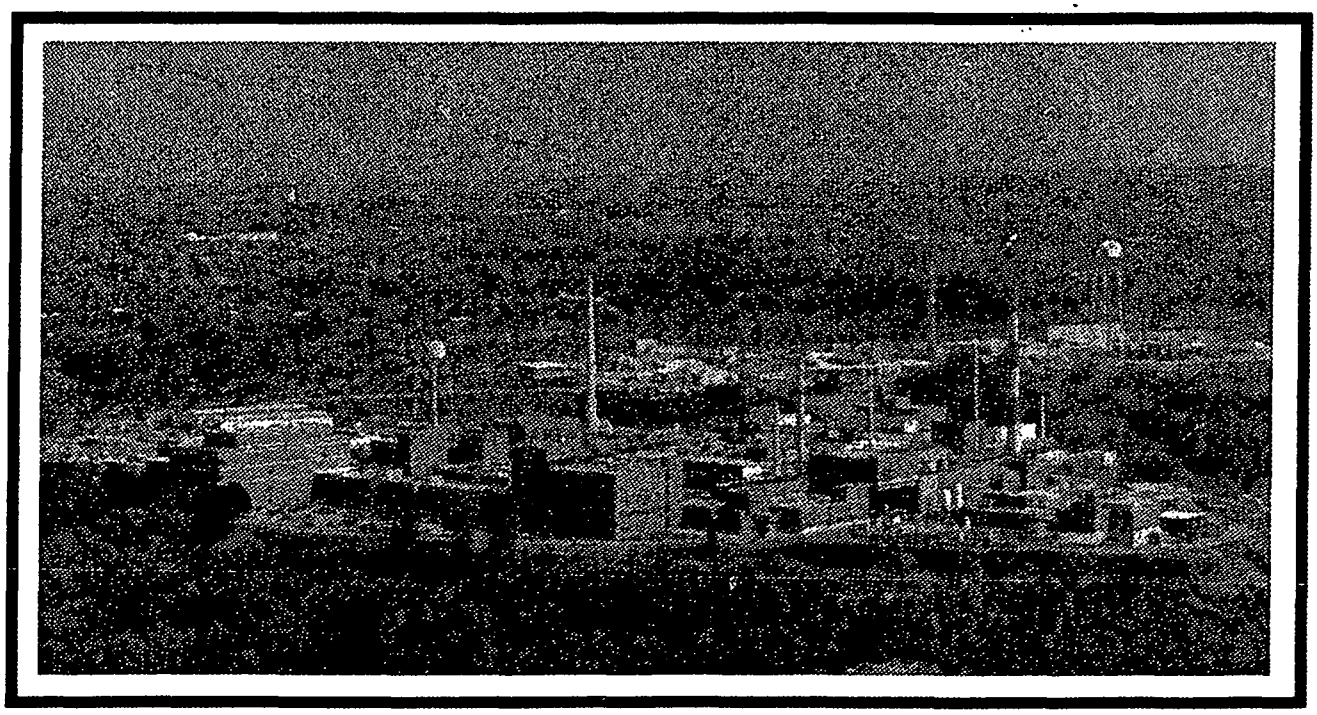
EG&G MOUND-30-03-04-02--9611130049

MOUND

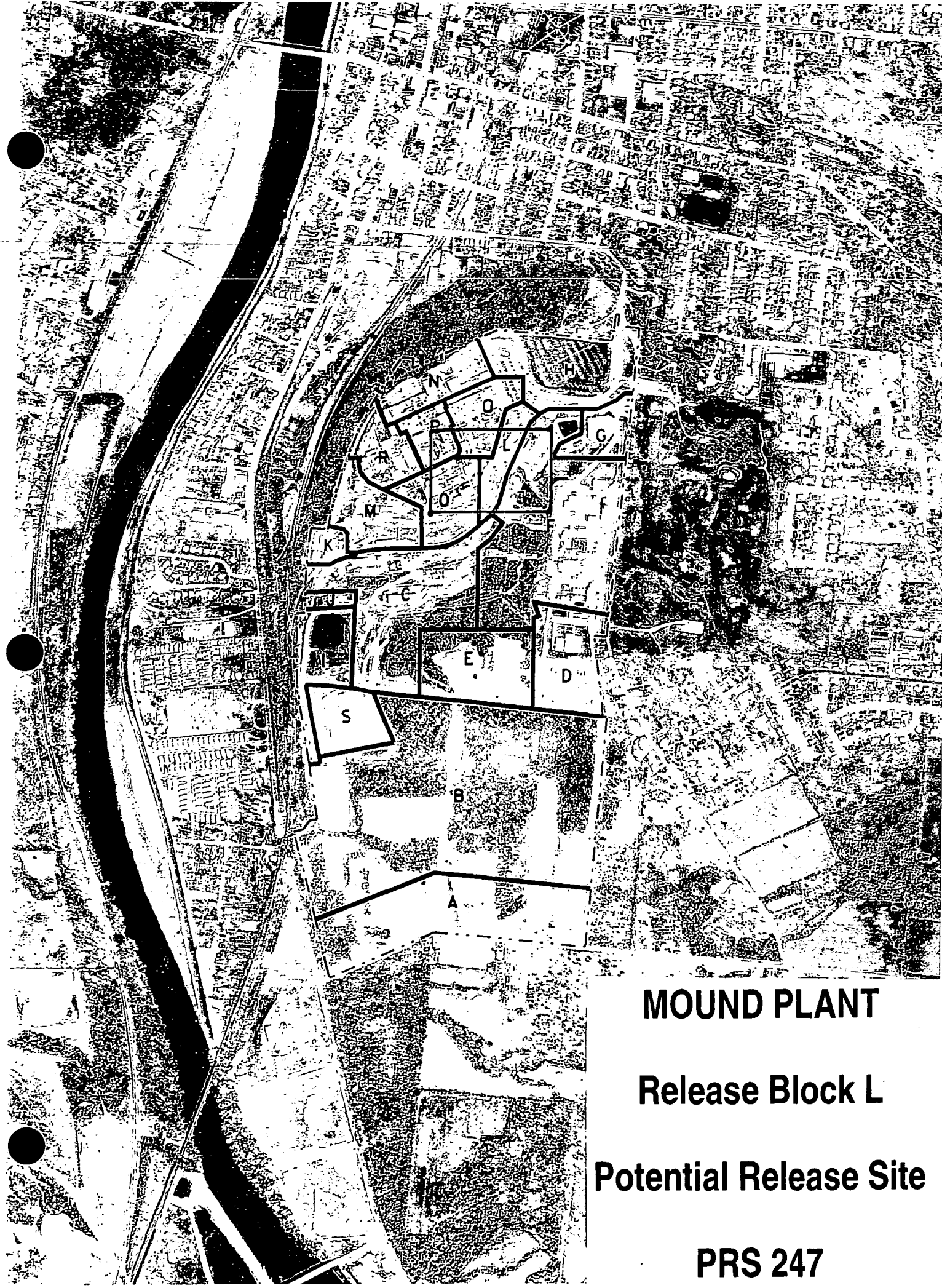
Environmental
Restoration
Program

MOUND PLANT
Potential Release Site Package
PRS # 247



PRS 247

REV	DESCRIPTION	DATE
PUBLIC RELEASE 0	Available for comments.	May 8, 1996
FINAL 1	Comment period expired. No comments. Recommendation page annotated.	Oct. 10, 1996



