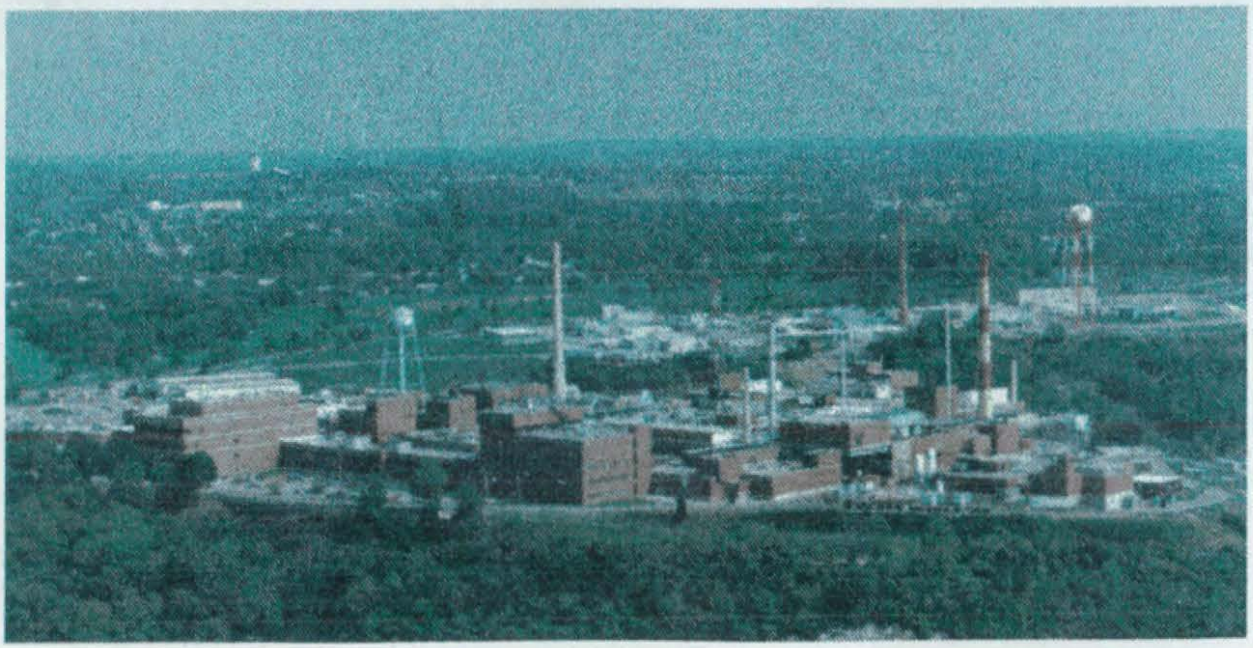
EG&G MOUND-30-03-03-03--9706180007

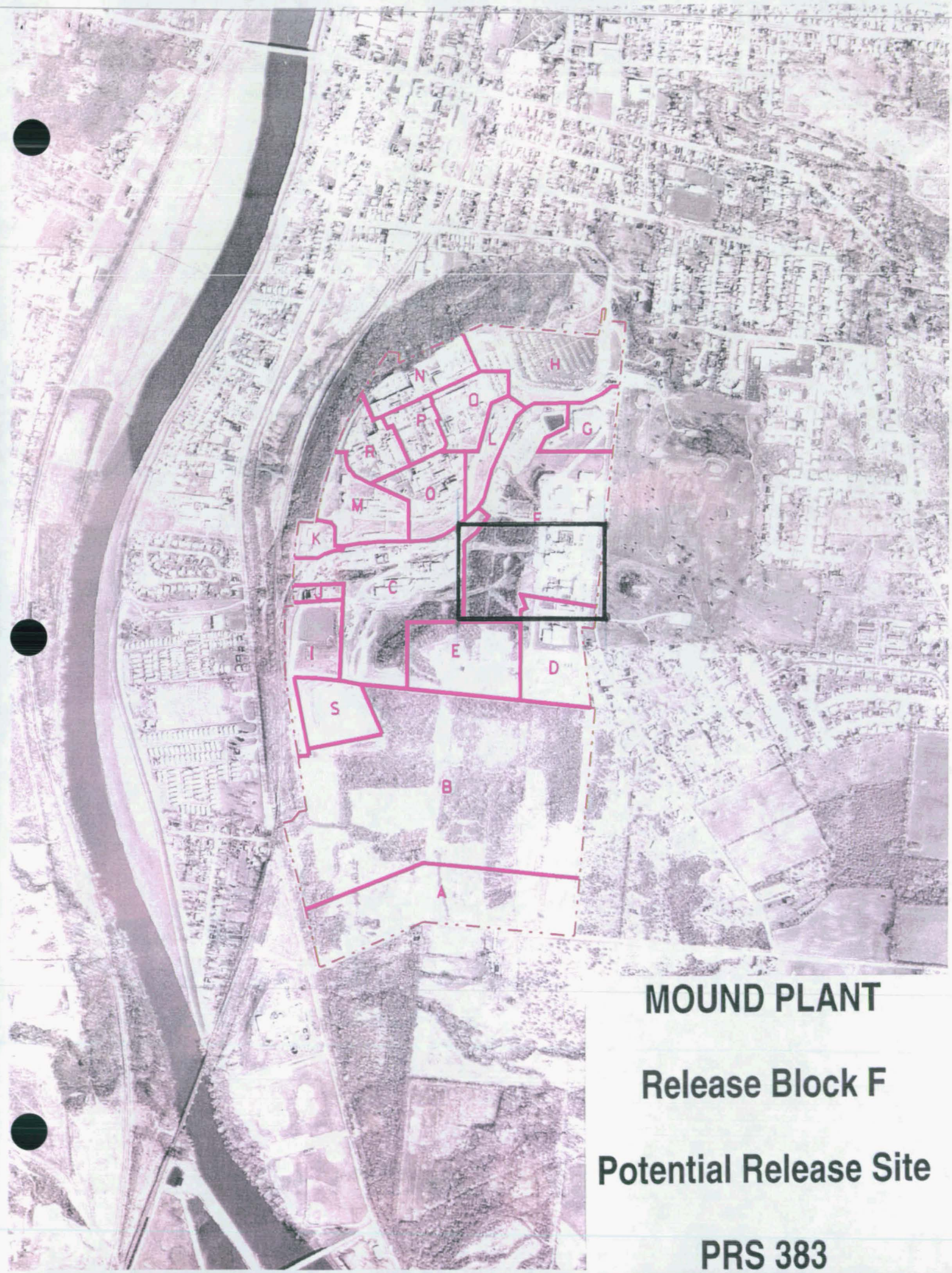
MOUND

Environmental
Restoration
Program

MOUND PLANT
Potential Release Site Package
PRS # 383



REV	DESCRIPTION	DATE
PUBLIC RELEASE 0	Available for comment.	Apr. 01, 1997
FINAL 1		



