response Actions (Final)."
11. Styron and Meyer 1981 "Potable Water Standards Project: Final Report."
12. DOE 1993b "Reconnaissance Sampling Report - Soil Gas Survey & Geophysical Investigations, Mound Plant Main Hill and SM/PP Hill (Final)."
13. DOE 1993d "Operable Unit 9, Site Scoping Report: Volume 3 - Radiological Site Survey (Final)."
14. DOE 1991b "Main Hill Seeps, Operable Unit 2, On-Scene Coordinator Report for CERCLA Section 104 Remedial Action, West Powerhouse PCB Site."
15. Halford 1990 "Results of South Pond Sampling."
16. DOE 1993e "Operable Unit 4, Special Canal Sampling Report, Miami Erie Canal."
17. DOE 1990 "Preliminary Results of Reconnaissance Magnetic Survey of Mound Plant Areas 2, 6, 7, and C."
18. DOE 1992a "Remedial Investigation/Feasibility Study, Operable Unit 9, Site-Wide Work Plan (Final)."
19. Rogers 1975 "Mound Laboratory Environmental Plutonium Study, 1974."
20. DOE 1992h "Ground Water and Seep Water Quality Data Report Through First Quarter, FY92."
21. Dames and Moore 1976 a, b "Potable Water Standards Project Mound Laboratory" and "Evaluation of the Buried Valley Aquifer Adjacent to Mound Laboratory."
22. DOE 1992i "Closure Report, Building 34 - Aviation Fuel Storage Tank."
23. DOE 1992j "Closure Report, Building 51 - Waste Storage Tank."
24. DOE 1994 "Operable Unit 1, Remedial Investigation Report."
25. EG&G 1994 "Active Underground Storage Tank Plan."

ENVIRONMENTAL RESTORATION PROGRAM

OPERABLE UNIT 9, SITE SCOPING REPORT: VOLUME 3 - RADIOLOGICAL SITE SURVEY

MOUND PLANT
MIAMISBURG, OHIO

June 1993

DEPARTMENT OF ENERGY
ALBUQUERQUE FIELD OFFICE

ENVIRONMENTAL RESTORATION PROGRAM
EG&G MOUND APPLIED TECHNOLOGIES

FINAL

The maximum sample depth during the 1974 study at the plant drainage ditch was 5 to 6 ft. Although the depth of the ditch sediments is not known, the depth to bedrock ranges from 30 to 40 ft near Building 51, at the beginning of the ditch, to approximately 70 ft at the western end, where the ditch exits the plant boundary. This depth to bedrock includes the ditch sediments, the older stream sediments, glacial outwash, and glacial till (DOE 1992f).

Radioactively contaminated sediments are also present in the asphalt-lined pond in the northeastern portion of the plant and in the storm water retention (overflow) pond and retention basins near Area 2 in the southwestern portion of Mound Plant (Plate 1). Both of these are used to settle the sediments in storm water runoff. No characterization was done during the Site Survey Project because of their operational status. The ponds and other basins are described in detail in the Site Scoping Report: Volume 7 - Waste Management (DOE 1992g) and the Operable Unit 9 Site-Wide RI/FS Work Plan (DOE 1992c).

10.5. FENCE LINE SAMPLING CONDUCTED IN 1974

As part of the 1974 investigations of plutonium-238 in the Miami-Erie Canal, surface and core samples were collected around the Mound Plant perimeter and fence line. Samples were analyzed only for plutonium-238. Sample results indicate concentrations up to 125 pCi/g in the area of the canal and 1 to 2 pCi/g elsewhere. The data sheets are included in Appendix E.

10.6. DEPLETED URANIUM CLEANUP AT FIRE FIGHTER TRAINING PITS

A cleanup of uranium contamination in the fire fighter training pit area occurred in the early spring of 1989. The pits are located south of Building 34 (Figure 10.2). The uranium contamination was detected during routine surveys being conducted as part of the repair of a water line adjacent to Building 34 in January 1988. The uranium was found to occur as metallic scraps about 1-inch square and 1/4-inch thick. Analysis of a metallic sample indicated concentrations of uranium-238 and uranium-235 at 500,000 and 3,000 pCi/g, respectively (Jarvis 1988), thus indicating a much greater uranium-238 content than occurs naturally. The metallic scraps were thus determined to consist of depleted uranium, a metal used for its very high density. The origin of the metallic scraps in the pit area is unknown. The actual concentration of depleted uranium in soil was measured to be about 6,340 pCi/g (Jarvis 1989).

On March 16, 1989, the cleanup of the depleted uranium was accomplished by excavation and placement of soil into low-specific activity (LSA) boxes for shipment offsite. The cleanup goal was 5

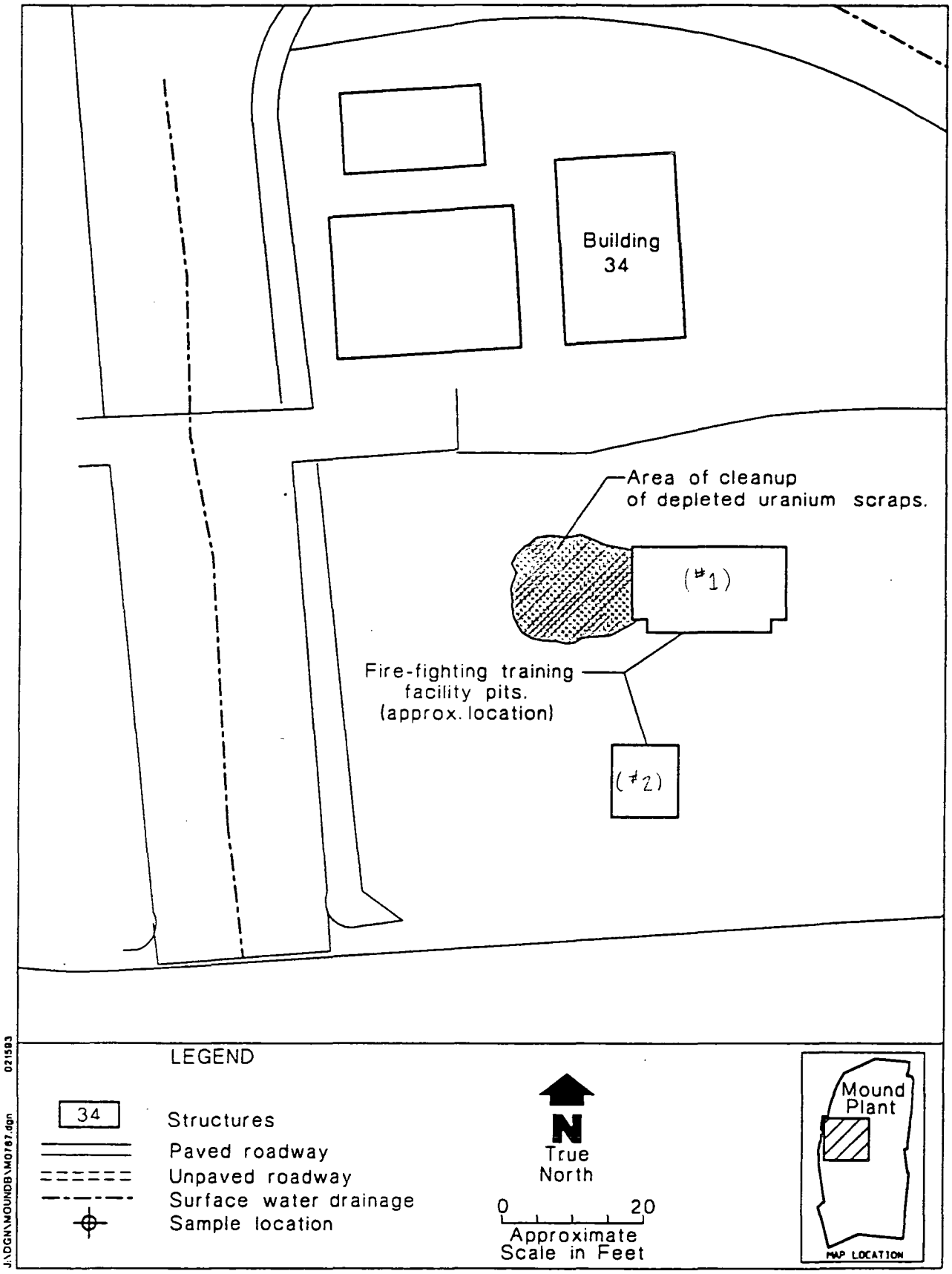


Figure 10.2. Area of cleanup of depleted uranium.

