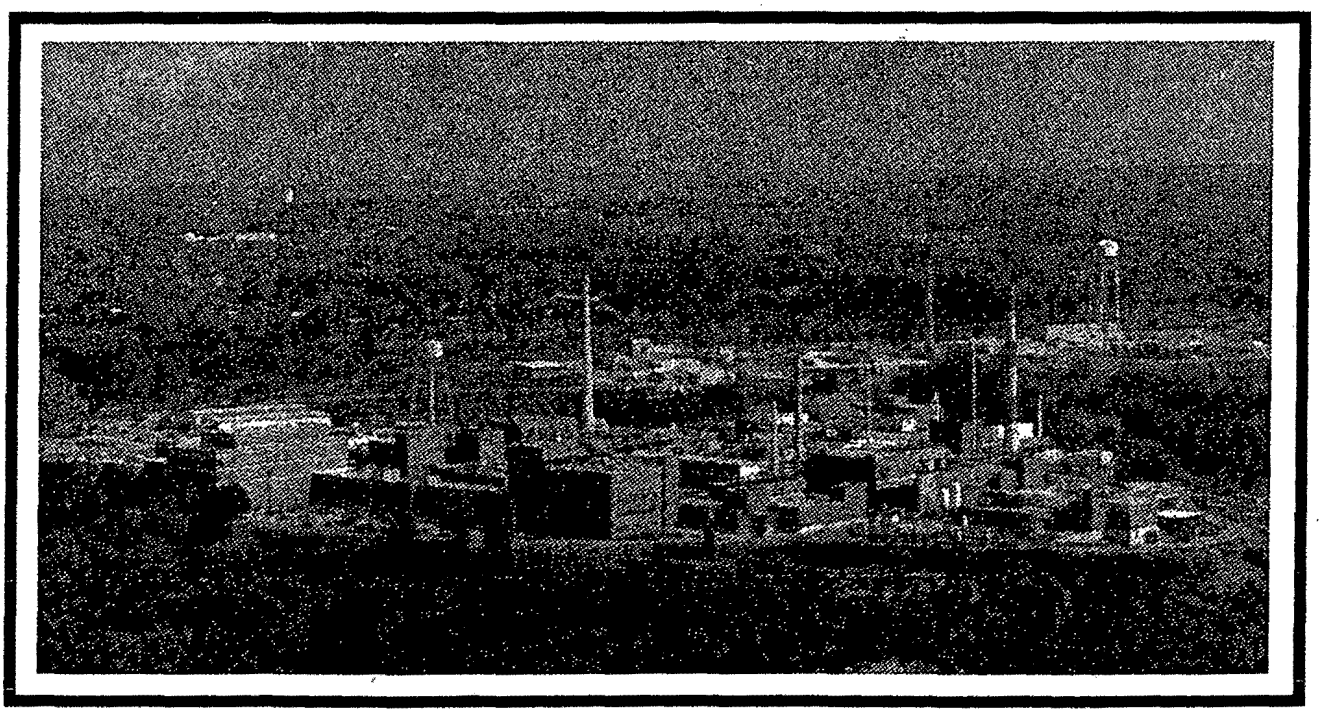
EG&G MOUND-30-03-04-02--9703050048

MOUND

Environmental
Restoration
Program

MOUND PLANT
Potential Release Site Package
PRS # 82



MOUND

Environmental Restoration Program

MOUND PLANT POTENTIAL RELEASE SITE PACKAGE

Notice of Public Review Period

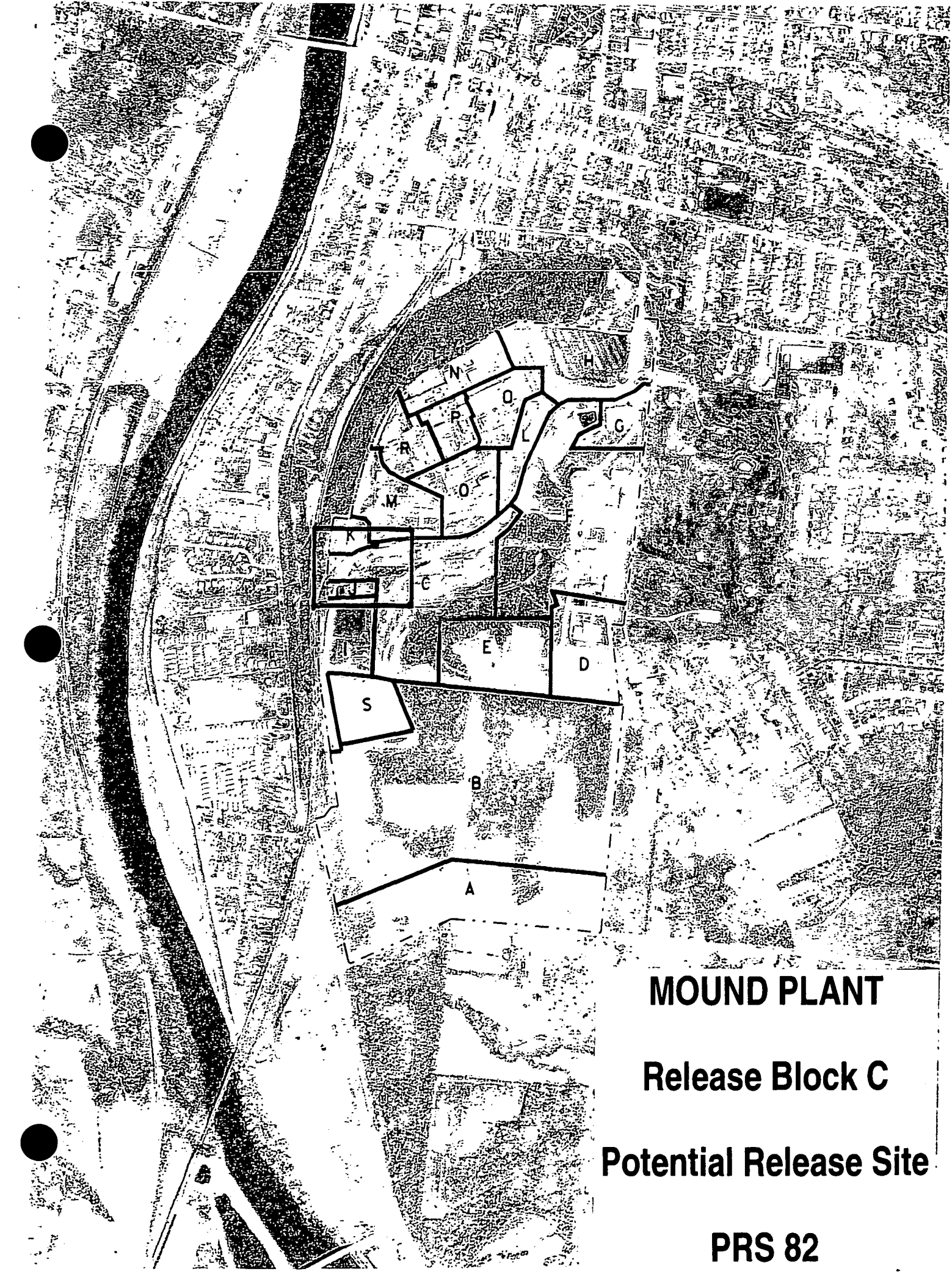
OhioEPA

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

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

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

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

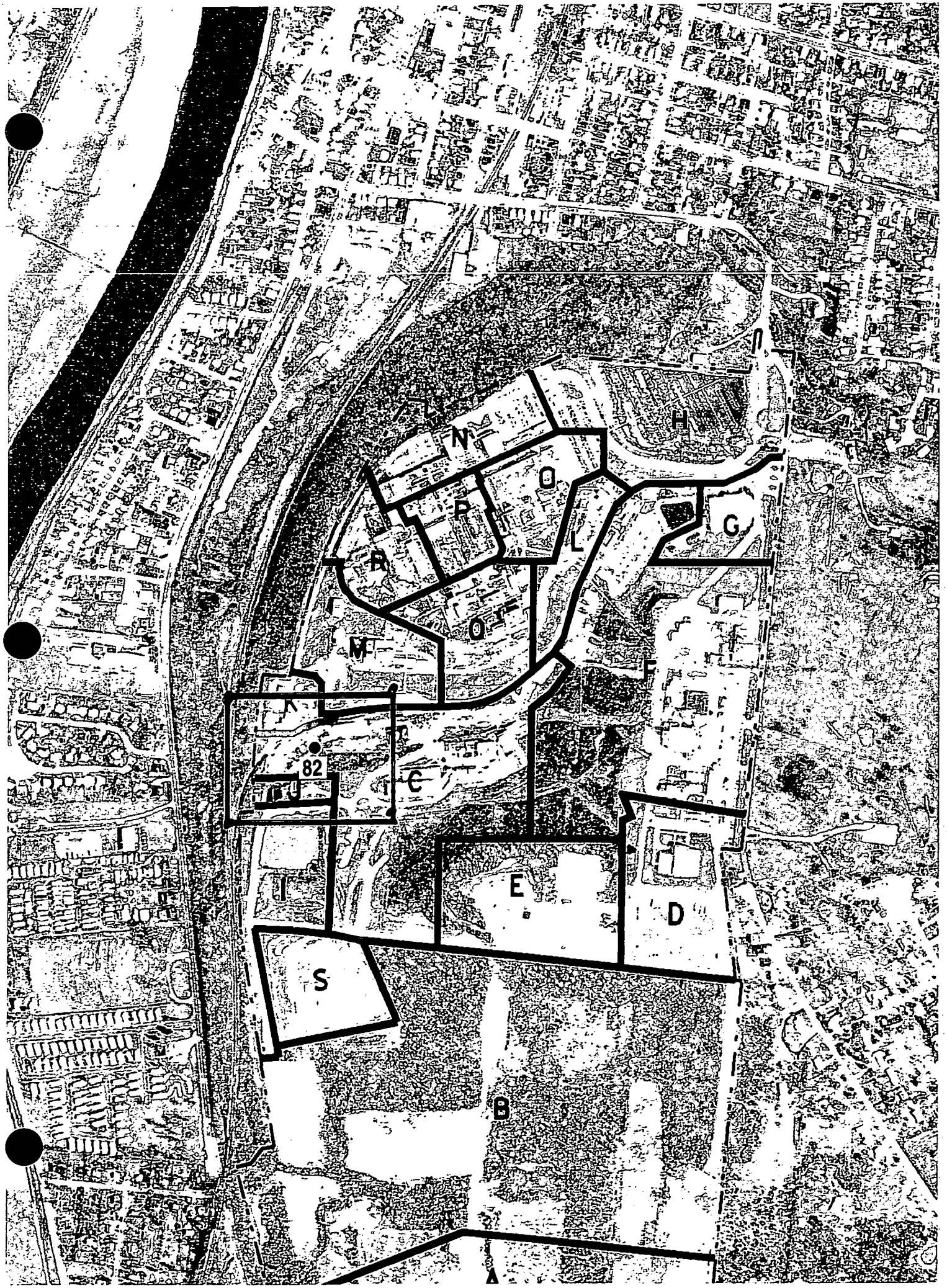


MOUND PLANT

Release Block C

Potential Release Site

PRS 82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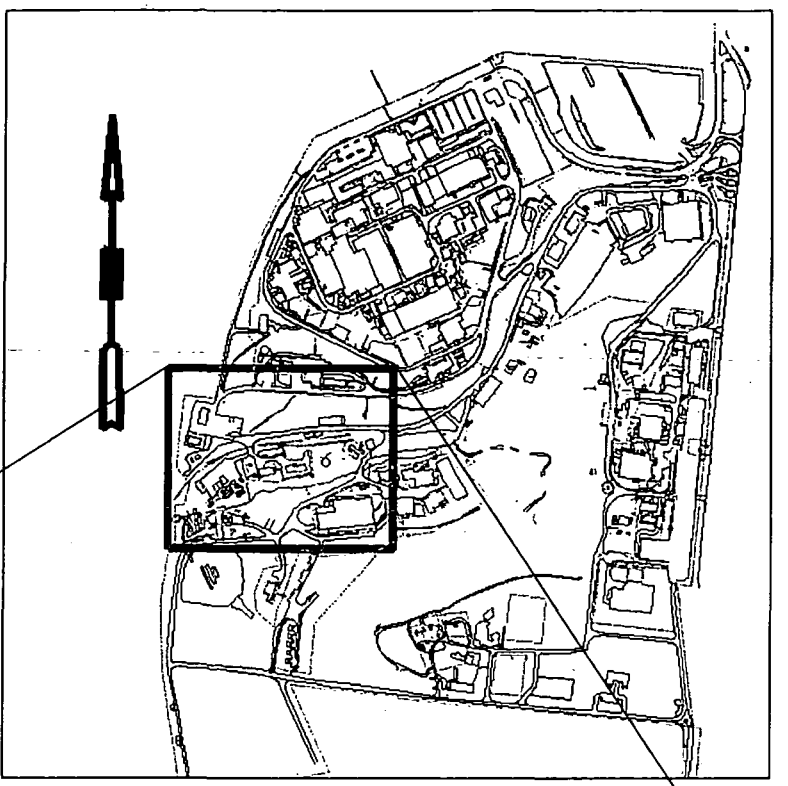
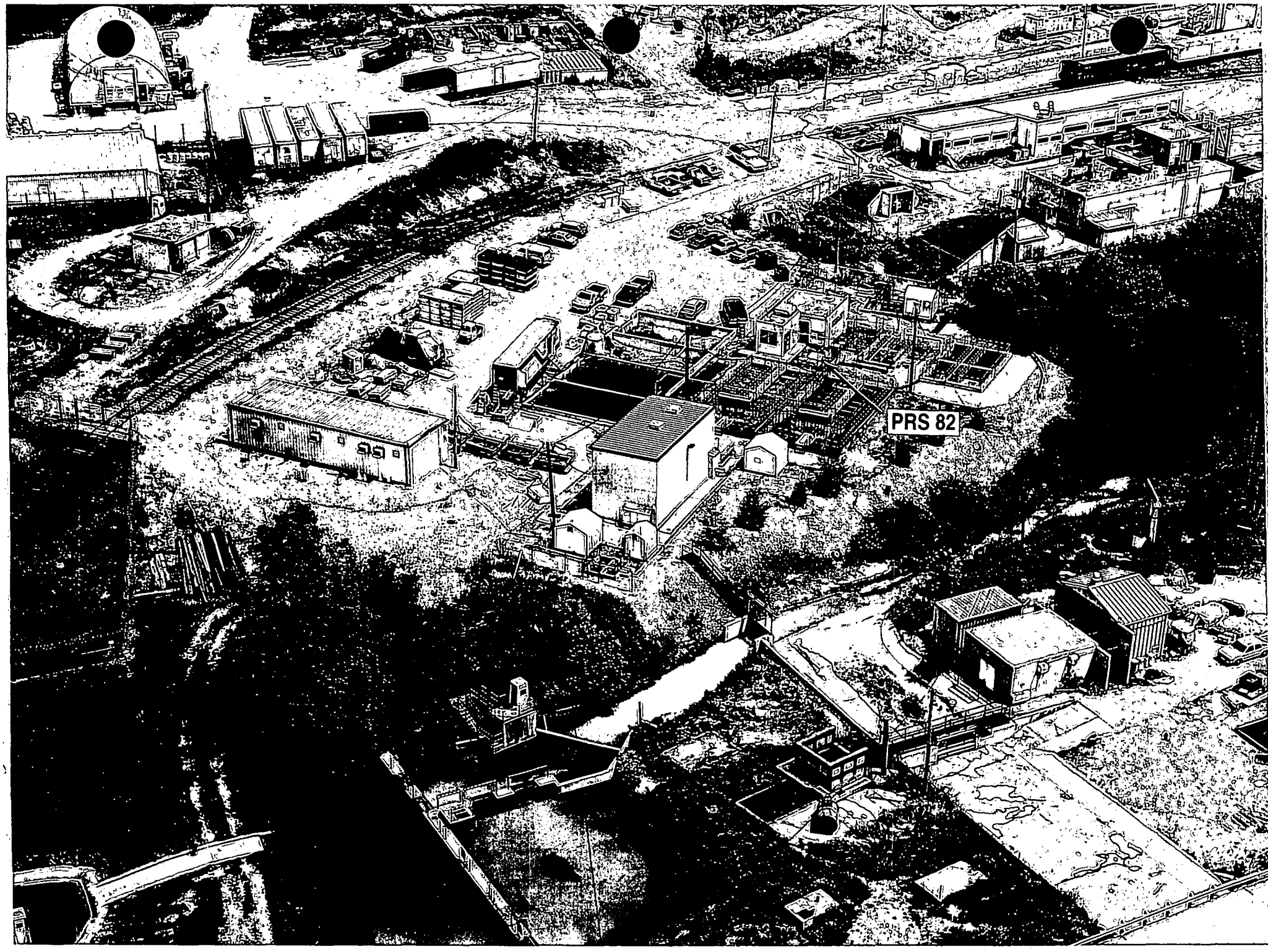
Mound Plant

Release Block C

Potential Release Site

PRS 82




PRS 82

PRS 82

PRS HISTORY:

PRS 82 was the underground storage tank #118 as identified in the Active Underground Storage Tank Plan, November 1994.[2] This six foot diameter spherical fiberglass reinforced plastic tank stored 850 gallons of diesel fuel used to start an emergency generator near Building 57 in the Sanitary Sewage Disposal Plant. It was installed in 1974 and was in service until it was removed on May 10, 1995. The tank was removed in accordance with the American Petroleum Institute recommended practice 1604, Removal and Disposal of Used Underground Petroleum Storage Tanks.[1,2] PRS 82 is located in an area once used to repackage and store drums of corrosive thorium sludges (Ref. PRS 41).