MOUND PLANT

Release Block F

Potential Release Site

PRS 383

H
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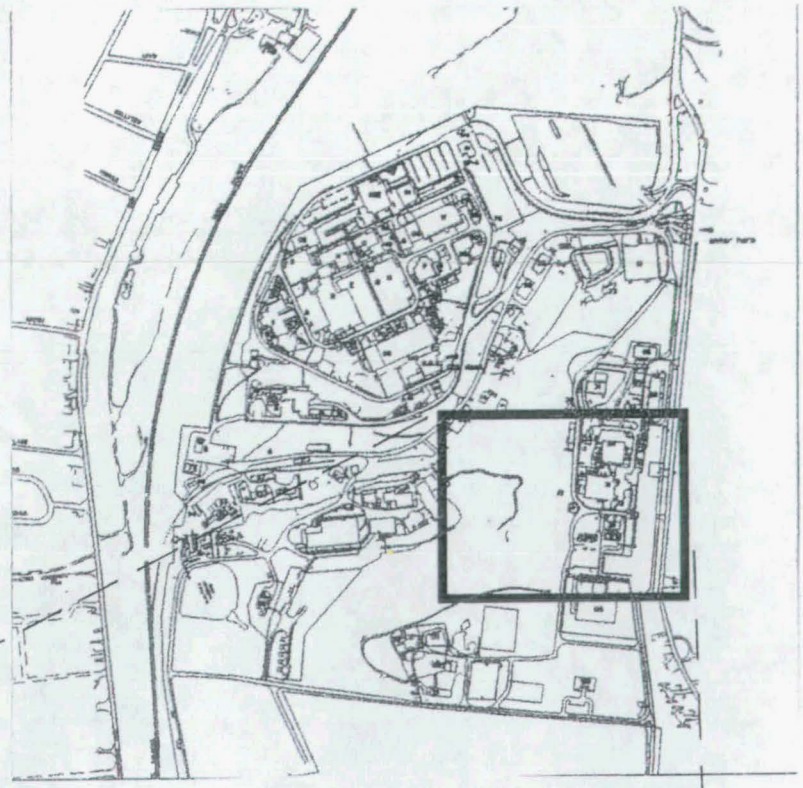
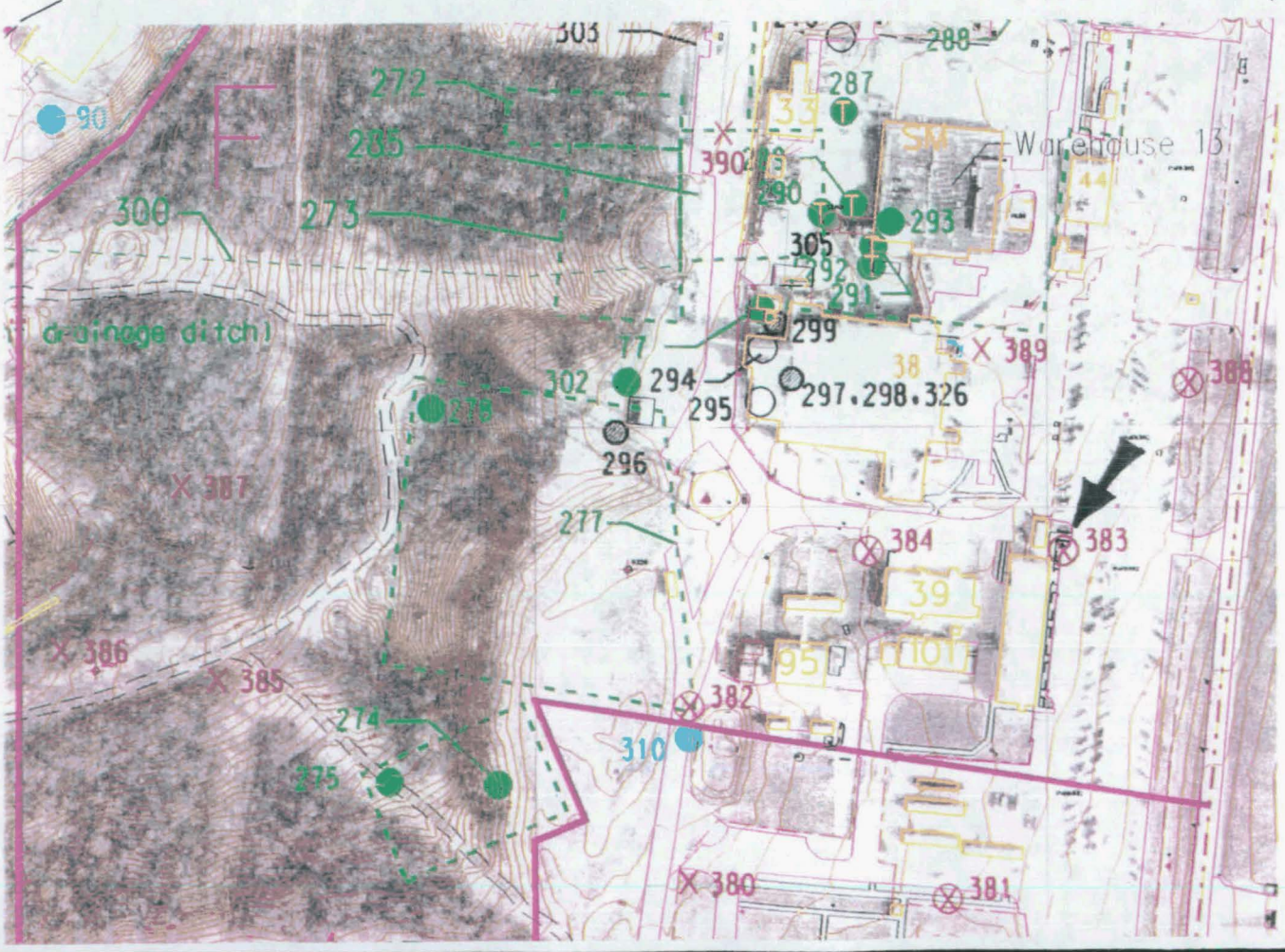
MOUND PLANT

Release Block F

Potential Release Site

PRS 383





383

PRS 383

PRS HISTORY:

Potential Release Site (PRS) 383 was identified as an area of possible organic chemical contamination during the OU5 Phase I Non-AOC Field investigation.[1] The PRS is located in the parking lot east of the main entrance to Building 102.

CONTAMINATION:

Chemical

In 1992, the OU5 Non-AOC Investigation detected elevated counts of aromatic and petroleum hydrocarbons, from the qualitative PETREX survey. Because of the apparent contamination that site was chosen for further assessment. The Soil Gas Confirmation[2] sampling of 1995 took a core sample (sample location #9) from within thirty feet of PRS 383. The three foot deep sample was quantitatively analyzed for volatiles, semivolatiles, pesticides, PCBs, explosives metals, and radionuclides. The results were that no analyte exceeded the ALARA, regulatory, nor 10^{-6} Risk Based Guideline Criteria.

Radiological

In 1983[3], one surface and one core soil sample within 20 feet of PRS-383 were evaluated for radioactive contamination.

No radionuclides were detected above their applicable ALARA or regulatory Guideline Criteria.

A 1992 surface wipe sample taken at PRS-383 during the OU5 Non-AOC survey reported less than 20 disintegrations per minute.

Note again that the radionuclides determined in the Soil Gas Confirmation Further Assessment were all below the ALARA, regulatory, and 10^{-6} Risk Based Guideline Criteria.

READING ROOM REFERENCES:

1) OU5, Operational Area Phase I Investigation, Non-AOC Field Report, Volume II, Appendices A-G, June 1995. (pages 5-9.2)
2) Further Assessment, Soil Gas Confirmation Sampling, May 1996. (pages 10-20)
3) OU9 Site Scoping Report: Volume 3 - Radiological Site Survey, June 1993. (pages 21-24)

PREPARED BY:

Dean A. Buckner, Member of EG&G Technical Staff

MOUND PLANT
PRS 383
SOIL CONTAMINATION

RECOMMENDATION:

Potential Release Site (PRS) 383 was identified as an area of possible organic contamination during the 1992 soil gas PETREX survey.

Sampling in 1995 within 30 feet of this PRS site quantitatively determined that no volatile/semivolatile organic compounds, pesticides, PCBs, explosives, metals, or radionuclides exceeded the ALARA, regulatory or 10^{-6} Risk Based Guidelines.

Therefore, it is recommended that NO FURTHER ASSESSMENT is required.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath, Remedial Project Manager — 3/31/97 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 3/31/97 (date)

OEPA: Brian K. Nickel, Project Manager — 3/31/97 (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from _____ to _____

☐ No comments were received during the comment period.