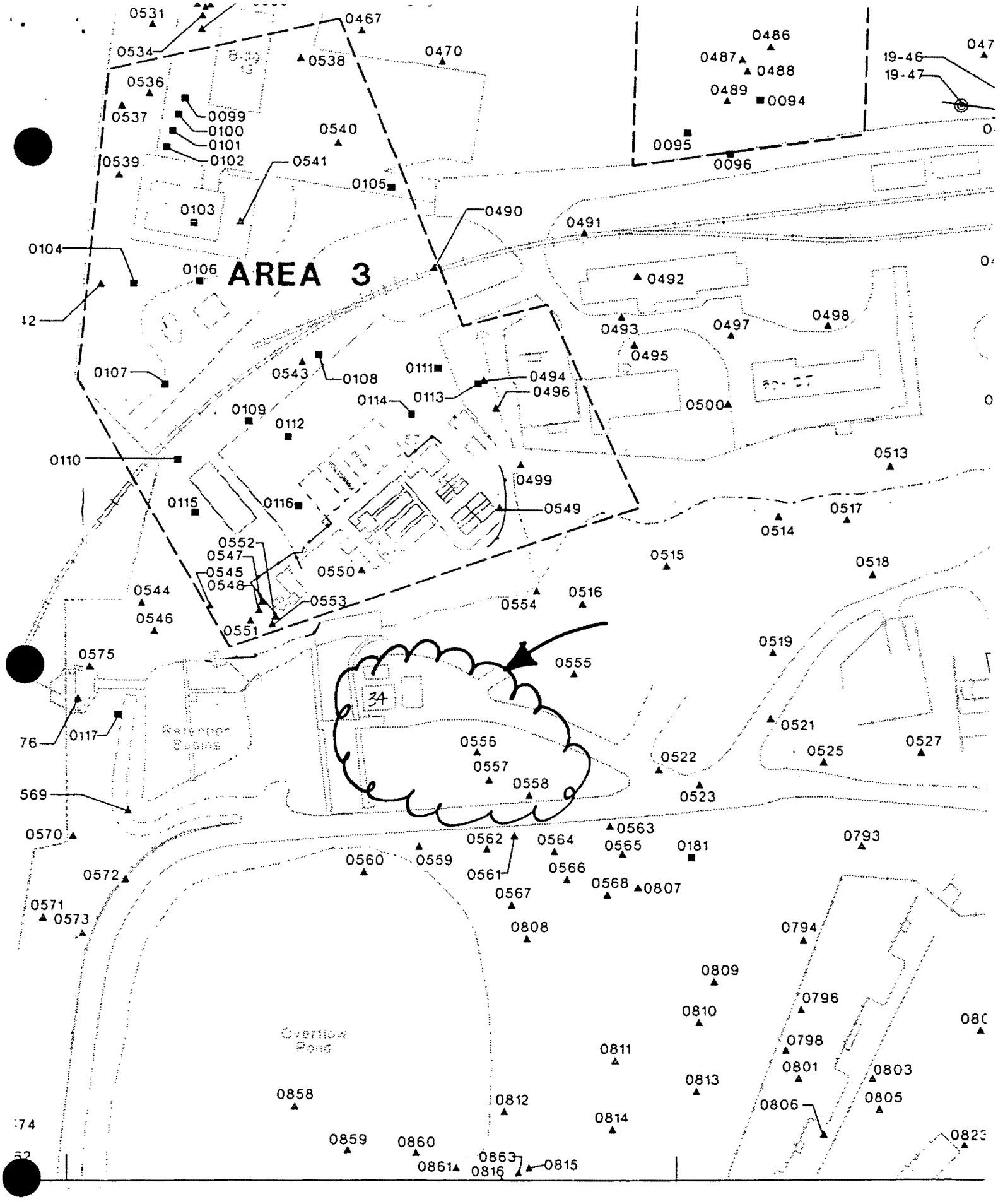
pCi/g of uranium in soil. Ten soil samples were collected in the pit area (Figure 10.2) and analyzed by gamma spectroscopy. The highest concentration of uranium detected after cleanup was 3 pCi/g (Dickey and McMahan 1989). The data sheets are included in Appendix E.

ATTACHED

APPENDIX E
ANALYTICAL DATA

This appendix provides a tabulated set of the Site Survey Project analytical data because the project report (Stought et al. 1988) provided only data summaries. The data are presented in basically the same format as they were received from Mound Plant. Because the original report stated that all samples were radiochemically analyzed for plutonium-238 and FIDLER screened for thorium (at a minimum), when these data were absent it is assumed that the results were not recorded, so an "NR" for no result is entered in the tabulated results. Additionally, because only selected samples collected were analyzed for tritium, or by gamma spectroscopy for radionuclides such as cobalt-60, cesium-137, radium-226, and americium-241, when these data were absent, it is assumed that the analyses were not performed, so the table entries were left blank.

The data presented in Appendix E give the sample locations in terms of south and west coordinates because this is the system used by Mound Plant. Since the data are reported here in exactly the format received, these coordinates are reported as such. Since the Mound Plant ER Program currently uses the Ohio State Plane coordinate system, which includes north (y) and east coordinates (x), as in Plate 1, a conversion system is required. Therefore, to correlate the data in Appendix E with the Plate 1 locations and future ER Program documents, conversion tables are given in Appendix F that list the coordinates for the sampling locations given in Plate 1 (surface and core) in both the south/west and north/east systems.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Reservation Cabins
Overflow Pond
34

Map Location[a]	Coordinates South	Coordinates West	MRC ID No.	Mo-Yr	Depth (inch)	Pu-238 (pCi/g)	Thorium[b] (pCi/g)	Tritium (pCi/mL)	Co-60 (pCi/g)	Cs-137 (pCi/g)	Ra-226 (pCi/g)	Am-241 (pCi/g)
S0550	2375	4290	6879	08-84	0	12.10	b					
S0551	2375	4390	6878	08-84	0	27.10	b					
S0552	2380	4370	10486	08-85	0	41.70	b					
S0553	2385	4375	10487	08-85	0	8.42	b					
S0554	2450	4165	2577	09-83	0	0.06[c]	b					
S0555	2525	4165	2578	09-83	0	7.46	b					
S0556	2550	4265	2576	09-83	0	6.65	b					
S0557	2575	4265	6465	08-84	0	0.41	b					
S0558	2600	4240	6464	08-84	0	1.66	b					
S0559	2600	4340	6457	08-84	0	0.58	b					
S0560	2600	4390	6456	08-84	0	34.20	b					
S0561	2625	4265	6458	08-84	0	0.25	b					
S0562	2625	4290	2575	09-83	0	0.14	b					
S0563	2650	4190	2574	09-83	0	8.56	b					
S0564	2650	4240	6459	08-84	0	0.30[c]	b					
S0565	2675	4190	6463	08-84	0	0.71	b					
S0566	2675	4240	6461	08-84	0	0.35	b		LDL	LDL	1.2	LDL
S0567	2675	4290	6462	08-84	0	0.06	b					
S0568	2700	4215	6460	08-84	0	0.26	b					

[a]C denotes core location and S denotes surface sample location on Plate 1.
[b]Thorium results of ≤ 2 pCi/g are listed as "b".

MOUND SOIL SCREEN DATA

EG&G-MOUND Inter-office Memo

From : CONSTRUCTION HEALTH PHYSICS
(JOE DICKEY & KEITH MCMAHAN)

Date : MARCH 23, 1989

Subject : URANIUM CLEANUP AT BLDG 34

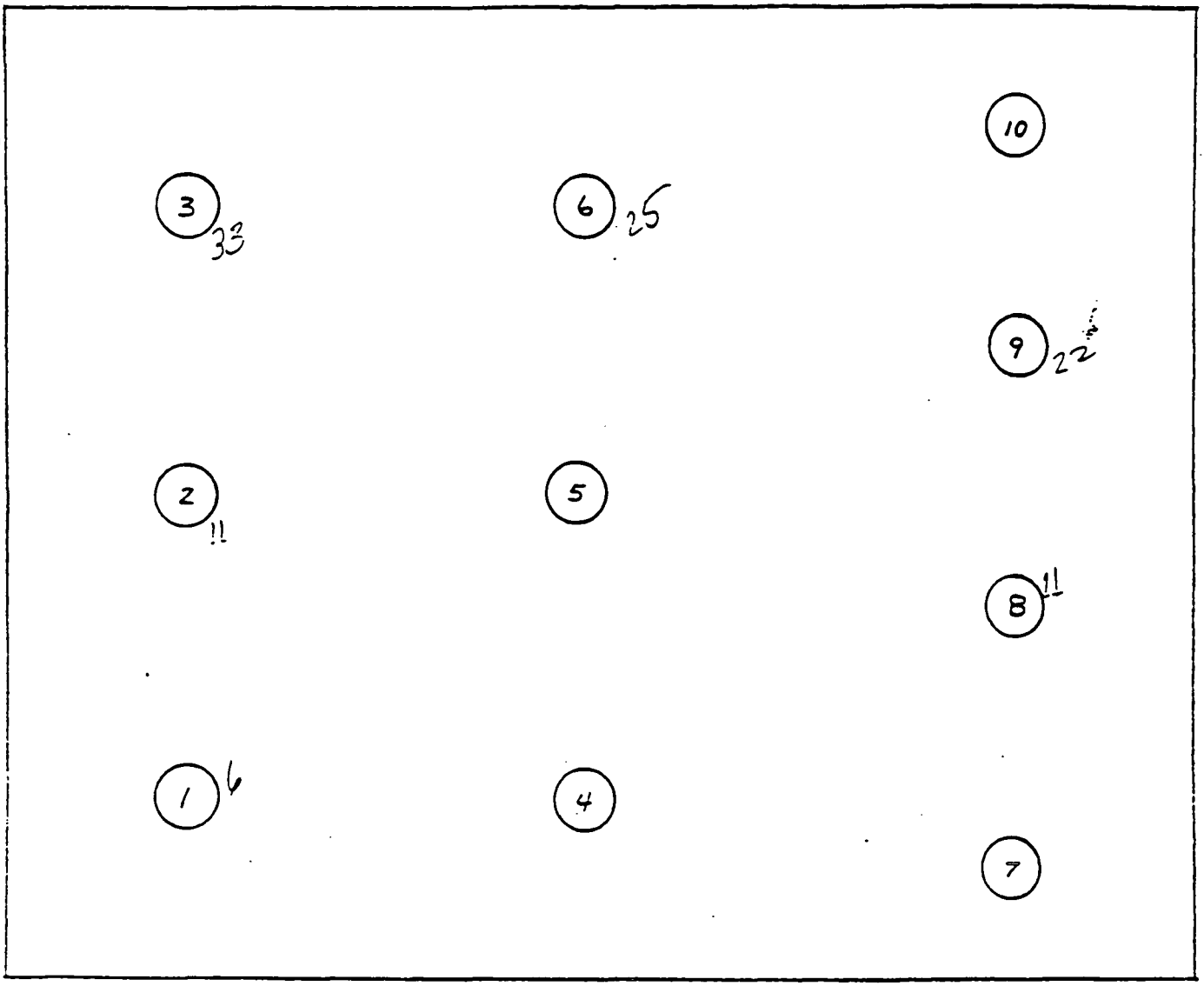
Reference :

To : DISTRIBUTION

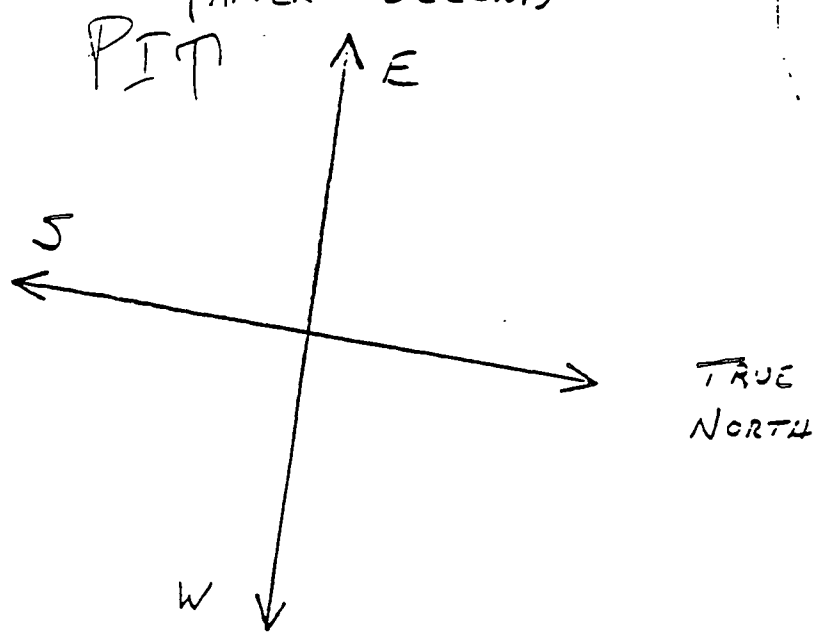
On March 16, 1989, clean up of depleted Uranium at the building 34 burn pit area was conducted. All personnel in the area were wearing blue radiation area clothing, shoe covers, gloves, half-mask respirators, hard hats and safety glasses. Air surrounding the area was sampled by 3 high volume vacuum pumps: one upstream of the excavation, one downstream, and one in the vicinity. All high volume filters were checked with a gas PAC at 15 minute intervals to ensure the contamination was not becoming airborne.

Decontamination of the area was performed until fidler readings were less than 1000 cpm above background on the out channel. At this point 10 soil samples were taken and sent to be gamma scanned to ensure the cleanup was completed.

Attached are a map, sample spots, and sample results.



CONTAMINATED AREA SAMPLE SPOTS
(AFTER DECON.)



NUCLEAR OPERATIONS ANALYTICAL REQUEST FOR ANALYSIS

TO BE FILLED OUT BY REQUESTOR

Requested by: Doug Draper Mail Station: Phone:

Product Code or Project No.: Q.C. No.: Requested ~~Completion~~ Date: 3/16/89

Type of Sample (or Service): Soil

Requestor Sample ID's: Bldg #34 - 1

Sample Disposition: ☐ Discard ☑ Return

If request is for product/material quality control, enter the specification drawing number. If not, enter none:

Analysis Desired, Comments: Gamma - (Uranium)

Anal. Sample ID's: H89-0307 (2030.50 m)

Results:

Nuclide	Concentration ± Precision (Pci/g)
Pb-210	0.120 ± 0.07
Pb-214	0.299 ± 0.005
Bi-214	0.236 ± 0.007
Ra-226	0.223 ± 0.006
Th-234	2.07 ± 0.027
Ra-223	0.042 ± 0.001
U-235	0.027 ± 0.001
Pa-234m	5.70 ± 0.270
Pb-212	0.092 ± 0.001
TL-208	0.039 ± 0.001
Ac-228	0.168 ± 0.001
K-40	4.10 ± 0.080

GAMMA SPECTROSCOPY

DISTRIBUTION:
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YELLOW COPY - DATA PROCESSING — GR. LEADER
PINK COPY - ANALYTICAL LOG BOOK
GOLDENROD COPY - REQUESTOR'S RECEIPT

MRC-ML-1527 (7-82)

Received by:

Analyzed by: Jack Y Jarvis 3/20/89

NUCLEAR OPERATIONS ANALYTICAL REQUEST FOR ANALYSIS

TO BE FILLED OUT BY REQUESTOR

Requested by: Doug Draper Mail Station: [ ] Phone: ____

Product Code or Project No.: ____ Q.C. No.: ____ ~~Requested~~ Completion Date: 3/16/89

Type of Sample (or Service): Soil

Requestor Sample ID's: Bldg 34 - #2

Sample Disposition: ☐ Discard ☒ Return

If request is for product/material quality control, enter the specification drawing number. If not, enter none:

Analysis Desired, Comments: Gamma - (Uranium)

Anal. Sample ID's: H89-0308 (1015.SPM)

Results: (Pci/g)

Nuclide	Concentration ± 1 sigma
Pb-214	0.199 ± 0.001
Bi-214	0.278 ± 0.001
Ra-226	0.234 ± 0.001
Th-234	2.54 ± 0.03
Ra-223	0.024 ± 0.001
U-235	0.035 ± 0.001
Pa-234m	10.6 ± 0.380
Pb-212	0.101 ± 0.001
Tl-208	0.057 ± 0.001
Ac-228	0.202 ± 0.001
Cs-137	0.010 ± 0.001

GAMMA SPECTROSCOPY

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MRC-ML-1527 (7-82)

Received by: ____

Analyzed by: Jack Y. Jarvis 3/20/89

NUCLEAR OPERATIONS ANALYTICAL REQUEST FOR ANALYSIS

TO BE FILLED OUT BY REQUESTOR

Requested by: Doug Draper Mail Station: ____ Phone: ____

Product Code or Project No.: ____ Q.C. No.: ____ Requested ~~Completion~~ Date: 3-16-84

Type of Sample (or Service): Soil

Requestor Sample ID's: Bldg 34 # 3

Sample Disposition: ☐ Discard ☒ Return

If request is for product/material quality control, enter the specification drawing number. If not, enter none:

Analysis Desired, Comments: Gamma (uranium)

Anal. Sample ID's: H89-0317 (2031.51m)