CONTAMINATION:

1) During the removal of the tank, approximately 10 cubic yards of soil/backfill was stockpiled. One sample was taken from the stockpile and analyzed. The results indicated levels of total petroleum hydrocarbons at 271 mg/kg. Benzene, ethyl benzene, xylenes and polynuclear aromatic hydrocarbons were below laboratory reporting limits. Toluene was detected at 0.0011 mg/kg which was below the established Bureau of Underground Storage Tank Regulation (BUSTR) guideline of 4.0 mg/kg. The excavated material was relocated to the Mound Bioremediation Facility for further treatment. A small amount of soil (approximately 0.25 cubic yards) was contaminated with spilled fuel oil. This soil along with decon water, personal protection equipment and absorbent was drummed and shipped off-site by EG&G Waste Management for final disposition.[5]

   After tank removal, one soil sample was taken from the pit for analysis. Results showed total petroleum hydrocarbons at less than 25 ppm. Again toluene, ethyl benzene, xylenes compounds and polynuclear aromatic hydrocarbons were below laboratory reporting limits. Benzene was detected at 0.0019 mg/kg which was below the BUSTR guideline of 0.006 mg/kg.[5]

   Usable diesel fuel was removed from the tank and relocated to other on-site storage facilities. The tank, after final preparation, was shipped off-site to an approved landfill.[5]

2) The *OU5, Operational Area SDB Field Investigation*[3,4] analyzed the vicinity of PRS 82 for PETREX Soil Gas and radionuclides in surface soil. The results indicated levels of total aromatic, semivolatile, and total C5-C11 petroleum hydrocarbons at low relative values. Total halogenated hydrocarbons were indicated at levels that were considered moderately high relative to other soil in the area.[4] Field instrumentation found no elevated levels of radionuclide contamination. Hence, no Mound radionuclide soil screening analysis was conducted.[3]

   Monitoring of ground water, down gradient of PRS 82, has been performed (monitoring well 0125). The results indicated no levels of contamination above established MCL (maximum contaminant level) guidelines.[3]

3) In February 1996, the *Soil Gas Confirmation Investigation*[6] sampled the soil at 100 locations on the Mound plant site. Each sample was composited over a depth of 1 to 3 feet and analyzed for volatiles, semivolatiles, PCBs, pesticides, metals, radionuclides and explosives. The investigation did not sample the location of PRS 82, however five locations within a 120 feet radius of PRS 82 were sampled (see map on page 55 for location of PRS 82 in relation to the Confirmation Sampling locations 80, 97, 98, 101, and 102).

Results showed that all contaminant concentrations were less than the applicable 10^{-6} Risk Based Guideline Value, regulatory guideline, or ALARA guideline with the exception of:

Contaminant	Sample Locations in Excess of Guideline Criteria	Maximum Concentration Detected	Guideline Criteria
Benzo(a)anthracene	101	5,700 ug/kg (in soil)	4100 ug/kg[7] (10^{-6} Risk Based limit in soil)
Benzo(a)pyrene	80 & 101	850 & 5,900 µg/kg (in soil)	410 ug/kg[7] (10^{-6} Risk Based limit in soil)
Benzo(b)fluoranthene	101	5,200 µg/kg (in soil)	4100 ug/kg[7] (10^{-6} Risk Based limit in soil)
Dibenz(a,h)anthracene	101	1,400 µg/kg (in soil)	410 ug/kg[7] (10^{-6} Risk Based limit in soil)
Plutonium-238	97 & 101	27.5 & 118 pCi/g (in soil)	25 pCi/g (Mound ALARA in soil)

mg = milligrams, pCi = picocuries, g = grams, µg = micrograms, ALARA = as low as reasonably achievable

READING ROOM REFERENCES:

1) OU9, Site Scoping Report: Volume 12 - Site Summary Report, December 1994. (pages 6-8)
2) Active Underground Storage Tank Plan, November 1994. (pages 9-13)
3) OU5, Operational Area Phase 1 Investigation, Area SDB Field Report, Volume I, June 1995. (pages 14-19)
4) OU5, Operational Area Phase 1 Investigation, Area SDB Field Report, Volume II, June 1995. (pages 20-24)
7) Risk Based Guidelines, Final, Revision 3, December 1995.

OTHER REFERENCES:

5) Diesel Fuel Storage Tank Closure Report for Tank 118, June 29, 1995. (pages 25-48)
6) Soil Gas Confirmation Sampling, Revision 0, May 1996. (pages 49-69)

PREPARED BY:

Dennis Gault, Member of EG&G Technical Staff
Gary Coons, Member of EG&G Technical Staff

MOUND PLANT
PRS 82
DIESEL FUEL STORAGE TANK - BUILDING 56

RECOMMENDATION:

Potential Release Site (PRS) 82 was identified as an underground storage tank used to store diesel fuel to start an emergency generator near Building 57. It was installed in 1974 and was in service until it was removed on May 10, 1995.

After tank removal one soil sample was taken from the pit for analysis. Results showed total petroleum hydrocarbons (TPH), benzene, ethelbenzene, toluene, and xylene were below Bureau of Underground Storage Tank Regulation(BUSTR) guidelines. The OU5 Operational Area, Sanitary Disposal Building(SDB) field investigation analyzed the vicinity of PRS 82 for PETREX soil gas and radionuclides in surface soil. Field instrumentation found no elevated levels of radionuclide contamination. The investigation also indicated petroleum hydrocarbons at low relative levels. Other organics will be addressed through PRS 41 assessment activities. Therefore, NO FURTHER ASSESSMENT is recommended for PRS 82.

CONCURRENCE:

DOE/MB: Arthur K Kleinrath 11/26/96
Arthur W. Kleinrath, Remedial Project Manager (date)

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

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

SUMMARY OF COMMENTS AND RESPONSES:

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

☒ No comments were received during the comment period.

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

REFERENCE MATERIAL
PRS 82

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

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
72	Area 13, Polonium-Contaminated Wood from Dayton Unit IV	H-7	Historical	Polonium-210	1, 4, 5	None Suspected	S	6	14	Tables B.1 and B.9	6
73	Evaporator Storage Area (AKA Lower storage area)	H-7	Historical	Actinium-227, Cesium-137, Radium-226	4				14, 15, 16	Table B.9 RSS[c] Locations S0692 and S0697 (Appendix E in Ref. 6)	6
74	Quonset Hut (former)	H-7	Historical	Polonium-210, cobalt-60, bismuth					14	Table B.9 RSS[c] Locations S0684, S0685, and S0689 (Appendix E in Ref. 6)	6
75	Railroad Siding	G-6 G-7	Inactive	Thorium and daughters	4	Suspected thorium	S	4	14	Table B.1	6
76	Warehouse 9	G-7	Historical	Thorium-232	4	Suspected thorium	S	4	No Data		
77	Warehouse 10	G-9	Historical	Polonium-210	4	None suspected			No Data		
78	Warehouse 13	G-9	Historical	Reactor waste including Strontium-90, Cesium-137, and Nickel-63	4	Cesium 137	S	4	No Data		
79	Warehouse 15	E-8	Historical	Radioactive waste Plutonium-238 wastes and sludge Thorium sludge constituents (c)	4	Suspected	S	4	See Area 7 (No. 66)	Table B.9	6
80	Warehouse 15A	F-8	Historical	Plutonium-238, thorium	4						
81	Drilling Mud Drum Storage Areas (3 locations)	H-5 I-4	Historical	Barium	4, 5, 18	None Suspected			No Data		
82	Building 57 Diesel Fuel Storage Tank (Tank 118)	H-5	In service	Diesel fuel	3				No Data		
83	Building 2 Propane Storage Tank (Tank 122)	H-7	Inactive	Propane	3				No Data		
	ding 56 Diesel Fuel ge Tank (Tank 223)	F-5	Historical	Diesel fuel	3	Tank Removed			No Data		

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."

EG&G MOUND APPLIED TECHNOLOGIES

Active Underground Storage Tank Plan

November, 1994

Prepared for:

Project Management and Planning
EG&G Mound Applied Technologies
One Mound Road
Miamisburg, Ohio

CLIENT	JOB NUMBER	DATE
EG&G Mound Applied Technologies	10805-794	4/20/94

JOB TITLE	D&M TEAM
Active Underground Storage Tank Program	Gantelli

TANK NO.	BLDG/LOCATION	EG&G SPONSOR	OWNER
118	57	Operations	U.S. DOE

TANK STATUS	TANK CAPACITY (gallons)	INSTALLATION DATE	INTERVIEWED WITH	INTERVIEW DATE
In Service	850	1974	Vought	2/2/94

TANK DESCRIPTION, Purpose of Tank: Diesel Fuel Storage Tank

Tank Material
- ___ Bare Steel (unprotected)
- ___ Composite (steel & FRP)
- ✓ Fiberglass Reinforced Plastic
- ___ Stainless Steel Lined Concrete
- ___ Steel Lined Concrete
- ___ Concrete
- ___ Other - Specify
- ___ Unknown

Tank Cathodic Protection
- ___ Internal Lining - Specify
- ___ Sacrificial Anodes
- ___ Impressed Current
- ___ Composite (Steel & FRP)
- ___ Other - Specify
- ___ Unknown
- ✓ None

Inlet of Tank
Fill Cap

Outlet of Tank
Supply diesel fuel to Emergency Generator

History of Spills
No

Spill/Overfill Prevention
- ___ Float Vent Valve
- ___ High Level Alarm
- ___ Auto Shutoff
- ___ Other - Specify
- ✓ None

Piping Material
- ___ Cathodically Protected Steel
- ___ Bare Steel (unprotected)
- ___ Fiberglass Reinforced Plastic
- ___ Double Walled or Jacketed
- ___ Other - Specify
- ✓ Unknown

Substance Currently/Last Stored
- ___ Gasoline
- ✓ Diesel
- ___ Kerosene
- ___ Used Oil
- ___ Hazardous Substances - Specify
- ___ Other - Specify
- ___ Unknown

Tank Site Description
- ___ Indoor
- ✓ Outdoor
- ___ Soil
- ✓ Asphalt/Concrete
- ___ Storm Drains, Potential Surface water runoff
- ___ Soil Staining

DOE / AEC / PM No:
none

Calibration Records

Maintenance Records

Tank Release Detection Method
- ___ Inventory Control
- ✓ Manual Tank Gauging
- ✓ Tank Tightness Testing
- ___ Automatic In-Tank Monitor & Inventory Control
- ___ Vapor Monitoring
- ___ Groundwater Monitoring
- ___ Secondary Containment with Interstitial Monitoring
- ___ Other - Specify
- ___ None

Piping Release Detection Method
- ___ Pressure Piping Automatic Line Flow Restrictor
- ___ Pressure Piping Automatic Line Shutoff Device
- ✓ Line Tightness Test (Pressure Annual, Suction Every 3 yrs)
- ___ Vapor Monitoring
- ___ Groundwater Monitoring
- ___ Approved Suction Piping
- ___ Other - Specify
- ___ None

Closure
Date of Last use: ~~n/a~~ in use

Intended Replacement: 9/94

Closure Plan: Under Preparation

Part of Operable Unit: 2/a

Primary Regulatory Jurisdiction
BUSTR

Spill Jurisdiction
BUSTR

Regulated Units

DOCUMENTS, REFERENCES USED: DOE, 1992a; DOE, 1993; NUS, 1989; Dwg 03-001-305700 Rev 3; Tightness Tests from 10/27/92 and 9/30/93; UST Inspection Sheet

COMMENTS: As a UST stores fuel solely for use by an emergency power generator, must comply with requirements of 40 CFR Part 280 and OAC 1301:7-9. Subject to limited deferral under 40 CFR 280 but Ohio UST regs do not provide a deferral. This tank is scheduled for removal by 9/94.

From interview saw manual tank gauging.

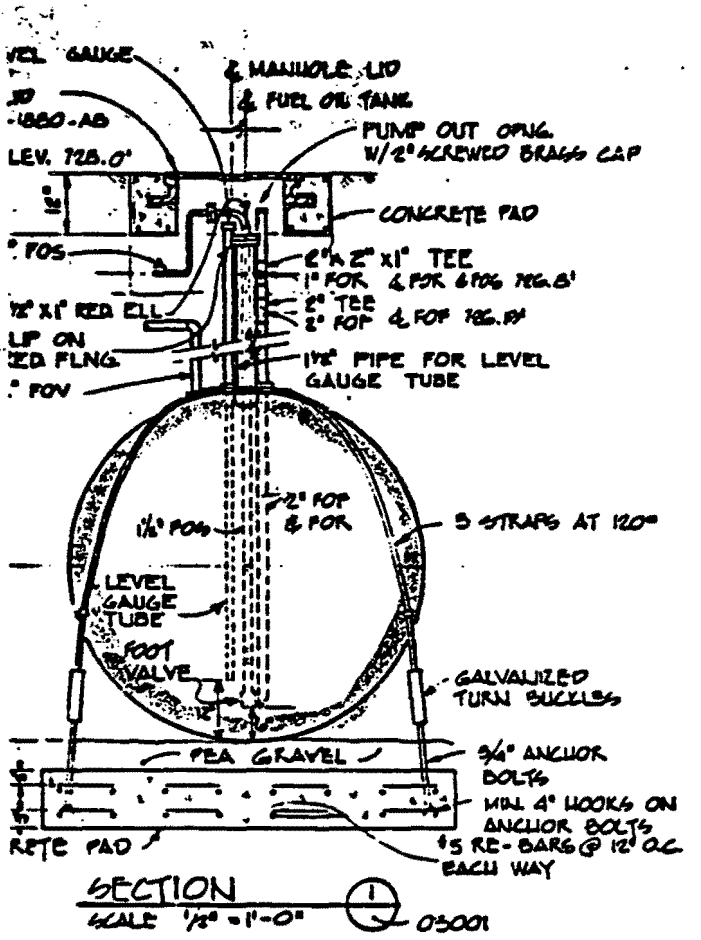
SIGNATURE ASG

CLIENT	JOB NUMBER	DATE
EG&G Mound Applied Technologies	10805-794	4/20/94
JOB TITLE	**D&M TEAM**	
ive Underground Storage Tank Program	Giantelli	

NO.	BLDG/LOCATION	EG&G SPONSOR	OWNER
118	57	Operations	U.S. DOE

TANK STATUS	TANK CAPACITY (gallons)	INSTALLATION DATE	INTERVIEWED WITH	INTERVIEW DATE
In Service	850	1974	Vaught	2/2/94

SKETCH OF TANK/TANK SYSTEM:



COMMENTS:

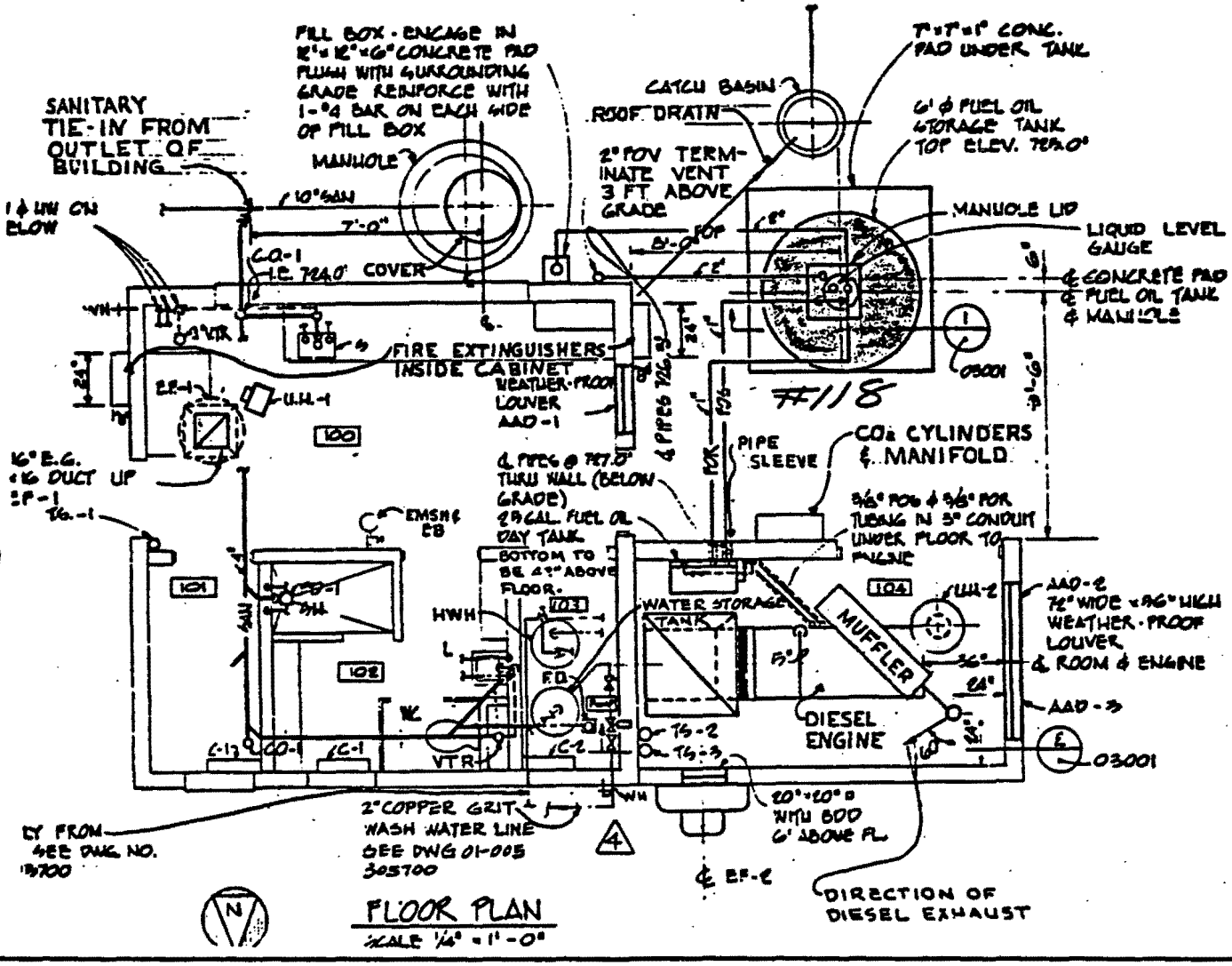
SIGNATURE

CLIENT	JOB NUMBER	DATE
EG&G Mound Applied Technologies	10805-794	4/20/94
JOB TITLE	**D&M TEAM**	
tive Underground Storage Tank Program	Giantelli	

K NO.	BLDG/LOCATION	EG&G SPONSOR	OWNER
118	57	Operations	U.S. DOE

TANK STATUS	TANK CAPACITY (gallons) ◆	INSTALLATION DATE	INTERVIEWED WITH	INTERVIEW DATE
In Service	850	1974	Vaught	2/2/94

SKETCH OF TANK/TANK SYSTEM:



COMMENTS:

SIGNATURE G.S. Giantelli

Tank No.	117		
Proposed Program AUSTP	Bldg R/SW/T Stack	Location	Owner U.S.DOE
Status in service	Installation Date 1971	Estimated Capacity (gallons) 5,000	
Purpose of Tank diesel fuel storage			
Tank Material Bare Steel with External Bitumen Coating		Tank Cathodic Protection None	
Inlet of Tank Fill Cap		Outlet of Tank Emergency Generator No 1	
Evidence of Release No		Spill/Overfill Prevention None	
Substance Current/Last Stored Diesel		Tank Site Description Outdoor	
Calibration/Maintenance None		Tank Release Detection Annual Tank Tight Test	
Piping Release Detection Annual Line Tight Test		Closure Date Last Used N/A	
OU9 Reference No 143		FFA OU N/A	
Primary Regulatory Jurisdiction BUSTR		Spill Jurisdiction BUSTR	
Regulatory Status In compliance			
Documents Provided DOE, 1992a; DOE, 1993; UST Insp Sht; Leak Detection Tests–2/90, 10/92, 9/93			
Comments Stores diesel fuel solely for use by emergency power generator.			