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

REFERENCE MATERIAL
PRS 383

Document Control No._____

Environmental Restoration Program

OPERABLE UNIT 5
OPERATIONAL AREA PHASE I INVESTIGATION
NON-AOC FIELD REPORT

MOUND PLANT
MIAMISBURG, OHIO

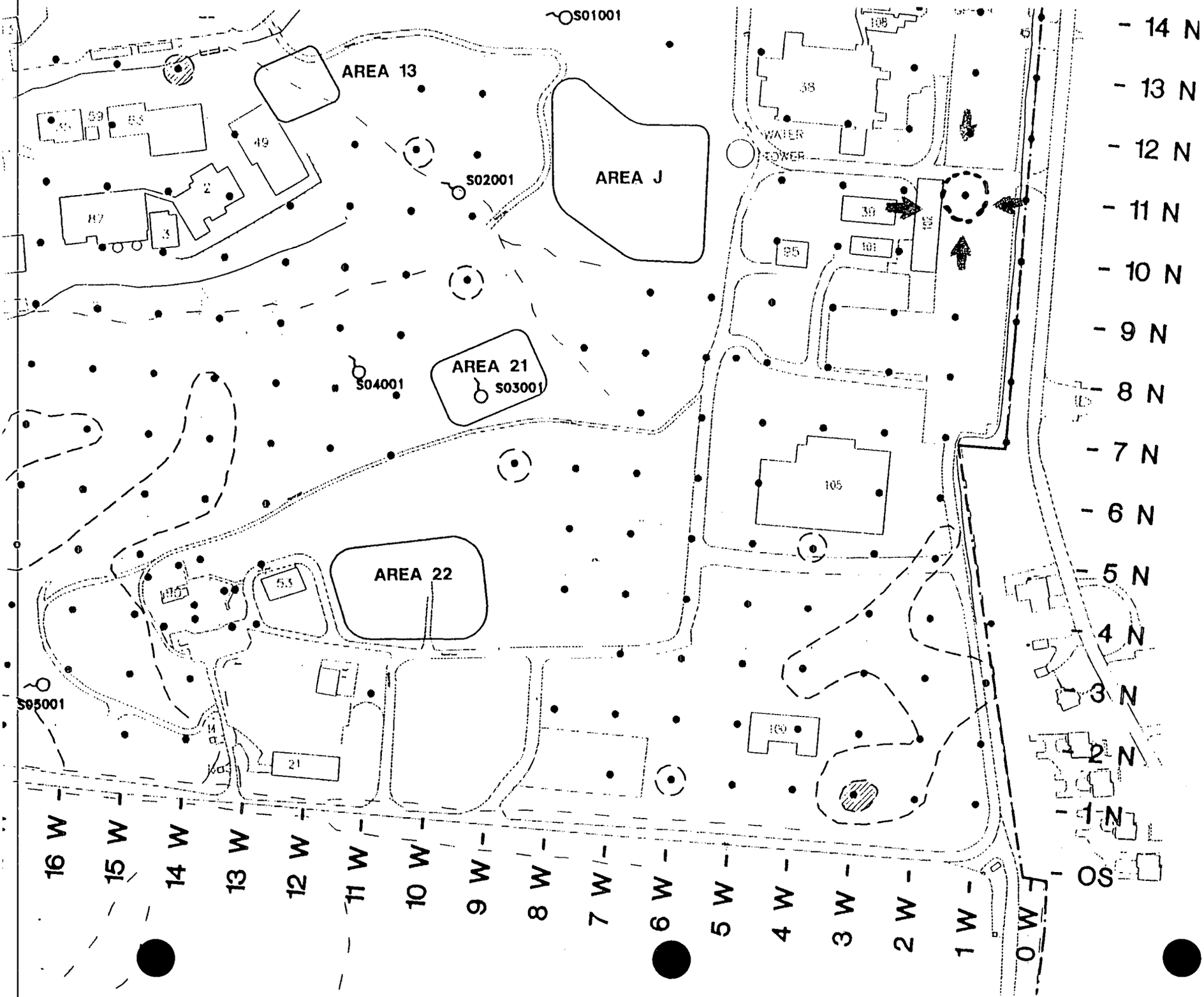
VOLUME II - APPENDICES A-G

June 1995

Final (Revision 0)

U.S. Department of Energy
Ohio Field Office

EG&G Mound Applied Technologies



S01001
AREA 13
AREA J
S02001
AREA 21
S03001
S04001
AREA 22
S05001
WATER TOWER
14 N
13 N
12 N
11 N
10 N
9 N
8 N
7 N
6 N
5 N
4 N
3 N
2 N
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16 W
15 W
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13 W
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11 W
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8 W
7 W
6 W
5 W
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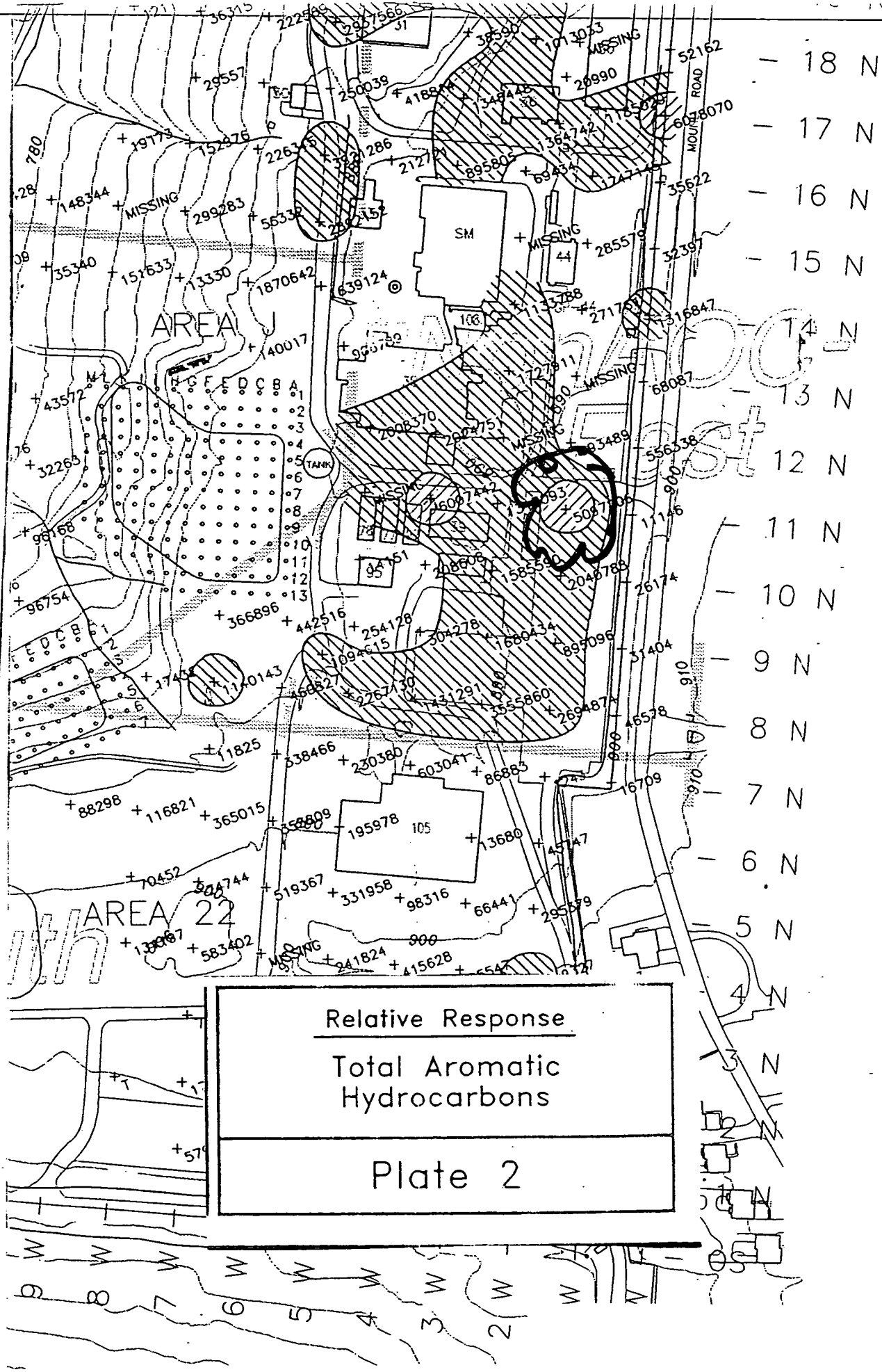
2 W
1 W
0 W