Results:

Nuclide	Concentration (Pci/g) ± 1 sigma
Pb-210	8.511 ± 0.009
Pb-214	0.170 ± 0.001
Th-234	1.47 ± 0.06
Pa-234m	33.5 ± 1.18
Pb-212	0.091 ± 0.006
Tl-208	0.035 ± 0.004
Ac-228	0.132 ± 0.014
K-40	3.20 ± 0.405

GAMMA SPECTROSCOPY

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Received by: ____

Analyzed by: Fred Y. Fario 3/2/89

NUCLEAR OPERATIONS ANALYTICAL REQUEST FOR ANALYSIS

TO BE FILLED OUT BY REQUESTOR

Requested by: Doug Draper Mail Station: ____ Phone: ____

Product Code or Project No.: ____ Q.C. No.: ____ Requested ~~Completion~~ Date: 3/16/89

Type of Sample (or Service): Soil

Requestor Sample ID's: Bldg 34 # 4

Sample Disposition: ☐ Discard ☒ Return

If request is for product/material quality control, enter the specification drawing number. If not, enter none:

Analysis Desired, Comments: Gamma (Uranium)

Anal. Sample ID's: H89-0320 (207.5Am)

Results:

Nuclide:	Concentration ± 1 sigma (Pci/g)
Pb-210	0.247 ± 0.028
Pb-214	0.300 ± 0.008
Th-234	0.479 ± 0.038
RA-223	0.043 ± 0.007
Pb-212	0.147 ± 0.007
TL-208	0.060 ± 0.005
AC-228	0.251 ± 0.016
BI-214	0.336 ± 0.011
K-40	6.02 ± 0.139
RA-226	0.318 ± 0.020

GAMMA SPECTROSCOPY

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Received by: ____

Analyzed by: Jack H. Davis 3/21/89

NUCLEAR OPERATIONS ANALYTICAL REQUEST FOR ANALYSIS

TO BE FILLED OUT BY REQUESTOR

Requested by: Doug Draper Mail Station: Phone:

Product Code or Project No.: Q.C. No.: Requested ~~Completion~~ Date: 3/16/89

Type of Sample (or Service): Soil

Requestor Sample ID's: Bldg 34 #5

Sample Disposition: ☐ Discard ☒ Return

If request is for product/material quality control, enter the specification drawing number. If not, enter none:

Analysis Desired, Comments: Gamma (Uranium)

Anal. Sample ID's: H89-0321 (2033 Sm)

Results:

Nuclide	Concentration (Bq/g) ± 1 Sigma
Pb-210	0.347 ± 0.106
Pb-214	0.317 ± 0.012
Th-234	1.19 ± 0.057
Pb-212	0.174 ± 0.011
Ac-228	0.218 ± 0.025
Bi-214	0.350 ± 0.016
K-40	6.54 ± 0.206
Ra-226	0.334 ± 0.023

GAMMA SPECTROSCOPY

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Received by: [illegible] 3/28/89

NUCLEAR OPERATIONS ANALYTICAL REQUEST FOR ANALYSIS

TO BE FILLED OUT BY REQUESTOR

Requested by: Doug Draper Mail Station: [ ] Phone: ____

Product Code or Project No.: ____ Q.C. No.: ____ Requested ~~Completion~~ Date: 3/16/84

Type of Sample (or Service): Soil

Requestor Sample ID's: Bldg 34 #6

Sample Disposition: ☐ Discard ☒ Return

If request is for product/material quality control, enter the specification drawing number. If not, enter none:

Analysis Desired, Comments: Gamma (Uranium)

Anal. Sample ID's: H89-0322 (1018.spa)

Results:

Nuclide	Concentration ± 1 Sigma (Ci/g)
Pb-214	0.108 ± 0.008
Th-234	6.77 ± 0.099
Pa-234m	25.0 ± 1.09
Pb-212	0.055 ± 0.005
Tl-208	0.032 ± 0.005
Ac-228	0.101 ± 0.018

GAMMA SPECTROSCOPY

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Received by: [illegible] 3/21/84

NUCLEAR OPERATIONS ANALYTICAL REQUEST FOR ANALYSIS

TO BE FILLED OUT BY REQUESTOR

Requested by: Doug Draper Mail Station: Phone:

Product Code or Project No.: Q.C. No.: Requested Completion Date: 3/16/89

Type of Sample (or Service): Soil

Requestor Sample ID's: Bldg 34 #7

Sample Disposition: ☐ Discard ☑ Return

If request is for product/material quality control, enter the specification drawing number. If not, enter none:

Analysis Desired, Comments: Gamma (Uranium)

Anal. Sample ID's: H89-0331 (1019.5 g)

Results:

Nuclide	Concentration (Pci/g) ± 1 sigma
Pb-214	0.179 ± 0.006
Th-234	1.14 ± 0.046
Pb-212	0.072 ± 0.003
Tl-208	0.042 ± 0.003
Ac-228	0.143 ± 0.014
Bi-214	0.251 ± 0.012
Ra-226	0.215 ± 0.051

GAMMA SPECTROSCOPY

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MRC-(AL-1527 (7-82)

Received by:

Analyzed by: Jack Y Jones 3/22/89

NUCLEAR OPERATIONS ANALYTICAL REQUEST FOR ANALYSIS

TO BE FILLED OUT BY REQUESTOR

Requested by: Doug Draper Mail Station: [ ] Phone: ____

Product Code or Project No.: ____ Q.C. No.: ____ Requested Completion Date: 3/16/89

Type of Sample (or Service): Soil

Requestor Sample ID's: Bldg 34 #8

Sample Disposition: ☐ Discard ☑ Return

If request is for product/material quality control, enter the specification drawing number. If not, enter none:

Analysis Desired, Comments: Gamma (uranium)

Anal. Sample ID's: H89-~~2034~~ 0232 (2034.5PM)

Results: Nuclide	Concentration (Pci/g) ± 1 sigma
Pb-210	0.127 ± 0.075
Pb-214	0.284 ± 0.008
Th-234	3.14 ± 0.042
Ra-223	0.065 ± 0.008
Pa-234m	11.5 ± 0.63
Pb-212	0.141 ± 0.008
TL-208	0.061 ± 0.005
Ac-228	0.235 ± 0.015
Bi-214	0.310 ± 0.011
Ra-226	0.297 ± 0.018
K-40	5.81 ± 0.14

GAMMA SPECTROSCOPY

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Received by: Arch H. Harris 3/22/89

NUCLEAR OPERATIONS ANALYTICAL REQUEST FOR ANALYSIS

TO BE FILLED OUT BY REQUESTOR

Requested by: Doug Draper Mail Station: ____ Phone: ____

Product Code or Project No.: ____ Q.C. No.: ____ Requested ~~Completion~~ Date: 3/16/89

Type of Sample (or Service): Soil

Requestor Sample ID's: Bldg 34 #9

Sample Disposition: ☐ Discard ☑ Return

If request is for product/material quality control, enter the specification drawing number. If not, enter none:

Analysis Desired, Comments: Gamma (Uranium)

Anal. Sample ID's: H89-0333 (1020.spm)

Results:

Nuclide	Concentration (Pci/g) ± 1 Sigma
Pb-214	0.143 ± 0.009
Th-234	1.49 ± 0.097
PA-234m	21.9 ± 1.25
Pb-212	0.082 ± 0.006
Tl-208	0.042 ± 0.006
AC-228	0.169 ± 0.021
Bi-214	0.186 ± 0.017
RA-226	0.164 ± 0.030

GAMMA SPECTROSCOPY

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Received by: ____

Approved by: Frank Y Jamin 3/22/8

NUCLEAR OPERATIONS ANALYTICAL REQUEST FOR ANALYSIS

Requested by Doug Draper Mail Station Phone

Product Code or Project No. Q.C. No. Requested Completion Date 3/16/89

Type of Sample (or Service) Soil

Requestor Sample ID's Bldg 34 #10

Sample Disposition ☐ Discard ☑ Return

If request is for product/material quality control, enter the specification drawing number. If not, enter none:

Analysis Desired, Comments Gamma (uranium)

TO BE FILLED OUT BY REQUESTOR

Anal. Sample ID's H89-0334 (2035.5GM) (Soil/g)

Results:

Nuclide	Concentration ± 1 sigma
Pb-210	0.567 ± 0.063
Pb-214	0.206 ± 0.007
Th-234	0.552 ± 0.030
Pb-212	0.111 ± 0.006
Tl-208	0.046 ± 0.004
Ac-228	0.151 ± 0.015
~~Gamma~~ 3/24/89	
K-40	5.21 ± 0.122

GAMMA SPECTROSCOPY

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Analyzed by Jack Y. Garner 3/22/89

ENVIRONMENTAL RESTORATION PROGRAM

OPERABLE UNIT 3 -- MISCELLANEOUS SITES
LIMITED FIELD INVESTIGATION REPORT
VOLUME I
SECTIONS 1-6

MOUND PLANT

MIAMISBURG, OHIO

July 1993

DEPARTMENT OF ENERGY

ENVIRONMENTAL RESTORATION PROGRAM

EG&G MOUND APPLIED TECHNOLOGIES

FINAL

(REVISION 0)

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

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

2.13. BUILDING 34 FIRE-FIGHTING TRAINING PITS

2.13.1. Site History

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

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

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

2.13.1.2. Potential Area Contaminants

Diesel fuel was used in the fire-fighting training pits to create demonstration fires. Approximately 300 gallons of diesel fuel were used at the training pits in 1987 at a rate of 3 to 5 gallons per demonstration. BTEX are minor components of diesel fuel. No known materials regulated under RCRA were stored or handled at the Building 34 sites.