Tank No.	118		
Proposed Program AUSTP	Bldg 57	Location	Owner U.S.DOE
Status in service	Installation Date 1974	Estimated Capacity (gallons) 850	
Purpose of Tank diesel fuel storage			
Tank Material Fiberglass Reinforced Plastic		Tank Cathodic Protection None	
Inlet of Tank Fill Cap		Outlet of Tank Emergency Generator	
Evidence of Release No		Spill/Overfill Prevention None	
Substance Current/Last Stored Diesel		Tank Site Description Outdoor; Asphalt/Concrete	
Calibration/Maintenance None		Tank Release Detection Annual Tank Tight Test; Manual Tank Gauge	
Piping Release Detection Annual Line Tight Test		Closure Date Last Used Schld 9/94	
OU9 Reference No 82		FFA OU N/A	
Primary Regulatory Jurisdiction BUSTR		Spill Jurisdiction BUSTR	
Regulatory Status In compliance			
Documents Provided DOE, 1992a; DOE, 1993; UST Insp Sht; Leak Detection Tests–2/90, 10/92, 9/93			
Comments The closure plan for this tank is under preparation.			

Environmental Restoration Program

OPERABLE UNIT 5
OPERATIONAL AREA PHASE 1 INVESTIGATION
AREA SDB FIELD REPORT

MOUND PLANT
MIAMISBURG, OHIO

VOLUME I - TEXT

June 1995

Final (Revision 1)

U.S. Department of Energy
Ohio Field Office

EG&G Mound Applied Technologies

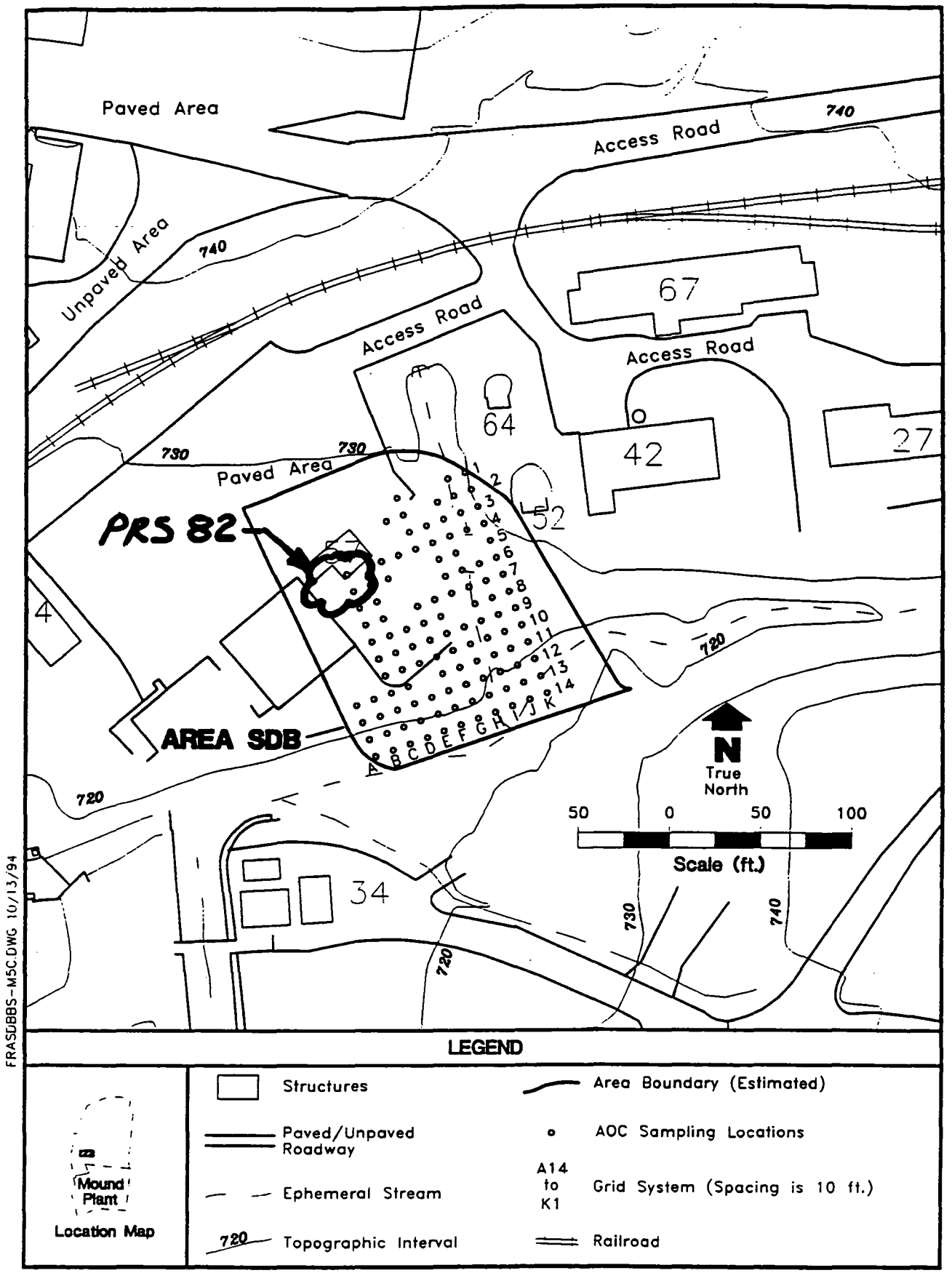


Figure 2.1. The Estimated Boundary and Grid System of Area SDB

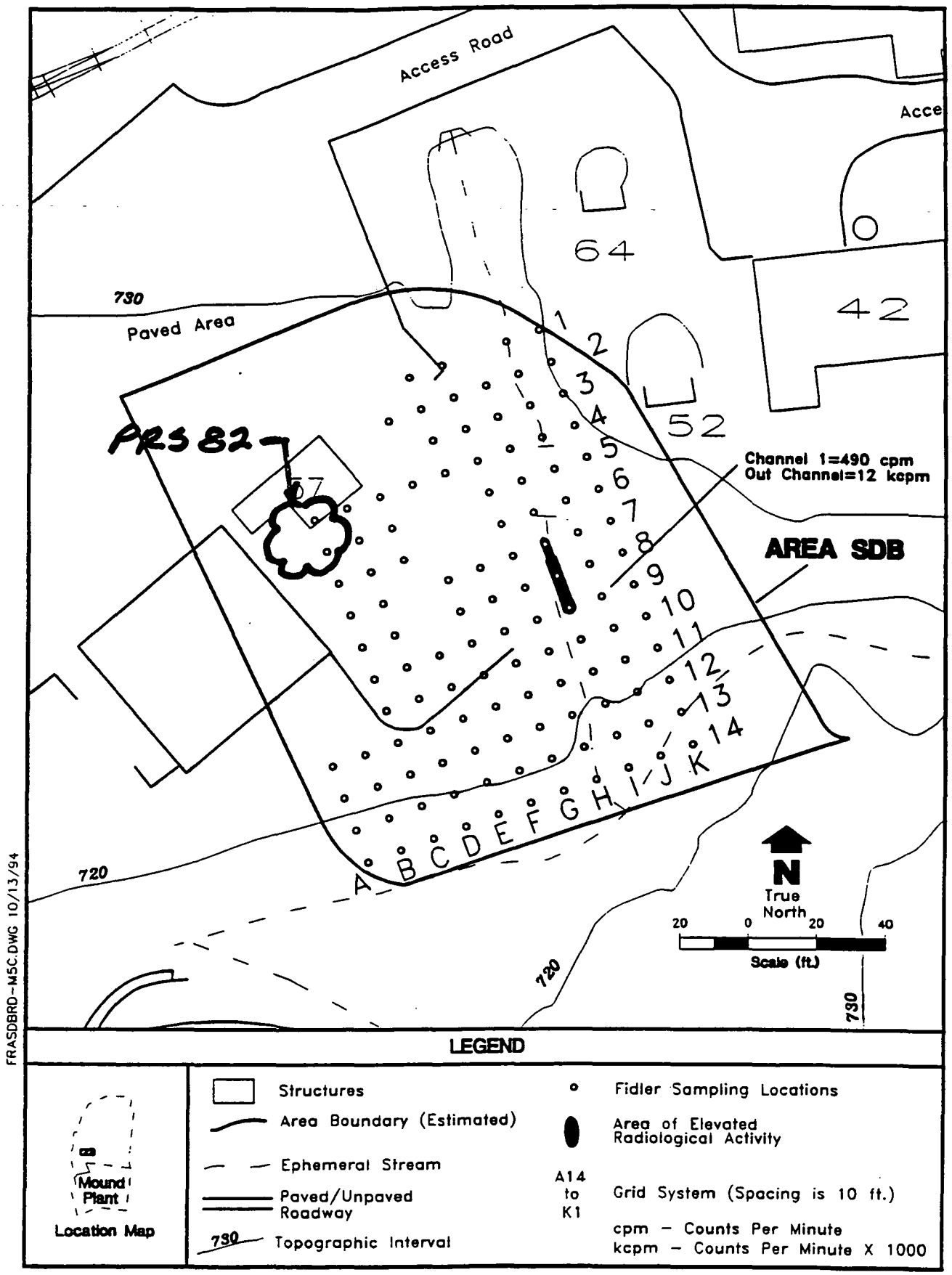


Figure 2.2. Areas of Elevated Pu-238 Activity (FIDLER Survey)

APPENDIX C
RADIOLOGICAL DATA (FIDLER SURVEY & MOUND SOIL SCREENING FACILITY DATA)

	FIDLER SURVEY DATA						MOUND SOIL SCREENING FACILITY DATA			
SMPID	Contamination Criteria CH1	FIDLER Readings CH1	Contamination Criteria CH2	FIDLER Readings CH2	Contamination Criteria Out Channel	FIDLER Readings Out Channel	Plutonium - 238		Thorium - 232	
	Units: CPM	Units: CPM	Units: KCPM	Units: KCPM	Units: KCPM	Units: KCPM	Units: pCi/g		Units: pCi/g	
	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	Note:	RESULTS	Note:
SDBA11	156.0	NA	10.27	NA	12.48	5.5	NS		NS	
SDBA12	156.0	NA	10.27	NA	12.48	6.5	NS		NS	
SDBA13	156.0	NA	10.27	NA	12.48	6.5	39	b	0.6	a
SDBA14	223.6	NA	12.22	NA	13.26	6.0	19	a	0.6	a
SDBB11	156.0	NA	10.27	NA	12.48	5.5	NS		NS	
SDBB12	156.0	NA	10.27	NA	12.48	6.0	31	b	0.5	a
SDBB13	156.0	NA	10.27	NA	12.48	7.0	31	b	0.3	a
[illegible]										
SDBC03	156.0	NA	10.27	NA	12.48	4.5	NS		NS	
SDBC04	156.0	NA	10.27	NA	12.48	5.0	NS		NS	
SDBC05	156.0	NA	10.27	NA	12.48	5.5	NS		NS	
SDBC06	156.0	NA	10.27	NA	12.48	5.0	NS		NS	
SDBC07	156.0	NA	10.27	NA	12.48	6.0	NS		NS	
SDBC08	156.0	NA	10.27	NA	12.48	6.0	9	a	0	a
SDBC09	156.0	NA	10.27	NA	12.48	5.5	NS		NS	
SDBC10	156.0	NA	10.27	NA	12.48	5.0	NS		NS	
SDBC11	156.0	NA	10.27	NA	12.48	4.5	NS		NS	
SDBC12	156.0	NA	10.27	NA	12.48	6.5	31	b	0.6	a
SDBC13	156.0	NA	10.27	NA	12.48	NR	27	b	0.5	a
SDBC14	223.6	NA	12.22	NA	13.26	4.5	23	a	0.3	a
SDBD04	156.0	NA	10.27	NA	12.48	NR	NS		NS	
SDBD04-01	156.0	NA	10.27	NA	12.48	4.5	NC		NC	
SDBD04-02	156.0	NA	10.27	NA	12.48	5.0	NC		NC	
SDBD04-03	156.0	NA	10.27	NA	12.48	4.5	NC		NC	
SDBD04-04	156.0	NA	10.27	NA	12.48	5.0	NC		NC	
SDBD05	156.0	NA	10.27	NA	12.48	NR	NS		NS	
SDBD05-01	156.0	NA	10.27	NA	12.48	5.5	NC		NC	
SDBD05-02	156.0	NA	10.27	NA	12.48	5.5	NC		NC	
SDBD05-03	156.0	NA	10.27	NA	12.48	6.5	NC		NC	

NS - Not Sampled

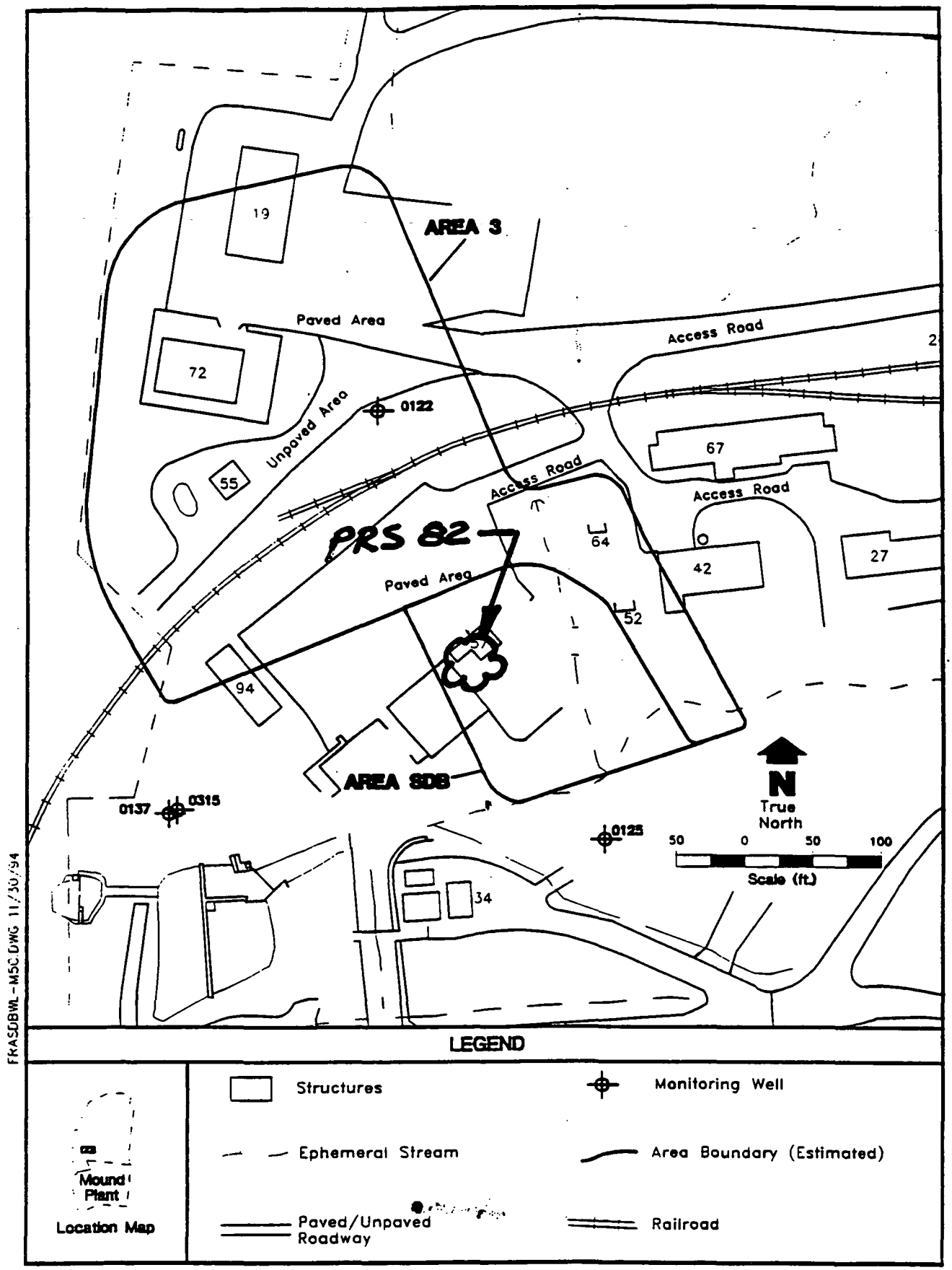


Figure 2.5. Locations of Monitoring Wells

contaminant levels (MCL). These contaminants included 1,2-*trans*-dichloroethene (DCE), TCA, PCE, and TCE (DOE 1992b). In addition, dichloromethane (DCM), 2-butanone (2-BUT), and carbon tetrachloride (CTC) were also found in concentrations above their MCL (DOE 1993b). Table II.3 presents the results of these analyses.