MOUND PLANT

Release Block L

Potential Release Site

PRS 247

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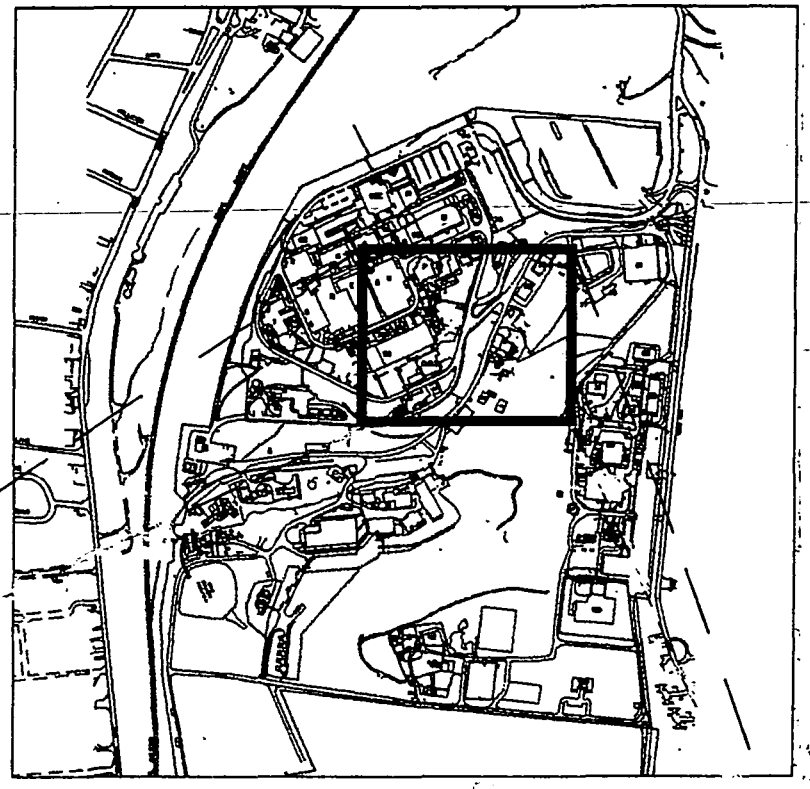
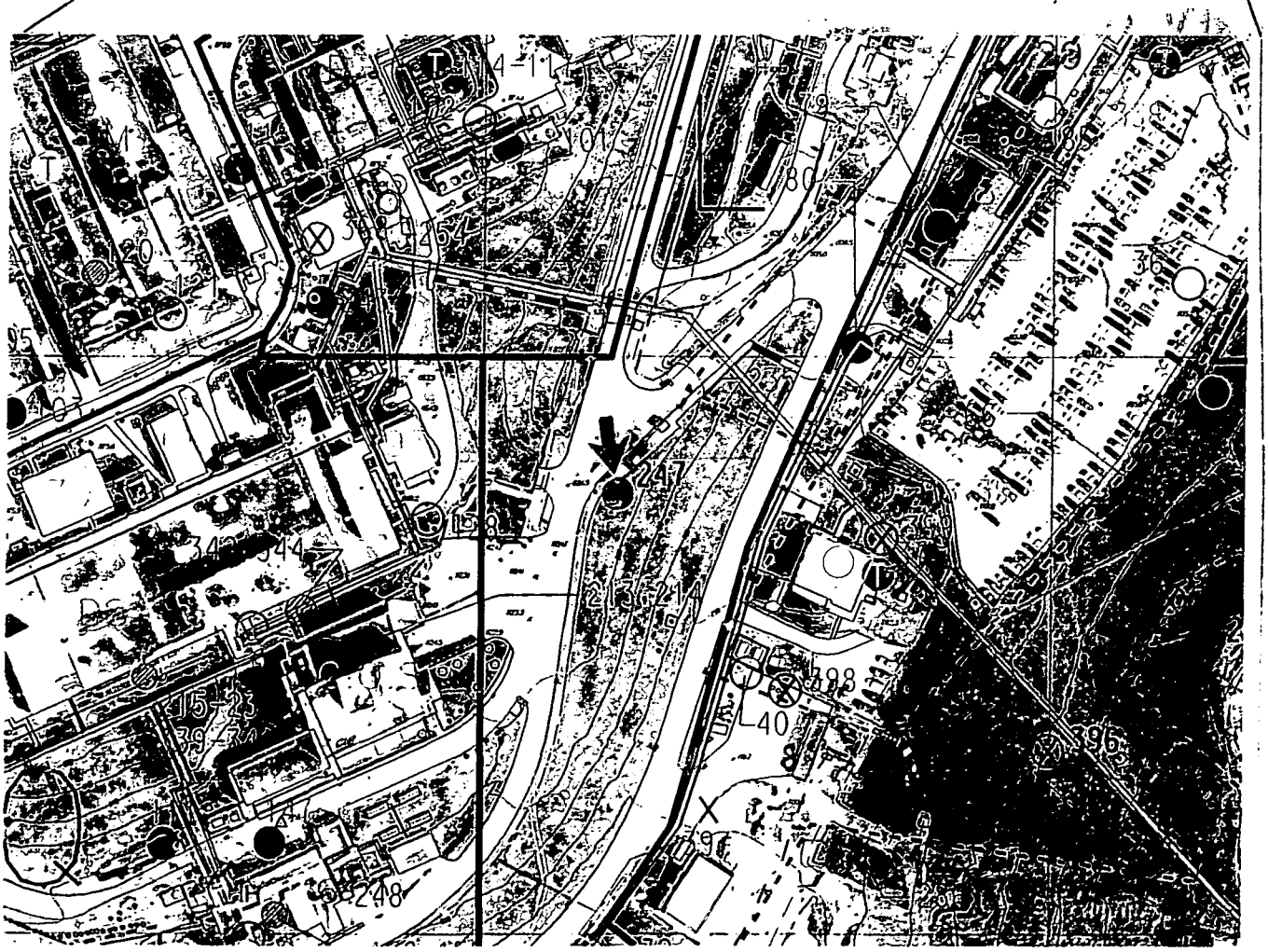
MOUND PLANT