Table 3 (cont'd)

Sample #	Total Aromatic Hydrocarbons (a)	Total Semivolatile Hydrocarbons (b)	Total C5 to C11 Petroleum Hydrocarbons (c)	Total Halogenated Hydrocarbons (d)
928	6,007,442	3,757	7,107,733	ND
929	2,008,370	2,262	2,362,546	ND
931	69,434	ND	145,130	7,684
932	895,805	22,674	1,813,531	3,710
933	212,721	1,318	409,844	ND
3933 (e)	290,619	1,085	545,454	ND
935	35,622	ND	77,758	ND
936	1,747,145	1,958	2,189,497	ND
937	285,579	15,300	558,625	ND
938	32,397	ND	87,508	ND
939	1,316,847	17,307	1,946,211	ND
940	271,761	11,940	1,067,475	ND
941	68,087	ND	136,895	89,852
943	556,338	62,567	1,252,076	ND
944	693,489	17,947	1,153,016	ND
945	11,146	ND	27,040	ND
3945 (e)	22,847	ND	36,199	ND
946	5,097,206	744,700	11,542,658	H
947	26,174	ND	47,160	ND
948	2,040,788	523,786	7,967,383	H

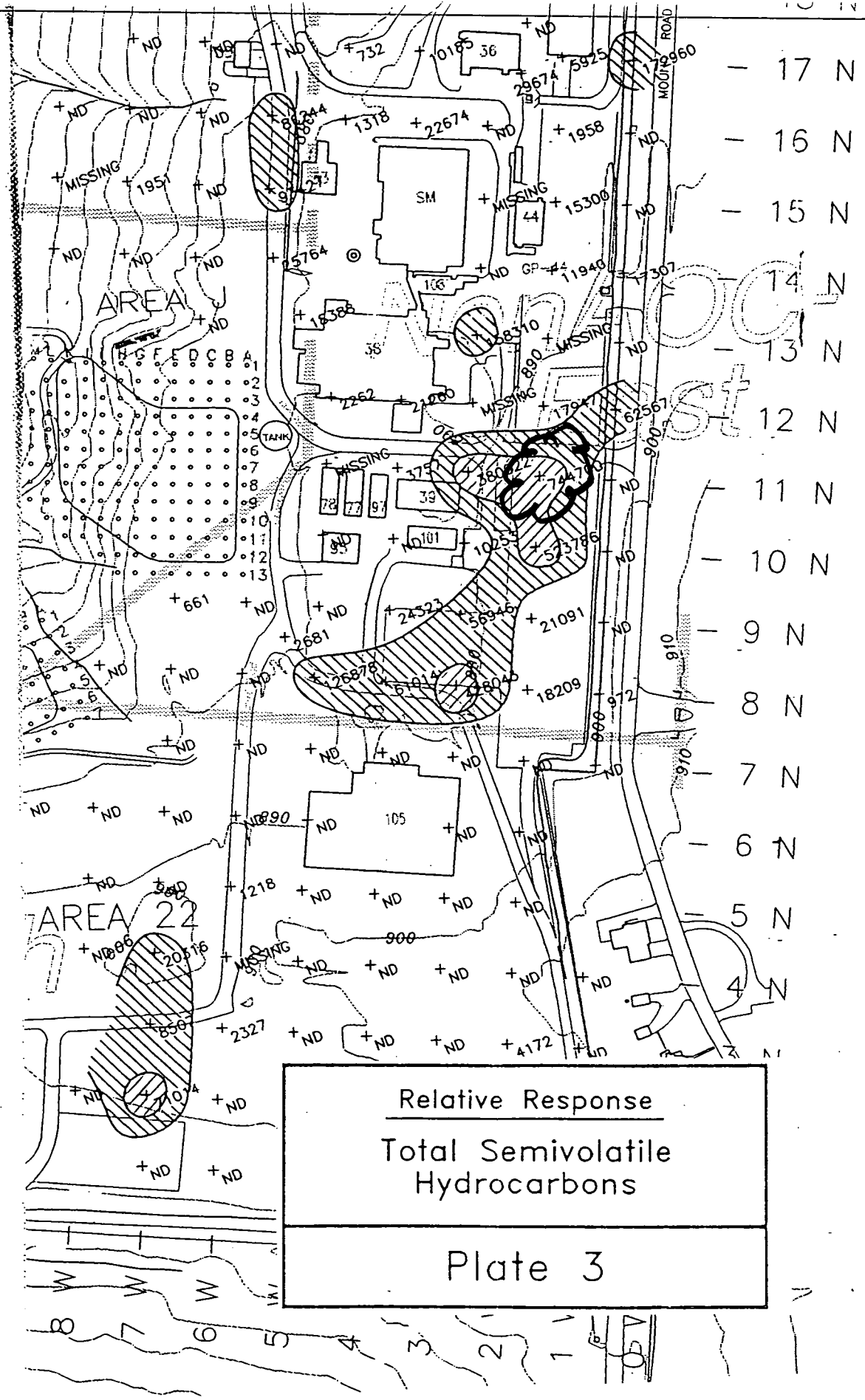
Key: (a) Intensity of response to ions of atomic masses 78, 92, 106, 120, 134, 148, 162, 176, 190, and 204.
(b) Intensity of response to ions of atomic masses 128, 142, 153, 156, 178, 184, 198, 202, and 212.
(c) Intensity of response to ions of atomic masses 70, 72, 78, 84, 86, 92, 98, 100, 106, 110, 112, 114, 120, 124, 126, 128, 134, 138, 140, 142, 148, 152, 154, and 156.
(d) Intensity of response to ions of atomic masses 101, 130, 146, 151, and 164.
(e) Duplicate of preceding sample.
H High levels of petroleum hydrocarbons have interfered with the identification of halogenated hydrocarbons in this sample; see text.
T High levels of terpenes have interfered with the identification of petroleum hydrocarbons in this sample; see text.
ND The targeted compounds were not detected in this sample.
* Travel Blank