The burning of solvents and oils at the fire-fighting training pits has not been documented. However, burning events involving solvents and oils can result in possible contamination involving dioxin/furans, and these compounds have been considered as potential area contaminants.

Information obtained in July 1991 indicated that the disposal of lithium was not conducted in Area C as described in the OU 3 Work Plan. Instead, disposal occurred in a swampy area at the present location of Building 34. Based upon this information, lithium analyses were included for all the samples collected at the fire-fighting training pits.

Recently obtained information has included the Building 34 fire-fighting training area as a possible site where a cleanup of depleted uranium has occurred. Based on the information concerning a cleanup of depleted uranium at the Building 34 area, surface and near surface soil samples and sediment samples were analyzed via gamma spectroscopy at IT Laboratories. The samples were analyzed by gamma spectroscopy to detect cesium-137; potassium-40; radium-224, -226, and -228; and thorium-234, a daughter of uranium-238. The analysis of thorium-234 was performed to detect any traces of depleted uranium.

Prior environmental soil gas samples have been collected near Building 34, one at Station 31 near the fire-fighting training pits, and at Station 30, which was near the former aviation fuel tank. The samples were collected as part of the Area B OU 1 Investigation. The samples were analyzed for TCE, 1,2-trans-dichloroethene, chloroethene, toluene, benzene, and ethylbenzene. At Station 30, toluene was found at 0.24 µg/L; and at Station 31, benzene and toluene were found at 0.07 µg/L and 0.14 µg/L, respectively.

2.13.2. Field Investigation Procedures

The objective of sampling at the Building 34 Fire-Fighting Training Pits was to assess whether the site is or has been a source of hazardous contaminant releases to the environment. The Building 34 Fire-Fighting Training Pit sampling activities were conducted by hollow stem auger drilling techniques using split spoon samplers and sediment sampling with stainless steel scoops. Subsurface soil samples were collected from four boreholes. In addition to the four soil borings drilled at the Building 34 Fire-Fighting Training Pits (boring numbers MND33-0110, -0111, -0112, and -0113), three additional soil borings were drilled next to

the southernmost pit. As detailed in a letter report dated 11 February 1992 (Mauzy 1992b), an oily product was detected on the water table at soil boring MND33-0112. This occurrence prompted the installation of three additional soil borings (numbers MND33-0119, -0120, and -0121) to delineate the extent of contamination. These soil borings were placed in the apparent downgradient direction for surface water and shallow groundwater flow. Soil samples for laboratory analyses were not collected from the three borings because field screening results were equal to or near background levels and oil was not detected in the soils. One surface water and duplicate and one sediment sample were collected from the fire-fighting training pits. Sample locations are shown in Figure 2.13. Soil sample collection at the Building 34 Fire-Fighting Training Pits was conducted by WESTON representatives on 21, 22, and 27 January 1992. Sampling of the surface water and sediment was completed by WESTON personnel on 15 and 20 February 1992. Samples were shipped to IT Laboratories for analysis.

Soil, sediment, and surface water sampling for analyses of dioxin/furans was conducted at the Building 34 Fire-Fighting Training Pits as requested by U.S. EPA during review of Revision 2 of the OU 3 LFI Work Plan. The analyses of dioxin/furans was requested at sites where the burning of solvents and oils may have occurred. Dioxin/furan analyses was performed on all surface and subsurface soil samples, the sediment sample collected from the fire-fighting training pits, and the surface water sample collected from within the fire-fighting training pit. All samples collected at the Building 34 Fire-Fighting Training Pits were analyzed for dioxin/furan congener totals (tetra-octa) and for all 2,3,7,8- substituted isomers of dioxin/furans. All detections of 2,3,7,8- substituted isomers on the primary analytical column were subjected to secondary column confirmation, except for octa isomers of dioxin/furans.

Based on recently obtained information concerning a cleanup of depleted uranium at the Building 34 area, surface and near surface soils and sediment samples were analyzed via gamma spectroscopy. The samples were analyzed for cesium-137; potassium-40; radium-224, -226, and -228, and thorium-234, a daughter of uranium-238. A sample summary table including the sample identification number, sampling interval, date sampled, and the analytical parameters requested is presented in Table II.13.

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

- MND33-0110-0001 — Interval 0.0 to 2.0 ft BGS. Three 0.0- to 2.0-ft split spoon samples were necessary to obtain the required sample volume for this sample.
- MND33-0110-0002 — Interval 3.0 to 7.0 ft BGS. Additional sample from the 5.0- to 7.0-ft split spoon sample was necessary to obtain the required sample volume.

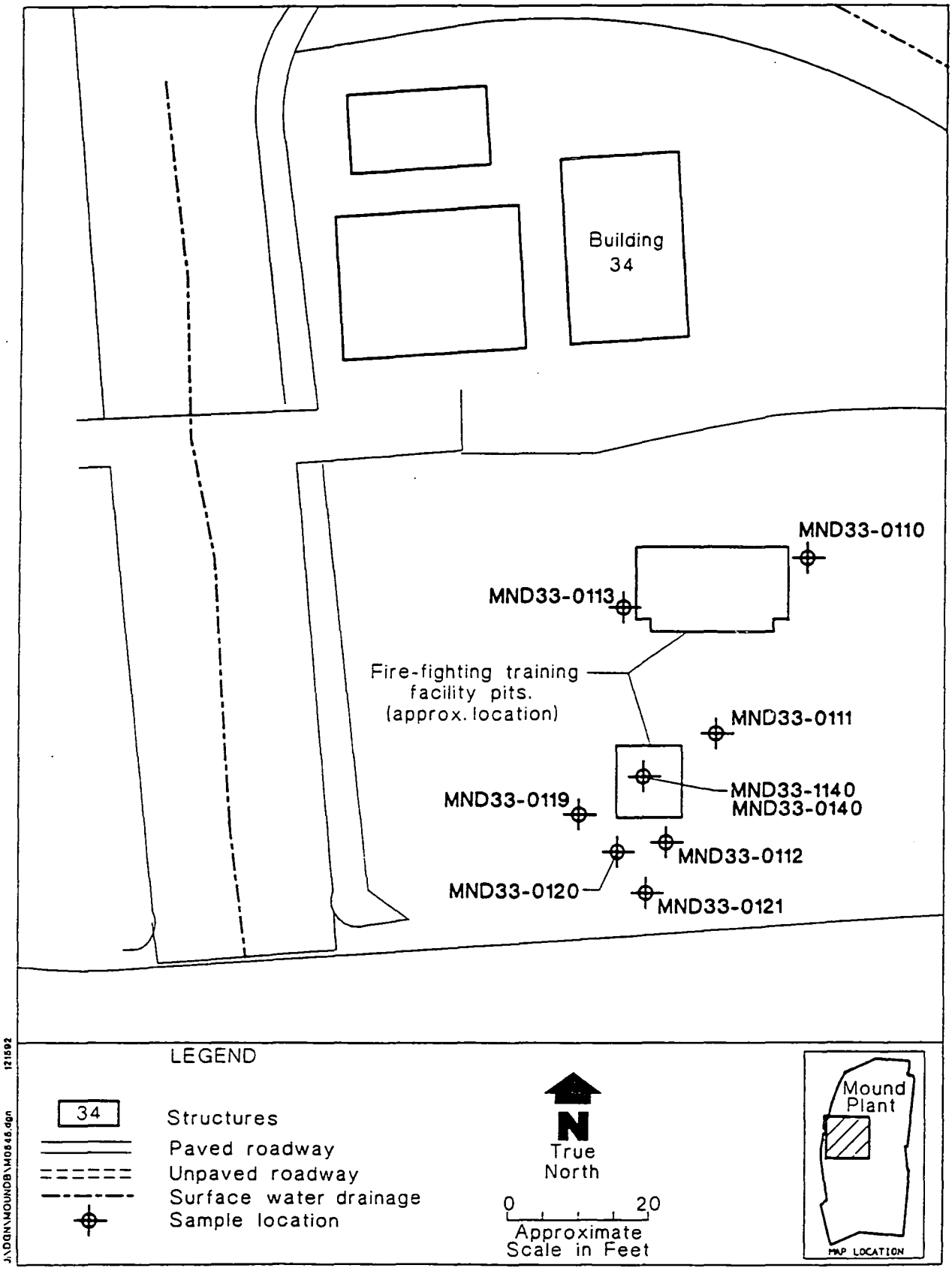

Figure 2.13. Building 34 Fire Fighting Training Pits soil sample locations.

Table II.13. Building 34 Fire-Fi..ng 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	2/15/92	---	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

- MND33-0111-0001 — Interval 0.0 to 2.0 ft BGS. Two 0.0- to 2.0-ft BGS split spoon samples were necessary to obtain required sample volume.
- MND33-0112-0001 — Interval 0.0 to 2.0 ft BGS. Two 0.0- to 2.0-ft BGS split spoon samples were necessary to obtain required sample volume.
- MND33-0112-0002 — Interval 3.0 to 7.0 ft BGS. Additional sample from the 5.0- to 7.0-ft BGS interval split spoon was necessary to obtain the required sample volume.
- MND33-0112-0003 — An oil-like substance was discovered in the 8.0- to 10.0-ft BGS and the 10.0- to 12.0- ft BGS interval split spoon samples. Because of this observation, the boring was discontinued at 12.0 ft BGS.
- MND33-0113-0001 — Interval 0.0 to 2.0 ft BGS. Three 0.0- to 2.0-ft BGS split spoon samples were necessary to obtain the required sample volume.
- MND33-0113-0006 — Interval 17.0 to 20.0 ft BGS. Split spoon samples from the 17.0- to 19.0-ft and 19.0- to 20.0-ft BGS intervals were necessary to obtain required sample volume.

Surface soil sampling intervals (0.0 to 2.0 ft BGS) were collected for soil analysis at the four borings completed at the Building 34 Fire-Fighting Training Pits because of the occurrence of surface staining in each area sampled.

2.14. BUILDING 34 HISTORICAL FIRE-FIGHTING TRAINING PIT

2.14.1. Site History

2.14.1.1. Description of the Building 34 Historical Fire-Fighting Training Pit

While sampling was in progress at the Building 34 Oil Burn Structure, information became available that documented the presence of an additional, historical fire-fighting training pit in the vicinity of Building 34 between the oil burn structure and the Plant drainage ditch (Mauzy 1992a). The Building 34 Historical Fire-Fighting Training Pit is located approximately 25 ft northwest of the oil burn structure (as shown in Figure 2.12(a)) and is approximately 15 ft by 10 ft.

2.14.1.2. Potential Area Contaminants

Diesel fuel was reportedly used in the historical fire-fighting training pit to create demonstration fires. No known materials regulated under RCRA were stored or handled at the historical fire-fighting training pit. The burning of solvents and oils at the historical fire-fighting training pit has not been documented. However,

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: 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
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 validato

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 Typ
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 qualifiec
from data validation, but were accepted by data validatc

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

Gamma Spectroscopy

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
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 validato.

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

Gamma Spectroscopy

General Chemistry

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	Ru Ty
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 qualifie
from data validation, but were accepted by data validat

General Chemistry

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 Typ
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 validator.

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 Typ
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

Gamma Spectroscopy

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
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)
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 qualifie
from data validation, but were accepted by data validat.

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 Typ
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 qualifie
from data validation, but were accepted by data validat

General Chemistry

Gamma Spectroscopy

TABLE III.17
BUILDING 34 FIRE-FIGHTING TRAINING PIT
Location: MWD33-0140
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 qualifi
from data validation, but were accepted by data valida

General Chemistry

TABLE III.17
BUILDING 34 FIRE-FIGHTING TRAINING PIT
Location: MWD33-0140
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	Ru Ty
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

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 Typ
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

Document Control No. _____

Environmental Restoration Program

Operable Unit 9 Hydrogeologic Investigation: Groundwater Sweeps Report

MOUND PLANT
MIAMISBURG, OHIO

April 1995

Technical Memorandum
(Revision 1)

U.S. Department of Energy
Ohio Field Office

EG&G Mound Applied Technologies

3. Analytical Results

Table III.2. (page 7 of 9)

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

Notes:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PRELIMINARY REVIEW/VISUAL SITE INSPECTION FOR RCRA FACILITY OF MOUND PLANT

JULY 1988

PRELIMINARY REVIEW/VISUAL SITE INSPECTION

U.S. DOE MOUND
Miamisburg, Ohio

EPA I.D. OH6899008984

PREPARED FOR

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION V
230 SOUTH DEARBORN STREET
CHICAGO, IL 60604

PREPARED BY

A. T. KEARNEY, INC.
225 REINEKERS LANE
ALEXANDRIA, VA 22313

AND

DPRA, INC.
245 EAST 6TH STREET
SUITE 813
ST. PAUL, MN 55101

EPA CONTRACT NUMBER 68-01-7374

WORK ASSIGNMENT NUMBER R25-01-21

JULY 1988

result of the subsequent VSI, additional units were identified and some units were deleted.

During the completion of the PR/VSI report, 86 SWMUs were identified. The following units were identified as SWMUs. The SWMUs and their regulatory and operational status is provided below.

	Regulatory Status	Active or Inactive
LANDFILLS		
LF-1 - Lined Landfill	RCRA/CERCLA	Inactive
LF-2 - Past Landfill	CERCLA	Inactive
LF-3 - Spoils Disposal Area	Not Regulated	Inactive
LF-4 - Dredged Material Disposal Area	Not Regulated	Inactive
LF-5 - South Property Dump	Not Regulated	Inactive
SURFACE IMPOUNDMENTS		
SI-1 - Retention Basins	NPDES*	Active
SI-2 - Overflow Pond	NPDES*	Active
SI-3 - Asphalt-Lined Pond	NPDES*	Inactive
SI-4 - Building 1 Leach Pit	NPDES*	Inactive
SI-5 - Building 27 Leach Pit	NPDES*	Inactive
SI-6 - Hillside Catch Basin	NPDES*	Active
CONTAINER STORAGE AREAS		
CS-1 - Scintillation Vial Storage Area	Not Regulated	Active
CS-2 - Building E Solvent Storage Shed	Not Regulated	Inactive†
CS-3 - Building 28 Solvent Storage Area	Not Regulated	Active
CS-4 - DS Building Solvent Storage Shed	Not Regulated	Active
CS-5 - Building B Solvent Storage Shed	Not Regulated	Active
CS-6 - Waste Oil Drumfield	Not Regulated	Inactive
CS-7 - Hazardous Waste Storage Area	RCRA	Active
CS-8 - Past Hazardous Waste Storage Area	RCRA	Inactive†
CS-9 - Rad./Mixed Waste Storage Area	RCRA	Active
CS-10 - Old Firing Range Drum Storage Area	Not Regulated	Inactive
CS-11 - Drilling Mud Drum Storage Area	Not Regulated	Active
CS-12 - Bldg. 27 Solvent Storage Area	Not Regulated	Active
CS-13 - Outdoor Hazardous Waste Storage Area	Not Regulated	Active
CS-14 - Empty Drum Storage Area	Not Regulated	Active
CS-15 - Bldg. B Temporary Drum Storage Area	Not Reg[illegible]	[illegible]

