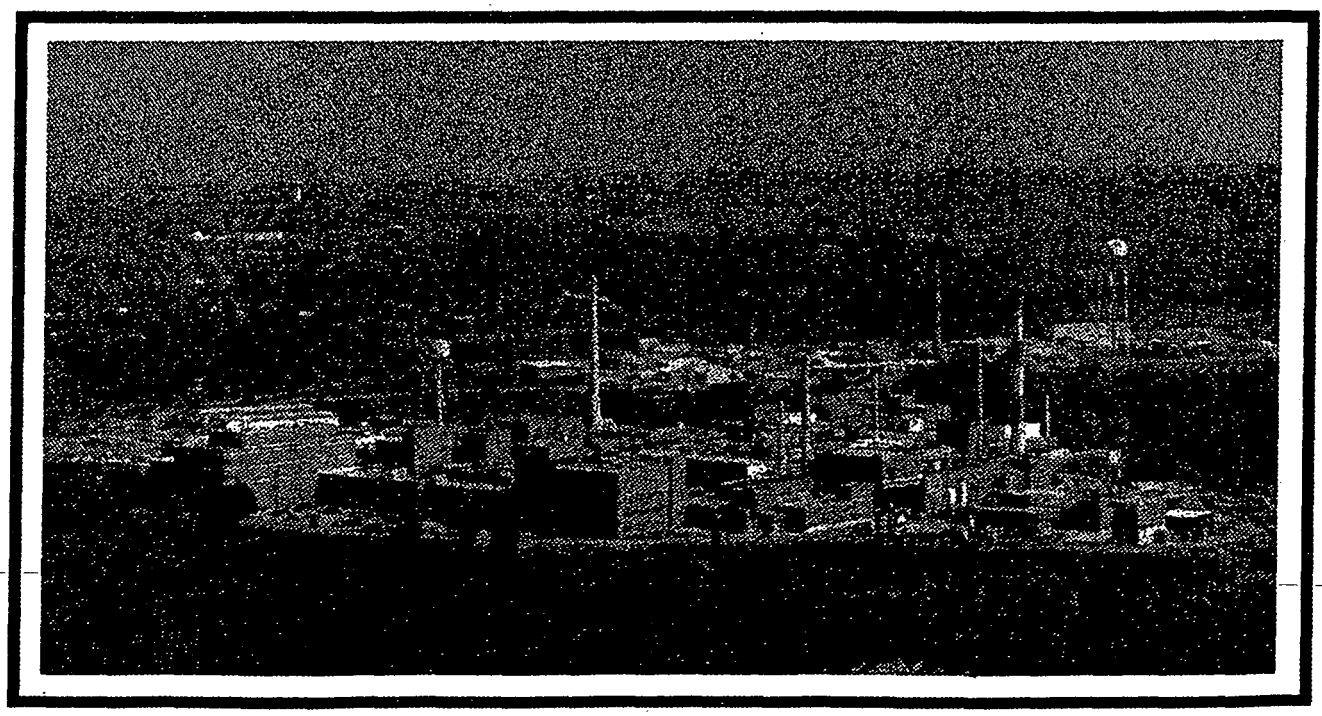
EG&G MOUND-30-03-04-02--9704140003

MOUND

Environmental
Restoration
Program

MOUND PLANT
Potential Release Site Package
PRS # 13



MOUND

Environmental Restoration Program

MOUND PLANT POTENTIAL RELEASE SITE PACKAGE

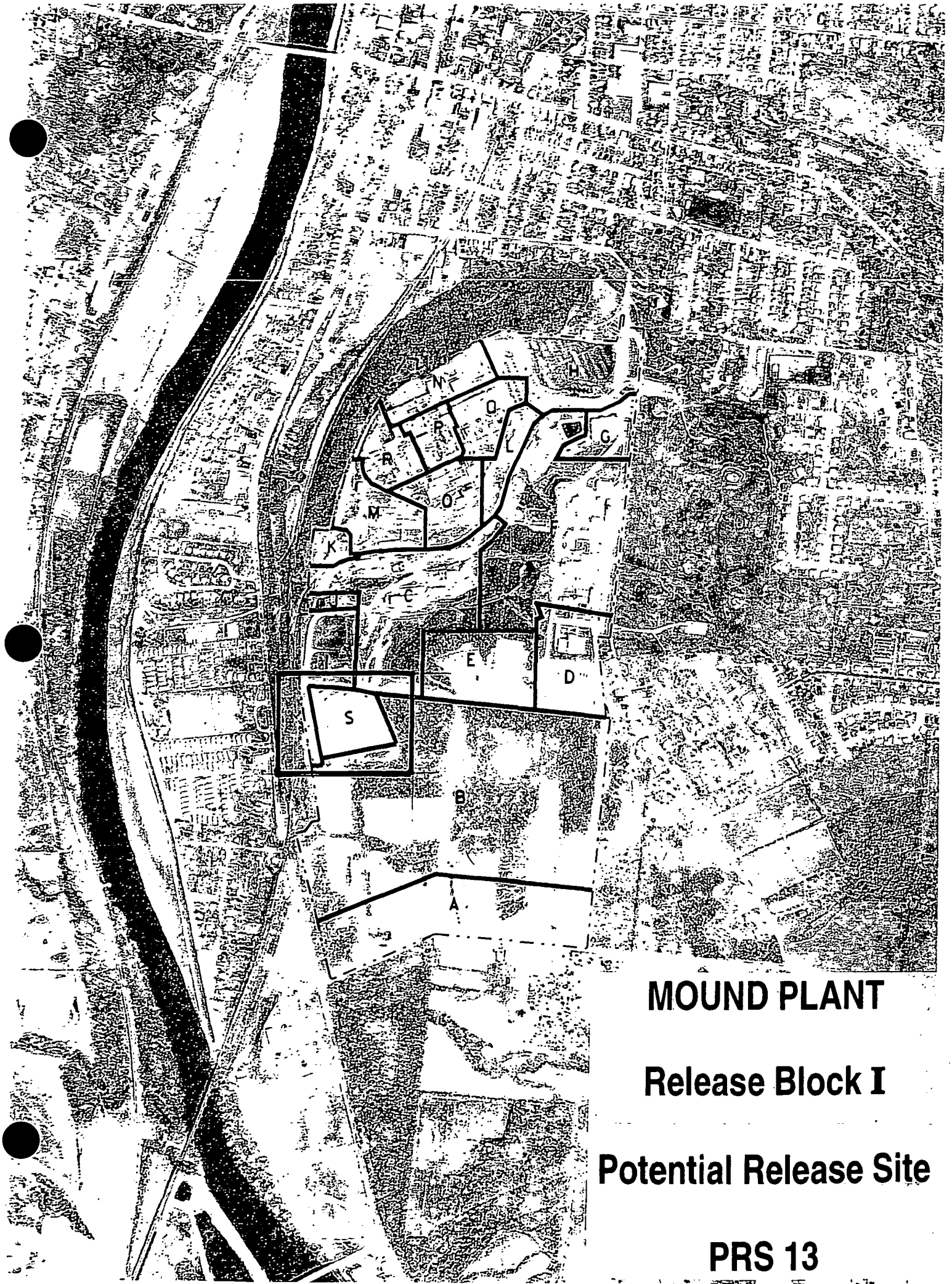
Notice of Public Review Period

The following potential release site (PRS) packages will be available for public review in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio beginning February 27, 1997. Public comment will be accepted on these packages from February 27, 1997, through April 3, 1997.

PRS 13:	Former Treatment Site - Trash Incinerator
PRS 23:	Solvent Waste Tank - Building 43 Settling Basin
PRS 24:	Solvent Storage Tank - Building 43
PRS 358:	Soil Contamination
PRS 365:	Soil Contamination
PRS 366:	Soil Contamination
PRS 367:	Soil Contamination
PRS 390/393/394:	Soil Contamination

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

REV	DESCRIPTION	DATE
PUBLIC RELEASE 0	Available for comment.	Oct. 3, 1996
FINAL 1	Comment period expired. No comments. Recommendation page annotated.	Apr. 07, 1997



MOUND PLANT

Release Block I

Potential Release Site

PRS 13

G
K
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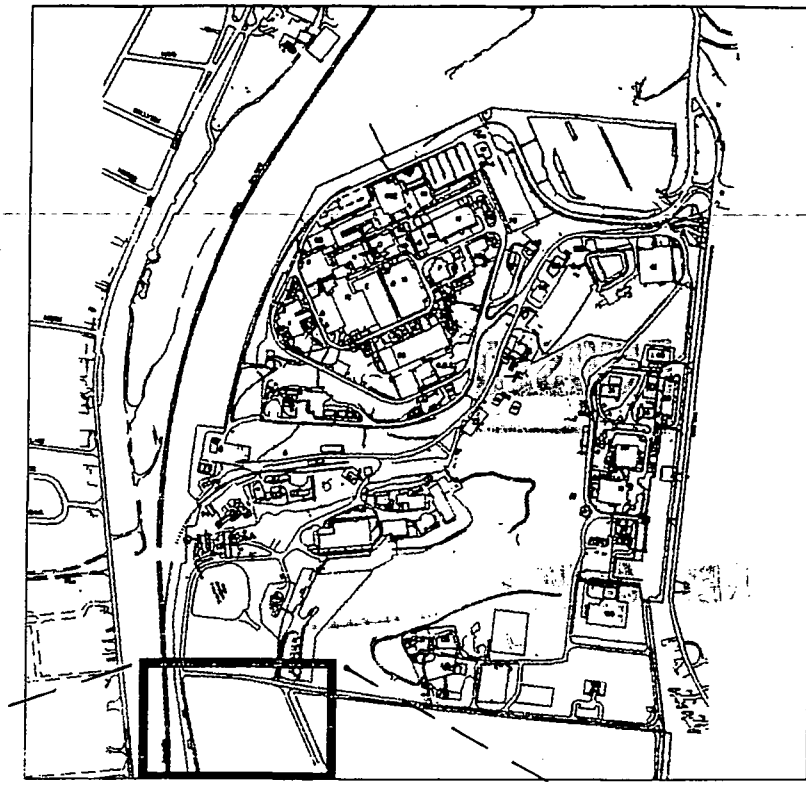
13

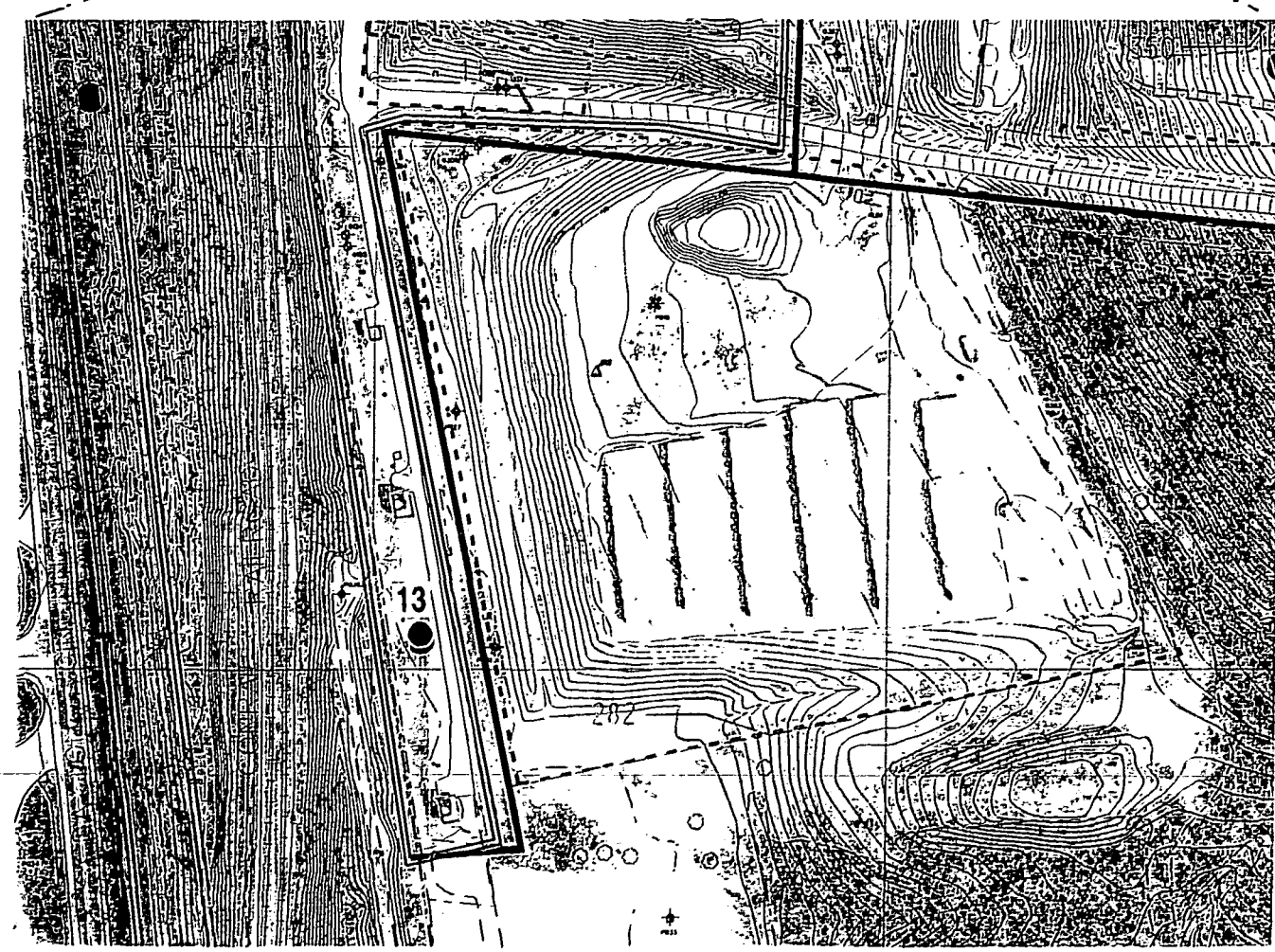
MOUND PLANT

Release Block I

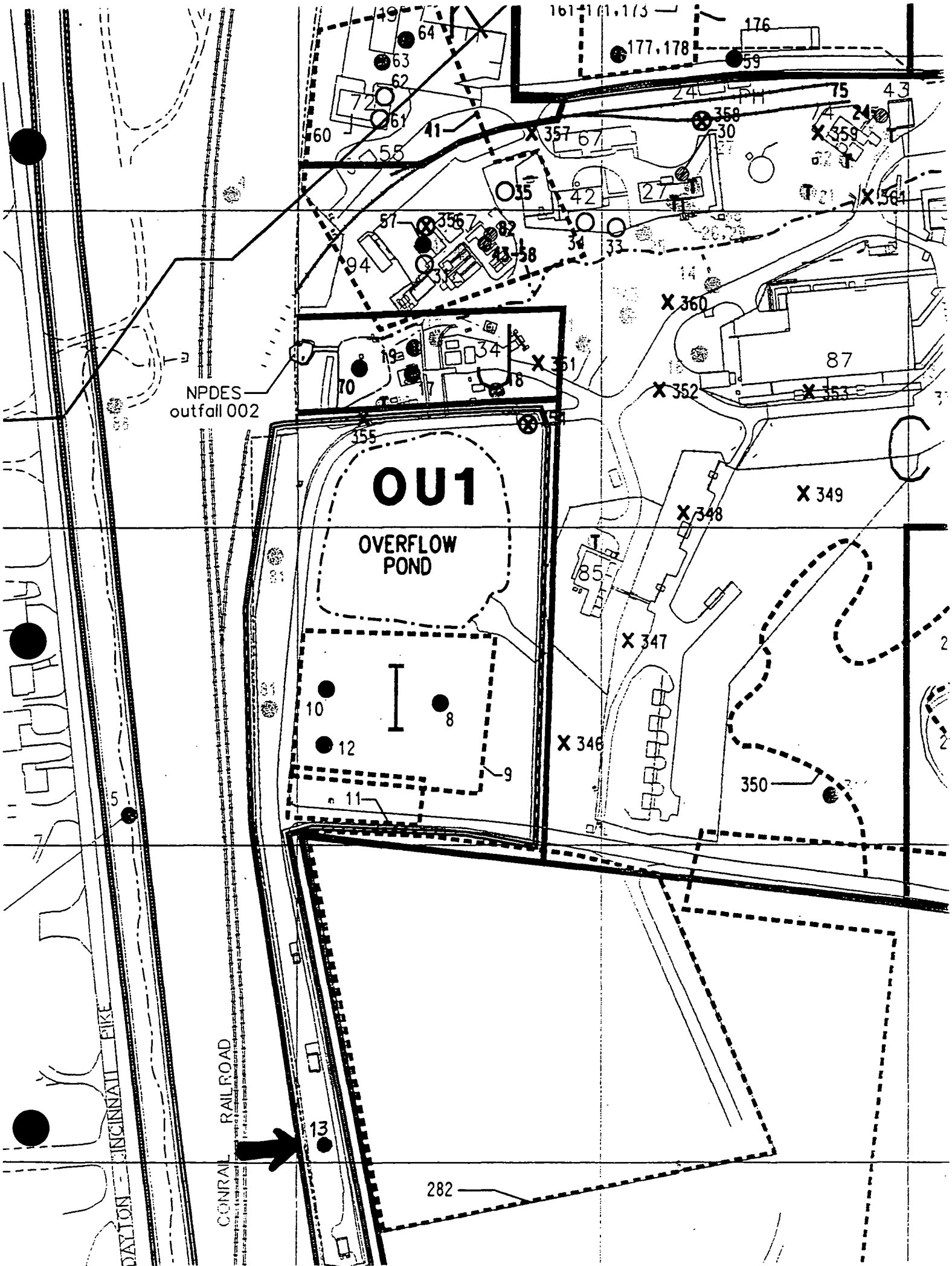
Potential Release Site

PRS 13





13


OU1
OVERFLOW POND
NPDES outfall 002
CONRAIL RAILROAD
DAYTON - CINCINNATI PIKE

PRS 13

PRS HISTORY:

PRS 13 (trash incinerator) was identified as a potential release site as part of the OU9, Site Scoping Report, Vol. 7, July 1992.

PROCESS DESCRIPTION:

The trash incinerator was part of an overall open burning process employed from 1948-1970. The incinerator has been removed from the old burn area.

CONTAMINATION:

No sampling data has been specifically collected for this Trash Incinerator (area). The area of the Mound Plant where the incinerator was located was evaluated during the CERCLA assessment process for Operable Unit 1. The RI/FS assessment has been completed for Operable Unit 1, and during this assessment soil gas sampling, surface and subsurface soil sampling, installation of groundwater monitoring wells and an aquifer pump test was completed. Soil samples collected from wells and piezometers in the OU1 area do not indicate contamination consistent with incineration activities.[4] The regulatory Record of Decision (ROD) was approved for this area in June of 1995. The selected remedy for controlling contamination of the soils and groundwater in OU1 is the Collection, Treatment, and Disposal method.

READING ROOM REFERENCES:

1) RI/FS, OU9, Site Scoping Report, Vol. 7, Waste Management, July 1992. (pages 5-6)
2) OU9, Site Scoping Report, Vol. 12, Site Summary Report December 1994. (pages 7-9)
3) OU1, Record of Decision, Final, June 1995 (pages 10/cover)

OTHER REFERENCES:

4) Position Paper on Dioxin in the Soils at the Mound Facility. (pages 11-17)

PREPARED BY:

Ken Hacker, Member of EG&G Technical Staff
Joseph C. Geneczko, Member of EG&G Technical Staff

MOUND PLANT
PRS 13
FORMER TREATMENT SITE - TRASH INCINERATOR

RECOMMENDATION:

Potential Release Site (PRS) 13 was identified as a trash incinerator in the old burn area which is part of Operable Unit 1. This area has been addressed under the Remedial Investigation/Feasibility Study (RI/FS) process for Operable Unit 1. Operable Unit 1 will proceed with the CERCLA process as per the regulatory approved Operable Unit 1, Record of Decision (ROD).

The selected remedy for controlling contamination from the soils and groundwater at Release Block I, Operable Unit 1, is the Collection, Treatment, and Disposal of groundwater. Additionally, the Innovative Treatment Remediation Demonstration Program will be independently evaluating remedial technologies which could augment the technologies presently selected.

Because the area containing this PRS has been addressed by the OU1 ROD, NO FURTHER ASSESSMENT is recommended for PRS 13 beyond the remediation being implemented as described in the OU1 ROD.

CONCURRENCE:

DOE/MEMP: Arthur W. Kleinrath, Remedial Project Manager — 12/18/96 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 12/18/96 (date)

OEPA: Brian K. Nickel, Project Manager — 12/18/96 (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 2/27/97 to 4/3/97

☒ No comments were received during the comment period.

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

REFERENCE MATERIAL
PRS 13

Document Control No. DGe

Environmental Restoration Program

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

MOUND PLANT
MIAMISBURG, OHIO

July 1992

DRAFT FINAL

(Revision 0)

Department of Energy
Albuquerque Field Office

Environmental Restoration Program
Technical Support Office
Los Alamos National Laboratory

4.13. HISTORIC LANDFILL (AREA B)

The Area B Historic Landfill is in the southwestern portion of Mound (Figure 4.1). An old gravel excavation and the area just north of it were used for landfill and burning of solid and liquid chemical wastes. When Mound first opened in 1948, a small trash incinerator was located just south of the landfill. This small incinerator proved too small and the practice of burning trash at the landfill site was adopted. A burn cage in the landfill area was used for the open burning of trash and garbage from plant operations. The burn cage consisted of an open wire mesh structure to catch ashes from the burned wood, paper, and other combustible materials (DOE 1991a).

Nonradioactive liquid wastes such as trichloroethene, carbon tetrachloride, benzene, alcohol, acetone (in paints), photoprocessing solutions, and polychlorinated biphenyl (PCB) oils were routinely brought here for disposal. The materials were dumped on the ground or their containers were stacked and ignited. Fuels may have been added to the liquids to assist with their combustion. The practice of open burning in the historic landfill was halted in June 1970 (Wolfe 1973a). Liquid wastes were then staged for off-plant disposal; the disposal of solid wastes continued until 1975. Additional information is given in the waste disposal section of this report.

4.14. BUILDING 51, WASTE INCINERATOR (HISTORICAL)

On April 24, 1970, the Montgomery County, Ohio, General Health District passed regulations requiring conformance to certain air pollution standards on the same date. Mound disposal practices of open burning of solvents and combustible solids would not comply with these regulations (Neubert 1970). Mound decided to incinerate its wastes in order to come into compliance with these regulations.

The waste incinerator was constructed inside Building 51 (Figure 4.1). Building 51 is on an area of extensive fill on the western flank of a ravine in the upper valley area of the plant. Building 51 appears to lie on the southern border of an area of debris disposal within the fill (DOE 1992c). Construction of the incinerator was begun on August 25, 1970. The first test burn was conducted on August 30, 1971. Several operating problems were encountered. Additionally, a test conducted on October 12, 1971, indicated that particulate emissions were too great and that the incinerator could only burn 3,000 pounds of combustibles per hour rather than the designed 5,000 pounds per hour. The report submitted by Bowser-Morner, the company performing the stack tests, indicated that particulate emissions were below allowable levels (Delany 1971), but the test did not conform with federal regulations (Kozuszek 1971). On January 7, 1972, the AEC accepted the incinerator (Werner 1972b). A permit to construct and operate the incinerator was granted on March 24, County Air Pollution Control Section (Clark 1972).

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
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: Vol. 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 Scping Report: Vol. 3 - Radiological Site Survey (FINAL)."
7. DOE 1993c "Operable Unit 3, Misc. 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 Scpoing Report: Vol. 9 - 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: Vol. 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 1976a, b "Potable Water Standards Project Mound Laboratory" and "Evaluation of the Buried Valley Aquifer Adjacent to Mound Laboratory."
22. DOE 1992l "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."

Document Control No. _____

Environmental Restoration Program

OPERABLE UNIT 1
RECORD OF DECISION

MOUND PLANT
MIAMISBURG, OHIO

June 1995

Final

U.S. Department of Energy
Ohio Field Office

EG&G Mound Applied Technologies

POSITION PAPER ON DIOXIN IN THE SOILS AT THE MOUND FACILITY

INTRODUCTION

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

EXISTING DATA

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

~~OU3~~

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

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

OU1

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

DISCUSSION & CONCLUSION

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

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

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

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

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

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

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

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

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

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

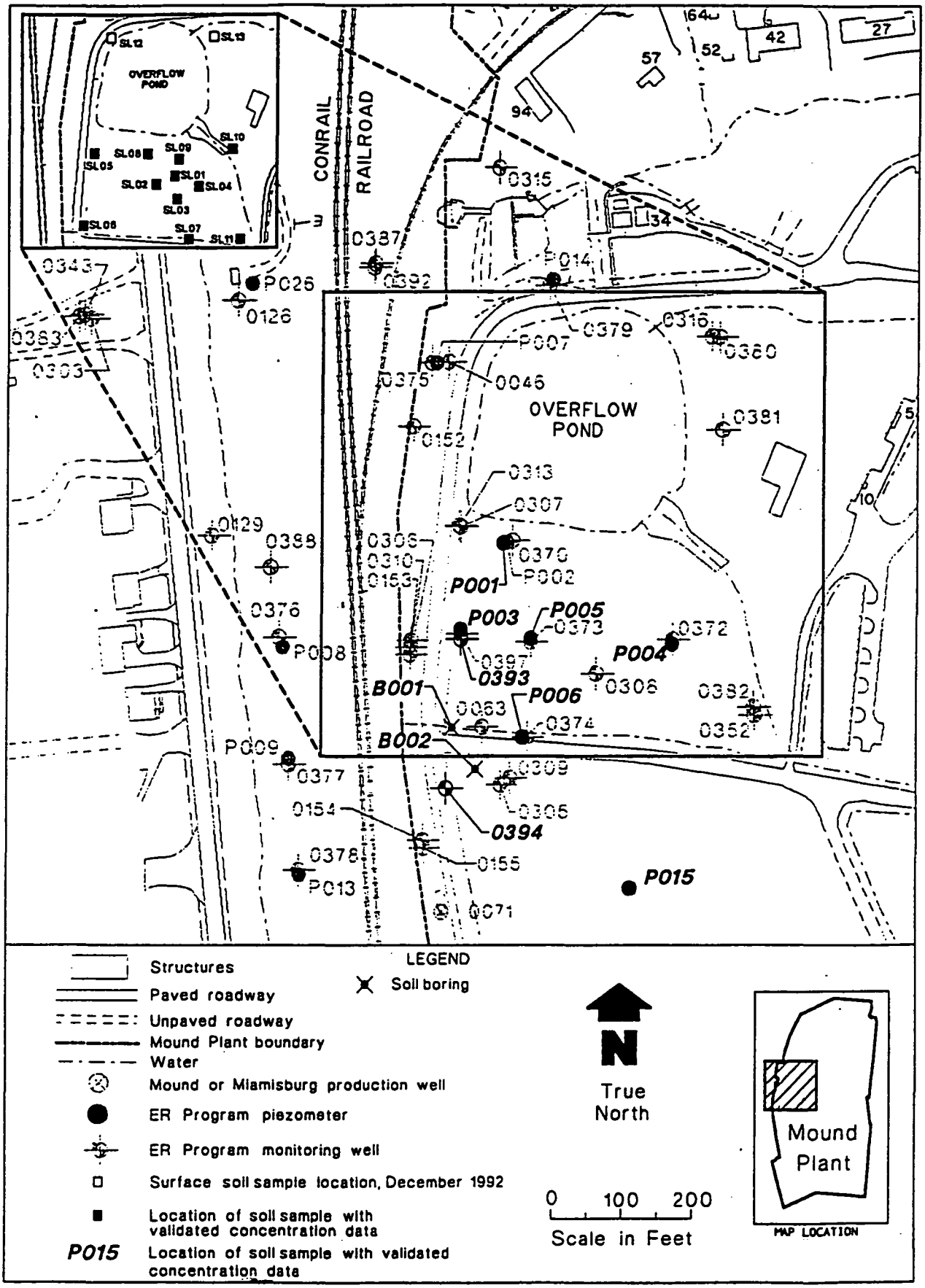


Figure 5 Soil sample locations with validated dioxin and furan compound concentrations, November/December 1992.

Table 3.

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

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

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Center of Environmental Health. 1987. Memo from Center of Environmental Health to ATSDR RE: Missouri Dioxin Sites Cleanup. May 8, 1987.

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

OU1; Operable Unit 1; "Remedial Investigation Report; Draft Final Rev. 1", March 1994. U.S. Department of Energy, Albuquerque Field Office, Albuquerque, NM.

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

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