Table II.4. Selected Analyses of Groundwater Samples from Monitoring Wells Near Area SDB

WELL	TCA (ppb)	DCE (ppb)	PCE (ppb)	TCE (ppb)	DCM (ppb)	BUT (ppb)	CTC (ppb)
0122	tr	ND	ND	tr	7.0	23.0	ND
0125	1.0	ND	ND	ND	ND	ND	ND
0137	0.8(1)	16.0(1)	2.0(1)	6.0(1)	ND	36.0	7.0
0315	ND	ND	0.5	7.2(1)	ND	ND	ND

ppb - parts per billion
tr - trace concentrations
ND - no data available
(1) Maximum concentration reported

Data from the soil gas survey as reported in the NERI report (Appendix D) are somewhat consistent with the groundwater sample analyses, shown in Table II.3. Parameters common to both the groundwater samples and the soil gas survey include TCA, PCE, and TCE. However, DCE, DCM, and CTC were not reported as constituents of total halogenated hydrocarbons by NERI. As discussed in the NERI report, 2-BUT is very water soluble and does not disperse as a gas, which severely restricts the potential for 2-BUT to be detected in soil gas.

2.2.5.2. Historical Soil Gas Data

Six soil gas samples were collected near Well 0137, at depths of five feet. Elevated levels of DCE, TCE, benzene, toluene, and ethyl benzene were noted (DOE 1993a). In addition, four samples were collected southwest of the Main Hill and north of Area SDB during the 1992 reconnaissance soil gas survey (DOE 1992c). Analyses of these samples found elevated concentrations of freon, TCE, and possibly toluene.

The historical soil gas data are generally consistent with the data from the NERI report. However, the historical soil gas sampling events occurred about 300 feet from the center of Area SDB. Parameters common to both soil gas surveys include the aromatic hydrocarbon constituents of benzene, toluene, and ethyl benzene as well as halogenated hydrocarbon constituents of freon and TCE.

Environmental Restoration Program

OPERABLE UNIT 5
OPERATIONAL AREA PHASE 1 INVESTIGATION
AREA SDB FIELD REPORT

MOUND PLANT
MIAMISBURG, OHIO

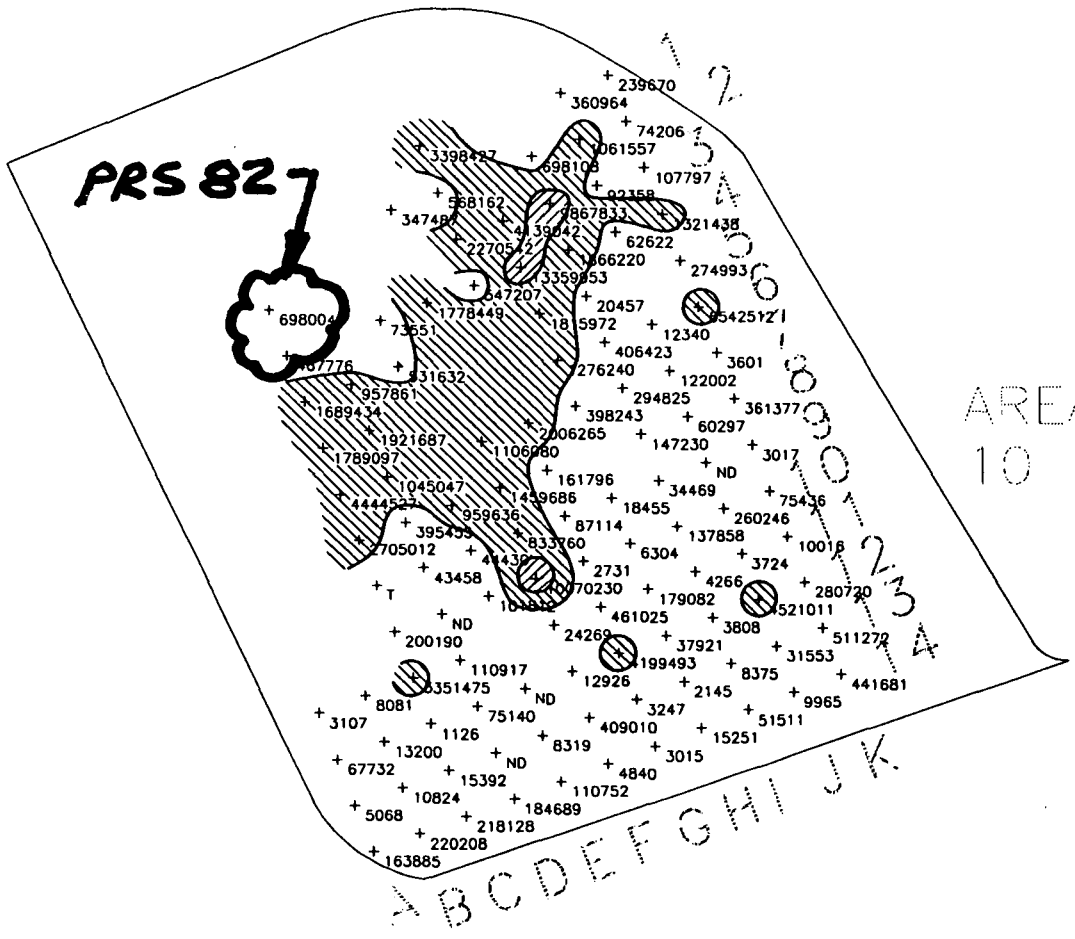
VOLUME II - APPENDICES A-D

June 1995

Final (Revision 1)

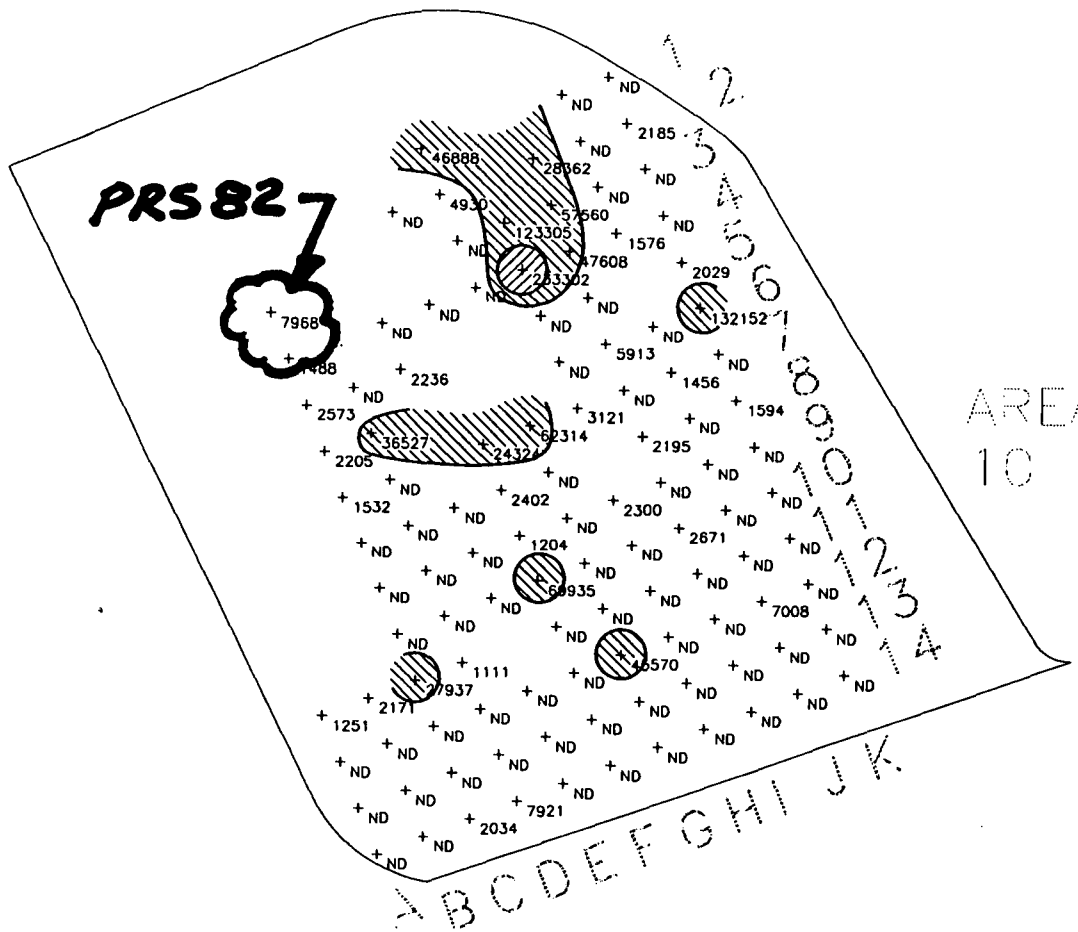
U.S. Department of Energy
Ohio Field Office

EG&G Mound Applied Technologies

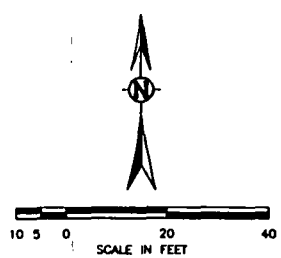


Page 21

Produced by: Northeast Research Institute LLC, 805 Parfet Street, Suite 100, Lakewood, Colorado 80215, (303) 238-0090	Drawn By: JCS; Checked By: ; Project Manager: PCB	Project #: 2114E; Date: September 27, 1994; File Name: SDB_2.dwg	Area SDB/Operable Unit-5 U.S.D.O.E. Mound Facility Miamisburg, Ohio PETREX FINGERPRINT TECHNOLOGY®	LEGEND Relative Response Values: ≥ 8,000,000 800,000 - 7,999,999 Features: + PETREX Sample Location ND Not Detected T Terpenes present in sample; see text.	Relative Response Total Aromatic Hydrocarbons Plate 2

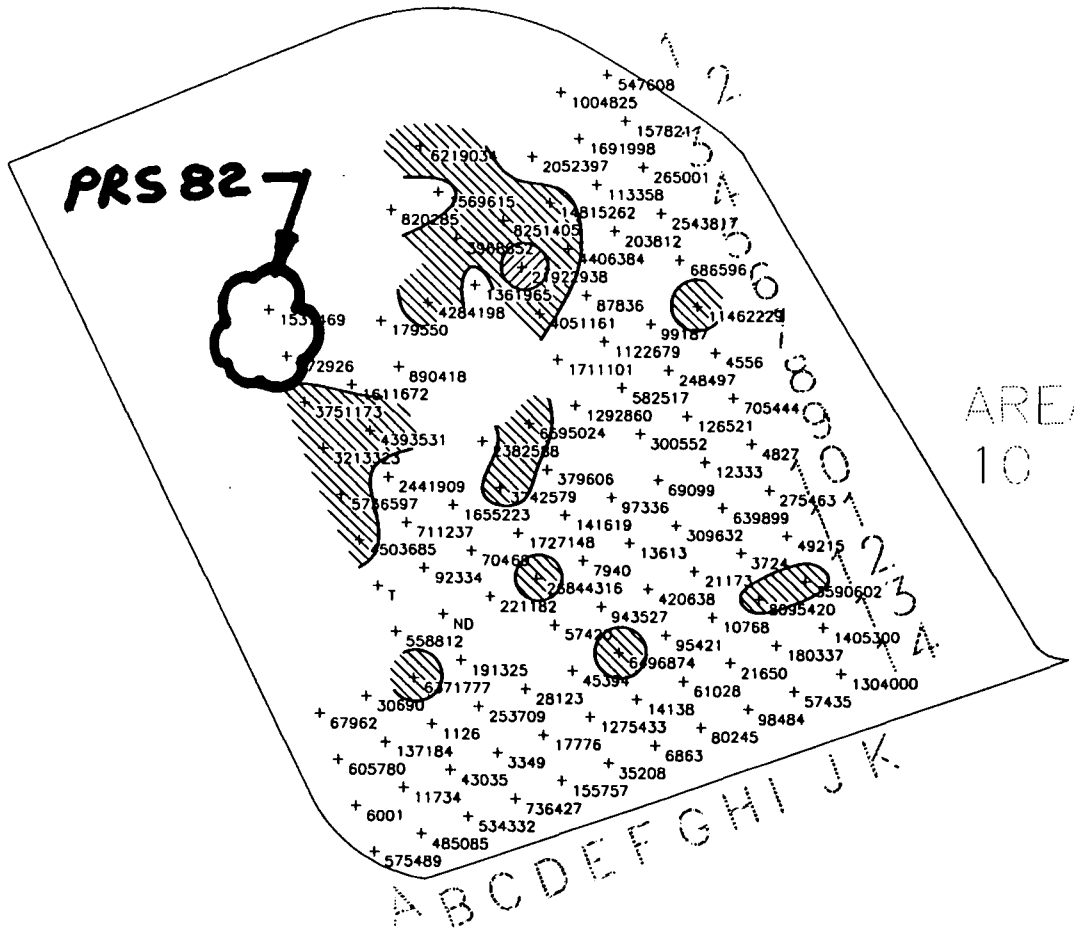


AREA SDB
10 FT. SPACING



Page 22

Produced by: Northeast Research Institute LLC 805 Parfet Street Suite 100 Lakewood, Colorado 80215 (303) 238-0090	Drawn By: JCS Checked By: Project Manager: PCB	Project #: 2114E Date: September 27, 1994 File Name: SDB_3.dwg	Area SDB/Operable Unit-5 U.S.D.O.E. Mound Facility Miamisburg, Ohio PETREX FINGERPRINT TECHNOLOGY®	LEGEND Relative Response Values: ≥ 200,000 20,000 – 199,999 Features: + PETREX Sample Location ND Not Detected	Relative Response Total Semivolatile Hydrocarbons Plate 3

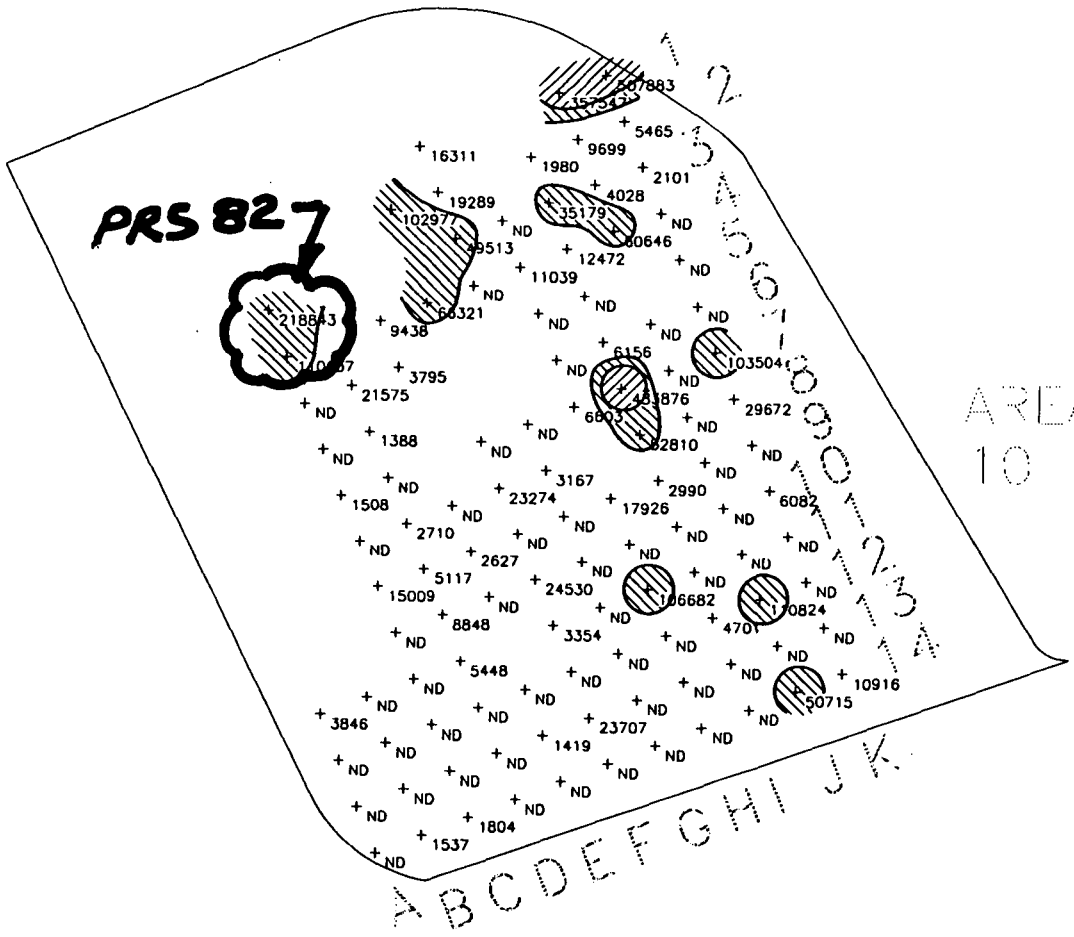


AREA SDB
10 FT. SPACING

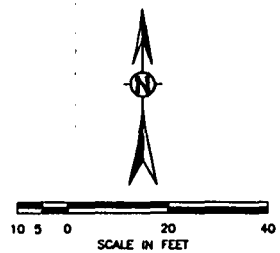
10 5 0 20 40
SCALE IN FEET

Page 23

Produced by: Northeast Research Institute LLC 805 Parfet Street Suite 100 Lakewood, Colorado 80215 (303) 238-0090	Drawn By: JCS Checked By: Project Manager: PCB	Project #: 2114E Date: September 27, 1994 File Name: SDB_4.dwg	Area SDB/Operable Unit-5 U.S.D.O.E. Mound Facility Miamisburg, Ohio PETREX FINGERPRINT TECHNOLOGY®	LEGEND Relative Response Values: ≥ 15,000,000 3,000,000 - 14,999,999 Features: + PETREX Sample Location ND Not Detected T Terpenes present in sample; see text.	Relative Response Total C5-C11 Petroleum Hydrocarbons Plate 4