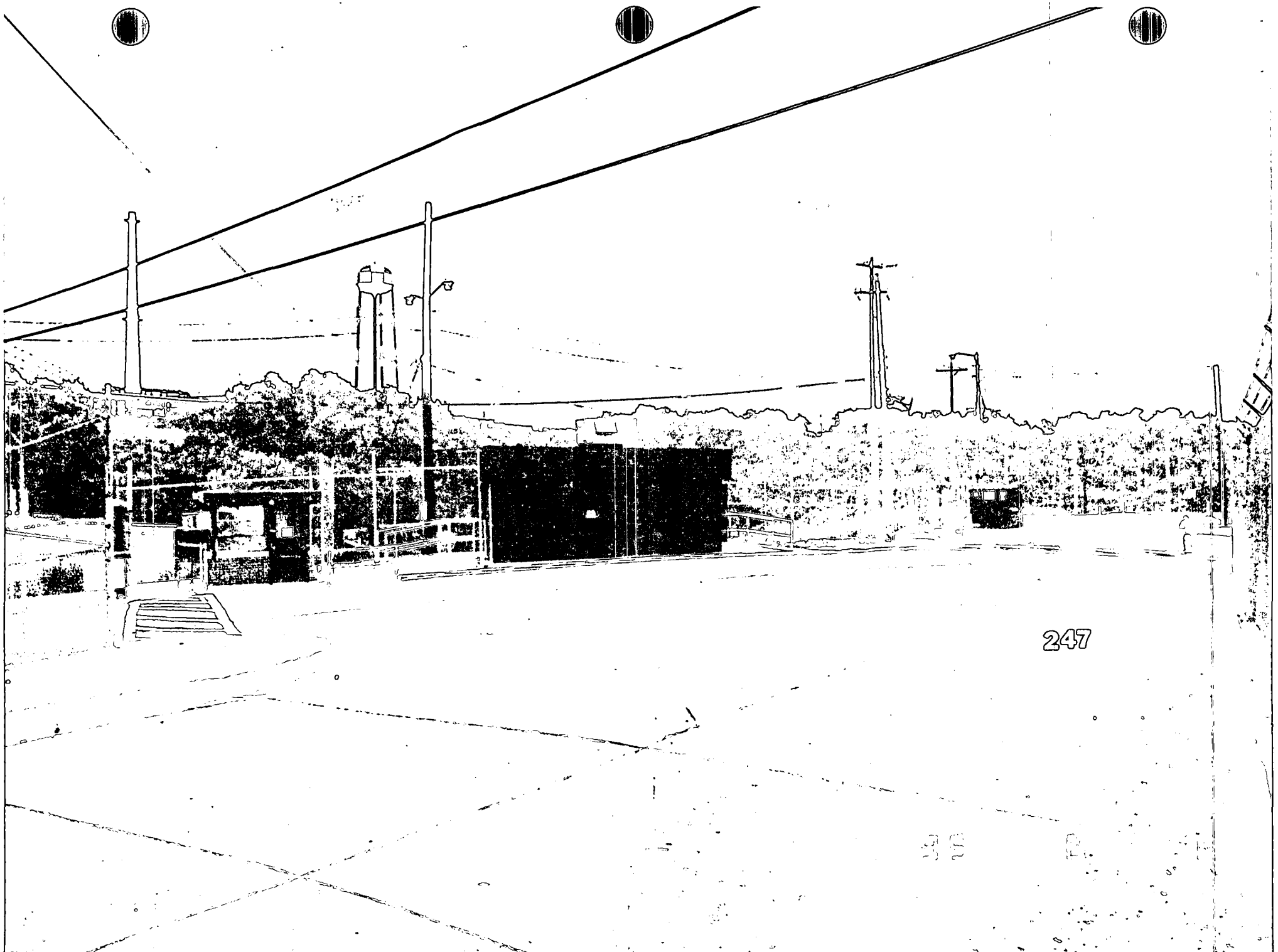
Release Block L

Potential Release Site

PRS 247






247

PRS 247

PRS HISTORY:

Potential Release Site (PRS) 247 was identified as a result of the August 1992 Soil Gas Survey sampling which identified sample location 1129 as a potential Volatile Organic Compound hot spot.[2]

Sample location 1129 (PRS 247) is located on the southern part of the Main Hill, approximately due north of Building 51. No radioactive or hazardous waste generating processes are known to have occurred at the location of PRS 247.

CONTAMINATION:

The February 1993 Soil Gas Survey showed that levels of contamination as:

Parameter	Soil Gas Reading	Calculated Soil Concentration[4]	Calculated Soil Screening Comparison Value[5]
Freon 113	10 ppb	-	-
Toluene	11 ppb	0.05 mg/kg	127 mg/kg
1,1,1-TCA	37 ppb	0.13 mg/kg	17 mg/kg

Surface soil samples were collected and analyzed in the area of PRS 247 during the Site Survey Project for Plutonium-238 and Thorium-232. Results indicated no elevated activity of either, values measured were at or below background.

READING ROOM REFERENCES:

1) Operable Unit 9 Site Scoping Report, Volume 12 - Site Summary Report, September 1994 (pages 5-8)
2) Soil Gas Survey and Geophysical Investigations, February 1993. (pages 9-11)
3) Operable Unit 9, Site Scoping Report, Volume 3 - Radiological Site Survey, June 1993. (pages 12-14)

OTHER REFERENCES:

4) Calculation of soil contaminant concentration from observed soil gas readings. (pages 15-17)
5) Soil screening level calculations - soil concentrations that pose no calculated threat to groundwater. (pages 18-21)

PREPARED BY:

Eric Horstman, Member of EG&G Technical Staff
John Nichols, Member of EG&G Technical Staff

MOUND PLANT
PRS 247
SOIL CONTAMINATION - MAIN HILL

RECOMMENDATION:

This Potential Release Site (PRS) was created due to quantitative soil gas volatile organic compound (VOC) detection. However, the calculated soil concentrations of the VOCs detected were all less than their respective 10^{-6} risk based Guideline Values. Additionally, there is no history or evidence of any hazardous or radiological activities or processes occurring at this PRS. Therefore, PRS 247 is recommended for NO FURTHER ASSESSMENT.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath, Remedial Project Manager — 5/8/96 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 5/8/96 (date)

OHIO EPA: Brian K. Nickel, Project Manager — 5/8/96 (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 5/15/96 to 6/15/96.

- ☐ No comments were received during the comment period.
- ☐ Comment responses can be found on page_____ of this package.