REGFILED

WD BUILDING WASTEWATER TREATMENT		
WD-1 - Alpha Wastewater Influent Tanks	NPDES*	Active
WD-2 - Alpha Wastewater Treatment System	NPDES*	Active
WD-3 - Beta Wastewater Treatment System	NPDES*	Active
SANITARY WASTEWATER TREATMENT SYSTEM		
SD-1 - Grit Chamber	NPDES*	Active
SD-2 - Grit Conveyor	NPDES*	Active
SD-3 - Comminutor	NPDES*	Active
SD-4 - Equalization Basins	NPDES*	Active
SD-5 - Aeration Basins	NPDES*	Active
SD-6 - Clarifiers	NPDES*	Active
SD-7 - Sand Filters	NPDES*	Active
SD-8 - Chlorine Contact Chambers	NPDES*	Active
SD-9 - Sludge Drying Beds	NPDES*	Active
SD-10 - Underground Sewer Lines	NPDES*	Active
SD-11 - Old Sanitary Wastewater Treatment Plant	Not Regulated	Inactive
SUMPS		
SU-1 - Glass Melter Room Sump	Not Regulated	Active
SU-2 - Building 1 Sump	Not Regulated	Inactive
SU-3 - Building 27 Sump	Not Regulated	Inactive
MISCELLANEOUS UNITS		
MI-1 - Plant Drainage Ditch	NPDES*	Active
MI-2 - Waste Disposal Pipeline	Not Regulated	Inactive
MI-3 - Oil Burn Structure	Not Regulated	Inactive
MI-4 - Waste Transport Vehicles	Not Regulated	Active
MI-5 - Fire Fighting Training Facility	RCRA	Active
MI-6 - Lithium Carbonate Disposal Area	Not Regulated	Inactive
	Regulatory Status	Active or Inactive
MI-9 - Glass Melter Feed Drum	Not Regulated	Active
MI-10 - Trash Dumpsters	Not Regulated	Active
MI-11 - Acid Leach Field	Not Regulated	Inactive
MI-12 - Vapor Degreaser	Not Regulated	Active
MI-13 - Monitoring Well 34-1	Not Regulated	Active
MI-14 - Building 27 Concrete Flume	Not Reg	

FF - SM/PP Hill-5	Not Regulated	-
GG - SM/PP Hill-6	Not Regulated	-
HH - Valley-4	Not Regulated	-
II - SM/PP Hill-7	Not Regulated	-
JJ - SM/PP Hill-8	Not Regulated	-
KK - Valley-6	Not Regulated	-
LL - SM/PP Hill-10	Not Regulated	

Based on a review of information available for this site, the following general conclusions can be made:

- o Release of hazardous wastes or hazardous constituents have occurred from:

  - Building 1 Leach Pit (SWMU SI-4)
  - Building 27 Leach Pit (SWMU SI-5)
  - Building E Solvent Storage Shed (SWMU CS-2)
  - Waste Oil Drum Field (SWMU CS-6)
  - Pyrotechnic Waste Disposal Area (SWMU OB-8)
  - Waste Disposal Pipeline (SWMU MI-2)
  - Fire Fighting Training Facility (SWMU MI-5)
  - Lithium Carbonate Disposal Area (SWMU MI-6)
  - Chromium Trench (SWMU MI-7)
  - Acid Leach Field (SWMU MI-11)
  - Monitoring Well 34-1 (SWMU MI-13)

- o Soil/groundwater, and surface water sampling should be conducted at several SWMUs, in conjunction with the continuing DOE Environmental Survey or as part of a RCRA Feasibility Investigation (RFI). These suggested further actions are described in Section VII.

IV. RELEASE PATHWAYS

A. Soil/Groundwater

Soils at the Mound facility are comprised of fine-grained glacial till materials and thin-bedded limestones and slates. Near-surface soil permeabilities range from 0.2 to 2.0 inches per hour. The uppermost groundwater occurs within the Buried Valley Aquifer which ranges up to 60 feet below the ground surface at the DOE facility. Because of the variability of stratigraphic conditions throughout the site and the relatively low near-surface permeabilities, a potential for release of hazardous constituents to soil and groundwater exists at the DOE facility. Releases were observed and a moderate to high potential for release to soil and groundwater was documented at the following SWMUs:

- Past Landfill (SWMU LF-2)
- Dredged Material Disposal Area (SWMU LF-4)
- South Property Dump (SWMU LF-5)
- Retention Basins (SWMU SI-1)
- Overflow Pond (SWMU SI-2)
- Asphalt-Lined Pond (SWMU SI-3)
- Building 1 Leach Pit (SWMU SI-4)
- Building 27 Leach Pit (SWMU SI-5)
- Hillside Catch Basin (SWMU SI-6)
- Building E Solvent Storage Area (SWMU CS-2)
- Waste Oil Drumfield (SWMU CS-6)
- Old Firing Range Drum Storage Area (SWMU CS-10)
- Cooling Tower Drum Storage Area (SWMU CS-16)
- WD Building Drum Staging Area (SWMU CS-18)
- Waste Solvent Incinerator (SWMU IN-3)
- Waste Solvent Incinerator Scrubber (SWMU AP-10)
- Trash Burner (SWMU OB-1)
- Thermal Treatment Unit (SWMU OB-2)
- Pyrotechnic Waste Disposal Area (SWMU OB-8)
- Alpha Wastewater Influent Tanks (SWMU WD-1)
- Sludge Drying Beds (SWMU SD-9)
- Underground Sewer Lines (SWMU SD-10)
- Plant Drainage Ditch (SWMU MI-1)
- Waste Disposal Pipeline (SWMU MI-2)
- Oil Burn Structure (SWMU MI-3)
- Fire Fighting Training Facility (SWMU MI-5)

Unit No.: MI-5

Unit Name: Fire Fighting Training Facility

Unit Description: The Fire Fighting Training Facility is located just east of the Oil Burn Structure (SWMU MI-3). It consists of two concrete pads, one approximately ten feet on a side and the other, approximately 10 feet wide and 20 feet long. Both pads have 12-inch high concrete curbs. During the VSI, the smaller pad contained a black residue and rainwater. Black stains were also observed on the soil outside the pad. There was no liquid in the larger pad but a black residue was observed. Gasoline fires were created in these pads for demonstration purposes. Three to five gallons of diesel fuel was used to create the fires and water from a nearby hydrant was used to extinguish the fires (Ref. 84). The unit is permitted by the Regional Air Pollution Control Authority (Ref. 44).

Date of Start-up: Unknown.

Date of Closure: The facility has not been used since 1987 (Ref. 84).

Wastes Managed: Diesel fuel was ignited in this area to create demonstration fires. Approximately 300 gallons of fuel was used in 1987 (Ref. 84). An analysis of the black residue in the pads and on the soil for hazardous constituents was not available.

Release Controls: The fires were created on two concrete pads. There was no control of emissions or water used to extinguish the fires at the unit. No other release controls were observed during the VSI. The unit is permitted by the Regional Air Pollution Control Authority (Ref. 44).

History of Releases: There was a black liquid observed inside the pad and a black residue on the soil in this area during the VSI. An analysis of the soil, black residue or liquid inside the pad for hazardous constituents was not available.

Conclusions: Soil/Groundwater: Releases were observed on the soil around the unit during the VSI. There is a high potential for contaminants in the soil to

reach underlying groundwater.

Surface Water:	Due to the proximity of the unit to the Plant Drainage Ditch, Retention Ponds and Overflow Ponds, the potential for release of soil contaminants to surface water via rainfall runoff is high.
Air:	Past releases to the air were regulated by the Regional Air Pollution Control Authority. The ongoing release potential is low since volatile constituents would have been discharged during combustion.
Subsurface Gas:	There is a moderate to high potential for generation of subsurface gas since diesel fuel was used at the site. Stains were noted near the pad indicating that infiltration of wastes into the soil has already occurred.

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. BWSC	Co. EG&G
Dept.	Phone #
Fax # 438-0379	Fax #

Mound

From :Gordon S. Horn
HORN
Dept. :
Tel. No :513/825-3440
Date :06-Feb-1996 12:09pm EST
Subject :FFTA Training Pits

TO :GARY L. COONS (COONGL)

The data you are looking for is included in Appendix C4. There seems to be a little confusion on our part as to whether its Training Pit #1 or #2. I assume the info you are looking for concerns the training pit closest to the building where we only removed the concrete pit and no soi The samples from this pit are numbered TP 17, TP 18, MND55-0017-0008, MND55-0018-0008,1008,3008, and 4008. 1008 is a duplicate, 3008 is a soil MS/MSD, and 4008 is a rinsate/field blank. The info in AppendiC4 shows TPH values. We had run BTEX but they were not included in the data set. I'll look for them and we can include it in the final as 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: EG & 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	90.8	%	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 #: 9501L590

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	MND55-0007-0005	% Solids	90.4	%	0.10	1.0
		Petroleum Hydrocarbons	24.2	MG/KG	3.7	1.0
-002	MND55-0017-0008	% Solids	89.1	%	0.10	1.0
		Petroleum Hydrocarbons	20.2	MG/KG	3.7	1.0
-003	MND55-0018-0008	% Solids	89.3	%	0.10	1.0
		Petroleum Hydrocarbons	4.1	MG/KG	3.7	1.0
-004	MND55-0018-1008	% Solids	90.1	%	0.10	1.0
		Petroleum Hydrocarbons	6.8	MG/KG	3.7	1.0
-005	MND55-0018-3008	% Solids	89.7	%	0.10	1.0
		Petroleum Hydrocarbons	5.2	MG/KG	3.7	1.0
106	MND55-0018-4008	Petroleum Hydrocarbons	1.1 u	MG/L	1.1	1.0

General Chemistry

WILDWOOD

SHEET 1 OF 1

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

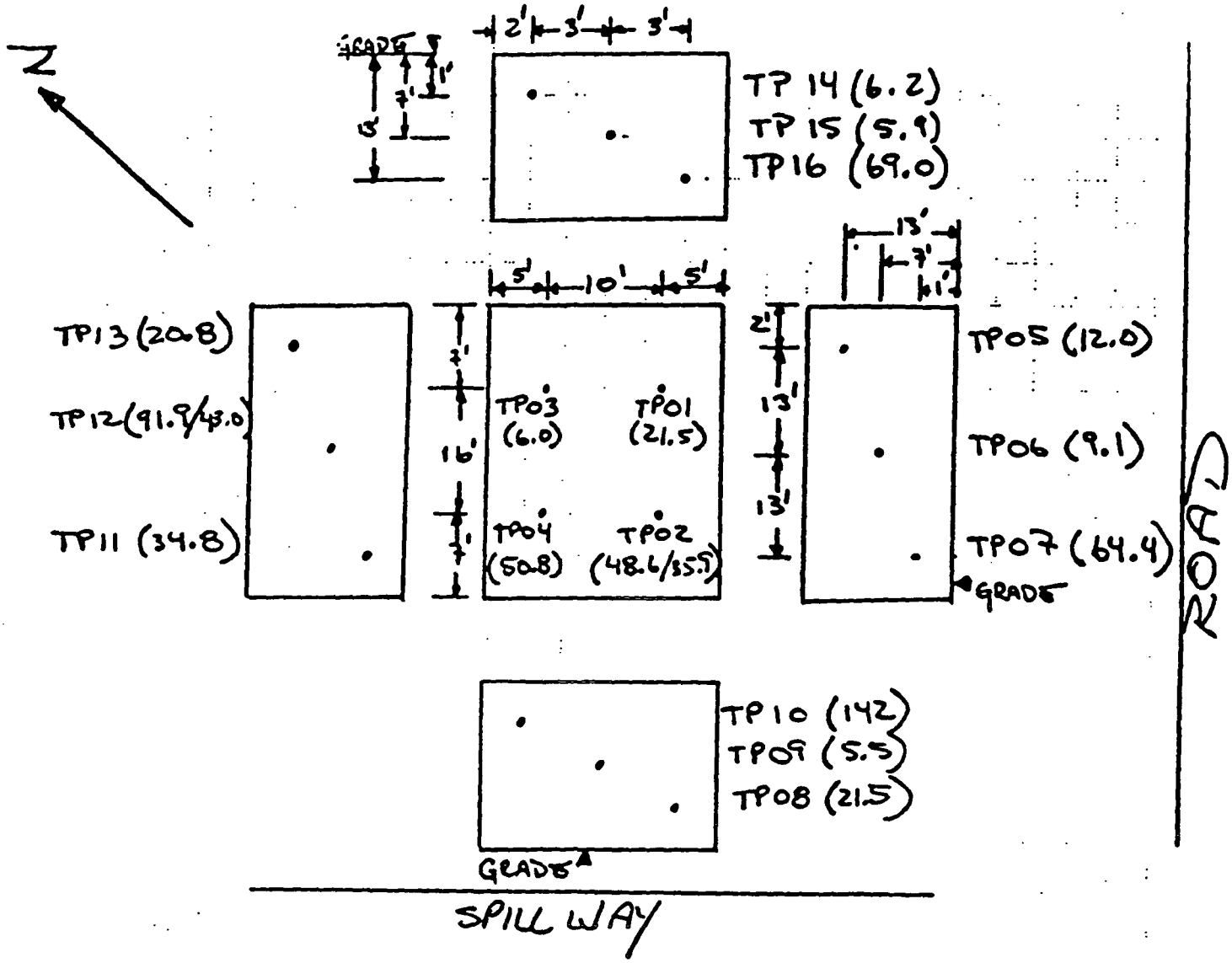
TASK DESCRIPTION CLOSURE SAMPLING RESULTS TASK NO. 0400

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

Table I. Pit Closure

Date	Sample ID	ug/Kg B	T	E	X	mg/Kg TPH	% Solids
08/04/94	MND55-TP01-0014	6u	6u	6u	6u	21.5	92.5
	MND55-TP02-0014	6u	6u	6u	6u	48.6	88.0
	MDN55-TP02-1014	6u	6u	6u	6u	35.9	85.3
	MND55-TP03-0014	5u	5u	5u	5u	6.0	90.4
	MND55-TP04-0014	6u	6u	6u	6u	50.8	86.1
	MND55-TP05-0013	6u	6u	6u	6u	12.0	91.9
	MND55-TP06-0007	6u	6u	6u	6u	9.1	90.4
08/08/94	MND55-TP07-0001	6u	6u	6u	6u	64.4	93.3
	MND55-TP08-0001	5u	5u	5u	5u	21.5	91.4
	MND55-TP09-0007	6u	6u	6u	6u	5.5	88.8
	MND55-TP10-0013	6u	6u	6u	6u	142	95.9
	MND55-TP11-0013	6u	6u	6u	6u	34.8	93.2
	MND55-TP12-0007	6u	6u	6u	6u	91.9	91.1
	MND55-TP12-1007	6u	6u	6u	6u	43.0	91.8
	MND55-TP13-0001	6u	6u	6u	6u	20.8	89.7
	MND55-TP14-0001	6u	6u	6u	6u	6.2	90.1
	MND55-TP15-0007	6u	6u	6u	6u	5.9	88.5
	MND55-TP16-0013	6u	6u	6u	6u	69.0	88.0

Pit Closure

Pit Closure data defines the level of BTEX and TPH contamination in soil samples taken from the walls and floor of the post-excavation training pit. The "u" which appears in the data indicates that the contaminant listed is in concentrations below the adjoining detection limit. All BTEX concentrations were below detection limits. Any TPH values below the maximum closure concentration limit of 40 ppm (mg/kg) indicates "clean" soil requiring no further excavation. Attached is a sketch of walls and floor of the excavation which identifies the locations of soil samples taken for analysis.

B-Benzene
T-Toluene
E-Ethyl Benzene
X-Xylene
TPH-Total Petroleum Hydrocarbons
% - percent

General Chemistry

FFTA Closure Sampling Soil Mound Screening Results

SAMPLE_NO	GROSS88KEV	GROSS17KEV	KEV_17	KEV_88	GRID_LOC	COL_DATE	SAMPLER
94063388	1149	594	17	1.4	FFTA WESTON TP 06	8/4/94	J. TACKETT 5983
94063389	679	457	6	0.7	FFTA WESTON TP 07	8/4/94	J. TACKETT 5983
94063390	832	375	9	1.0	FFTA WESTON TP 12	8/4/94	J. TACKETT 5983
94063391	889	492	8	0.9	FFTA WESTON TP 13	8/4/94	J. TACKETT 5983
94063392	725	332	3	0.8	FFTA WESTON TP 14	8/4/94	J. TACKETT 5983
94063393	894	528	13	1.2	FFTA WESTON TP 11	8/4/94	J. TACKETT 5983
94063394	847	355	3	1.0	FFTA WESTON SS 02	8/4/94	J. TACKETT 5983
94063395	913	485	2	1.2	FFTA WESTON SS 01	8/4/94	J. TACKETT 5983
94063396	1032	493	2	1.2	FFTA WESTON TP 05	8/4/94	J. TACKETT 5983
94063397	1002	527	10	1.1	FFTA WESTON SS 03	8/4/94	J. TACKETT 5983
94063398	1082	547	11	1.3	FFTA WESTON TP 04	8/4/94	J. TACKETT 5983
94063399	853	520	13	1.1	FFTA WESTON TP 01	8/4/94	J. TACKETT 5983
94063400	820	336	0	1.0	FFTA WESTON TP 08	8/4/94	J. TACKETT 5983
94063401	856	368	6	1.0	FFTA WESTON TP 16	8/4/94	J. TACKETT 5983
94063402	900	506	10	1.0	FFTA WESTON TP 14	8/4/94	J. TACKETT 5983
94063403	840	477	4	1.0	FFTA WESTON TP 15	8/4/94	J. TACKETT 5983
94063404	913	401	11	1.2	FFTA WESTON TP 10	8/4/94	J. TACKETT 5983
94063405	1037	491	2	1.2	FFTA WESTON TP 09	8/4/94	J. TACKETT 5983
94063406	1055	569	14	1.5	FFTA WESTON TP 02	8/4/94	J. TACKETT 5983
94063407	978	498	2	1.3	FFTA WESTON TP 03	8/4/94	J. TACKETT 5983