AREA SDB
10 FT. SPACING



Page 24

Produced by: Northeast Research Institute LLC 805 Parfet Street Suite 100 Lakewood, Colorado 80215 (303) 238-0090	Drawn By: JCS Checked By: Project Manager: PCB	Project #: 2114E Date: September 27, 1994 File Name: SDB_5.dwg	Area SDB/Operable Unit-5 U.S.D.O.E. Mound Facility Miamisburg, Ohio PETREX FINGERPRINT TECHNOLOGY®	LEGEND Relative Response Values: ≥ 300,000 30,000 - 299,999 Features: + PETREX Sample Location ND Not Detected	Relative Response Total Halogenated Hydrocarbons Plate 5

DIESEL FUEL STORAGE TANK
CLOSURE REPORT FOR TANK 118

FOR

EG&G MOUND APPLIED TECHNOLOGIES, INC.

PRESENTED TO

FRYMAN-KUCK GENERAL CONTRACTORS, INC.
JUNE 29, 1995

Barge, Waggoner, Sumner and Cannon, Inc.
Engineers, Architects, Landscape Architects and Surveyors
8755 Gander Creek Drive Miamisburg, OH 45342 (513) 438-0378

CLOSURE FORM (PART I)

CLOSURE CHECKLIST

OWNERSHIP OF TANKS	LOCATION OF TANKS 8/31/94
OWNER NO. 4969 US DEPT OF ENERGY (EG & G MOUND LAB) 120 MOUND AVE, PO BX 66 MIAMISBURG, OH 45343	INCIDENT NO. 5791084-04 FACILITY NO. 570630 US DEPT OF ENERGY 120 MOUND AVE MIAMISBURG, OH 45343

FILING INSTRUCTIONS

1. IN THE COLUMN ON THE LEFT SIDE OF THE FORM, PLACE EITHER THE PAGE NUMBER OR APPENDIX DESIGNATION WHERE EACH ITEM ON THE CHECKLIST CAN BE FOUND IN THE CLOSURE REPORT OR "N/A" (NOT APPLICABLE) FOR ITEMS THAT DO NOT APPLY TO YOUR CLOSURE REPORT.

2. UST OWNER MUST SIGN WHERE INDICATED AT THE END OF THIS FORM AND ATTACH IT TO THE CLOSURE REPORT. DEFICIENT CLOSURE REPORTS SUBMITTED TO OUR OFFICE WILL BE RETURNED TO THE UST OWNER FOR COMPLETION. SEND THE CLOSURE FORM AND THE CLOSURE REPORT TO THE ATTENTION OF THE "CLOSURE REVIEW SECTION".

NOTE: UST OWNER/OPERATORS SHALL SUBMIT ONE COPY OF THE WRITTEN CLOSURE REPORT WHICH SHALL BE RECEIVED BY THE STATE FIRE MARSHAL WITHIN 45 DAYS OF RECEIPT BY THE UST OWNER/OPERATOR OF SOIL AND/OR GROUND WATER LABORATORY ANALYSIS BUT NOT LATER THAN 90 DAYS FROM THE DATE OF COLLECTING SOIL AND/OR GROUND WATER SAMPLES.

I. UST SYSTEM OWNER, OPERATOR, AND FACILITY DATA

4 UST OWNER (NAME: ADDRESS: ZIP CODE: COUNTY: PHONE NO.)
4 UST OPERATOR (NAME: ADDRESS: ZIP CODE: COUNTY: PHONE NO.)
3 UST FACILITY LOCATION (NAME: ADDRESS: ZIP CODE: COUNTY: PHONE NO.)
3 UST FACILITY OWNER (NAME: ADDRESS: ZIP CODE: COUNTY: PHONE NO.)

II. UST SYSTEM DATA

3,6 DATE OF UST REMOVAL OR ABANDONMENT
6 UST SYSTEM AGE (YEARS)
6 UST CAPACITY (GALLONS)
6 UST SYSTEM CONSTRUCTION (E.G., STEEL, FIBERGLASS, ETC.)
6 DATE UST SYSTEM LAST USED
6 PERSON WHO LAST USED UST SYSTEM
6 SUBSTANCE STORED IN UST BOTH PAST AND PRESENT (E.G. GASOLINE, DIESEL FUEL, USED OIL, ETC.)
6 UST SYSTEM USE (E.G. RETAIL SALES, RESIDENTIAL, FARM, BUSINESS, ETC.)
3,6 UST SYSTEM STATUS (PERMANENTLY REMOVED, ABANDONED-IN-PLACE, CHANGE-IN-SERVICE, OR TEMPORARY CLOSURE BEYOND TWELVE MONTHS)

III. WASTE DISPOSAL DATA

7 DISPOSAL OF UST SYSTEM
9 DISPOSAL AND FINAL LOCATION OF ANY LIQUIDS FROM UST SYSTEM OR UST SYSTEM EXCAVATION

CLOSURE FORM (PART II)

Figure 1
Sheet 2 of 3

SITE FEATURE SCORING SYSTEM (SFSS) CHART

REFER TO SFSS GUIDELINES BEFORE COMPLETING

SITE FEATURES	COLUMN A		COLUMN B		COLUMN C		COLUMN D	
	SCORE 20	ENTER SCORE	SCORE 15	ENTER SCORE	SCORE 10	ENTER SCORE	SCORE 5	ENTER SCORE
1. DISTANCE OF UST SYSTEM FROM CLOSEST POTABLE WATER SUPPLY SOURCE CURRENTLY IN USE IS: 1,150 ft.	> 1000 FT		300-1000 FT		< 300 FT		INSIDE OF DESIGNATED SENSITIVE AREA	5
2. DEPTH TO GROUND WATER IS: 26 ft.	> 50 FT		31-50 FT		15-30 FT OR UNKNOWN	10	< 15 FT	
3. PREDOMINANT SOIL TYPE OF SUBSTRATUM IS: Miamian Clay Loam	CLAY OR SHALE		SILT OR CLAYEY SANDS OR FINE SANDSTONE	15	SILTY SAND OR FINE SAND, UNKNOWN, OR SANDSTONE		CLEAN SAND, GRAVEL, OR CONGLOMERATE	
4. NATURAL AND/OR MAN-MADE CONDUITS OR RECEPTORS ARE: (COMPLETE WORKSHEET BELOW)	< 8 POINTS		8-10 POINTS		11-13 POINTS		> 13 POINTS	5
ADD SUBTOTALS:		0	+	15	+	10	+	10
							TOTAL SCORE	35

SITE FEATURE 4 WORKSHEET:

BASEMENTS OR SUBSURFACE FOUNDATIONS WITHIN 100 FEET OF UST SYSTEM	4 POINTS	4
STORM SEWER WITHIN 50 FEET OF UST SYSTEM	4 POINTS	4
SANITARY SEWER WITHIN 50 FEET OF UST SYSTEM	4 POINTS	4
SEPTIC SYSTEM LEACH FIELD WITHIN 50 FEET OF UST SYSTEM	2 POINTS	-
WATER LINE MAIN WITHIN 50 FEET OF UST SYSTEM	1 POINT	I
NATURAL GAS LINE MAIN WITHIN 50 FEET OF UST SYSTEM	1 POINT	-
BEDROCK AREA PRONE TO DISSOLUTION ALONG JOINTS OF FRACTURES WITHIN 100 FEET OF UST SYSTEM	1 POINT	-
FAULTS OR KNOWN FRACTURES WITHIN 100 FEET OF UST SYSTEM	1 POINT	-
BURIED TELEPHONE/TELEVISION CABLE MAIN WITHIN 50 FEET OF UST SYSTEM	1 POINT	-
BURIED ELECTRICAL CABLE MAIN WITHIN 50 FEET OF UST SYSTEM	1 POINT	I
	TOTAL POINTS	14

IF TOTAL POINTS FROM SITE FEATURE 4 WORKSHEET ARE:

< 8, ENTER SCORE OF 20 IN COLUMN A OF SITE FEATURE 4 IN SFSS CHART
8 - 10, ENTER SCORE OF 15 IN COLUMN B OF SITE FEATURE 4 IN SFSS CHART
11 - 13, ENTER SCORE OF 10 IN COLUMN C OF SITE FEATURE 4 IN SFSS CHART
> 13, ENTER SCORE OF 5 IN COLUMN D OF SITE FEATURE 4 IN SFSS CHART

NOTE: AFTER COMPLETING SFSS CHART (ABOVE), COMPARE THAT SCORE WITH TOTAL SCORES IN ACTION LEVEL TABLE (BELOW) TO DETERMINE ACTION LEVELS FOR UST SITE.

SFSS ACTION LEVELS TABLE (PPM)

CONSTITUENT	CATEGORY 1	CATEGORY 2	CATEGORY 3	CATEGORY 4
TOTAL SCORE	< 31	31-50	51-70	> 71
SOIL BTEX	.006/4/6/28	.170/7/10/47	.335/9/14/67	.500/12/18/85
GROUND WATER BTEX	.005/1/.700/10	.005/1/.700/10	.005/1/.700/10	.005/1/.700/10
SOIL TPH (GASOLINE)	105	300	450	600
SOIL TPH (OTHERS)	380	642	904	1156

CLOSURE FORM (PART III)

SOIL DISPOSAL/TREATMENT CHECKLIST (FOR CLOSURES)

REFER TO SOIL STOCKPILE GUIDANCE DOCUMENT APPENDIX F (PAGES 50-58) BEFORE FILLING OUT THIS CHECKLIST.

PAGE NO.	
9	DATE STOCKPILE WAS GENERATED
9	DESCRIPTION AND PRESERVATION OF STOCKPILE (E.G. BERMED, COVERED, ETC.)
9	ESTIMATED STOCKPILE VOLUME IN CUBIC YARDS
11-13	SAMPLING AND FIELD SCREENING PROCEDURES, DATES, AND TIMES (I.E. CHAIN OF CUSTODY, ETC.)
16	LAB RESULTS IN TABLE FORMAT
Fig. 2&5	LABORATORY DATA SHEETS
N/A	COPY OF THE SOIL REMEDIATION PLAN WHICH INCLUDES:
	1. A DESCRIPTION OF THE REMEDIATION TECHNIQUES
	2. COPIES OF ANY PERMITS REQUIRED FOR TREATMENT
	3. A COPY OF THE LOG KEPT ON SITE BY THE OWNER DURING STOCKPILE TREATMENT
9	FINAL DISPOSITION OF STOCKPILE OR OTHER DOCUMENTATION (RECEIPTS, MAPS, ETC.)

- CERTIFICATION STATEMENT -

I CERTIFY THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS FORM AND ALL ATTACHED DOCUMENTS, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE SUBMITTED INFORMATION IS TRUE, ACCURATE, AND COMPLETE.

Mr. George Gartrell

OWNER/OPERATOR'S NAME (TYPED OR PRINTED)

FOR OBA VINCENT

OWNER/OPERATOR SIGNATURE

June 29, 1995

DATE

1.0 INTRODUCTION

1.0 INTRODUCTION

This constitutes the closure report prepared in accordance with Section (L) of Ohio Administrative Code Rule 1301:7-9-12. The subject action was a permanent underground storage tank removal performed on May 10, 1995, and authorized by Permit Number 12654, issued on August 31, 1994. The subject underground storage tank system is an 850 gallon capacity fiberglass reinforced plastic diesel fuel oil tank located in the vicinity of Building 57 at the U. S. Department of Energy Mound Applied Technologies Facility (Mound) in Miamisburg, Ohio. The tank system is inventoried and included in the Mound Active Underground Storage Tank Plan and is designated as Tank 118. The Bureau of Underground Storage Tank Regulations (BUSTR) permit designated this action as Incident No. 5791084-04. The tank removal activity was inspected on the job site by Mr. Douglas Parks of the Miamisburg, Ohio Fire Department. A site map showing the location of the tank is located in Section 6.1 of this report.

1.1 Facility Name and Address

The subject underground storage tank system was located at:

U. S. Department of Energy
Miamisburg Area Office
Mound Applied Technologies
P. O. Box 66
Miamisburg, Montgomery County, Ohio 45343-0066

Attention: Mr. George Gartrell
Telephone: (513) 865-3252

1.2 Facility Owner's Name and Address

U. S. Department of Energy
Miamisburg Area Office
P. O. Box 66
Miamisburg, Montgomery County, Ohio 45343-0066

Attention: Mr. George Gartrell
Telephone: (513) 865-3252

1.3 UST System Owner's Name and Address

U. S. Department of Energy
Miamisburg Area Office
P. O. Box 66
Miamisburg, Montgomery County, Ohio 45343-0066

Attention: Mr. George Gartrell
Telephone: (513) 865-3252

1.4 UST System Operator's Name and Address

EG&G Mound Applied Technologies
P. O. Box 3000
Miamisburg, Montgomery County, Ohio 45343-3000

Telephone: (513)865-4541

2.0 SYSTEM DATA

2.0 SYSTEM DATA

2.1 System Construction Information

The subject tank system consists of a six foot diameter spherical tank.

2.1.1 Age of Tank:

21 years - Installed 1974

2.1.2 Tank Capacity:

850 gallons

2.1.3 Tank Construction Material:

Fiberglass Reinforced Plastic

2.2 Substance Stored:

Diesel Fuel for industrial use. Specifically the diesel fuel was used to fire an emergency generator.

2.3 Non-Petroleum Substance Stored:

None

2.4 Status of UST:

The subject tank system was in service until time of permitted tank removal on May 10, 1995. This UST system was used throughout its useful life by Operators of the DOE Mound facility. At the time of closure that Operator was EG&G. See Section 1.4 of this report for Operator's address.

2.5 Disposition of UST:

The subject underground storage tank system was removed from the site in accordance with the American Petroleum Institute (API):

API RECOMMENDED PRACTICE 1604
REMOVAL AND DISPOSAL OF
USED UNDERGROUND PETROLEUM
STORAGE TANKS

After removal and preparation of the tank, it was transported to:

Koogler-Suburban
1700 North Broad Street
Fairborn, Ohio 45324

Telephone: (513) 878-7000

The tank was then transferred to:

Vance Landfill, Inc.
2101 Vance Road
Dayton, Ohio 45418

(513) 263-5944

2.6 Fire Marshal Closure Form:

The Fire Marshal Closure Form is included in this closure report as Figure 1.

3.0 WASTE DISPOSAL DATA

3.0 WASTE DISPOSAL DATA

3.1 Disposition of Regulated Soil/Backfill

Approximately 10 cubic yards of soil was stockpiled at the time of tank closure on May 10, 1995. The stockpile was covered with plastic sheeting to protect the soil from the elements. A small amount of contaminated soil was generated during tank closure activities. That soil was included with other wastes generated at that time and were shipped for incineration. A total of two 55 gallon drums of materials, including the soil, decontamination solution, oil absorption medium, personal protective supplies and equipment refuse, etc. were shipped by EG&G Waste Management for final disposition.

3.1.1 Final Location:

Rollins Environmental Services
13351 Scenic Highway
Baton Rouge, Louisiana 70807

EPA No. LAD010395127

3.1.2 Quantity (CY):

Less than two 55-gallon drums of regulated soil/backfill were disposed.

3.2 Disposition of Regulated Liquids:

Usable fuel oil removed from the subject tank was relocated to other on-site storage facilities. Decontamination solution was packaged in one of the two 55-gallon drums mentioned in Section 3.1 above and shipped for disposal by incineration as discussed there.

3.3 Soil/Backfill Laboratory Data Sheets:

Based on a review of laboratory analyses preformed on the samples collected from the stockpiled backfill no contaminated soils were created other than discussed in Section 3.1. The laboratory data sheet for the analysis of those soils/backfill materials is presented in this report as Figure 2.