Relative Response

Total Aromatic Hydrocarbons

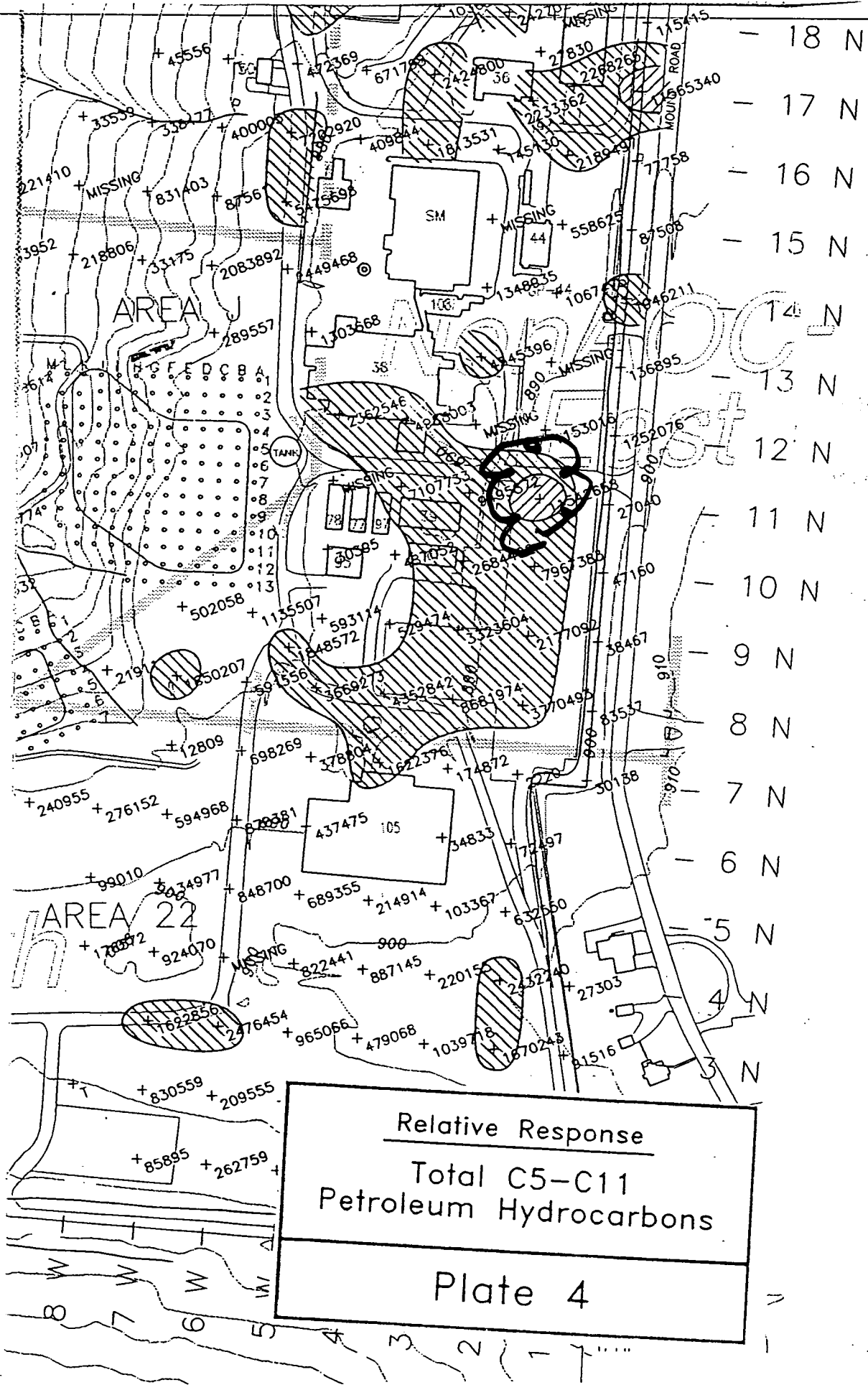
Plate 2



Relative Response

Total Semivolatile Hydrocarbons

Plate 3



Relative Response

Total C5–C11 Petroleum Hydrocarbons

Plate 4

APPENDIX D

RADIOLOGICAL DATA (FIDLER SURVEY MOUND SOIL SCREENING FACILITY DATA) FOR NON-AOC POINTS

	FIDLER SURVEY DATA					MOUND SOIL SCREENING FACILITY DATA			
SMPID	Contamination Criteria CH1	FIDLER Readings CH1	Contamination Criteria CH2	FIDLER Readings CH2	FIDLER Readings Out Channel	Plutonium - 238		Thorium - 232	
	Units: CPM	Units: CPM	Units: KCPM	Units: KCPM	Units: KCPM	Units: pCi/g		Units: pCi/g	
	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	Note:	RESULTS	Note:
10N18	130	65	6.5	4.0	NC	21	a	0.7	a
10N19	130	80	6.5	8.0	NC	WIPE	c	WIPE	c
10N20	152.1	110	8.45	6.5	NC	0	a	1	a
10N21	152.1	70	8.45	5.0	NC	NC		NC	
10N22	152.1	85	8.45	4.0	NC	NC		NC	
11N01	253.5	150	12.48	9.5	NC	4	a	1	a
11N02	122.2	80	5.59	4.0	NC	WIPE	c	WIPE	c
11N03	130	85	6.5	5.0	NC	WIPE	c	WIPE	c
11N04	130	90	6.5	4.5	NC	0	a	0.5	a
11N05	122.2	105	5.59	5.5	NC	7	a	0.9	a
11N10	213.2	140	13.13	10.5	NC	18	a	1	a
11N11	213.2	130	13.13	11.0	NC	25	b	0.5	a
11N12	213.2	85	13.13	7.0	NC	7	a	1.1	a
11N14	130	90	6.5	5.0	NC	WIPE	c	WIPE	c
11N16	183.3	110	11.05	7.5	NC	19	a	0.5	a
11N17	130	50	6.5	4.0	NC	5	a	0.8	a
11N18	157.3	60	8.45	4.0	NC	WIPE	c	WIPE	c
11N19	157.3	85	8.45	7.5	NC	18	a	0.3	a
11N20	157.3	100	8.45	4.5	NC	WIPE	c	WIPE	c
11N21	87.1	75	5.85	4.5	NC	NC		NC	
11N22	87.1	75	5.85	4.5	NC	NC		NC	
11N23	157.3	55	8.45	5.5	NC	NC		NC	
12N01	253.5	160	12.48	9.0	NC	14	a	0.9	a
12N02	122.2	100	5.59	5.0	NC	WIPE	c	WIPE	c
12N03	130	90	6.5	5.0	NC	5	a	0.7	a
12N04	130	75	6.5	4.5	NC	0	a	0.3	a
12N05	130	110	6.5	5.0	NC	13	a	0.8	a
12N10	213.2	100	13.13	9.5	NC	17	a	0.8	a
12N11	213.2	135	13.13	8.5	NC	21	a	0.6	a

PRS 383

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APPENDIX D

RADIOLOGICAL DATA (FIDLER SURVEY MOUND SOIL SCREENING FACILITY DATA) FOR NON-AOC POINTS

	FIDLER SURVEY DATA					MOUND SOIL SCREENING FACILITY DATA			
SMPID	Contamination Criteria CH1	FIDLER Readings CH1	Contamination Criteria CH2	FIDLER Readings CH2	FIDLER Readings Out Channel	Plutonium - 238		Thorium - 232	
	Units: CPM	Units: CPM	Units: KCPM	Units: KCPM	Units: KCPM	Units: pCi/g		Units: pCi/g	
	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	Note:	RESULTS	Note:

NR - Not recorded
NC - No sample/reading taken
NA - Reading not taken; contamination criteria not exceeded.
a - Mound Soil Screening Facility detection level not exceeded.
b - Concentration at or above the Mound Soil Screening Facility detection level.
c - Results of the wipe sample were less than 20 disintegrations per minute.
CPM - Counts per minute
KCPM - Counts per minute x 1000
pCi/g - Picocuires per gram

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

1.0 INTRODUCTION

1.1. BACKGROUND

In 1994 and 1995 as part of the Operable Unit 5 Investigations, the Mound ER Program conducted an extensive soil gas survey to search for possible organic chemical contamination in the soils. The survey was conducted on the southern portion of the plant property and identified a number of areas where elevated concentrations of organic chemicals exist. Based on these results, the Mound ER Program identified 49 potential release sites due to the possible organic chemical contamination.

Potential Release Sites (PRSs) Identified from Soil Gas Survey Results

346	356	363	370	381	389	396
347	357	364	372	382	390	397
348	358	365	374	383	391	398
351	359	366	375	384	392	399
352	360	367	377	386	393	402
353	361	368	378	387	394	403
355	362	369	380	388	395	404

While the soil gas survey identified areas where concentrations of organic chemicals were elevated in comparison to other soils, it did not quantify the results in terms that could be directly compared to clean-up guidelines. The ER Program, in conjunction with US EPA and Ohio EPA developed the Soil Gas Confirmation Sampling Plan to examine the locations with the highest soil gas measurements so that the hazard associated with the elevated measurements could be assessed. In addition, these results may be useful in addressing the risks associated with potential release sites other than those listed above.