REFERENCE MATERIAL
PRS 247

OU9
SITE SCOPING REPORT
VOLUME 12-SITE SUMMARY REPORT
SEPT 94

Table V.1. (page 2 of 5)

No.	Site Name	Evidence of Release[a]	Further Action Recommended[b]	FFA OU
117	Powerhouse Fuel Oil Storage Tank (Tank 116)	Yes	Yes	2
118	M Building Soils	Yes	Yes	2
119	Room M-38 Metal Plating Rinse Water Sump (Tank 225)	No	No	2
12[illegible]	Building 28 Solvent Storage Area	No	No	2
127	Building 28 Solvent Storage Shed	Yes	Yes	2
129	B Building Solvent Storage Shed	Yes	Yes	2
13[illegible]	B Building Temporary Drum Storage Area	Yes	Yes	2
131	SW Building Soils	Yes	Yes	2
147	HH Building Soils	Yes	Yes	2
234	Building 58 Diesel Fuel Storage Tank (Tank 222)	No	Yes	2
23[illegible]	Site Survey Project Potential Hot Spots Location S0166	Yes	Yes	2
239	Site Survey Project Potential Hot Spot Location S0208	Yes	Yes	2
241	Northwest Parking Lots	Yes	Yes	2
242	VOC Potential Hot Spot Location 1016	Yes	Yes	2
243	VOC Potential Hot Spot Location 1064	Yes	Yes	2
244	VOC Potential Hot Spot Locations 1076, 1077, 1079 and 1080	Yes	Yes	2
245	VOC Potential Hot Spot Location 1085	Yes	Yes	2
246	VOC Potential Hot Spot Locations 1117 and 1118	Yes	Yes	2
247	VOC Potential Hot Spot Location 1129	Yes	Yes	2
332	Building G Waste Oil Tank (Tank 262)	No	Yes	2
1	Miami-Erie canal (north pond)	No	No	4
2	Miami-Erie canal (south pond)	No	No	4
3	Miami-Erie canal (north canal)	Yes	Yes	4
4	Miami-Erie canal (runoff hollow)	Yes	No	4

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
241	Northwest Parking Lots	D-7	Grounds	Toluene, Freon-113, Trichloroethene	12	Indicated by Soil Gas Survey	S	12	1	SGS[b] Table B.4 Locations 1002, 1007, 1008, 1009, 1013, 1014, 1101, 1102, 1106, 1109, 1110	12
242	VOC Potential Hot Spot Location 1016	D-7	Grounds	Toluene, Trichloroethene	12				1	SGS[b] Table B.4	12
243	VOC Potential Hot Spot Location 1064	E-7	Grounds	Toluene	12						
244	VOC Potential Hot Spot Locations 1076, 1077, 1079, and 1080	E-6	Grounds	Toluene, Freon-113, 1,1,1-Trichloroethane	12						
245	VOC Potential Hot Spot Location 1085	F-6	Grounds	Freon-113, Trichloroethene, 1,1,1-Trichloroethane	12						
246	VOC Potential Hot Spot Locations 1117 and 1118	G-7	Grounds	Tetrachloroethene	12						
247	VOC Potential Hot Spot Location 1129	F-8	Grounds	Freon-113, Trichloroethene, 1,1,1-Trichloroethane, Tetrachloroethene	12	Indicated by soil gas survey	S	12	1	SGS[b] Table B.4	12
248	HH Building Stack	F-7	In service	Polonium-210, Tritium	4, 18	None suspected beyond routine emissions	A	4, 18	Emissions reported in Annual Environmental Monitoring Reports		18
249	SW Building Stack (NCPDF)	E-6	In service	Tritium	4, 18						
[illegible]	SW Building Stack (SW1C)	E-6	In service	Uranium-238	4, 18						
[illegible]	W Building Stack (HEFS)	E-6	In service	Tritium	4, 18						
[illegible]	B Building Stack	E-6	Inactive	Polonium-210, Tritium	4, 18						
[illegible]	T Building WEST Stack	F-6	In service	Tritium, Plutonium-238, -239, Uranium-238	4, 18						
[illegible]	T Building EAST Stack	E-7	In service	Tritium, Plutonium-238, Uranium-238	4, 18						
[illegible]	D Building Stack (ALR)	F-6	In service	Plutonium-238	4, 18						

				Operational Jurisdiction				Historic Activities			
No.	Site Name	Location	Status	Regulated Units	Regulatory Authority	Spill Response	SWMU	Evidence Of Release	Response Authority	Further Action Recommended	FFA OU
240	Site Survey Project Potential Hot Spot Location S0472	G-6	Grounds		AEA			Yes	AEA	Yes	6
241	Northwest Parking Lots	D-6 D-7	Grounds		AEA			Yes	CERCLA	Yes	2
242	VOC Potential Hot Spot Location 1016	D-7	Grounds		AEA			Yes	CERCLA	Yes	2
243	VOC Potential Hot Spot Location 1064	E-7	Grounds		AEA			Yes	CERCLA	Yes	2
244	VOC Potential Hot Spot Locations 1076, 1077, 1079 and 1080	E-6	Grounds		AEA			Yes	CERCLA	Yes	2
245	VOC Potential Hot Spot Location 1085	F-6	Grounds		AEA			Yes	CERCLA	Yes	2
246	VOC Potential Hot Spot Locations 1117 and 1118	G-7	Grounds		AEA			Yes	CERCLA	Yes	2
247	VOC Potential Hot Spot Location 1129	F-8	Grounds		AEA			Yes	CERCLA	Yes	2
248	HH Building Stack	F-7	In Service	NESHAP	CAA	AEA		No	NA	OM	
249	SW Building Stack (NCPDF)	F-6	In Service					No	NA	OM	
250	SW Building Stack (SW1C)	F-6	In Service	NESHAP	CAA	AEA		No	NA	OM	
251	SW Building Stack (HEFS)	F-6	In Service					No	NA	OM	
252	B Building Stack	E-6	Inactive		AEA	AEA		No	AEA	D&D	
253	T Building WEST Stack	F-7	In Service					No	NA	OM	
254	T Building EAST Stack	F-7	In Service					No	NA	OM	
255	WD Building Stack (ALR)	F-6	In Service	NESHAP	CAA	AEA		No	NA	OM	
256	WD Building Stack (AHR)	F-6	In Service					No	NA	OM	
257	WD Building Stack (SS)	F-6	In Service					No	NA	OM	
258	Area H Open Burn Unit (AKA Pyrotechnic Waste Disposal Area)	I-7	In Service				SWMU	No	NA	OM	
	Pyrotechnic Waste Shed	I-7	In Service	HWMUs included in Part B application	RCRA	RCRA	SWMU	No	NA	OM	
	Thermal Treatment Unit	I-7	Inactive				SWMU	No	NA	OM	
	Trash Burner	I-7	Historical		NA	NA	SWMU	No	CERCLA	No	5
	Retort	I-7	In Service	HWMU included in Part B application	RCRA	RCRA	SWMU	No	NA	OM	

ENVIRONMENTAL RESTORATION PROGRAM

SOIL GAS SURVEY AND GEOPHYSICAL INVESTIGATIONS
MAIN HILL AND SM/PP HILL AREAS
RECONNAISSANCE SAMPLING

MOUND PLANT
MIAMISBURG, OHIO

February 1993

DEPARTMENT OF ENERGY
ALBUQUERQUE OFFICE

ENVIRONMENTAL RESTORATION PROGRAM
EG&G MOUND APPLIED TECHNOLOGIES

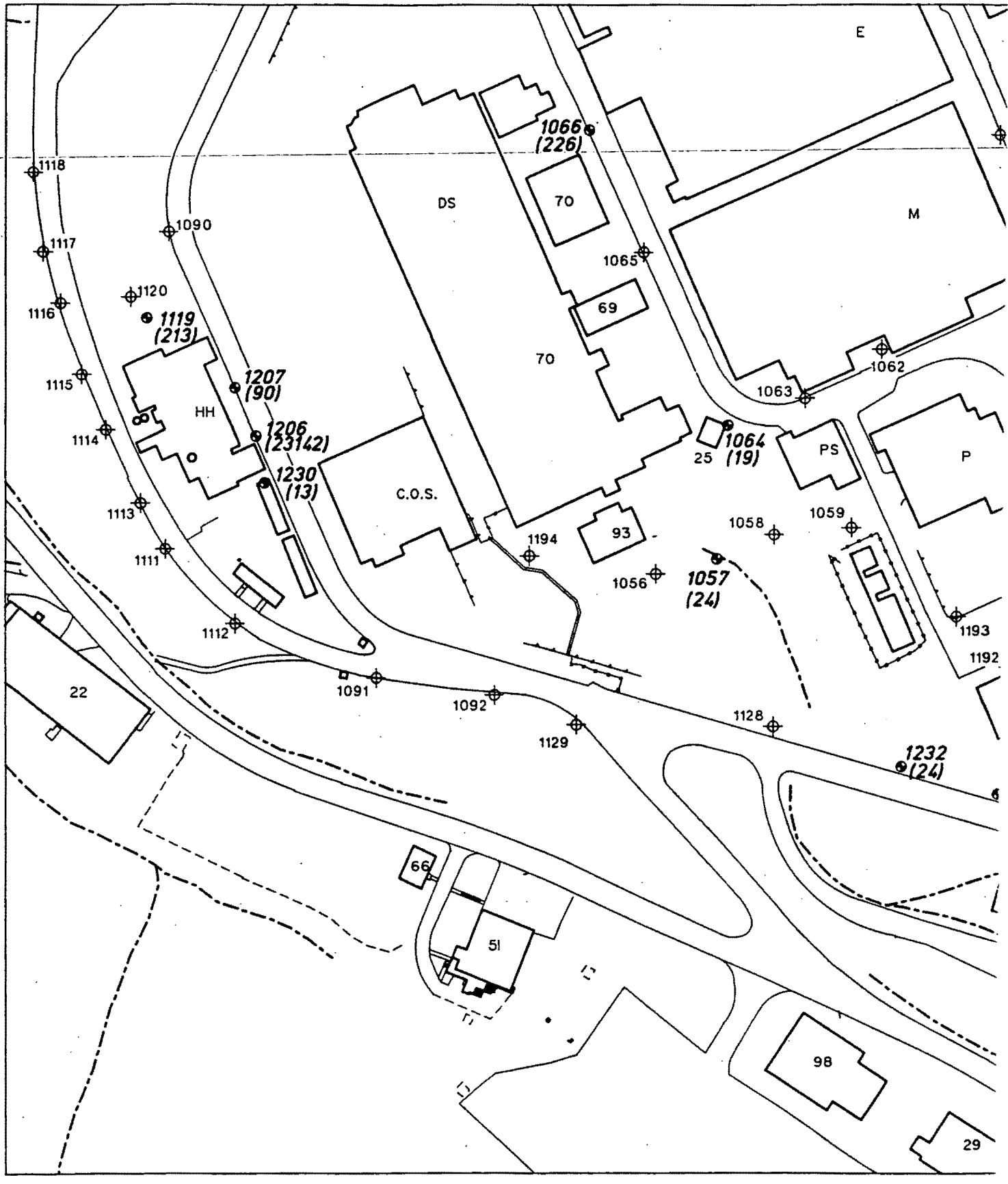


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TABLE II.4. SUMMARY OF POSITIVE DETECTIONS–MAIN HILL
(ppb)

SAMPLE ID	SAMPLE DATE	FREON 11	FREON 113	TRAN–12DCE	CIS–12DCE	111TCA	PCE	TCE	TOLUENE
MND–01–1113–0005	17 AUG 92	---	---	---	---	---	---	11	---
MND–01–1114–0005	17 AUG 92	---	9	---	---	315	10	357	5 *
MND–01–1114–0005	17 AUG 92	---	---	---	---	259	9	26[illegible]	3 *
MND–01–1117–0005	17 AUG 92	---	---	---	---	56	---	13	---
MND–01–1117–0005	18 AUG 92	---	---	---	---	---	12	8	---
MND–01–1117–1005	18 AUG 92	---	---	---	---	---	15	9	---
MND–01–1118–0005	18 AUG 92	---	---	---	---	---	3	---	---
MND–01–1119–0005	18 AUG 92	---	---	---	---	---	---	---	213
MND–01–1122–0005	18 AUG 92	801	[illegible]	---	---	---	---	---	---
MND–01–1123–0005	18 AUG 92	---	---	---	---	---	---	---	5 *
MND–01–1124–0005	18 AUG 92	---	---	---	---	---	---	---	6884 *
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MND–01–1129–0005	18 AUG 92	---	10	---	---	37	12	4	11 *
MND–01–1190–0005	24 SEP 92	849	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MND–01–1190–1005	24 SEP 92	287	707	---	---	---	---	---	3 *
MND–01–1192–0005	24 SEP 92	---	---	---	---	---	---	---	5 *
MND–01–1193–0005	24 SEP 92	---	---	---	---	---	---	---	16 *
MND–01–1196–0005	25 SEP 92	---	---	---	---	---	---	4	64
MND–01–1198–0002	25 SEP 92	---	---	---	---	---	---	23	5
MND–01–1198–0006	25 SEP 92	---	24	13	518	33	---	474	5
MND–01–1199–0002	25 SEP 92	---	10218	---	1[illegible]0	---	---	6[illegible]9	---
MND–01–1201–0007	25 SEP 92	---	4716	13	811	---	---	130	48
MND–01–1201–1007	25 SEP 92	---	5895	---	612	---	---	117	43
MND–01–1202–0002	25 SEP 92	---	641[illegible]	66	2499	[illegible]	---	1921	3
MND–01–1202–1002	25 SEP 92	---	9[illegible]1	41	1706	---	---	1737	---
MND–01–1203–0002	25 SEP 92	---	1475	---	334	---	---	45	192
MND–01–1204–0005	25 SEP 92	---	453	---	---	---	---	11	5
MND–01–1205–0005	25 SEP 92	---	---	---	---	---	---	---	21
MND–01–1206–0005	26 SEP 92	---	---	---	---	---	---	---	23142
MND–01–1207–0005	26 SEP 92	---	---	---	---	---	---	---	90
MND–01–1227–0005	28 SEP 92	---	10	---	---	---	---	---	4788
MND–01–1228–0005	28 SEP 92	---	---	---	---	---	---	---	11
MND–01–1230–0005	28 SEP 92	---	---	---	---	---	---	---	13
MND–01–1230–1005	28 SEP 92	---	---	---	---	---	---	---	[illegible]
MND–01–1231–0005	28 SEP 92	---	48	---	---	---	34	21	5
MND–01–1232–0005	28 SEP 92	---	4	---	---	---	1[illegible]	8	24
MND–01–1233–0002	29 SEP 92	---	29	---	---	---	---	---	72
MND–01–1233–1002	29 SEP 92	---	29	---	---	---	---	---	64

Notes:

Only sample locations having positive detections are shown.
*: Associated trip, ambient, equipment or field blank contained specified compound.
B: Indicates blank sample.
w: Indicates water sample.
**: Freon 113 & TCE Off–Scale

Document Control No. DGC

Environmental Restoration Program

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

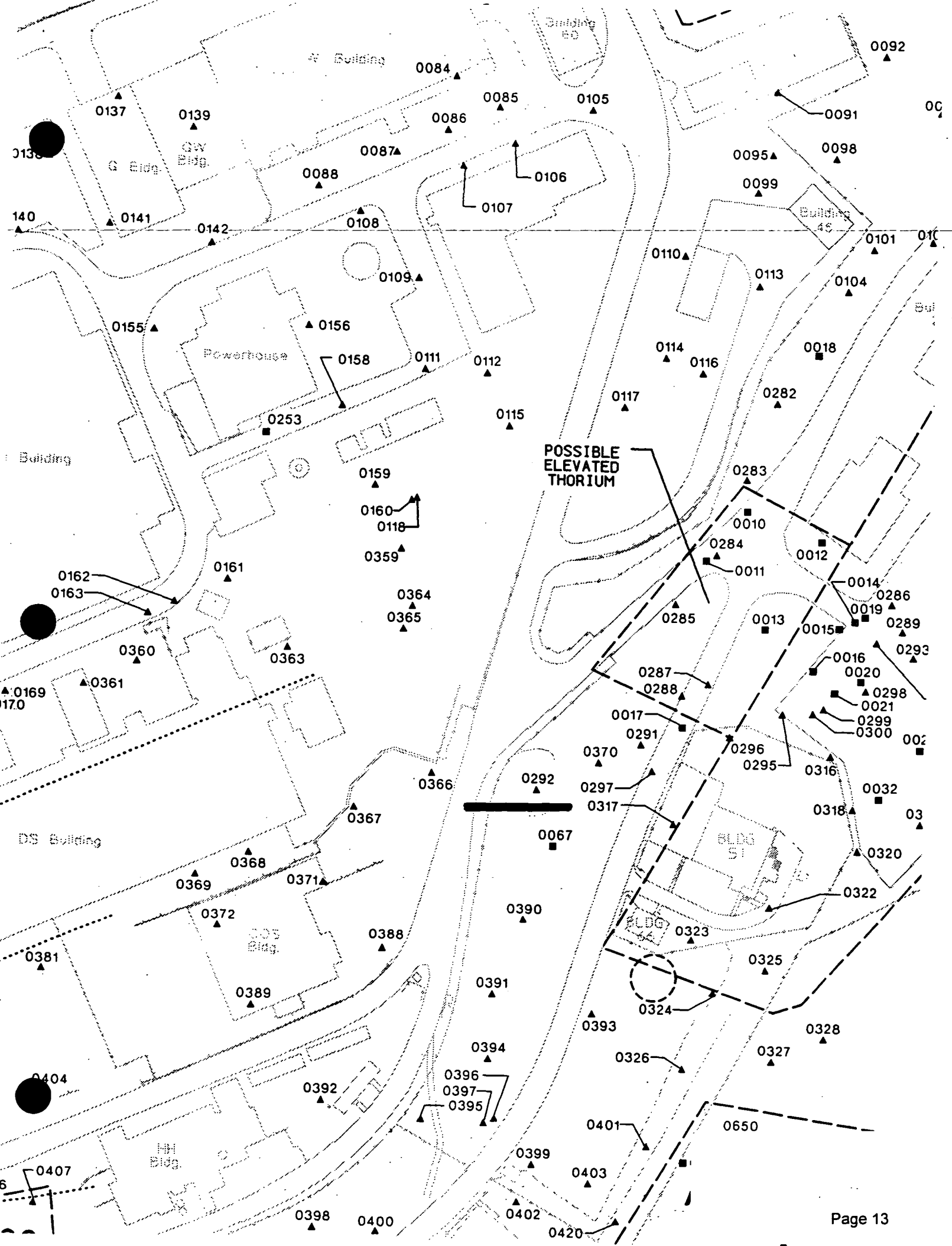
MOUND PLANT
MIAMISBURG, OHIO

June 1993

FINAL

Department of Energy
Albuquerque Field Office

Environmental Restoration Program
EG&G Mound Applied Technologies



W Building
Building 60
G Bldg.
GW Bldg.
Powerhouse
Building 45
Building
DS Building
COS Bldg.
HH Bldg.
BLDG 51
BLDG 44
POSSIBLE ELEVATED THORIUM
0092
0084
0085
0105
0091
0137
0139
0086
0087
0095
0098
0088
0106
0099
0107
0141
0142
0108
0101
0110
0109
0113
0104
0155
0156
0158
0111
0112
0114
0116
0018
0117
0282
0253
0115
0159
0283
0160
0118
0010
0284
0012
0359
0011
0161
0162
0163
0364
0365
0014
0286
0285
0013
0019
0015
0289
0360
0363
0293
0016
0287
0020
0361
0288
0298
0021
0017
0299
0291
0300
0370
0296
0295
0316
0366
0292
0297
0032
0317
0318
0367
0067
0320
0368
0369
0371
0322
0372
0390
0388
0323
0381
0325
0389
0391
0324
0393
0328
0394
0326
0327
0396
0397
0395
0392
0401
0650
0399
0407
0403
0398
0400
0402
0420

Map Location[a]	Coordinates South	Coordinates West	MRC ID No.	Mo-Yr	Depth (inch)	Pu-238 (pCi/g)	Thorium[b] (pCi/g)	Tritium (pCi/mL)	Co-60 (pCi/g)	Cs-137 (pCi/g)	Ra-226 (pCi/g)	Am-241 (pCi/g)
S0288	2[illegible]	2465	5986	07-84	0	0.29	8.09					
S0289	2050	2[illegible]5	5983	07-84	0	0.64	[illegible]					
			5978	07-84	0	2.72	b					
S0290	2[illegible]0	2290	6753	08-[illegible]	0	1.[illegible]1	b					
S0291	2050	2[illegible]15	4088	10-83	0	4.68[c]	b	1.29				
S0292	2050	2615	4089	10-83	0	0.40	b	0.25				
S0293	2075	226[illegible]	5979	07-84	0	0.6[illegible]	b					
C[illegible]021	2075	2340	5982	07-84	0	1.52	b					
			1867	05-83	12	0.86	3.[illegible]					
			1[illegible]68	05-83	[illegible]	1.00	[illegible].80					
			1869	05-83	36	NR	18.00					
			1870	05-83	48	0.20[illegible]	6.94[c]					
			1871	05-[illegible]	60	0.08	b					
			1872	05-83	72	0.12	b					
			1873	05-83	84	0.03	b					
			1874	05-83	96	0.04	b					
			18[illegible]	05-83	108	0.02	[illegible]					
			1876	05-83	120	0.04	b					
			1877	05-8[illegible]	132	0.11	b					
			1878	05-83	144	0.[illegible]	b					
			1879	05-83	156	0.18	b					
			1880	05-83	168	0.10[c]	b					
			188[illegible]	05-83	180	0.21	3.[illegible]					
			1882	05-83	1[illegible]	0.09	[illegible]					
			1883	05-83	204	0.21	b					
			1884	05-83	216	0.17	b					
			1885	05-[illegible]	228	0.[illegible]	b					
			1886	05-83	240	0.18	b					

CALCULATION OF SOIL CONTAMINANT CONCENTRATION FROM OBSERVED SOIL GAS READINGS

SCREENING POTENTIAL RELEASE SITES BASED ON SOIL GAS READINGS

Soil gas readings can be utilized in the PRS screening process to identify potential release sites that may present a potential soil contamination problem for volatile organics. The soil gas survey that was conducted at Mound as part of the "Reconnaissance Sampling Report--Soil Gas Survey and Geophysical Investigations, Mound Plant Main Hill and SM/PP Hill" investigated 8 volatile compounds. The concentrations of these compounds in the in the vapor phase within the pore spaces of the soil can be correlated to the actual soil contaminant concentrations by utilizing a method developed by ICF Kaiser Engineers. This technique has been used with US EPA Region IX approval at a large Superfund site contaminated with many of the same chemicals found at relatively low levels in soils at the Mound Plant.

The soil concentration can be estimated from the soil gas values by the following equation:

$$C_t = (C_g/P_b)*[[P_b * K_d / H] + [p_w / H] + [p_t - p_w]]$$

where

C_g	concentration of volatile chemical concentrations as soil vapor in ng/ml
P_b	Bulk density of the soil in g/ml
K_d	soil/water partition coefficient in ml/g
H	Dimensionless Henry's Law Constant
p_w	water filled porosity
p_t	total porosity
C_t	estimated soil concentration in mg/kg

The values of the soil specific and chemical parameters for this equation are summarized as follows:

P_b	1.6	Bulk density of the soil in g/ml
p_w	0.15	water filled porosity
p_t	0.43	total porosity

The technique that Mound Plant will use for screening a PRS is to compare the estimated soil concentration (C_t) values obtained at a PRS with soil concentrations that are known to be below any regulatory or health based level of concern. The risk based guideline values for the Mound Plant (DOE, December 1995) soils are based upon 10^{-6} risk levels or a hazard index of 1. These values correspond to direct soil exposure to persons who's activities place them at the highest risk, in particular inhalation and ingestion by a Mound Plant construction worker.

Another potential exposure path must be considered, however. The potential for some of the organic contaminants to leach into ground water must be considered in developing protective Soil Screening Levels. A Soil Screening Level (SSL) is the level of contamination that can exist in soil that does not adversely affect the quality of groundwater at a potential drinking water source such as the Buried Valley Aquifer. A "Mound Plant Soil Screening Level" paper explains the calculation of soil screening levels. For all of the chemicals that the soil gas survey identified, the calculated soil screening level soil concentrations are below the standard soil guideline values, therefore they are more conservative and are appropriate to be used as the basis for comparison with the estimated soil concentration (C_t).

SOIL CONCENTRATION FROM SOIL GAS READINGS
PRS 247

A method developed by ICF Kaiser Engineers, Inc. to estimate soil concentrations from soil gas concentrations has been relativley successful (ICF KE, 1992). In US EPA Region IX, this technique has been used, with EPA approval, at a large Superfund site contaminated with many of the same chemicals found at relatively low levels in soils at the Mound plant. The soil concentrations are related to the soil gas concentations by the following equation:

$$Ct = (Cg/Pb)*[[Pb * Kd / H] + [pw / H] + [pt - pw]]$$

Parameters used in the equation			
Cg		concentration of volatile chemical concentrations as soil vapor in ng/ml	
Pb	1.6	Bulk density of the soil in g/ml	Mound soil specific
Kd		soil/water partition coefficient in ml/g	Chemical specific
H		Dimensionless Henry's Law Constant	Chemical specific
pw	0.15	water filled porosity	Default SSL soil values
pt	0.43	total porosity	Default SSL soil values
foc	0.02	fraction organic material in soil	Mound soil specific

Chemical	Soil Vaopr Concentrations ng/ml (ppb)	Kd ml/g	H	calculated soil concentration mg/kg
Freon 113*	10	---	---	
Toluene	11	1	0.229	**0.05**
Trichloroethane	37	0.7	0.236	**0.13**

*TLV in air is 1000ppm

Prepared by Bray 2/2/96

SOIL SCREENING LEVEL CALCULATIONS

Soil concentrations that pose no calculated threat to groundwater

REFERENCES

Schairbaum, J.R. and Frost, J.P. 1988. "The Hydrology of Sicamore Farm - A Preliminary Report." Center for Ground water Management, Wright State University. September 20, 1988.

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SOIL SCREENING LEVELS--PRS 247

A Soil Screening Level (SSL) is the level of contamination that can exist in soil that does not adversely affect the quality of groundwater at a potential drinking water source such as the Buried Valley Aquifer (BVA).

Soil Screening Calculations are used to determine if a PRS may adversely affect ground water quality due to leaching of organic soil contaminants. These equations conservatively calculate the effects of soil leaching and ground water mixing at a particular PRS. The input parameters represent conditions at the PRS. MCLs are assumed to be protective of ground water that will be used as a drinking water source. Note that the distance a PRS lies from a potential drinking water receptor (BVA) generally controls the amount of ground water mixing.

NOTE: Once the equation calculates a mixing zone depth (d) that is equal to the aquifer thickness (da), no additional mixing or dilution takes place. This is the maximum attentuation that the Soil Screening Level Equation calculates. All distances to a potential receptor greater than the distance that first causes the mixing zone depth to equal the aquifer thickness creates no additional attenuation. For this reason, the tables are only reproduced until (d) is equal to the aquifer thickness, which in the case of the Mound Plant Bedrock is 15 m.

Parameters for soil leaching calculation:

Definition	Parameter	Main Hilltop soil	Units
source length parallel to ground water flow	**L**	**15**	**m**
aquifer thickness (DOE 1994)	da	15	m
hydraulic conductivity (DOE 1994)	K	52	m/y
hydraulic gradient at the source	**i**	**0.1**	**m/m**
horizontal distance to receptor	**xr**	**600**	**m**
infiltration rate (Schairbaum & Frost 1988)	in	0.15	m/y
soil-water partition coefficient (Koc * foc for organic chemicals)	Kd	chemical specific	L/kg
saturated porosity	Ow	0.15	
air filled porosity	Oa	0.28	
Henry's Law constant * 41 (0 for metals and radionuclides)	H	chemical specific	
dry soil bulk density	B	1.6	kg/L
soil organic carbon/water partition coefficient	Koc	chemical specific	L/kg
fraction organic carbon in soil (DOE Mound Plant Data Base)	foc	0.02	
mixing zone depth	d	15	m
dilution factor (used to multiply the target concentration)	df=	35.67	

Mixing Zone Depth Calculation

MIXING ZONE DEPTH (d)

$d = (0.0112(L+xr)^2)^{0.5} + da\{1 - \exp[(in(L+xr))/Kida)]\}$ (Equation 3)

DILUTION FACTOR (df) (Equation 4)

$df = 1 + Kid/inL$

SOIL SCREENING LEVEL CALCULATION

$SSL = Cw\{Kd + (Ow + (OaH))/B\}$ (Equation 1)

$Kd = Koc * foc$ (Equation 2)

INPUT PARAMETER DEFINITION

MCL	mg/L	
Cw	mg/L	target soil leachate. Acceptable water conc. * df
Kd	L/kg	soil-water partition coefficient
Ow		saturated porosity
Oa		air filled porosity
H		Henry's Law constant * 41 to make dimensionless
B	kg/L	dry soil bulk density
Koc	L/kg	soil organic carbon/water partition coefficient
foc	g/g	fraction organic carbon in soil

CHEMICAL NAME	H	Koc	foc	Kd	MCL	10-6 GV	Acceptable	Cw	SSL
		L/kg		L/kg	mg/L	mg/L	Concentration	mg/L	mg/kg
Methoxychlor	2.60E-04	77936	0.02	1558.72	0.04		0.04	1.43	2223.91
Methyl bromide	5.82E-01	11	0.02	0.22			0	0.00	—
Methyl chloride	1.85E+00	7	0.02	0.14			0	0.00	—
Methylene chloride	9.72E-02	13	0.02	0.26			0	0.00	—
2-Methylphenol	6.72E-05		0.02				0	0.00	—
Napthalene	1.98E-02	1549	0.02	30.98			0	0.00	—
Nitrobenzene	8.45E-04		0.02				0	0.00	—
N-Nitrosodiphenylamine	2.86E-02	327	0.02	6.54			0	0.00	—
N-Nitrosodi-n-proplyamine	1.70E-03	17	0.02	0.34			0	0.00	—
Pentachlorobenzene		13274	0.02	265.48			0	0.00	—
Pentachlorophenol	5.82E-04		0.02		0.001		0.001	0.04	0.00
Phenol	2.44E-05		0.02			22	22	784.67	73.57
Pyrene	3.39E-04	59865	0.02	1197.3		0.68	0.68	24.25	29040.79
Styrene	1.37E-01	573	0.02	11.46	0.1		0.1	3.57	41.29
1;1,2,2-Tetrachloroethane	1.53E-02	104	0.02	2.08			0	0.00	—
Tetrachloroethylene	7.09E-01	139	0.02	2.78	0.005		0.005	0.18	0.53
Toluene	2.52E-01	171	0.02	3.42	1		1	35.67	126.90
Toxaphene	1.38E-04	501	0.02	10.02	0.003		0.003	0.11	1.08
1,2,4-Trichlorobenzene	1.07E-01	1840	0.02	36.8	0.07		0.07	2.50	92.16
1,1,1-Trichloroethane	7.63E-01	110	0.02	2.2	0.2		0.2	7.13	17.31
1,1,2-Trichloroethane	4.10E-02	61	0.02	1.22	0.005		0.005	0.18	0.24
Trichloroethylene	4.35E-01	112	0.02	2.24	0.005		0.005	0.18	0.43
2,4,5-Trichlorophenol	1.80E-04		0.02				0	0.00	—
2,4,6-Trichlorophenol	1.66E-04		0.02				0	0.00	—
Vinyl acetate	2.26E-02	5	0.02	0.1			0	0.00	—
Vinyl chloride	3.45E+00	11	0.02	0.22	0.002		0.002	0.07	0.07
Xylenes (total)	2.48E-01	381	0.02	7.62	10		10	356.67	2766.72
Inorganics									
Antimony			0.02		0.006		0.006	0.21	0.02
Arsenic			0.02	29	0.05		0.05	1.78	51.88
Barium			0.02	1.4	2		2	71.33	106.55
Beryllium			0.02	4600	0.004		0.004	0.14	656.28
Bromate			0.02		0.01		0.01	0.36	0.03
Cadmium			0.02	120	0.005		0.005	0.18	21.42
Chloramine			0.02		4		4	142.67	13.38

RECOMMENDATION
PRS 247

This PRS was created due to qualitative soil gas VOC detections. However, the concentrations of the VOCs detected were all less than their respective 10^{-6} Risk Based Soil Guidelines. Additionally, there is no history or evidence of any hazardous or radiological activities or processes occurring at this PRS.

Therefore, since no evidence of potential contamination exists at PRS 247, the recommendation is for No Further Assessment.