LABORATORY ANALYSIS REPORT

Mr. Kerby Burton
BARGE, WAGGONER, SUMNER & CANNON
8755 Gander Creek
Miamisburg, OH 45342

Page 2
Report Date : 05/12/95
HEG Task # : 95050093
HEG P/N, Acct:

HEG Sample # : 9504898 Sample Date: 05/10/95 Sample Priority: Emergency
Sample ID : T-118-3/Pile

Parameter	Units	Results	Comments
Total Petroleum Hydrocarbons 418.1	mg/kg	271	
BTEX By SW846-8020			
Benzene	ug/kg	< 0.3	
Toluene	ug/kg	1.1	
Ethylbenzene	ug/kg	< 0.2	
Xylenes	ug/kg	< 0.2	
Polynuclear Aromatic Hydrocarbons 8100			
Quality Control			
2-Fluorobiphenyl	%	90.9	
Acenaphthene	mg/kg	< 0.79	
Acenaphthylene	mg/kg	< 0.37	
Anthracene	mg/kg	< 0.92	
Benzo(a)anthracene	mg/kg	< 0.60	
Benzo(a)pyrene	mg/kg	< 1.09	
Benzo(b)fluoranthene	mg/kg	< 0.70	
Benzo(ghi)perylene	mg/kg	< 0.86	
Benzo(k)fluoranthene	mg/kg	< 0.70	
Chrysene	mg/kg	< 0.66	
Dibenzo(a,h)anthracene	mg/kg	< 1.65	
Fluoranthene	mg/kg	< 0.42	
Fluorene	mg/kg	< 0.61	
Indeno(1,2,3-cd)pyrene	mg/kg	< 1.65	
Naphthalene	mg/kg	< 0.32	
Phenanthrene	mg/kg	< 0.61	
Pyrene	mg/kg	< 0.55	

FORE Testing Laboratories Inc.

4.0 SAMPLING DATA

4.0 SAMPLING DATA

4.1 Sample Collection Procedure:

Two samples were collected from the tank excavation pit. One additional sample was collected from the soil stockpile. One of the two pit samples was field screened and sent for laboratory analysis along with the stockpile sample.

Samples were collected using a AMS standard soil augur consisting of a 3.25 inch diameter carbon steel soil augur head mounted on a 5-foot long cross handle extension.

Because soil slumping of backfill materials from excavation occurred at the time of tank removal, samples were taken at an approximate 1.5 foot depth beneath the existing soil surface. This was done in order to access soils which had been in actual contact with the tank surface.

In order to prevent cross contamination of samples, latex rubber gloves were worn by the sampler at all times. Glove changes were made by the sampler after each sample was collected, and after each equipment decontamination event the gloves were screened.

At each sample location, split samples were taken. One of the split samples was prepared for delivery to an analytical laboratory for appropriate analysis. The second split sample from each location was field screened to determine which of the two samples would be analyzed. In addition, the sample from the soil stockpile was also laboratory analyzed.

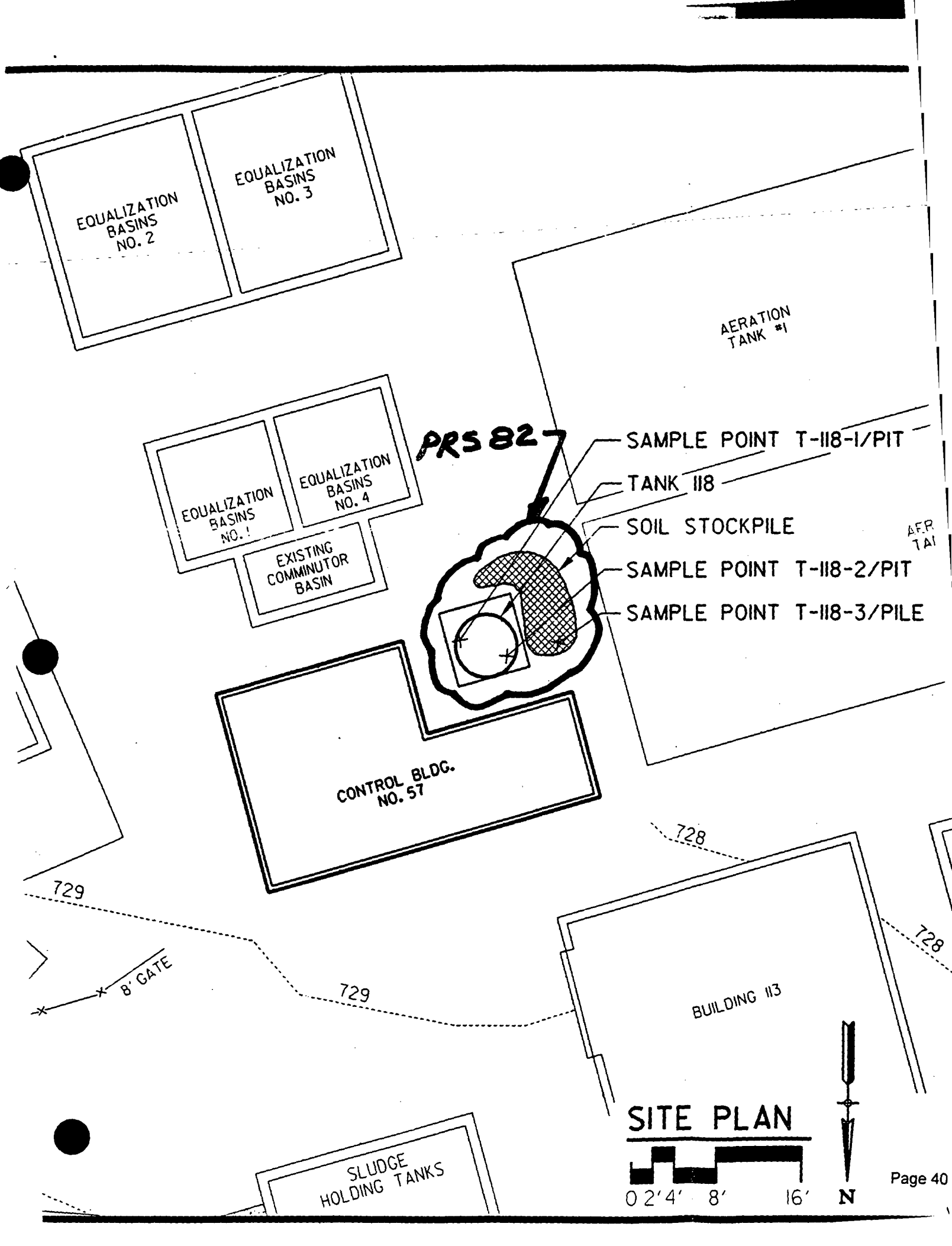
Equipment was decontaminated after collection of each sample.

4.1.1 Sample Preservation Techniques:

All samples were maintained after collection at 4° celsius. No chemical preservatives were used.

4.1.2 Sample Containers:

All sample containers were glass and fitted with Teflon lined lids.


EQUALIZATION BASINS NO. 2
EQUALIZATION BASINS NO. 3
AERATION TANK #1
EQUALIZATION BASINS NO. 1
EQUALIZATION BASINS NO. 4
EXISTING COMMINUTOR BASIN
PRS 82
SAMPLE POINT T-118-1/PIT
TANK 118
SOIL STOCKPILE
SAMPLE POINT T-118-2/PIT
SAMPLE POINT T-118-3/PILE
CONTROL BLDG. NO. 57
728
729
729
728
8' GATE
BUILDING 113
SLUDGE HOLDING TANKS
SITE PLAN
0 2' 4' 8' 16'
N

4.1.3 Decontamination Procedures:

Decontamination procedures consisted of a brush scrub of all equipment between sampling events using a non-phosphate detergent in distilled water followed by two distilled water rinses. Upon completion, the soil contact equipment was inspected for visible signs of contamination. A repeat of the above procedure was continued until all visible signs of contamination were removed. Latex gloves were changed before and after each decontamination event.

4.2 Field Screening Details:

4.2.1 Instrument Readings:

Field sample screening instrument readings were as follows:

SAMPLE NO.	LOCATION	INSTRUMENT READING
T-118-1/PIT	PIT	PID= 0.15
		FID= 2.0
T-118-2/PIT	PIT	PID= 0
		FID= 1.8
T-118-3/PILE	STOCKPILE	PID= 1.6
		FID=3.3

4.2.2 Location of Screening Samples:

Sample locations are depicted on the site map included in this report as Figure 7.

4.2.3 Depth of Screening Sample Points:

Screening samples taken from the excavation pit were taken at a depth of approximately 1.5 feet. The sample from the stockpile was taken at a depth of approximately one foot.

4.2.4 Screening Sample Method:

All sample screening results collected during this tank closure were taken with an instrument containing both a photoionization (PID) and a flame ionization (FID) detector.

4.2.5 Screening Instrument Used:

The screening instrument used was a TVA1000A Toxic Vapor Analyzer manufactured by The Foxboro Company, Foxboro, Massachussets.

4.2.6 Instrument Calibration Data:

Calibration of the PID/FID used during this tank closure was performed in accordance with the manufacturers procedures. Instrument calibration data for the TVA1000A Toxic Vapor Analyzer is included in this report as Figure 3.

4.3 Chain of Custody:

The chain of custody record generated at the time of sample collection is included in this report as Figure 4.

4.4 Date of Sample Collection:

All Samples were collected on May 10, 1995.

5.0 LABORATORY ANALYTICAL DATA

5.0 LABORATORY ANALYTICAL DATA

5.1 Analytical Results and Data Sheets:

PARAMETER	UNITS	SAMPLE RESULTS
SAMPLE ID: T-118-2/PIT		
Total Petroleum Hydrocarbons- 418.1	mg/kg	⟨ 25
BTEX By SW846-8020		
Toluene	µg/kg	⟨ 0.3
Benzene	µg/kg	1.9
Ethylbenzene	µg/kg	⟨ 0.2
Xylenes	µg/kg	⟨ 0.2
Polynuclear Aromatic Hydrocarbons By SW846-8100		
Quality Control 2-Fluorobiphenyl	%	99.7
Acenaphthene	mg/kg	⟨ 0.79
Acenaphthylene	mg/kg	⟨ 0.37
Anthracene	mg/kg	⟨ 0.92
Benzo (a) anthracene	mg/kg	⟨ 0.60
Benzo (a) pyrene	mg/kg	⟨ 1.09
Benzo (b) fluoroanthene	mg/kg	⟨ 0.70
Benzo (ghi) perylene	mg/kg	⟨ 0.86
Benzo (k) fluoroanthene	mg/kg	⟨ 0.70
Chrysene	mg/kg	⟨ 0.66
Dibenzo (a,h) anthracene	mg/kg	⟨ 1.65
Fluoranthene	mg/kg	⟨ 0.42
Fluorene	mg/kg	⟨ 0.61
Indeno (1,2,3-cd) pyrene	mg/kg	⟨ 1.65
Naphthalene	mg/kg	⟨ 0.32
Phenanthrene	mg/kg	⟨ 0.61
Pyrene	mg/kg	⟨ 0.55

Laboratory Data Sheets are included for the stockpile (Figure 2), and the excavation pit (Figure 5).

PARAMETER	UNITS	SAMPLE RESULTS
SAMPLE ID: T-118-3/PILE		
Total Petroleum Hydrocarbons 418.1	mg/kg	271
BTEX By SW846-8020		
Toluene	µg/kg	⟨ 0.3
Benzene	µg/kg	1.1
Ethylbenzene	µg/kg	⟨ 0.2
Xylenes	µg/kg	⟨ 0.2
Polynuclear Aromatic Hydrocarbons By SW846-8100		
Quality Control 2-Fluorobiphenyl	%	90.9
Acenaphthene	mg/kg	⟨ 0.79
Acenaphthylene	mg/kg	⟨ 0.37
Anthracene	mg/kg	⟨ 0.92
Benzo (a) anthracene	mg/kg	⟨ 0.60
Benzo (a) pyrene	mg/kg	⟨ 1.09
Benzo (b) fluoroanthene	mg/kg	⟨ 0.70
Benzo (ghi) perylene	mg/kg	⟨ 0.86
Benzo (k) fluoroanthene	mg/kg	⟨ 0.70
Chrysene	mg/kg	⟨ 0.66
Dibenzo (a,h) anthracene	mg/kg	⟨ 1.65
Fluoranthene	mg/kg	⟨ 0.42
Fluorene	mg/kg	⟨ 0.61
Indeno (1,2,3-cd) pyrene	mg/kg	⟨ 1.65
Naphthalene	mg/kg	⟨ 0.32
Phenanthrene	mg/kg	⟨ 0.61
Pyrene	mg/kg	⟨ 0.55

LABORATORY ANALYSIS REPORT

Mr. Kerby Burton
BARGE, WAGGONER, SUMNER & CANNON
8755 Gander Creek
Miamisburg, OH 45342

Page 1
Report Date : 05/12/95
HEG Task # : 95050093
HEG P/N, Acct:

P.O. Number:
Date Received: 05/10/95
Proj Name: Tank 118 Removal (Fryman-Kuck)

HEG Sample # : 9504897 Sample Date: 05/10/95 Sample Priority: Emergency
Sample ID : T-118-2/Pit

Parameter	Units	Results	Comments
Total Petroleum Hydrocarbons 418.1	mg/kg	< 25	
BTEX By SW846-8020			
Benzene	ug/kg	< 0.3	
Toluene	ug/kg	1.9	
Ethylbenzene	ug/kg	< 0.2	
Xylenes	ug/kg	< 0.2	
Polynuclear Aromatic Hydrocarbons 8100			
Quality Control			
2-Fluorobiphenyl	%	99.7	
Acenaphthene	mg/kg	< 0.79	
Acenaphthylene	mg/kg	< 0.37	
Anthracene	mg/kg	< 0.92	
Benzo(a)anthracene	mg/kg	< 0.60	
Benzo(a)pyrene	mg/kg	< 1.09	
Benzo(b)fluoranthene	mg/kg	< 0.70	
Benzo(ghi)perylene	mg/kg	< 0.86	
Benzo(k)fluoranthene	mg/kg	< 0.70	
Chrysene	mg/kg	< 0.66	
Dibenzo(a,h)anthracene	mg/kg	< 1.65	
Fluoranthene	mg/kg	< 0.42	
Fluorene	mg/kg	< 0.61	
Indeno(1,2,3-cd)pyrene	mg/kg	< 1.65	
Naphthalene	mg/kg	< 0.32	
Phenanthrene	mg/kg	< 0.61	
Pyrene	mg/kg	< 0.55	

SUPPLEMENTAL STOCKPILE INFORMATION

At the time of closure of the subject underground storage tank; a stockpile of approximately 10 CY was generated. That stockpile was covered to protect the soil from the elements. Of that 10 CY, approximately 0.25 CY of soil was contaminated with fuel oil spilled at the time of closure. That 0.25 CY of soil was segregated and drummed for separate disposal by incineration along with sampling decon water, personal protective equipment and absorbent generated at the time of closure. The drummed material was sent to:

Rollins Environmental Services
13351 Scenic Highway
Baton Rouge, Louisiana 70807

The material in question was part of a general shipment and was included on Manifest No. LAA 6321576 (See Figure 10) and listed on page 3 of that Manifest as item 28d - Non-Regulated Material.

Based on the results of the analysis, the remaining 9.75 CY of soil excavated at closure of the subject tank is not contaminated in accordance with OAC 1301: 7-9-13. Therefore, no additional action was taken under the auspices of that regulation. However, DOE has entered into a consent decree with the Ohio EPA in response to the inclusion of the Mound Facility Site inclusion on the CERCLA National Priority List. The cleanup action levels associated with that agreement are more stringent than those dictated by BUSTR. As a result, additional treatment of soils has been made in that regard.

Specifically, the soil will undergo bioremediation until the following contaminant levels are achieved:

TPH	-	40 mg/kg
Benzene	-	0.006 mg/kg
Toluene	-	4.0 mg/kg
Ethylbenzene	-	6.0 mg/kg
Xylene	-	28.0 mg/kg

The subject bioremediation treatment facility is located at the Mound Site and is shown on Figure 11. The treatment method is described in Sections 3.6, 3.7 and Sections 3.9.1 through 3.9.3 and 4.1 through 4.3 of the Mound Plant ER Program OU-5 FFTA Removal Section Work Plan (excerpts included herein as Figure 12). Upon completion of the treatment of subject stockpile soils to the above cleanup levels, the soils will be deposited at the Mound Spoils area.

CLOSURE FORM (PART III)
SOIL DISPOSAL/TREATMENT CHECKLIST

ON JANUARY 23, 1995, OHIO ADMINISTRATIVE CODE (OAC) 1301:7-9-16 AND OAC 1301:7-9-17 WENT INTO EFFECT GOVERNING THE STORAGE, TRANSPORTATION, AND DISPOSAL OF PETROLEUM CONTAMINATED SOILS GENERATED AT UNDERGROUND STORAGE TANK (UST) SITES. THESE TWO REGULATIONS ARE TO BE USED IN CONJUNCTION WITH OAC 1301:7-9-12 AND 1301:7-9-13 WHEN PETROLEUM CONTAMINATED SOILS (PCS) ARE GENERATED. THE FOLLOWING FORM MUST BE COMPLETED IN ORDER TO COMPLY WITH BUSTR REPORTING REQUIREMENTS. IN ADDITION, PLEASE CONSOLIDATE THE REQUIRED PCS INFORMATION IN A SEPARATE SECTION OF THE REPORT.

DATE STOCKPILE WAS GENERATED: May 10, 1995

CALCULATED STOCKPILE VOLUME IN CUBIC YARDS: 10 C.Y. - 9.75 C.Y.