A secondary, and unrelated, objective of this investigation was to perform a number of interlaboratory comparisons between contracted wet radiochemistry laboratories, the Mound Plant Environmental Wet Radiochemistry Laboratory, and the Mound Plant Soil Screening Laboratory. Thirty-one locations, selected by Ohio EPA, were used in the laboratory intercomparison study.

This report documents the results of Soil Gas Confirmation sampling and analysis and the results of the laboratory intercomparison study. These data will supplement Potential Release Site (PRS) data packages and be considered in determining the final disposition of the sites identified above. The Mound ER Program, US EPA, and Ohio EPA will evaluate the results of laboratory intercomparisons.

Terran Corporation of Beavercreek, Ohio, with assistance from Innovative Probing Solutions of Mt. Vernon, Illinois, sampled 100 locations in adherence to the Soil Gas Confirmation Sampling Plan (see appendix) which was consistent with the Operable Unit 9, Site-Wide, Quality Assurance Project Plan (QAPP) and Standard Operating Procedures (SOPs). Samples were collected from February 5 to February 21, 1996.

The parameters analyzed at each sampling location include:

Volatile Organic Compounds (VOCs) by CLP Method OLM01.8 including Modification D
Semivolatile Organic Compounds (SVOCs) by CLP Method OLM01.8 including Modification D
Pesticides/Polychlorinated Biphenyls (PCB's) by CLP Method OLM01.8
USATHAMA and PETN Explosives by Weston OP 21-16L-8330.1
Target Analyte List (TAL) Inorganics by CLP Method ILM03.0 including Modification A
Nitrate/Nitrite by CLP Method ILM04.4
Radionuclides screening by Mound Method MD--80030 operation #1355
Quantitative radionuclides by several contract laboratory and Mound SOPs

Table I.1 presents the complete analyte list.

Table I.1 Soil Analyte List

Volatile Organic Compounds

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

Semivolatile Organic Compounds

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

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

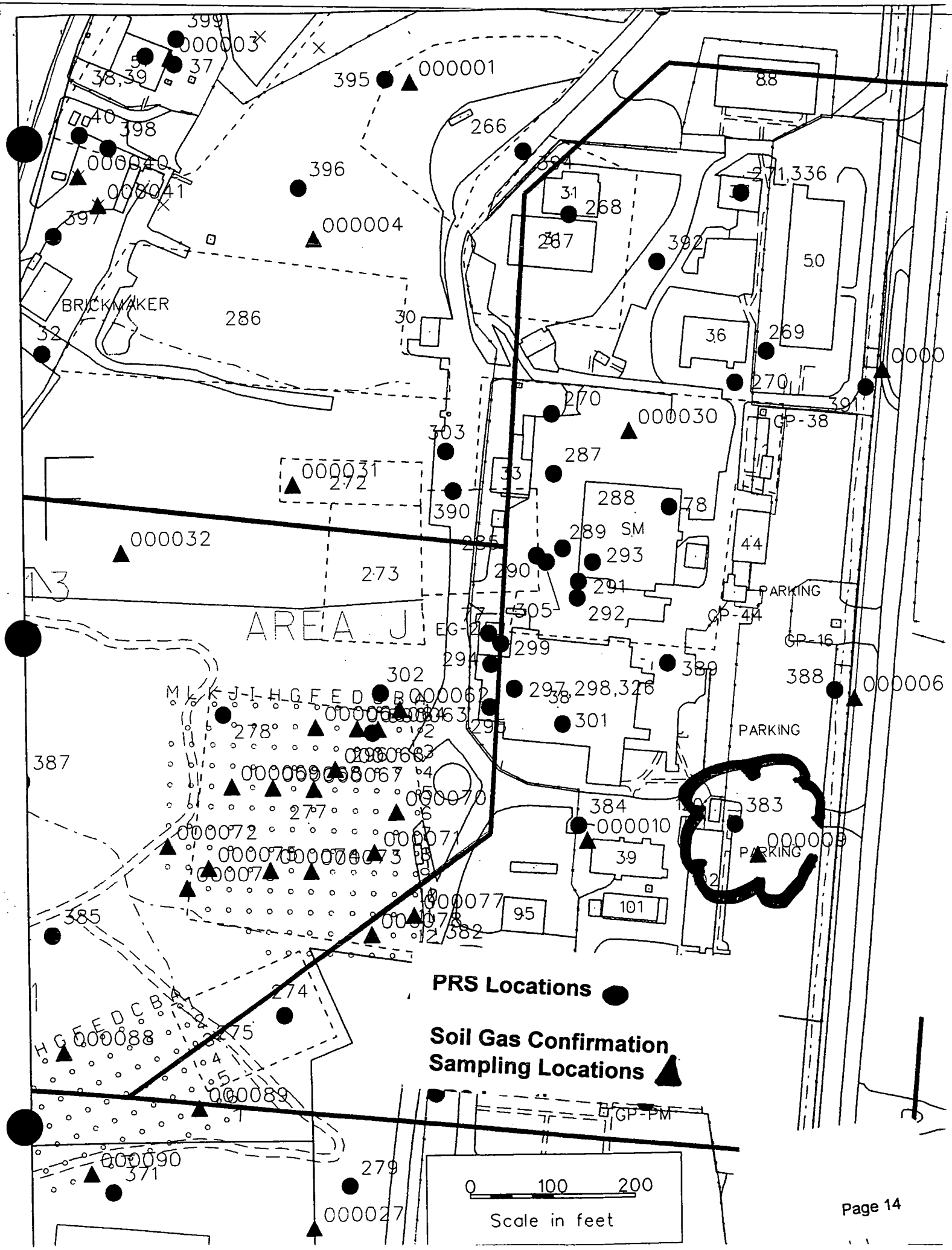

PRS Locations
Soil Gas Confirmation Sampling Locations
AREA J
BRICKMAKER
PARKING
GP-38
GP-44
GP-16
GP-PM
SM
0 100 200
Scale in feet

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

ANALYTE	SGC NAC 000010	SGC NAC 000011	SGC NAC 000012	SGC NAC 000013	SGC NAC 000014	SGC NAC 000015	Background	10^{-6} Construction Worker Guidelines
VOLATILES (µg/Kg)								
Acetone							NA	105000000
1,2-Dichloroethene (total)						96	NA	21500000
2-Butanone			8 J	10 J			NA	46500000
Benzene						2 J	NA	8900
Carbon Disulfide				4 J			NA	1400000
Chloroform							NA	NA
Chloromethane	4 J						NA	NA
Ethylbenzene						1 J	NA	480
Methylene Chloride	8						NA	NA
Tetrachloroethene							NA	10500000
Toluene		2 J				28	NA	1250000
Trichloroethene				7		3 J	NA	41000
Xylene (total)					1 J	4 J	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

No entry indicates analyte not detected.

Note: Sample 000009 is not recorded, therefore no volatiles were detected.

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

ANALYTE	SGC NAC 000010	SGC NAC 000011	SGC NAC 000012	SGC NAC 000013	SGC NAC 000014	SGC NAC 000015	Background	10^{-6} Construction Worker Guidelines
VOLATILES (µg/Kg)								
Acetone							NA	105000000
1,2-Dichloroethene (total)						96	NA	21500000
2-Butanone			8 J	10 J			NA	46500000
Benzene						2 J	NA	8900
Carbon Disulfide				4 J			NA	1400000
Chloroform							NA	NA
Chloromethane	4 J						NA	NA
Ethylbenzene						1 J	NA	480
Methylene Chloride	8						NA	NA
Tetrachloroethene							NA	10500000
Toluene		2 J				28	NA	1250000
Trichloroethene				7		3 J	NA	41000
Xylene (total)					1 J	4 J	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

No entry indicates analyte not detected.

Note: Sample 000009 is not recorded, therefore no volatiles were detected.

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

ANALYTE	SGC NAC 000008	SGC NAC 000009	SGC NAC 000010	SGC NAC 000011	SGC NAC 000012	SGC NAC 000015	Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (µg/Kg)								
Acenaphthene							NA	NA
Acenaphthylene							NA	NA
Anthracene							NA	320000000
Benzo(a)anthracene	57 J				18 J		NA	4100
Benzo(a)pyrene	65 J				21 J		NA	410
Benzo(b)fluoranthene	67 J				22 J		NA	4100
Benzo(g,h,i)perylene	26 J						NA	NA
Benzo(k)fluoranthene	58 J				17 J		NA	41000
Bis(2-ethylhexyl)phthalate		71 J		36 J	35 J		NA	215000
Butylbenzylphthalate							NA	215000000
Carbazole							NA	NA
Chrysene	68 J		20 J		22 J		NA	410000
Di-n-butyl phthalate							NA	105000000
Di-n-octyl phthalate							NA	21500000
Dibenz(a,h)anthracene							NA	410
Dibenzofuran							NA	NA
Diethyl phthalate							NA	NA
Fluoranthene	110 J		31 J		38 J		NA	42500000
Fluorene							NA	NA
Indeno(1,2,3-cd)pyrene	36 J						NA	4100
2-Methylnaphthalene							NA	NA
Naphthalene						61 J	NA	NA
Phenanthrene	53 J						NA	NA
Phenol							NA	650000000
Pyrene	120 J		31 J	20 J	37 J		NA	32000000

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

ANALYTE	SGC NAC 000008	SGC NAC 000010	SGC NAC 000031	SGC A66 000041	SGC A61 000044	SGC A13 000060	Background	10^{-6} Construction Worker Guidelines
PESTICIDES/PCB (µg/kg)								
Aroclor-1248	48			110	98		ND	380
Aroclor-1254	43				55		ND	21500
Alpha-Chlordane							ND	NA
Gamma-Chlordane						3.7	ND	NA
4,4'-DDT							13000	9000
Dieldrin		4.4	5*				ND	185
Endosulfan I				3.4*	2.4*		ND	NA
Endosulfan II							NA	NA
Endrin			11*				ND	NA
Heptachlor						2.9	ND	NA

NOTE: Sample 000009 was not recorded. Therefore, no pesticides or PCBs were detected.

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

ANALYTE	SGC NAC 000007	SGC NAC 000008	SGC NAC 000009	SGC NAC 000010	SGC NAC 000011	SGC NAC 000012	Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)								
Aluminum	10200	2820	18700	7300	10300	13100	19000	NA
Antimony		0.27 B	0.91 B	0.21 B	1.2 B		NA	425
Arsenic	1.9 B	3.2	11.1	7.2	2.2 B	1.9 BJ	8.6	320
Barium	26.2 B	23.2 B	163	64.7	13.5 B	78.4	180	75000
Beryllium	0.28		0.9 B	0.34	0.36 B	0.44	1.3	0.7
Bismuth			0.85 B		0.99 B		NA	NA
Cadmium	0.33 B	0.22 B	6	0.62 B	5.2	6.0	2.1	1050
Calcium	83900	113000	5940	41500	90800	127000 J	310000	NA
Chromium	14.3	5.[illegible]	20.3	12	11.9	17.3	20	1050000
Cobalt	11 B	3.3 B	13	7.9 B	1[illegible].7	12.7 J	19	NA
Copper	16.2	13.9	19.2	17.4	16.6	21.3 J	26	NA
Cyanide							ND	21400
Iron	23000	7660	29400	17300	25600	27900	35000	NA
Lead	7.2	5.9	22.2	16.5	5.7	9.3 J	48	NA
Lithium	3.2 B	8.2 B	14.7 B	9.2 B	27.3	25.3	26	NA
Magnesium	21600	47900	4500	16700	12300	19900 J	40000	NA
Manganese	493	256	728	604	908	658	1400	135000
Mercury							NC	320
Molybdenum	0.63 B	1.4 B	1.8 B	2.3 B	0.58 B	1.3 B	27	NA
Nickel	22.6	8.1 B	24.5	16.5	21.6	26.4	32	21500
Potassium	1590	463 B	1420	794 B	2210 B	1630	1900	NA
Selenium					0.31 B		NA	NA
Silver							1700	5500000
Sodium	246 B	341 B	1010 B	82 B	288 B	2490 J	[illegible]	NA
Thallium							460	NA
Tin		4.5 B	1.5 B			1.6 B	20	NA
Vanadium	14.2	7.4	42.7	19.2	15.8	22.4	25	7500
Zinc	53.8	36.6	71.8	299	59.9	68.5	140	320000

Table A.5. Soil Gas Confirmation Detected Nitrate-Nitrite

ANALYTE	SGC NAC 000001	SGC NAC 000002	SGC NAC 000003	SGC NAC 000004	SGC NAC 000005	SGC NAC 000006	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	83.9	93.8	88.5	83.3	78.4	75.0	NA	NA
Nitrate/Nitrite (MG-N/KG)	2.0	1.8	1.2	2.1	7.2	4.8	26	NA

ANALYTE	SGC NAC 000007	SGC NAC 000008	SGC NAC 000009	SGC NAC 000010	SGC NAC 000011	SGC NAC 000012	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	83.9	95.0	78.9	83.9	90.1	84.7	NA	NA
Nitrate/Nitrite (MG-N/KG)	1.6	26.5	2.2	5.9	5.3	1.8	26	NA

ANALYTE	SGC NAC 000013	SGC NAC 000014	SGC NAC 000015	SGC NAC 000016	SGC NAC 000017	SGC SAN 000018	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	81.7	80.9	74.0	85.3	72.8	84.2	NA	NA
Nitrate/Nitrite (MG-N/KG)	2.1	4.9	3.0	2.4	6.4	13.7	26	NA

ANALYTE	SGC NAC 000019	SGC NAC 000020	SGC NAC 000021	SGC NAC 000022	SGC NAC 000023	SGC NAC 000024	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	85.3	87.6	77.4	78.3	77.5	89.5	NA	NA
Nitrate/Nitrite (MG-N/KG)	6.5	2.1	6.1	2.2	11.6	2.2	26	NA

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

ANALYTE	SGC NAC 000008	SGC NAC 000009	SGC NAC 000010	SGC NAC 000011	SGC NAC 000012	SGC NAC 000013	SGC NAC 000014	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241					-0.238	0.0694		ND	4.95
Bismuth-207					0.0292	-0.0304		ND	0.175
Bismuth-210					0.0355	0.0297		ND	NA
Cesium-137					0.0371	0.0175	0.826	0.42	0.46
Cobalt-60					0.0547	-0.0260		NC	0.1
Plutonium-238	0.0826	0.0233	0.107	0.0718	0.101	0.0107	0.671	0.13	5.5
Plutonium-239/240					0.00154	-0.000127	0.0206	0.18	5.5
Potassium-40	7.72	12.9	15.0	17.8	15.5	4.65	22.5	37	NA
Radium-226	0.571	0.764	0.917	0.778	0.592	0.263	1.10	2	0.14
Thorium-228	0.678	0.779	0.914	0.913	0.697	0.247	1.18	1.5	0.85
Thorium-230	0.541	1.09	1.27	0.902	0.803	0.399	1.09	1.9	44
Thorium-232	0.554	0.838	0.708	0.830	0.769	0.210	1.08	1.4	50
Uranium-234	0.361	0.712	0.897	0.882	0.693	0.378	0.866	1.1	37.5
Uranium-235			0.0459		0.0231	0.0183	0.0548	0.11	3.35
Uranium-238	0.414	0.774	1.06	0.871	0.681	0.424	1.01	1.2	11

ENVIRONMENTAL RESTORATION PROGRAM

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

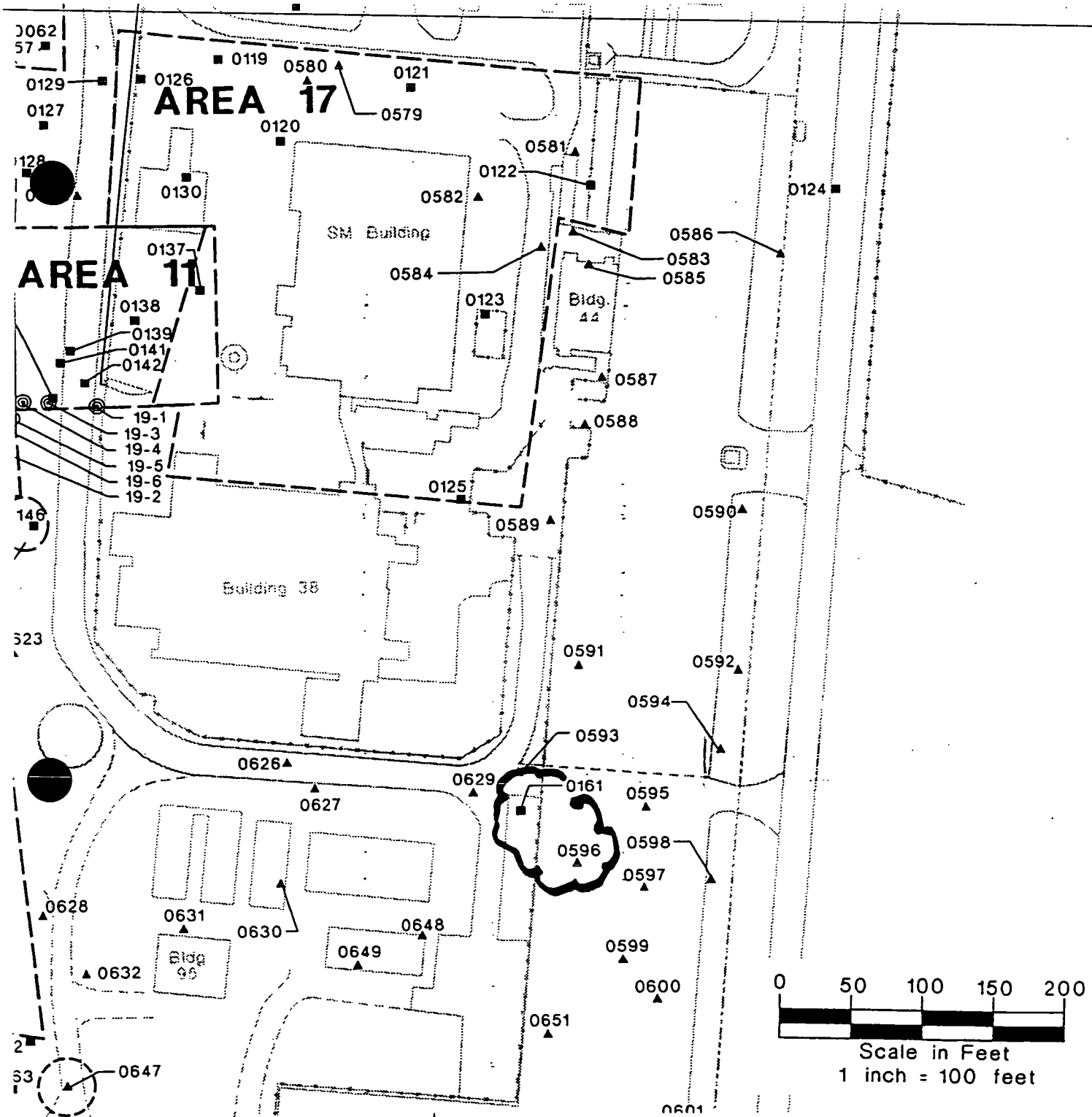
MOUND PLANT
MIAMISBURG, OHIO

June 1993

DEPARTMENT OF ENERGY
ALBUQUERQUE FIELD OFFICE

ENVIRONMENTAL RESTORATION PROGRAM
EG&G MOUND APPLIED TECHNOLOGIES

FINAL



ER PROGRAM

MOUND PLANT

Miamisburg, Ohio

PLATE 1
(1 of 2)

Site Survey Project Sampling Locations

Prepared for
Site Scoping Report: Volume 3
Radiological Site Survey

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)
C0125	3085	2185	1358	12-82	18	0.43	b					
			1359	12-82	36	0.25	3.11					
			1360	12-82	54	33.60	b					
			1361	12-82	72	0.13[c]	3.25[c]					
			1362	12-82	90	1.97	b					
			1363	12-82	108	0.19	b					
S0589	3125	2135	4007	10-83	0	9.00[c]	b					
S0590	3175	2010	4010	10-83	0	1.05	b					
S0591	3225	2160	4008	10-83	0	6.12	b	0.15				
S0592	3275	2060	4009	10-83	0	4.72	b	0.33				
S0593	3275	2230	4012	10-83	0	1.07	b					
S0594	3320	2095	2928	10-83	0	6.55	2.70					
S0595	3335	2160	2932	10-83	0	0.14	b					
S0596	3350	2220	2933	10-83	0	0.02	b	1.63				
S0597	3385	2185	5813	07-84	0	3.67	b					
S0598	3400	2140	2929	10-83	0	5.30	4.30					
S0599	3425	2220	5814	07-84	0	1.45	b					
S0600	3460	2210	2930	10-83	0	4.06	2.27	0.69				
S0601	3555	2220	2931	10-83	0	0.42[c]	2.48[c]	0.58				
C0126	2725	2265	1319	12-82	18	5.57	b					
			1320	12-82	36	79.00[c]	b					
			1321	12-82	54	6.51	b					
			1322	12-82	72	0.37	b					

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)
			2444	08-83	126	0.62	b					
			2446	08-83	162	0.66[c]	30.42[c]		LDL	LDL	1	LDL
			2447	08-83	180	3.09	14.58		LDL	LDL	0.9	LDL
			2448	08-83	198	2.60	10.32		LDL	LDL	0.7	LDL
			2449	08-83	216	2.42	b					
			2450	08-83	234	1.70	5.07					
S0640	3225	2895	2925	10-83	0	1.56	b	1.53				
S0641	3250	2770	2926	10-83	0	0.12	b	2.17				
S0642	3240	2795	6793	08-84	0	0.44	b					
S0643	3275	2645	2927	10-83	0	0.82	b					
S0644	3275	2970	6558	08-84	0	NR	NR		LDL[e]	29[e]	1.2[e]	LDL[e]
S0645	3290	2990	9789	06-85	0	NR	NR			28[e]		
S0646	3290	2995	9788	06-85	0	NR	NR			0.5[e]		
C0161	3300	2240	8266	10-84	72	0.04	b					
			8267	10-84	108	0.01	b					
S0647	3340	2610	2778	10-83	0	NR	NR		LDL	270	1.3	LDL

(A hand-written note was included below this sample result stating that this sample was not included in the original Site Survey Project report because the location was cleaned up immediately.

S0648	3350	2340	5818	07-84	0	0.32	b					
S0649	3350	2390	2833	10-83	0	1.11	2.08					

[a]C denotes core location and S denotes surface sample location on Plate 1.

[b]Thorium results of $\leq$ 2 pCi/g are listed as "b".

[c]Verification sample analyzed for QA/QC.

[d]No MRC ID assigned because *in situ* gamma spectrometry was performed for thorium-232.

[e]Gamma results could not be confirmed using the gamma spectroscopy printout given in this appendix.

[f]The depth for this sample was given as "SS". For mapping purposes (Plates 1 and 5), this is assumed to be a surface sample.

[g]Sample results were given isotopically for this sample and included 0.99 pCi/g thorium-228; 321 pCi/g thorium-230; and 1.5 pCi/g thorium-232, for a total of 323.5 pCi/g.