FINAL DISPOSITION OR TREATMENT OF STOCKPILE: Mound Spoils Area

Incineration - 0.25 C.Y.

CUBIC YARDS			
0	RETURNED TO EXCAVATION (BELOW CATEGORY ACTION LEVELS)		
0	RETURNED TO EXCAVATION (ABOVE CATEGORY ACTION LEVELS)		
9.75	DISPOSAL AT A LANDFILL		
-	ONE TIME LANDFARMING	___ON-SITE	___OFF-SITE
-	MULTIPLE APPLICATION LANDFARMING	___ON-SITE	___OFF-SITE
-	CONFINED TREATMENT AREA PROCESS	___ON-SITE	___OFF-SITE
-	ALTERNATIVE TREATMENT METHODS	___ON-SITE	___OFF-SITE
10C.Y.	OTHER (EXPLAIN) See Supplemental Stockpile Information at page 2		

PAGE NO.	PROVIDE THE PAGE NUMBER WHERE THE FOLLOWING INFORMATION MAY BE FOUND IN THE REPORT.
9	DESCRIPTION OF STOCKPILE STORAGE AND STAGING (E.G., BERMED, COVERED, ETC.)
11-13	SAMPLING AND FIELD SCREENING PROCEDURES, LOCATIONS, DATES, AND RESULTS
17	LABORATORY RESULTS IN TABLE FORMAT
Fig 2 @ Pg 9/10& Fig 4 @ Pg 14	LABORATORY REPORTS AND CHAIN OF CUSTODY FORM

IN THE EVENT THAT PCS IS TO BE TREATED, OAC 1301:7-9-16 REQUIRES WRITTEN NOTIFICATION TO BE SENT TO THE FIRE MARSHAL PRIOR TO COMMENCEMENT OF TREATMENT.

PAGE NO.	
N/A	NAME, ADDRESS, AND TELEPHONE NUMBER OF THE OWNER OR OPERATOR OF THE UST SITE
N/A	ADDRESS OF THE UST SITE
N/A	ADDRESS AND LOCATION WHERE TREATMENT WILL TAKE PLACE
N/A	AMOUNT OF PCS TO BE TREATED
N/A	A MAP OF THE LOCATION WHERE TREATMENT WILL TAKE PLACE. THE MAP SHOULD DEPICT PROPERTY BOUNDARIES, STREET LOCATIONS, ABOVE GROUND STRUCTURES, ETC. (REFER TO OAC 1301:7-9-16 FOR COMPLETE LIST).
N/A	A BRIEF DESCRIPTION OF THE TREATMENT METHOD TO BE USED
N/A	A DESCRIPTION OF AIR CONTAMINATION OR WASTE WATER DISCHARGE PERMITS REQUIRED PRIOR TO COMMENCEMENT OF TREATMENT
N/A	SIGNED WRITTEN STATEMENT BY THE UST OWNER/OPERATOR AS PRESCRIBED IN OAC 1301:7-9-16 (THIS IS A SEPARATE WRITTEN STATEMENT AND IS NOT TO BE CONFUSED WITH THE CERTIFICATION STATEMENT BELOW).

CERTIFICATION STATEMENT

I CERTIFY THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS FORM AND ALL ATTACHED DOCUMENTS, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE SUBMITTED INFORMATION IS TRUE, ACCURATE, AND COMPLETE.

Mr. George Gartrell		August 10, 1995
OWNER/OPERATOR'S NAME (PRINT)	SIGNATURE	DATE

MOUND

Environmental
Restoration
Program

Further Assessment

Soil Gas Confirmation Sampling

Mound Plant
Miamisburg, Ohio

May 1996

Revision 0

Department of Energy

EG&G Mound Applied Technologies

Table I.1 Soil Analyte List

Volatile Organic Compounds

Acetone	Dibromochloromethane	4-Methyl-2-Pentanone
Benzene	1,1-Dichloroethane	Styrene
Bromodichloromethane	1,2-Dichloroethane	1,1,2,2-Tetrachloroethane
Bromoform	1,1-Dichloroethene	Tetrachloroethene
Bromomethane	1,2-Dichloroethene (total)	1,1,1-Trichloroethane
2-Butanone	1,2-Dichloropropane	1,1,2-Trichloroethane-
Carbon Disulfide	cis-1,3-Dichloropropene	Trichloroethene
Carbon Tetrachloride	trans-1,3-Dichloropropene	Toluene
Chlorobenzene	Ethylbenzene	Vinyl Acetate
Chloroethane	2-Hexanone	Vinyl Chloride
Chloroform	Methylene Chloride	Xylenes (total)
Chloromethane		

Semivolatile Organic Compounds

Acenaphthene	Chrysene	Hexachlorobenzene
Acenaphthylene	Dibenz(a,h)anthracene	Hexachlorobutadiene
Anthracene	Dibenzofuran	Hexachlorocyclopentadiene
Benzo(a)anthracene	1,2-Dichlorobenzene	Hexachloroethane
Benzo(a)pyrene	1,3-Dichlorobenzene	Indeno(1,2,3-cd)pyrene
Benzo(b)fluoranthene	1,4-Dichlorobenzene	Isophorone
Benzo(g,h,i)perylene	3,3-Dichlorobenzidine	2-Methylnaphthalene
Benzo(k)fluoranthene	2,4-Dichlorophenol	2-Methylphenol
bis(2-Chloroethoxy)methane	Diethylphthalate	4-Methylphenol
bis(2-Chloroethyl)ether	2,4-Dimethylphenol	Naphthalene
bis(2-Ethylhexyl)phthalate	Dimethyphthalate	2-Nitroaniline
4-Bromophenyl-phenylether	Di-n-butylphthalate	3-Nitroaniline
Butylbenzylphthalate	Di-n-octylphthalate	4-Nitroaniline
Carbazole	4,6-Dinitro-2-methylphenol	Nitrobenzene
4-Chloroaniline	2,4-Dinitrophenol	2-Nitrophenol
4-Chloro-3-methylphenol	2,4-Dinitrotoluene	4-Nitrophenol
2-Chloronaphthalene	2,6-Dinitrotoluene	N-Nitroso-di-n-propylamine
2-Chlorophenol	Fluoranthene	N-Nitroso-diphenylamine
4-Chlorophenyl-phenylether	Fluorene	2,2-oxybis(1-Chloropropane)
Pentachlorophenol	Pyrene	2,4,5-Trichlorobenzene
Phenanthrene	1,2,4-Trichlorobenzene	2,4,6-Trichlorobenzene
Phenol		

Table I.1 Soil Analyte List (Continued)

Pesticides/PCB's		
Aroclor-1016	Delta-BHC	Endosulfan II
Aroclor-1221	Gamma-BHC	Endosulfan sulfate
Aroclor-1232	alpha-Chlordane	Endrin
Aroclor-1242	gamma-Chlordane	Endrin aldehyde
Aroclor-1248	4,4'-DDD	Endrin ketone
Aroclor-1254	4,4'-DDE	Heptachlor
Aroclor-1260	4,4'-DDT	Heptachlor epoxide
Aldrin	Dieldrin	Methoxychlor
Alpha-BHC	Endosulfan I	Toxaphene
Beta-BHC		
Inorganics		
Aluminum	Copper	Potassium
Antimony	Cyanide	Selenium
Arsenic	Iron	Silver
Barium	Lead	Sodium
Beryllium	Lithium	Thallium
Bismuth	Magnesium	Tin
Cadmium	Manganese	Vanadium
Calcium	Mercury	Zinc
Chromium	Molybdenum	Nitrate/Nitrite
Cobalt	Nickel	Explosives (USATHAMA,PETN)
Radionuclides		
Americium-241	Plutonium-238	Thorium-230
Bismuth-207	Plutonium-239/240	Thorium-232
Bismuth-210	Potassium-40	Uranium-234
Cesium-137	Radium-226	Uranium-235
Cobalt-60	Thorium-228	Uranium-238

1.2. SAMPLE NUMBERING SCHEME

The sample identification numbers were assigned by Mound to each location in the following format: XXX-AAA-######. For each location, the first three characters were SGC, identifying the sample as part of the soil gas confirmation study. The next three characters represented the area from which each sample was taken:

A03 = Area 3
A07 = Area 7
A13 = Area 13
A21 = Area 21
A22 = Area 22
SDB = Area SDB
AOJ = Area AOJ
NAC = Non-AOC areas (Area of Concern)
SAN = Sanitary area

The final six digits were a sequential number beginning with 000001. The samples related to this study begin with 000001 and end with 000102. Due to an error in surveying, samples 000099 and 000100 were taken from the wrong locations. The sites were resurveyed and the samples were taken again, renamed as 000101 and 000102. No other problems arose with the sample identification.

1.3 SURVEYING

Prior to this sampling event, surveying relocated each of the 100 sites based on coordinates from a previous soil gas sampling event. Surveyors from Barge, Waggoner, Sumner and Cannon, of Miamisburg, Ohio, completed the task, using a benchmark map of approximately 50 locations with state plane coordinates provided by EG&G. Each point was relocated with an accuracy of ±6 inches and identified with either a 3-foot stake with orange flagging tape and the sample identification number or a pin driven into the ground through orange flagging with the sample identification number written on the flagging. The surveyed sampling locations are shown on Figure 1.1.

1.4 UTILITIES CLEARANCE/VARIANCES

After surveying, all sites were checked for the presence of underground utilities by EG&G personnel. The requirement states that sample sites must be located five feet or more from utilities. Situations in which the 5-foot rule was not met were handled in one of three ways: 1) **relocations** - sample sites were placed 5 feet or more from utility markings and normal sampling procedures were followed; 2) **hand-digging** - the VOC sample soil was collected using the core sampler, which was driven only to the depth necessary to collect the VOC sample, and the remaining soil was collected using a hand auger; or 3) **variances to the 5-foot clearance requirement** - some sites were located near visible utilities, so after safe clearance was established, normal sampling procedures were followed. Alternatively, some locations had underground utilities at relitivley deeper depths. At these locations, normal sampling procedures were followed except that digging/coring was limited to two feet instead of the established three feet. No utilities were damaged during the sampling event.

Some locations had no utility interference but still could not be sampled to three feet due to "refusal"--an inability to drive the sampler deeper. This usually indicates that bedrock or large gravel has been reached. In such cases, multiple shallow cores were taken.

A complete list of sites with variances to the original soil gas sampling location or depth can be found in Table I.2.

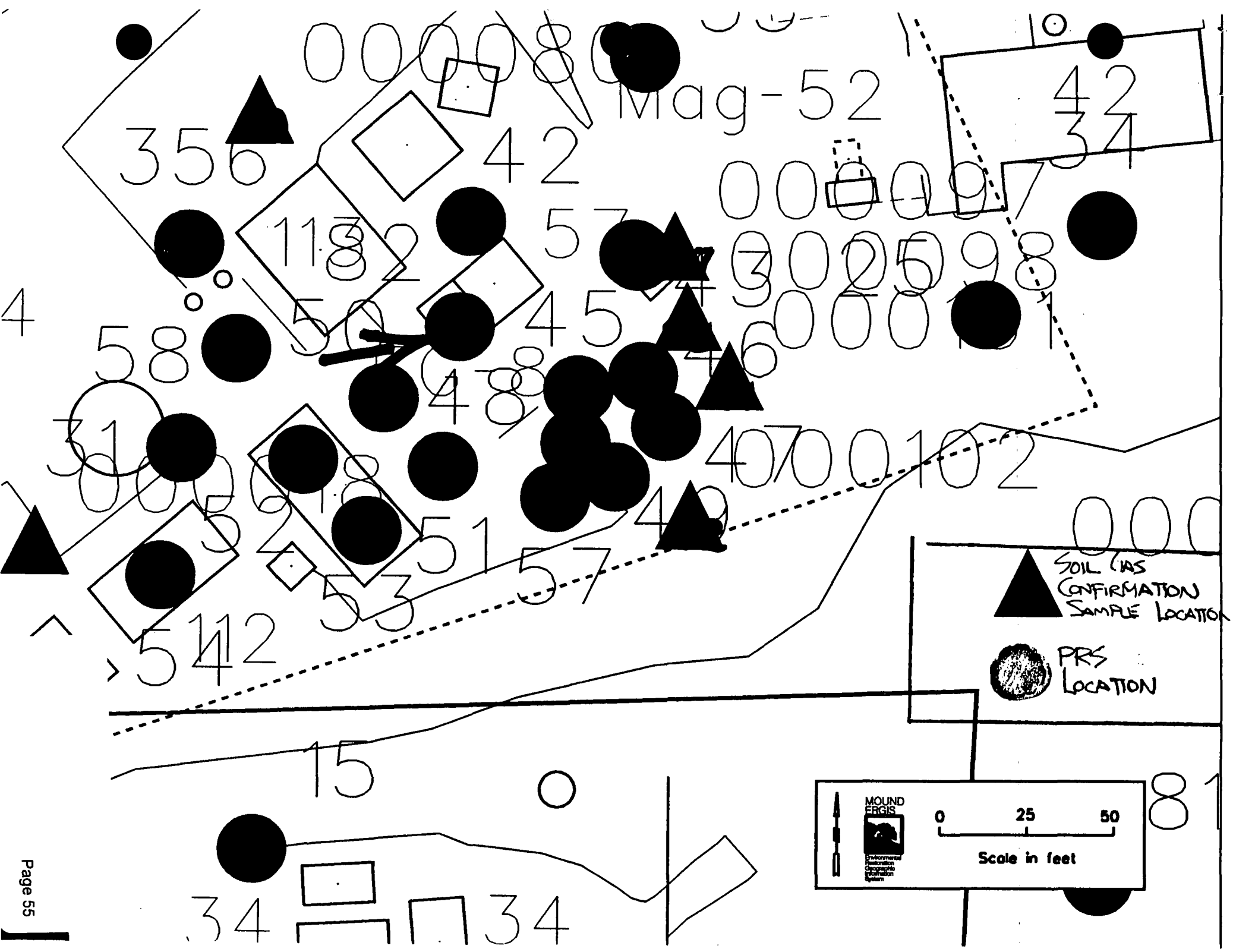
1.5 SOIL SAMPLING METHODOLOGY

Soil was collected at each location using either a van-mounted Geoprobe® rig equipped with a core sampler, an electric hammer equipped with a core sampler, or a hand auger. The device chosen depended upon the particulars of the location. Acetate liners were used in the Geoprobe® core barrel and the hand-held core sampler. The liners were cut open with utility knives, using a new blade at each site.

The first six inches of the core, designated for radionuclide analysis, were removed using a clean, stainless steel scoop and placed in a clean stainless steel bowl to be homogenized. Soil was cut from between the 6-inch and 1-1/2 foot depth and placed directly into jars appropriate for volatile organic compound (VOC) analysis, leaving as little headspace as possible. The remaining soil was then placed into another clean stainless steel bowl. If necessary to obtain sufficient sample volume, another core was taken, and the above process was repeated. When enough soil was collected to fill all the sample jars, the contents of both bowls were individually homogenized and used to fill their respective containers. The jars were labeled prior to being filled. Each sample was then secured with a custody seal, sealed in a plastic bag and stored in a refrigerator in Building 19. Radiological samples were delivered to the Mound Environmental Laboratory for screening. Several duplicate radiological samples were collected and set aside for later analysis by the Mound wet chemistry laboratory. After screening clearance was obtained from the Mound Environmental Laboratory, the samples were sealed in coolers and shipped to off-site contract laboratories for analysis. The contract laboratory for radionuclide analysis was Quanterra Environmental Services in Richland, Washington. All other analyses were completed by Roy F. Weston, Incorporated Laboratory in Lionville, Pennsylvania.

Table I.2. Variance From 3-Foot Sampling Depth Specification

Location	Description of Variance
SGC-NAC-000001	Core sampler hit refusal at 2 feet.
SGC-NAC-000002	Relocated due to utilities.
SGC-NAC-000003	Core sampler hit refusal at 2 feet.
SGC-NAC-000004	Core sampler hit refusal at 18 inches.
SGC-NAC-000005	Drilled to 1 foot, hand-augered rest due to utilities.
SGC-NAC-000006	Drilled to 1 foot, hand-augered rest due to utilities.
SGC-NAC-000007	Core sampler hit refusal at 18 inches.
SGC-NAC-000008	Drilled to 2 feet due to utilities.
SGC-NAC-000010	Drilled to 1 foot; hand-augered rest due to utilities; flag against building, so sample taken 6 feet from flag.
SGC-NAC-000012	Drilled to 2 feet due to utilities.
SGC-SAN-000018	Core sampler hit refusal at 2 feet; relocated from inside clarifier.
SGC-NAC-000029	Core sampler hit refusal at 18 inches.
SGC-A61-000043	Sampled 1 foot from flag.
SGC-A61-000047	Drilled to 2 feet due to utilities.
SGC-A61-000048	Drilled to 2 feet due to utilities.
SGC-A61-000049	Relocated due to utilities.
SGC-A61-000051	Core sampler hit refusal at 18 inches.
SGC-A61-000052	Relocated due to utilities; core sampler hit refusal at 18 inches.
SGC-A61-000053	Core sampler hit refusal at 2 feet.
SGC-A13-000056	Core sampler hit refusal at 18 inches
SGC-A13-000058	Drilled to 1 foot, hand-augered rest due to utilities.
SGC-A13-000060	Core sampler hit refusal at 1 foot.
SGC-AOJ-000064	Core sampler hit refusal at 2 - 3 inches.
SGC-AOJ-000066	Core sampler hit refusal at 4 inches.
SGC-AOJ-000067	Core sampler hit refusal at 6 inches.
SGC-AOJ-000069	Core sampler hit refusal at 2 feet.
SGC-A03-000080	Core sampler hit refusal at 20 inches
SGC-A03-000081	Drilled to 2 feet due to utilities.
SGC-A03-000082	Drilled to 1 foot, hand-augered rest due to utilities.
SGC-A03-000083	Sampled 25 feet from original location due to storm sewer; core sampler hit refusal at 18 inches.
SGC-A03-000087	Core sampler hit refusal at 2 feet.
SGC-A21-000088	Core sampler hit refusal at 18 inches.
SGC-A21-000090	Core sampler hit refusal at 20 inches.
SGC-SDB-000097	Relocated due to utilities.
SGC-SDB-000098	Relocated from inside a building.
SGC-SDB-000101	Relocation of SGC-SDB-000099; first location surveyed incorrectly.
SGC-SDB-000102	Relocation of SGC-SDB-000100; first location surveyed incorrectly.


Mag-52
SOIL GAS CONFIRMATION SAMPLE LOCATION
PRS LOCATION
MOUND
0
25
50
Scale in feet

The following tables contain the Soil Gas Confirmation Sampling results. Sampling was performed for the following categories of contaminants:

Volatiles
Semivolatiles
PCBs/pesticides
Metals
Radionuclides
Explosives

If no results are given for the contaminant categories listed above, then no detects were found for that category of contaminants.

This page was inserted for clarity. It is not part of the Soil Gas Confirmation Report.

Table A.1. Soil Gas Confirmation Detected Volatile Organic Compounds (cont.)

ANALYTE	SGC AO3 000086	SGC AO3 000087	SGC A21 000088	SGC A22 000093	SGC SDB 000097	SGC SDB 000098	Background	10^{-6} Construction Worker Guidelines
VOLATILES (µg/Kg)								
Acetone		1				11	NA	105000000
1,2-Dichloroethene (total)							NA	21500000
2-Butanone		4 J					NA	46500000
Benzene							NA	8900
Carbon Disulfide							NA	1400000
Chloroform							NA	NA
Chloromethane							NA	NA
Ethylbenzene							NA	480
Methylene Chloride		1			12	21	NA	NA
Tetrachloroethene						70	NA	10500000
Toluene			2 J	J			NA	1250000
Trichloroethene		26					NA	41000
Xylene (total)				1 J			NA	2150000000

Table A-1. Soil Gas Confirmation Detected Volatile Organic Compounds (cont.)

ANALYTE	SGC SDB 000101	SGC SDB 000102					Background	10^{-6} Construction Worker Guidelines
VOLATILES (µg/Kg)								
Acetone		12					NA	105000000
1,2-Dichloroethene (total)							NA	21500000
2-Butanone		4	J				NA	46500000
Benzene							NA	8900
Carbon Disulfide							NA	1400000
Chloroform							NA	NA
Chloromethane							NA	NA
Ethylbenzene							NA	480
Methylene Chloride	7	18					NA	NA
Tetrachloroethene							NA	10500000
Toluene		2	J				NA	1250000
Trichloroethene							NA	41000
Xylene (total)							NA	2150000000

J - Numerical value is an estimated quantity
NA - Value not available
D - Sample was diluted
C - Estimated due to error in calibration
µg/kg - micrograms per kilogram

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds (cont.)

ANALYTE	SGC AOJ 000074	SGC AOJ 000075	SGC AOJ 000076	SGC AOJ 000077	SGC AOJ 000078	SGC AO3 000080	Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (µg/Kg)								
Acenaphthene							NA	NA
Acenaphthylene						280 J	NA	NA
Anthracene	30 J		35 J		J	150 J	NA	320000000
Benzo(a)anthracene	96 J	26	280 J	210 J	150 J	480	NA	4100
Benzo(a)pyrene	96 J	31 J	92 J	260	160 J	850	NA	410
Benzo(b)fluoranthene	96 J	3[illegible] J	25[illegible] J	200 J	150 J	640	NA	4100
Benzo(g,h,i)perylene	66 J	[illegible]5 J	30	17[illegible] J	100 J	590	NA	NA
Benzo(k)fluoranthene	85 J	31 J	200 J	[illegible]00 J	150 J	630	NA	41000
Bis(2-ethylhexyl)phthalate				2[illegible] J	35 J		NA	215000
Butylbenzylphthalate	58 J						NA	215000000
Carbazole	1[illegible] J		35 J		23 J	19 J	NA	NA
Chrysene	110 J	38 J	6[illegible]	220 J	[illegible]0 J	500	NA	410000
Di-n-butyl phthalate							NA	105000000
Di-n-octyl phthalate							NA	21500000
Dibenz(a,h)anthracene	22[illegible] J			47	31 J	180 J	NA	410
Dibenzofuran						56 J	NA	NA
Diethyl phthalate							NA	NA
Fluoranthene	250 J	[illegible]5 J	2100	[illegible]80 J	320 J	780	NA	42500000
Fluorene						89 J	NA	NA
Indeno(1,2,3-cd)pyrene	60	24 J	45	140 J	91 J	580	NA	4100
2-Methylnaphthalene						25 J	NA	NA
Naphthalene						79 J	NA	NA
Phenanthrene	150 J	29 J	[illegible]30 J	45 J	170 J	370 J	NA	NA
Phenol					150 J		NA	650000000
Pyrene	200 J	53 J	1700	300 J	300 J	690	NA	32000000

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds (cont.)

ANALYTE	SGC A11 000091	SGC A22 000092	SGC A22 000093	SGC A22 000094	SGC SDB 000097	SGC SDB 000098	Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (µg/Kg)								
Acenaphthene						19 J	NA	NA
Acenaphthylene					40 J		NA	NA
Anthracene					33 J	39 J	NA	320000000
Benzo(a)anthracene		23 J		51 J	160 J	100 J	NA	4100
Benzo(a)pyrene		23 J		65 J	180 J	92 J	NA	410
Benzo(b)fluoranthene		28 J		82 J	170 J	96 J	NA	4100
Benzo(g,h,i)perylene				48 J	65 J	46 J	NA	NA
Benzo(k)fluoranthene		21 J		69 J	160 J	95 J	NA	41000
Bis(2-ethylhexyl)phthalate	26 J		19 J				NA	215000
Butylbenzylphthalate							NA	215000000
Carbazole						50 J	NA	NA
Chrysene		25 J		76 J	170 J	130 J	NA	410000
Di-n-butyl phthalate							NA	105000000
Di-n-octyl phthalate							NA	21500000
Dibenz(a,h)anthracene					35 J	22 J	NA	410
Dibenzofuran						28 J	NA	NA
Diethyl phthalate					20 J		NA	NA
Fluoranthene		59 J		140 J	330 J	350 J	NA	42500000
Fluorene						27 J	NA	NA
Indeno(1,2,3-cd)pyrene				42 J	110 J	62 J	NA	4100
2-Methylnaphthalene							NA	NA
Naphthalene							NA	NA
Phenanthrene		42 J		96 J	150 J	340 J	NA	NA
Phenol							NA	650000000
Pyrene		48 J		120 J	280 J	240 J	NA	32000000

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds (cont.)

ANALYTE	SGC SDB 000101						Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (µg/Kg)								
Acenaphthene	1200	J-H					NA	NA
Acenaphthylene							NA	NA
Anthracene	2000	J-H					NA	320000000
Benzo(a)anthracene	5700	J-H					NA	4100
Benzo(a)pyrene	5900	J-H					NA	410
Benzo(b)fluoranthene	5200	J-H					NA	4100
Benzo(g,h,i)perylene	4200	J-H					NA	NA
Benzo(k)fluoranthene	5200	J-H					NA	41000
Bis(2-ethylhexyl)phthalate							NA	215000
Butylbenzylphthalate							NA	215000000
Carbazole	1600	J-H					NA	NA
Chrysene	6400	J-H					NA	410000
Di-n-butyl phthalate							NA	105000000
Di-n-octyl phthalate	240	J-H					NA	21500000
Dibenz(a,h)anthracene	1400	J-H					NA	410
Dibenzofuran	590	J-H					NA	NA
Diethyl phthalate							NA	NA
Fluoranthene	13000	J-H					NA	42500000
Fluorene	1000	J-H					NA	NA
Indeno(1,2,3-cd)pyrene	3900	J-H					NA	4100
2-Methylnaphthalene							NA	NA
Naphthalene	360	J-H					NA	NA
Phenanthrene	11000	J-H					NA	NA
Phenol							NA	650000000
Pyrene	12000	J-H					NA	32000000

J - Numerical value is an estimated quantity
NA - Value not available
µg/kg - micrograms per kilogram
H - Analyzed outside holding time
D - Sample was diluted

Table A.3. Soil Gas Confirmation Detected Pesticides/PCB's (cont.)

ANALYTE	SGC AOJ 000067	SGC AO3 000071	SGC AO3 000081	SGC SDB 000101			Background	10^{-6} Construction Worker Guidelines
PESTICIDES/PCB (µg/kg)								
Aroclor-1248							ND	380
Aroclor-1254	52	44		140			ND	21500
Alpha-Chlordane		14*					ND	NA
Gamma-Chlordane		12*					ND	NA
4,4'-DDT			3.7				13000	9000
Dieldrin							ND	185
Endosulfan I							ND	NA
Endosulfan II			4.4				NA	NA
Endrin							ND	NA
Heptachlor							ND	NA

* - Unconfirmed due to interference
NA - Value not available
ND - No detections in background samples
µg/kg - micrograms per kilogram

Table III.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC A03 000079	SGC A03 000080	SGC A03 000081	SGC A03 000082	SGC A03 000083	SGC A03 000084	Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)								
Aluminum	4090	7450	4850	2070	3710	8760	19000	NA
Antimony	0.93				0.39 B	B	NA	425
Arsenic	5.5	3.3	4.5	3.6 B		6.8	8.6	320
Barium	34.4 BJ	21 B	34.9 B	26.9 B	29.6	72.6	180	75000
Beryllium	0.73 B	0.16 B	0.16 B		0.1 B	0.45 B	1.3	0.7
Bismuth							NA	NA
Cadmium			0.28 B	0.21 B	0.17 B		2.1	1050
Calcium	126000	133000	132000	164000	144000	61300	310000	NA
Chromium	7.3 J	10.4	7.9	6	6	14	20	1050000
Cobalt	6 B	7.7 B	5.1 B	2.1 B	7 B	9 B	19	NA
Copper	15 J	11.2	13.6	6.1	12.1	20	26	NA
Cyanide		0.58 B				0.69 B	ND	21400
Iron	13400 J	20400	1290	6180	8960	500	35000	NA
Lead	9.1 J	9.6	7.8	6.8	14.3	8.1	48	NA
Lithium	13 B	26.6	8.6 B	B	5 B	12.3	26	NA
Magnesium	49400 J	25300	47500	85100	6000	20100	40000	NA
Manganese	340 J	445	305	279	267	466	1400	135000
Mercury			0.06 B				NC	320
Molybdenum	2.1 B		1.9 B	1 B	2.2	2.7 B	27	NA
Nickel	17.1	17	13.2	6.1 B	8.4 B		32	21500
Potassium	829 B	1400	674 B	406 B	476 B	74 B	1900	NA
Selenium							NA	NA
Silver						0.46 B	1700	5500000
Sodium	171 BJ	347 B	218 B	464 B	B	124 B	240	NA
Thallium							460	NA
Tin	3.1 B	0.98 B				1.4 B	20	NA
Vanadium	11 J	8.8 B	10.9	8	11.6	22.1	25	7500
Zinc	43.6 J	39.6	43.2	27	58.6	53.9	140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC A22 000097		SGC A22 000098		SGC A22 000101		SGC A22 000102				Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)												
Aluminum	3100		11500		8360		8960				19000	NA
Antimony	0.25	B									NA	425
Arsenic	8.6		3.6	B	2.9		5.4				8.6	320
Barium	24.4	B	16	B	28.1	B	47.9	B			180	76000
Beryllium	0.17	B	0.57		0.4		0.45				1.3	0.7
Bismuth			1.2	B							NA	NA
Cadmium	0.16	B			0.23	B					2.1	1050
Calcium	164000		89400		89500		95900				310000	NA
Chromium	9.4		16.4		30.9		12.2				20	1050000
Cobalt	3.6	B	14.8		8.6	B	7.8	B			19	NA
Copper	15.4		19.3		44.2		12.8				26	NA
Cyanide											ND	21400
Iron	9690		27200		20400		18100				35000	NA
Lead	11.1		5.8		12.7		14.2				48	NA
Lithium	11	B	39.3		26.8		20.8	B			26	NA
Magnesium	58600		24600		26200		16400				40000	NA
Manganese	319		768		451		472				1400	135000
Mercury	0.06	B			0.44						NC	320
Molybdenum	0.97	B			1	B	0.53	B			27	NA
Nickel	9.4		28.2		20.5		17.7				32	21500
Potassium	562	B	1120	B	1600		1360				1900	NA
Selenium											NA	NA
Silver	1	B			0.25	B					1700	5500000
Sodium	212	B	276	B	440	B	149	B			240	NA
Thallium											460	NA
Tin											20	NA
Vanadium	7.4		14.7		12.5		13.5				25	7500
Zinc	66.7		59.2		590		47.1				140	320000

J - Numerical value is an estimated quantity
NA - Value not available
ND - No detections in background samples
B - Analyte detected below CRDL but above instrument detection limit
NC - Background value not computed
mg/kg - milligrams per kilogram

Table A.5. Soil Gas Confirmation Detected Nitrate-Nitrite (cont.)

ANALYTE	SGC SDB 000097	SGC SDB 000098	SGC SDB 000101	SGC SDB 000102			Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	94.3	88.6	86.7	81.1			NA	NA
Nitrate/Nitrite (MG-N/KG)	2.7	0.94	1.9	3.0			26	NA

NA - Data not available
MG-N/KG - milligrams per kilogram, reported as nitrogen

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC AO3 000077	SGC AO3 000079	SGC AO3 000080	SGC AO3 000081	SGC AO3 000082	SGC AO3 000083	SGC AO3 000084	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241								ND	4.95
Bismuth-207								ND	0.175
Bismuth-210								ND	NA
Cesium-137	0.0687	0.244						0.42	0.46
Cobalt-60								NC	0.1
Plutonium-238	1.06	1.84	0.0388	0.219	0.0390	0.096	0.456	0.13	5.5
Plutonium-239/240	0.00383	0.0[illegible]		0.0121				0.18	5.5
Potassium-40	21.5	[illegible]	10.1	8.61	12.4	3.49	4.46	37	NA
Radium-226	0.765	0.879	0.519	0.692	0.498	0.341	0.372	2	0.14
Thorium-228	1.21	0.515	0.343	0.464	0.647	0.133	0.690	1.5	0.85
Thorium-230	0.83	1.01	0.630	0.768	0.6[illegible]	0.346	0.517	1.9	44
Thorium-232	1.0[illegible]	0.716	0.304	0.446	[illegible]659	0.114	0.[illegible]8	1.4	50
Uranium-234	0.702	0.819	0.523	0.616	0.578	0.319	[illegible]546	1.1	37.5
Uranium-235	0.0361	[illegible]393				0.0246		0.11	3.35
Uranium-238	0.718	0.[illegible]	0.605	0.584	0.561	0.289	0.579	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC [illegible] 000092	SGC [illegible]2 000093	SGC A22 000094	SGC [illegible]22 000095	SGC A22 000096	SGC SDB 000097	SGC SDB 000098	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241						0.521		ND	4.95
Bismuth-207								ND	0.175
Bismuth-210								ND	NA
Cesium-137	0.207			0.131				0.42	0.46
Cobalt-60								NC	0.1
Plutonium-238	13.2	0.465	23.5	[illegible]	0.614	27.5	0.501	0.13	5.5
Plutonium-239/240	0.0624	0.00367	0.0820	0.04[illegible]		0.0977		0.18	5.5
Potassium-40	14.6	[illegible]	12.0	[illegible].18	3.76	14.0	19.8	37	NA
Radium-226	0.742	[illegible]27	1.00	0.559	0.[illegible]2	0.626	0.485	2	0.14
Thorium-228	0.746	[illegible].02	[illegible].591	0.556	0.254	0.704	0.789	1.5	0.85
Thorium-230	1.28	1.63	1.2[illegible]	0.705	0.21[illegible]	0.767	0.640	1.9	44
Thorium-232	0.8[illegible]6	1.08	0.5[illegible]	0.567	0.[illegible]4	0.622	0.601	1.4	50
Uranium-234	0.92[illegible]	0.931	[illegible].590	[illegible]375	[illegible].381	0.570	0.500	1.1	37.5
Uranium-235		[illegible].0524	0.0460			0.0350	0.0519	0.11	3.35
Uranium-238	1.00	0.96[illegible]	0.882	0.408	0.333	0.591	0.651	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC SDB 000101	SGC SDB 000102						Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241	1.39							ND	4.95
Bismuth-207								ND	0.175
Bismuth-210								ND	NA
Cesium-137								0.42	0.46
Cobalt-60								NC	0.1
Plutonium-238	118.0	2.11						0.13	5.5
Plutonium-239/240	0.364	0.0121						0.18	5.5
Potassium-40	7.86	16.8						37	NA
Radium-226	0.552	0.661						2	0.14
Thorium-228	0.295	0.695						1.5	0.85
Thorium-230	0.232	0.808						1.9	44
Thorium-232	0.167	0.668						1.4	50
Uranium-234	0.904	0.617						1.1	37.5
Uranium-235		0.0293						0.11	3.35
Uranium-238	0.511	0.642						1.2	11

ND - No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram