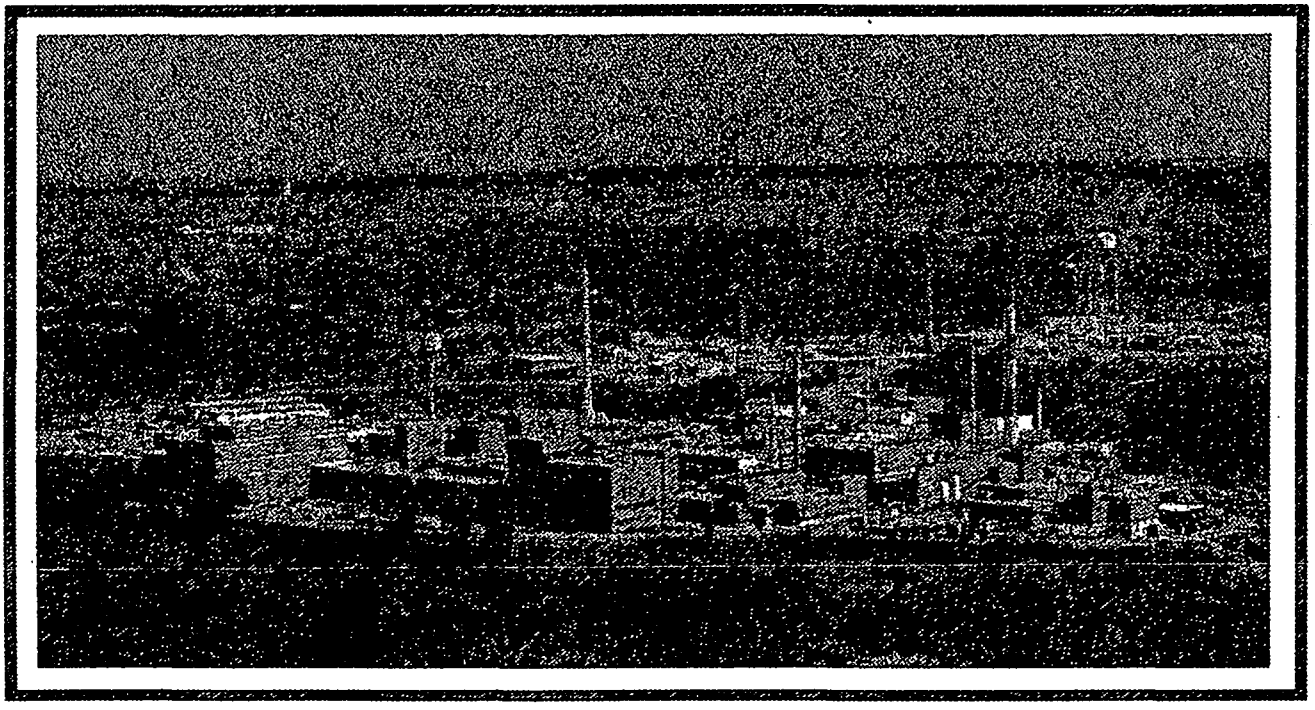
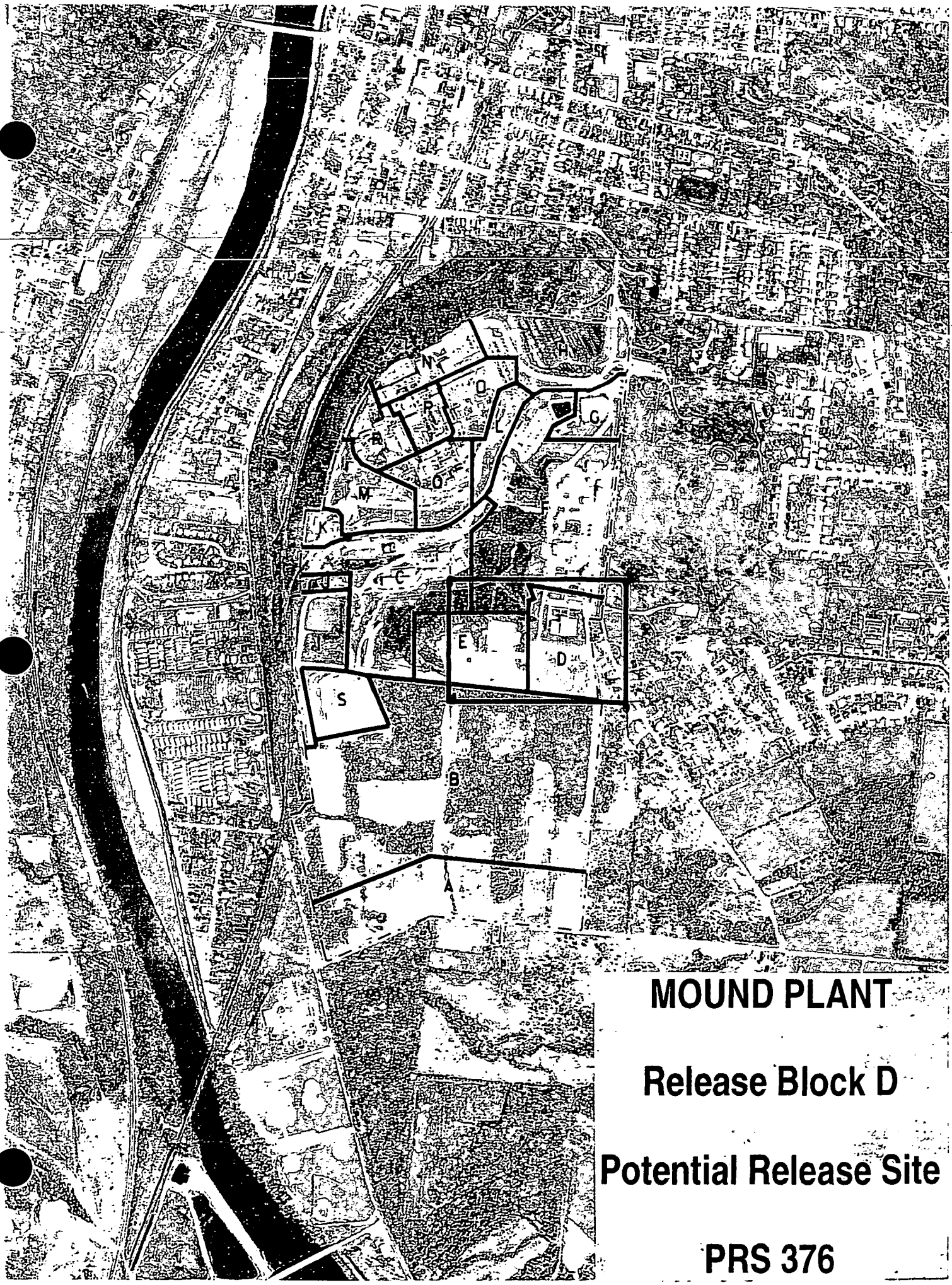
EG&G MOUND-30-03-04-02--9610170021

MOUND

Environmental
Restoration
Program

MOUND PLANT
Potential Release Site Package
PRS # 376



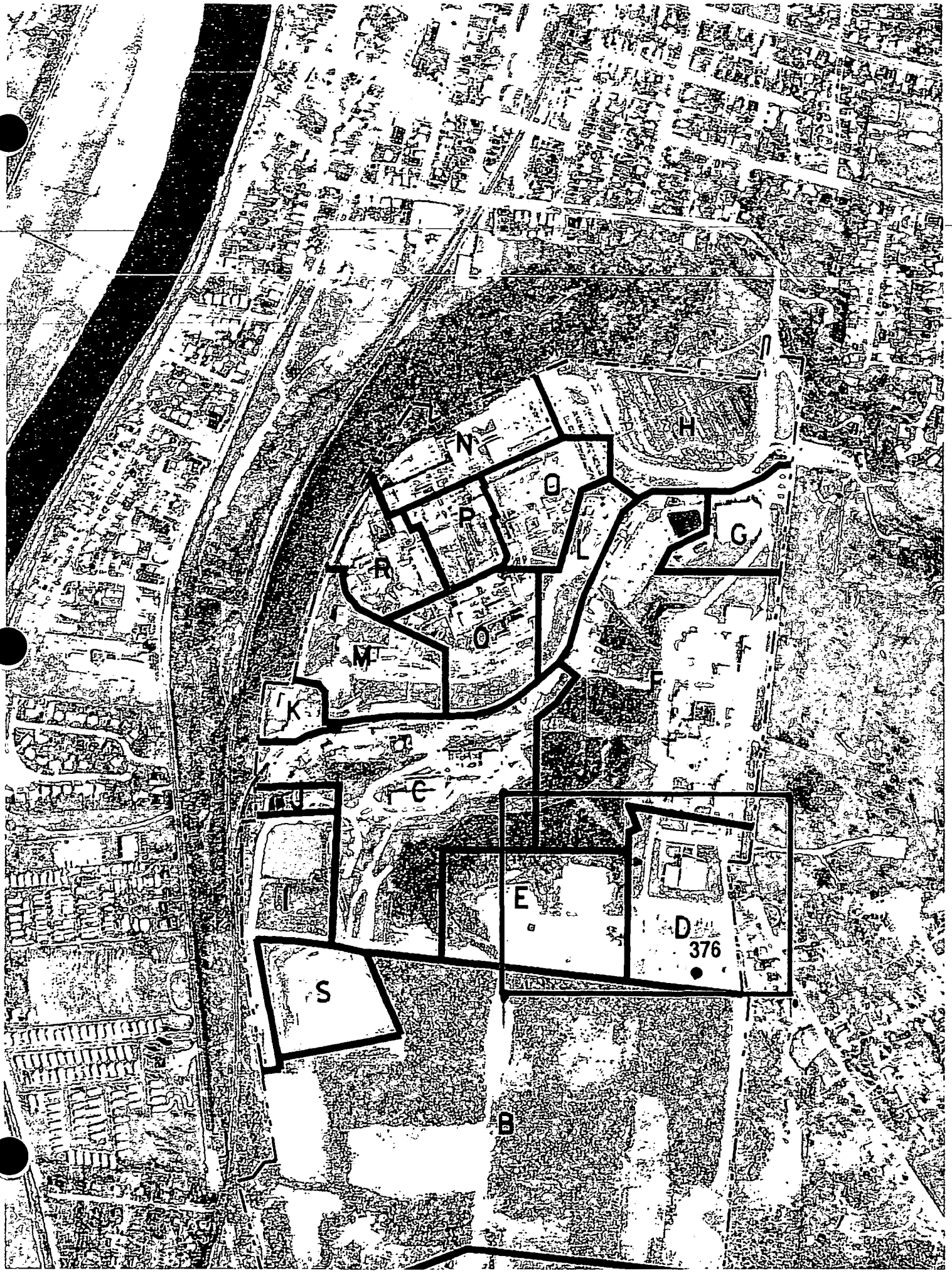


MOUND PLANT

Release Block D

Potential Release Site

PRS 376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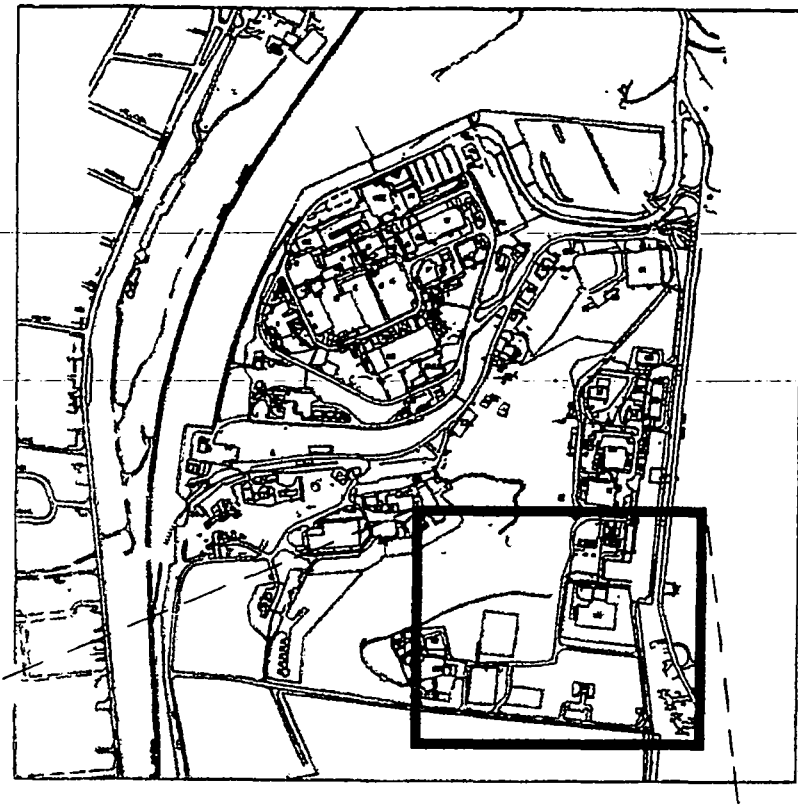
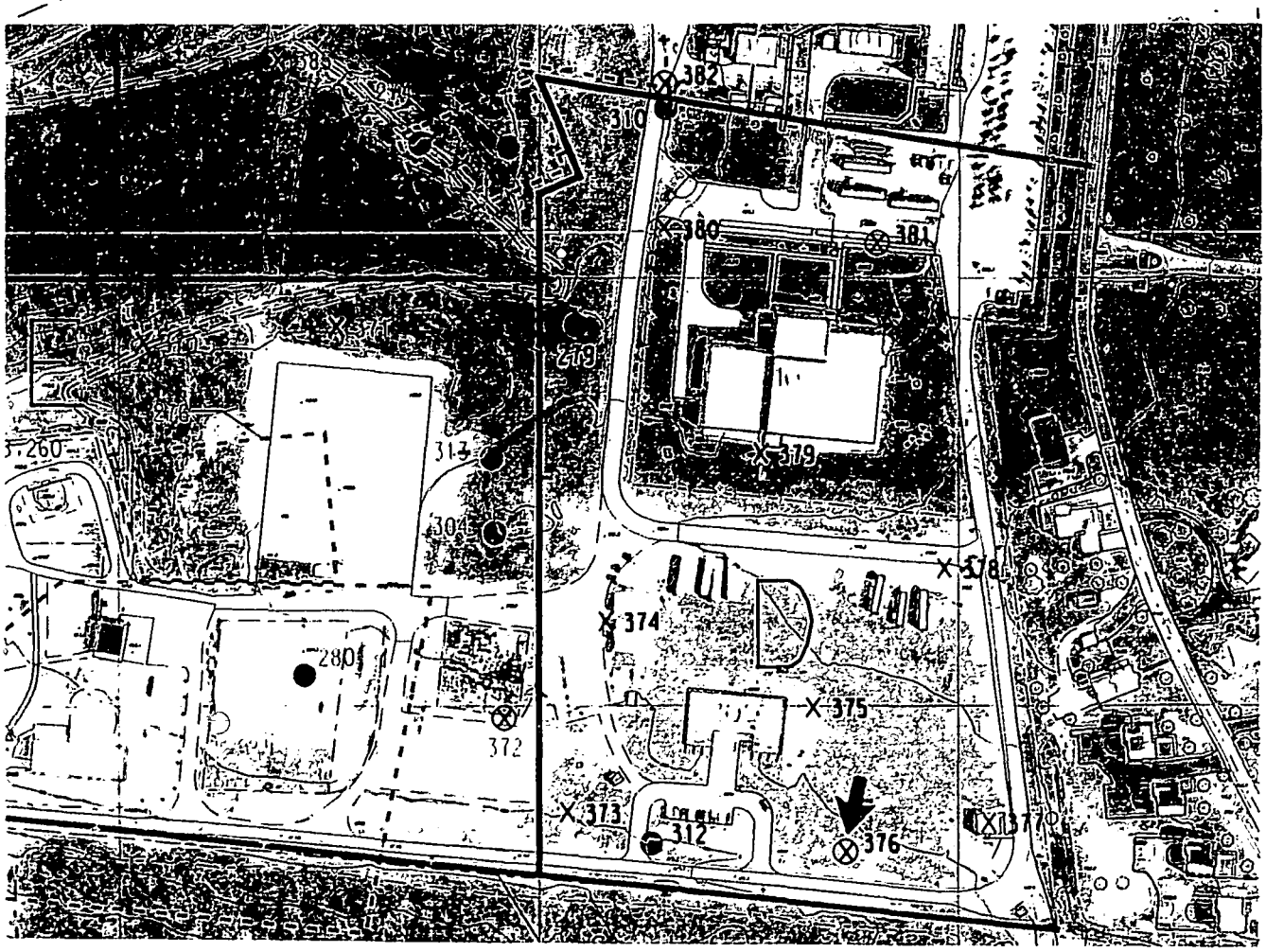
MOUND PLANT

Release Block D

Potential Release Site

PRS 376





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376

PRS 376

PRS HISTORY:

PRS 376 was identified based on findings of low level plutonium during the OU-5 Non-AOC Phase 1 activities.[1]

PROCESS DESCRIPTION:

No radioactive or hazardous waste generating processes are known to have occurred in the area of PRS 376. Based on historical activities in nearby buildings, only isolated activity from thorium and/or plutonium may be expected.

CONTAMINATION:

Low level plutonium contamination identified during the OU-5 Non-AOC Phase 1 activities.[1] Contamination levels range from 25 to 60 pCi/g Pu-238. Thorium levels are all less than 1.5 pCi/g. The Mound ALARA guideline value for plutonium is 25 pCi/g and the regulatory standard for thorium is 5 pCi/g. The area with Pu >25 pCi/g is less than one acre. These samples were taken in 1994 (see attached map).

READING ROOM REFERENCES:

1) OU-5 Operational Area Phase I Investigation, Non-AOC Field Report (Draft), March 1995. (pages 5-10)

PREPARED BY:

Richard Neff, DOE Technical Support Staff
Joseph C. Geneczko, Member of EG&G Technical Staff
George Liebson, Member of EG&G Technical Staff

PRS 376
(SUPPLEMENTAL DATA)

CONTAMINATION:

In February 1996, PRS 376 was sampled as part of the Soil Gas Confirmation Investigation.[2] This investigation was a second phase to the original OU5, Operational Area Phase I Investigation (also known as the 1994 PETREX Soil Gas Investigation).

PRS 376 was sampled to a depth of 3 feet (sample #000034). The soil sample was analyzed by laboratories outside of Mound for volatiles, semivolatiles, PCBs, pesticides, metals, radionuclides and explosives.

Results showed:

A) All semivolatile concentrations were below the 10^{-6} Risk-Based Soil Guideline Values[2] with the exception of benzo(a)pyrene (see table below):

Contaminant	Maximum Concentration Detected	Guideline Criteria
Benzo(a)pyrene	0.45 mg/kg[3] (in soil)	0.41 mg/kg[3] (in soil)

NOTE: mg/kg = milligram per kilogram

B) All volatiles and metals concentrations were below the 10^{-6} Risk-Based Soil Guidelines Values.[2]

C) No pesticides, explosives or PCBs, were detected.[2]

D) All radionuclides were below either federal regulatory limits or the 10^{-6} Risk Based Soil Guideline Values[2] with exception of the following:

Contaminant	Maximum Concentration Detected	Guideline Criteria
Cobalt-60	0.11 pCi/g (in soil)	0.10 pCi/g (in soil)

NOTE: pCi/g = picocurries per gram

E) The level of contamination in the soil does not adversely affect the quality of groundwater at potential drinking water sources.[4]

SUPPLEMENTAL REFERENCES:

2) Soil Gas Confirmation Sampling Results 3/6/96. (pages 12-17)
3) Risk-Based Soil Guidelines, Final, Revision 0, December 1995. (pages 18-19)
4) Soil Screening Level Calculations, March 25, 1996. (pages 20-27)

MOUND PLANT
PRS 376
SOIL CONTAMINATION

RECOMMENDATION:

Potential Release Site (PRS) 376 is a site noted to have plutonium contamination ranging from 25 to 60 pCi/g, which is at or below the 10^{-5} Risk Based Guideline Value of 55 pCi/g.

The contamination was first detected via a FIDLER and Soil Screening Survey conducted in 1994 and subsequently included in the 1995 Further Assessment Soil Gas Confirmation Survey. A core sample (Location 34) three-feet deep was taken within 25 feet of PRS 376. A quantitative analysis of volatiles, semi-volatiles, pesticides, PCBs, explosives, metals and radionuclides (including plutonium) found only one analyte which appears to exceed the ALARA, regulatory or 10^{-6} Risk Based Guidelines:

1) Benzo (a) pyrene was estimated at 450 PPM, which exceeds the 410 PPM Guidelines. The level of 450 ppm of benzo (a) pyrene is equivalent to a risk level of 1.1×10^{-6}.

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

CONCURRENCE:

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

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

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

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from _____ to _____

☐ No comments were received during the comment period.

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

REFERENCE MATERIAL
PRS 376

Environmental Restoration Program

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

MOUND PLANT
MIAMISBURG, OHIO

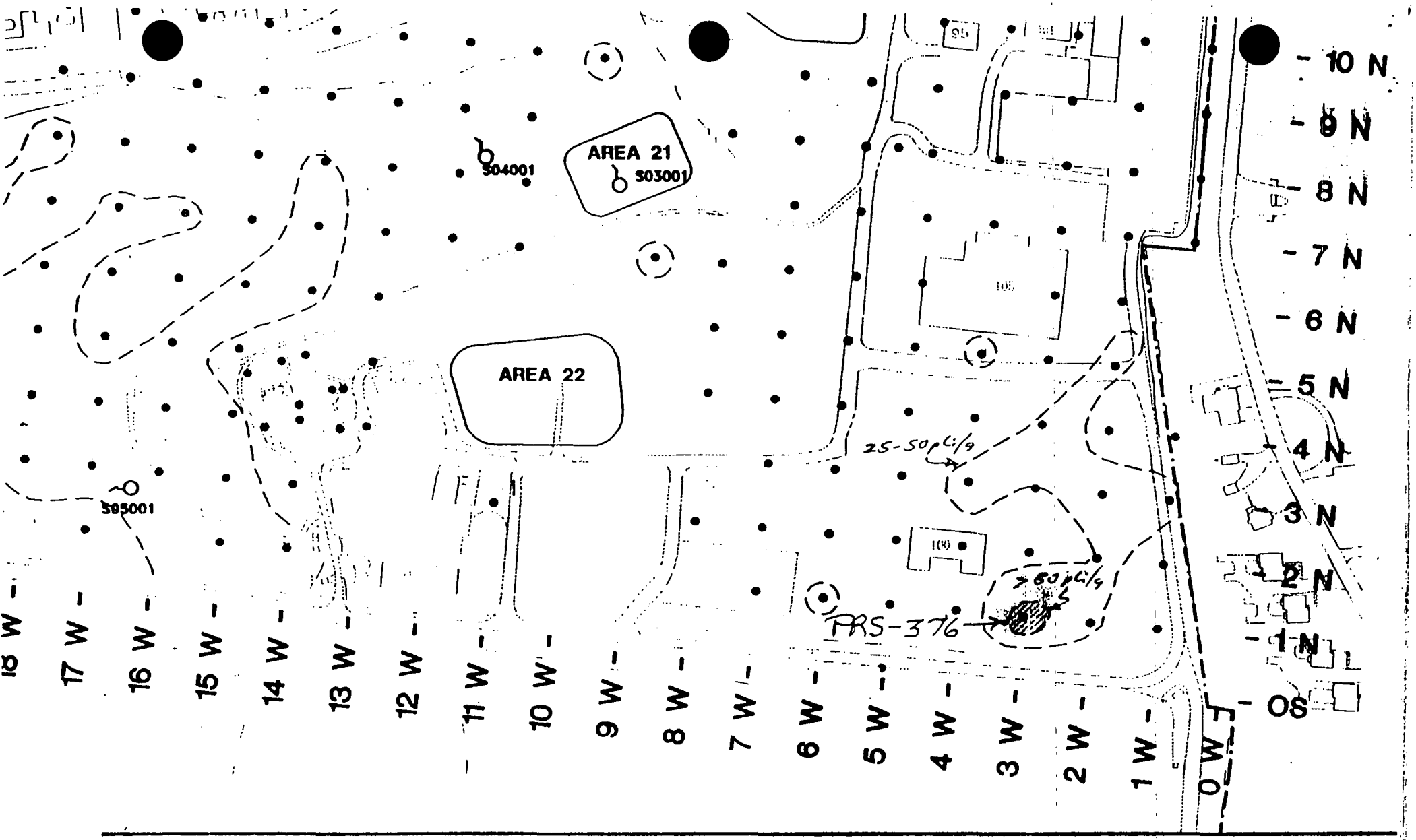
VOLUME II - APPENDICES A-G

March 1995

Draft

U.S. Department of Energy
Ohio Field Office

EG&G Mound Applied Technologies



TLE:

LOCATIONS OF ELEVATED SURFACE SOIL PU-238 ACTIVITY

Monitoring Well

AREAS OF SPECIAL INTEREST AND ADDITIONA

Surface Soil Sampling Locations

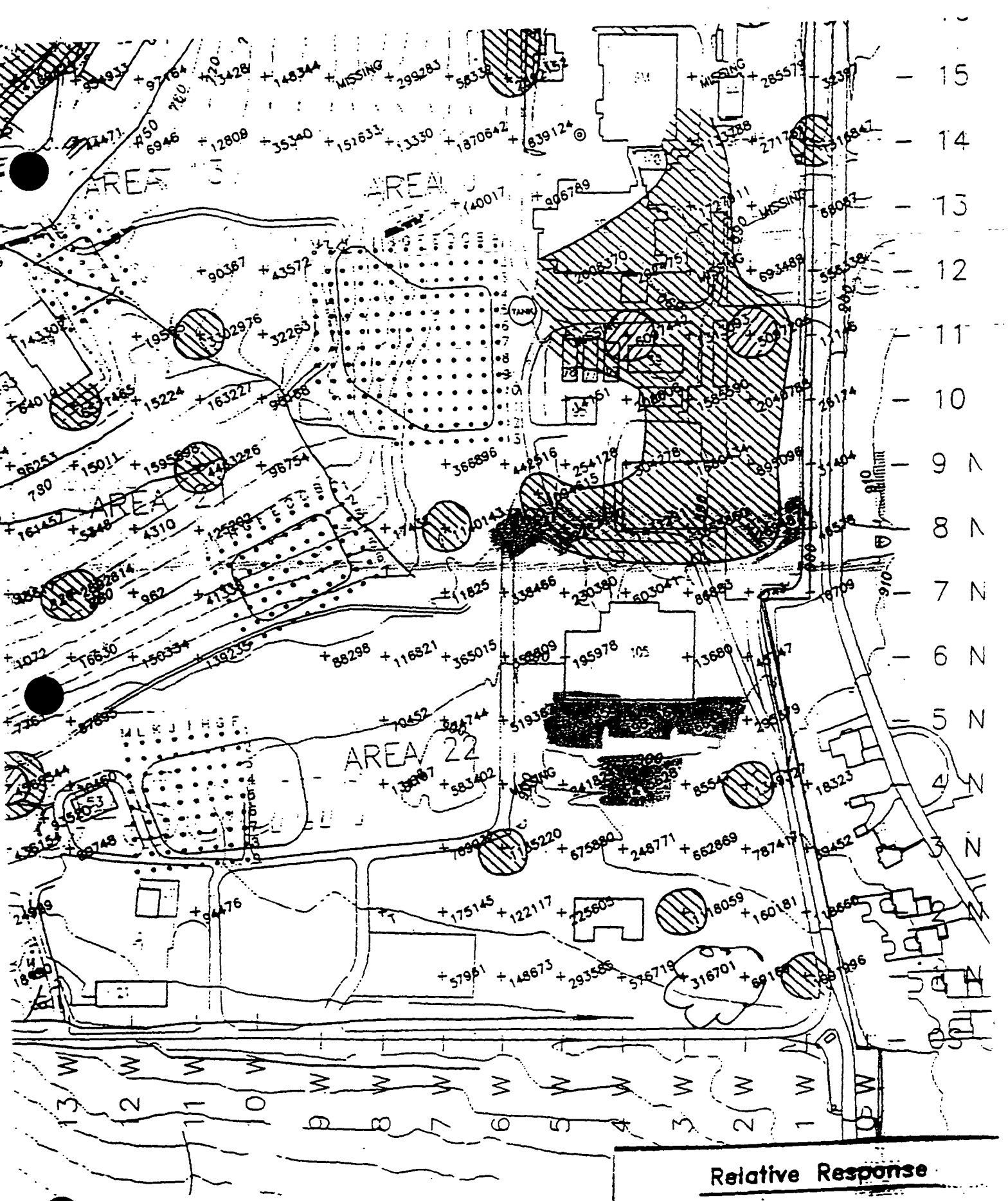
MOUND SOIL SCREEN DATA

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:
01N01	113	60	8.06	3.2	NC	3	a	1	a
01N02	113	130	8.06	8.01	NC	25	b	0.9	a
01N03	113	110	8.06	8.0	NC	60	b	1.1	a
01N04	113	75	8.06	7.0	NC	6	a	0.7	a
01N05	113	100	8.06	8.0	NC	15	a	1.3	a
01N06	113	90	8.06	7.5	NC	25	b	1.1	a
01N07	113	40	8.06	3.5	NC	10	a	0.3	a
01N14	113	120	8.06	9.0	NC	38	b	1.1	a
01N15	113	105	8.06	9.0	NC	34	b	1	a
01N16	210.6	130	12.22	9.0	NC	NR		NR	
01N17	210.6	135	12.22	9.0	NC	21	a	0.7	a
01N18	210.6	120	12.22	9.0	NC	24	a	0.6	a
01N19	210.6	135	12.22	9.0	NC	NR		NR	
01N21	170.3	110	9.72	7.5	NC	NR		NR	
01N22	210.6	135	12.22	7.0	NC	20	a	0.6	a
01N23	210.6	145	12.22	7.0	NC	17	a	0.9	a
02N01	98.8	70	6.76	4.4	NC	12	a	0.5	a
02N02	98.8	90	6.76	9.0	NC	25	b	1	a
02N03	98.8	90	6.76	8.5	NC	21	a	0.9	a
02N04	98.8	30	6.76	4.5	NC	NR		NR	
							a	0.8	a
							a	0.8	a
							a	0.4	a
								NR	
							a	0.5	a
							a	0.5	a
							b	1	a
							b	1	a
							b	0.9	a

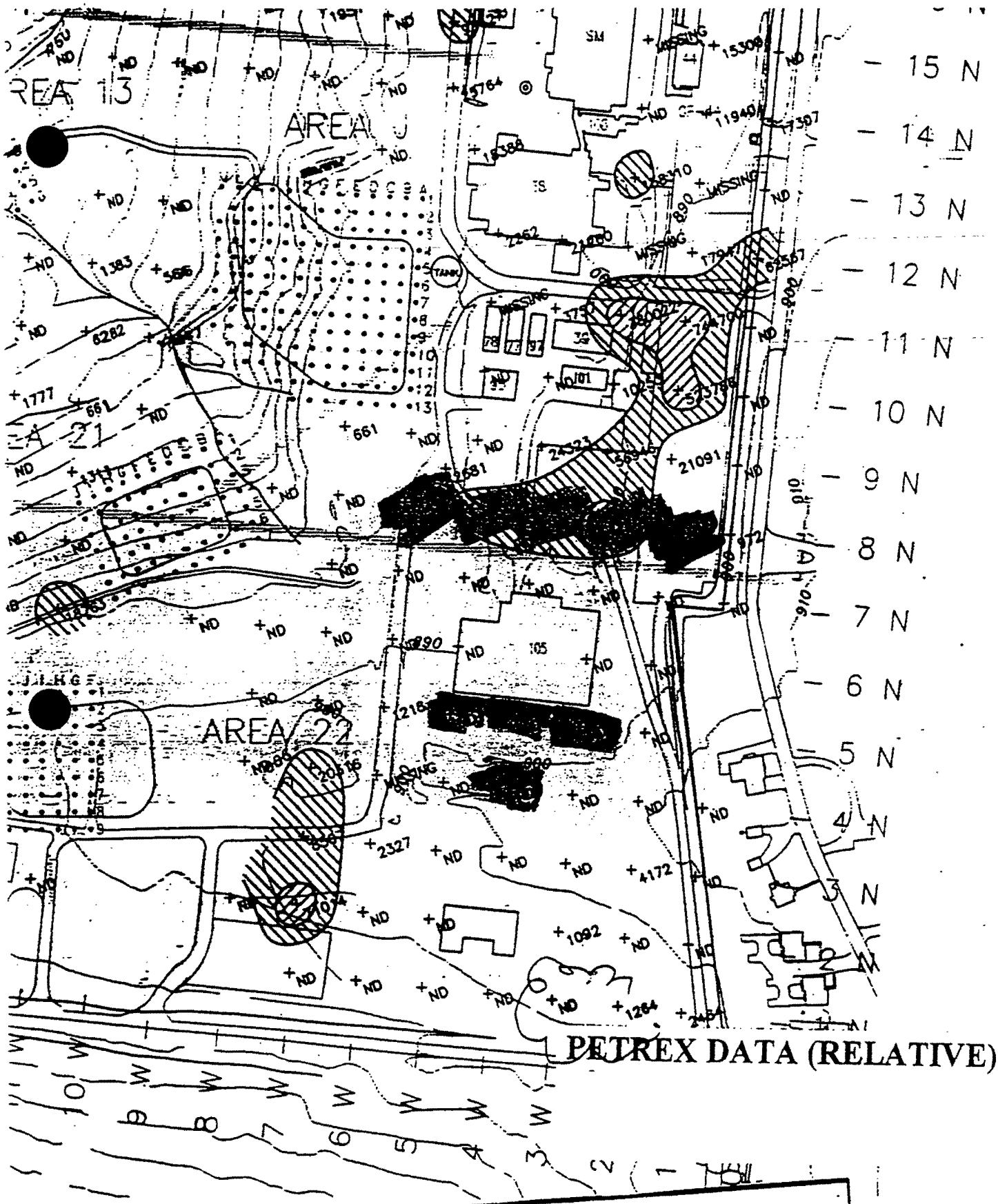
a - Mound Soil Screening Facility detection level not exceeded.
b - Concentration at or above the Mound Soil Screening Facility detection level.
c - Results of the wipe sample were less than 20 disintegrations per minute.
CPM - Counts per minute
KCPM - Counts per minute x 1000
pCi/g - Picocuires per gram



TREX DATA (RELATIVE)

Relative Response

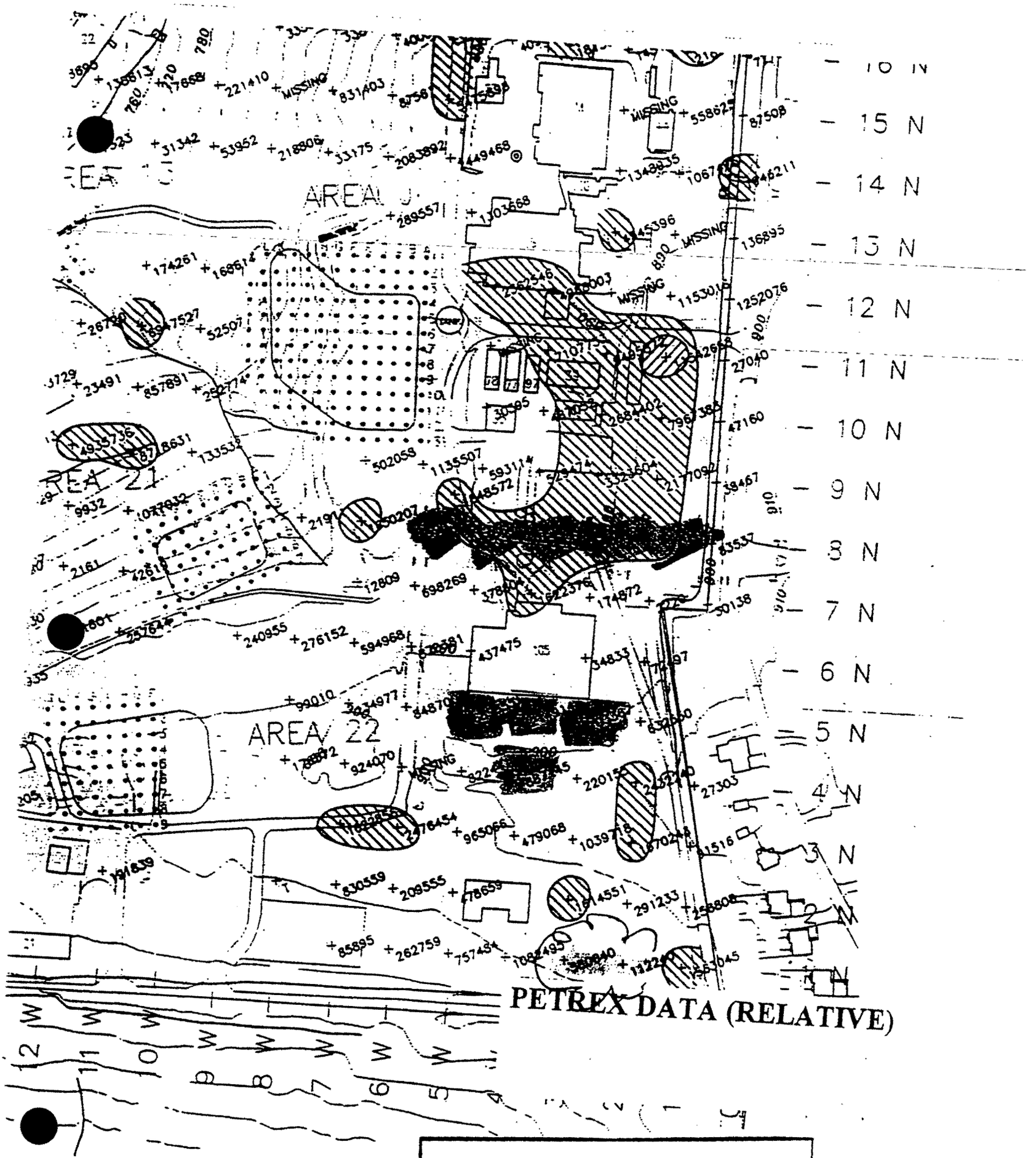
Total Aromatic Hydrocarbons



Relative Response

Total Semivolatile Hydrocarbons

Page 3



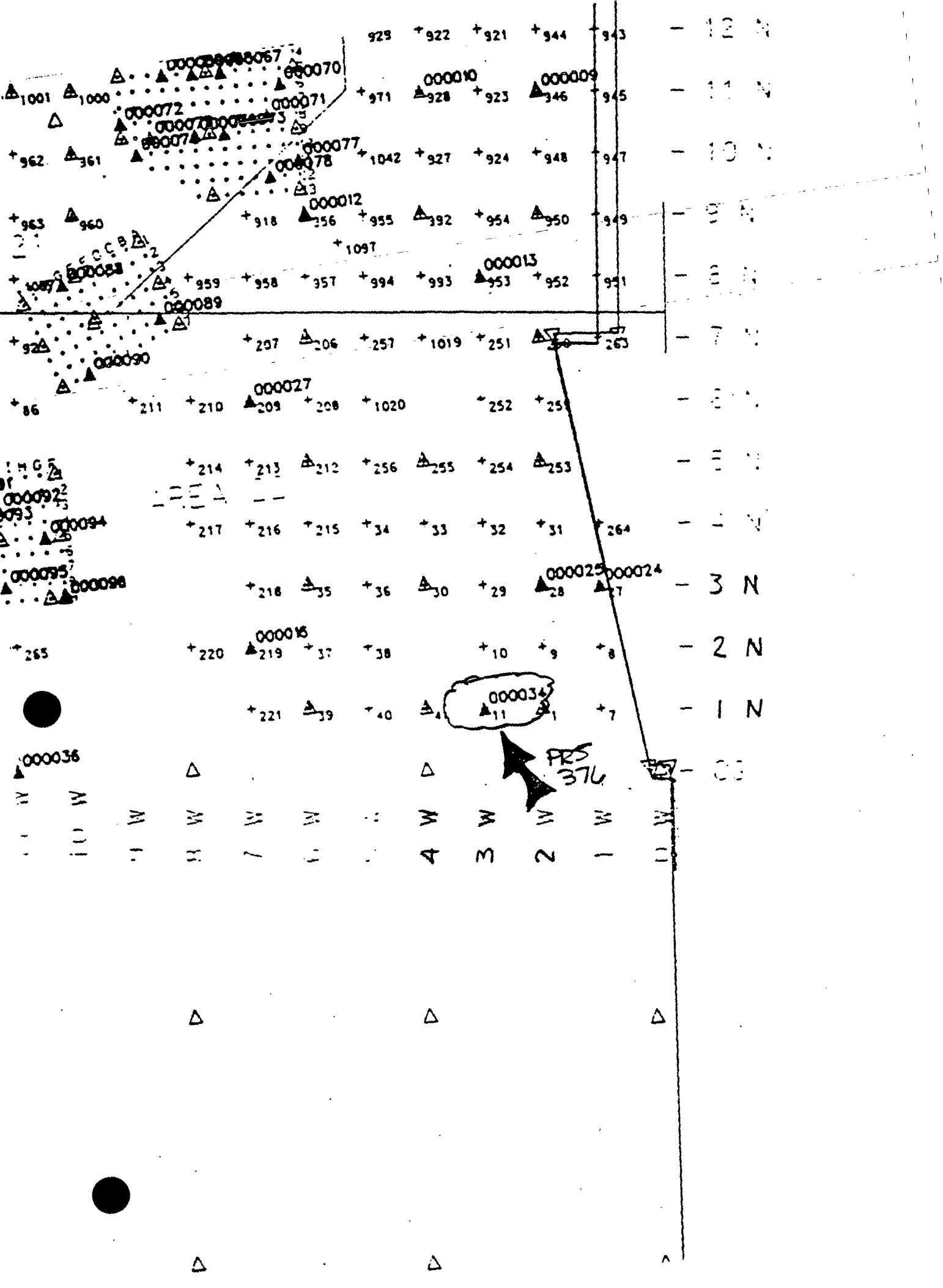
Relative Response

Total C5–C11
Petroleum Hydrocarbons

SUPPLEMENTAL REFERENCE DATA PRS 376

SOIL GAS CONFIRMATION INVESTIGATION

SAMPLING RESULTS 3/96



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PRS 376
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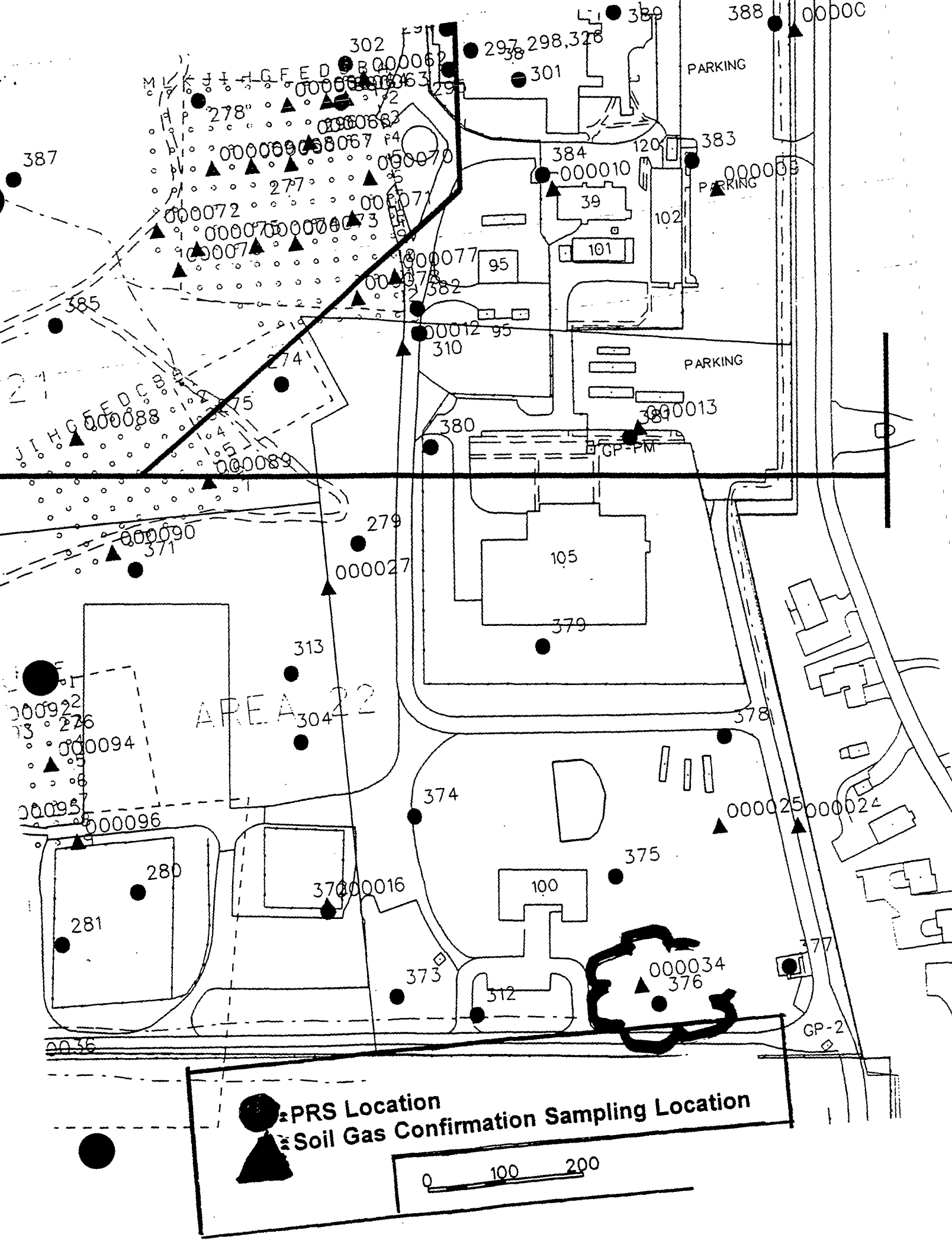
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PRS Location
Soil Gas Confirmation Sampling Location
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Mound Environmental Restoration Program
Soil Gas Confirmation Sampling Results - Block D

Chemical Detections

ANALYTE	SGC NAC 000029	SGC NAC 000033	SGC NAC 000034	SGC NAC 000035	SGC A21 000089	SGC A21 000090	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids	84.8	84.4	88.1	84.6	83.2	78.5	---	---
Nitrate-Nitrite (mg-N/kg)	3.5	1.1	3.7	3.5	1.9	5.2	26	NA
VOLATILES (µg/kg)								
1,2-Dichloroethene (total)							NA	NA
2-Butanone							NA	46,500,000
Benzene							NA	32,000
Carbon Disulfide							NA	1,400,000
Ethylbenzene							NA	2,400
Toluene			2 J				NA	1,250,000
Trichloroethene							NA	125,000
Xylene (total)							---	---

J - Numerical value is an estimated quantity
NA - Background value not available

PRS
376

NOTE: No entry equates to a non-detect.

Mound Environmental Restoration Program
Soil Gas Confirmation Sampling Results - Block D

Chemical Detections

ANALYTE	SGC NAC 000029	SGC NAC 000033	SGC NAC 000034	SGC NAC 000035	SGC A21 000089	SGC A21 000090	Background	10^{-6} Construction Worker Guidelines
SEMI-VOLATILES (µg/kg)								
Acenaphthene			130 J				NA	NA
Anthracene			360 J				NA	320,000,000
Benzo(a)anthracene			500				NA	4,100
Benzo(a)pyrene			450 J				NA	410
Benzo(b)fluoranthene			360 J				NA	4,100
Benzo(g,h,i)perylene			220 J				NA	NA
Benzo(k)fluoranthene			380 J				NA	41,000
Bis(2-ethylhexyl)phthalate	25 J	27 J	19 J				NA	215,000
Carbazole			160 J				NA	NA
Chrysene			500				NA	410,000
Di-n-butyl phthalate							NA	105,000,000
Di-n-octyl phthalate							NA	21,500,000
Dibenz(a,h)anthracene			68 J				NA	410
Dibenzofuran			95 J				NA	NA
Diethyl phthalate							NA	NA
Fluoranthene			1300				NA	42,500,000
Fluorene			160 J				NA	NA
Indeno(1,2,3-cd)pyrene			210 J				NA	4,100
Naphthalene			28 J				NA	NA
Phenanthrene			1200				NA	NA
Pyrene			1000				NA	32,000,000

J - Numerical value is an estimated quantity
NA - Background value not available

PRS 376

NOTE: No entry equates to a non-detect.

Mound Environmental Restoration Program
Soil Gas Confirmation Sampling Results - Block D

Chemical Detections

ANALYTE	SGC NAC 000029	000033 NAC 000033	000034 NAC 000034	000035 NAC 000035	000089 A21 000089	000090 A21 000090	Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)								
Aluminum	10700	5720	6450	12400	14800	16500	19000	NA
Antimony	0.61 B						NA	425
Arsenic	1.8 BJ	1.3 BJ	4.9 J	2.1 B	3.4	3.5	8.6	320
Barium	59.1	29.3 B	51.0	58.1	77.3	128	180	75,000
Beryllium	0.64	0.44	0.43	0.37	0.42	0.88	1.3	1
Bismuth						1.0 B	NA	NA
Cadmium				4.2	6.1	7.1	2.1	1,050
Calcium	87300 J	164000 J	06000 J	73500	92800	7820	310000	NA
Chromium	14.8	7.4	11.6	14.4	17.8	20.6	20	1,050,000
Cobalt	12.0	6.5 B	7.7 B	9.8 B	12.0 B	13.4	19	NA
Copper	15.3	7.3	13.0	14.0	16.7	21.7	26	NA
Cyanide							ND	21,500
Iron	25400	12600	16100	23800	29300	33200	35000	NA
Lead	6.2 J	3.5 J	14.9 J	12.8	16.9	35.4	48	NA
Lithium	22.5 B	13.6 B	9.6 B	18.9 B	15.4 B	18.5 B	26	NA
Magnesium	5910	8520	25000	3930	3530	3830	40000	NA
Manganese	637 J	359 J	513 J	553	649	982	1400	135,000
Mercury			0.10 BJ		0.07 B	0.10 B	NC	320
Molybdenum	0.77 B	0.34 B	1.6 B	1.1 B	1.9 B	1.4 B	27	NA
Nickel	24.6	12.5	15.5	18.9	20.4	28.5	32	21,500
Potassium	800 B	396 B	851 B	1390	1170 B	2420 B	1900	NA
Sodium	125 BJ	197 BJ	245 BJ	97.7 B	121 B	95.4 B	240	NA
Tin		1.4 B	1.2 B	1.2 B	2.0 B	2.4 B	20	NA
Vanadium	15.4	7.7	14.9	19.4	29.3	32.0	25	7,500
Zinc	58.4	29.3	50.3	52.2	75.4	101	140	320,000

J - Numerical value is an estimated quantity
NA - Background value not available

NOTE: No entry equates to a non-detect.

PRS 376

Mound Environmental Restoration Program
Soil Gas Confirmation Sampling Results - Block D

Chemical Detections

ANALYTE	SGC NAC 000034	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)			
Americium-241 (AM-241)	0.399	ND	4.95
Bismuth-207 (BI-207)	0.114	ND	0.175
Bismuth-210 (BI-210M)	0.117	ND	NA
Cesium-137 (CE-137DA)	0.1622	0.42	0.46
Cobalt-60 (CO-60)	0.1098	NC	0.1
Plutonium-238 (PU-238)	0.574	0.13	5.5
Plutonium-239/240 (PU-239/4(	0.00369	0.18	5.5
Potassium-40 (K-40)	16.5	37	NA
Radium-226 (RA-226DA)	0.872	2	0.14
Thorium-228 (TH-228)	0.884	1.5	0.85
Thorium-230 (TH-230)	1.34	1.9	44
Thorium-232 (TH-232)	0.963	1.4	50
Uranium-234 (U-234)	0.977	1.1	37.5
Uranium-235 (U-235)	0.0563	0.11	3.35
Uranium-238 (U-238)	0.978	1.2	11

ND - No detections in background samples
NA - Data not available
NC - Background value not computed

PRS 376

NOTE: No entry equates to a non-detect.

RISK-BASED GUIDELINE VALUES

MOUND PLANT
MIAMISBURG, OHIO

December 1995

Submitted to the
Office of Southwestern Area Programs (EM-453)
Environmental Restoration
and the
Miamisburg Area Office
U.S. DEPARTMENT OF ENERGY

Prepared by
HAZARDOUS WASTE REMEDIAL ACTIONS PROGRAM
Environmental Management and Enrichment Facilities
Managed by
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-84OR21400

FINAL
(REVISION 0)

TABLE 4A

Construction/Mound Employee - Soil/Sediment Guideline Values: Chemicals (Units = mg/kg)

CHEMICAL	Ingestion				Inhalation				Ingestion + Inhalation			
	GV for TR=10^{-4}	GV for TR=10^{-5}	GV for TR=10^{-6}	GV for HI=1	GV for TR=10^{-4}	GV for TR=10^{-5}	GV for TR=10^{-6}	GV for HI=1	GV for TR=10^{-4}	GV for TR=10^{-5}	GV for TR=10^{-6}	GV for HI=1
Tribromomethane	3.75e+04	3.75e+03	3.75e+02	2.15e+04	8.00e+09	8.00e+08	8.00e+07		3.75e+04	3.75e+03	3.75e+02	
Trichloroethylene	2.70e+04	2.70e+03	2.70e+02		2.20e+03	2.20e+03	2.25e+02		2.20e+03	1.25e+03	1.25e+02	
Trichlorofluoromethane				3.20e+05				3.65e+03				3.65e+03
Trichloromethane	4.90e+04	4.90e+03	4.90e+02	1.05e+04	1.55e+03	1.55e+02	1.55e+01		1.55e+03	1.55e+02	1.55e+01	
Xylene				2.15e+06								
bis(2-Ethylhexyl)phthalate	2.15e+04	2.15e+03	2.15e+02	2.15e+04								
PAHs												
Acenaphthylene												
Anthracene				3.20e+05								
Benzo(a)anthracene	4.10e+02	4.10e+01	4.10e+00									
Benzo(a)pyrene	4.10e+01	4.10e+00	4.10e-01									
Benzo(b)fluoranthene	4.10e+02	4.10e+01	4.10e+00									
Benzo(g,h,i)perylene												
Benzo(k)fluoranthene	4.10e+03	4.10e+02	4.10e+01									
Dibenz(a,h)anthracene	4.10e+01	4.10e+00	4.10e-01									

.41 mg/kg

SOIL SCREENING LEVEL CALCULATIONS

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.

DOE. 1994. "Operable Unit 9, Hydrogeologic Investigation: Bedrock Report." U.S. Department of Energy, Albuquerque Field Office, Albuquerque, New Mexico. January, 1994.

USEPA. 1994. "Technical Background Document for soil Screening Guidance - Review Draft." U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA/540/R-94/106 December, 1994

Soil Screening Level (10m source, 0.01 hydraulic gradient, 500m from receptor)

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**	**10**	**m**
aquifer thickness (DOE 1994)	da	15	m
hydraulic conductivity (DOE 1994)	K	52	m/y
hydraulic gradient at the source	**i**	**0.01**	**m/m**
horizontal distance to receptor	**xr**	**500**	**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=	6.20	

Mixing Zone Depth Calculation

MIXING ZONE DEPTH (d)

$d = (0.0112(L+xr)^2)^{0.5} + da\{1 - \exp[(\ln(L+xr))/Kida)]\}$ **(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									
Acenapthene	7.54E-03	5846	0.02	116.92			0	0.00	—
Acetone	1.18E-03	0.46	0.02	0.0092		3.6	3.6	22.32	2.30
Aldrin	4.22E-03	94623	0.02	1892.46			0	0.00	—
Anthracene	4.55E-03	18162	0.02	363.24	0.007		0.007	0.04	15.77
Arochlor 1016		147410	0.02	2948.2			0	0.00	—
Arochlor 1254		892520	0.02	17850.4		0.00073	0.00073	0.00	80.79
Arochlor 1260		4425557	0.02	88511.14		0.000011	0.000011	0.00	6.04
Benzene	2.24E-01	66	0.02	1.32	0.005		0.005	0.03	0.05
Benzo(a)anthracene	1.48E-04	272847	0.02	5456.94	0.007		0.007	0.04	236.84
Benzo(b)flouranthene	2.53E-04	882588	0.02	17651.76	0.007		0.007	0.04	766.09
Benzoic Acid	1.37E-05		0.02			140	140	868.00	81.38
Benzo(a)pyrene	3.43E-05	749569	0.02	14991.38	0.0002		0.0002	0.00	18.59
Bis(2-chlorethyl)ether	8.77E-04	76	0.02	1.52			0	0.00	—
Bis(2-ethylhexyl)phthalate	3.43E-04	94361	0.02	1887.22			0	0.00	—
Bomodichloromethane	1.30E-01	54	0.02	1.08	0.08		0.08	0.50	0.59
Bromoform	2.52E-02	97	0.02	1.94	0.08		0.08	0.50	1.01
Butanol	3.50E-04	5	0.02	0.1			0	0.00	—
Butyl benzyl phthalate	7.83E-05	15975	0.02	319.5		7.3	7.3	45.26	14464.81
Carbazole	8.12E-05	2441	0.02	48.82			0	0.00	—
Carbon disulfide	5.21E-01	52	0.02	1.04		0.033	0.033	0.20	0.25
Carbon tetrachloride	1.18E+00	187	0.02	3.74	0.005		0.005	0.03	0.13
Chlordane	2.73E-03	61155	0.02	1223.1	0.002		0.002	0.01	15.17
p-Chloroaniline	4.80E-05	41	0.02	0.82			0	0.00	—
Chlorobenzene	1.79E-01	213	0.02	4.26			0	0.00	—
Chlorodibromomethane	1.02E-01	72	0.02	1.44	0.08		0.08	0.50	0.77
Chloroform	1.65E-01	47	0.02	0.94	0.08		0.08	0.50	0.53
2-Chlorphenol	6.81E-04		0.02				0	0.00	—
Chyrsene	4.96E-05	312425	0.02	6248.5		0.0046	0.0046	0.03	178.21
DDD	2.03E-04	84937	0.02	1698.74			0	0.00	—
DDE	5.08E-03	108469	0.02	2169.38		0.00017	0.00017	0.00	2.29
DDT	2.20E-03	77577	0.02	1551.54		0.001	0.001	0.01	9.62
Dibenzo(a,h)anthracene	4.59E-07	1914389	0.02	38287.78			0	0.00	—
Di-n-butyl phthalate	5.86E-05	16851	0.02	337.02		3	3	18.60	6270.32
1,2-Dichlorobenzene (o)	8.61E-02	693	0.02	13.86	0.6		0.6	3.72	51.96
1,2-Dichlorobenzene (p)	1.15E-01	653	0.02	13.06	0.075		0.075	0.47	6.13

3,3-Dichlorobenzidene	8.53E-07	2441	0.02	48.82			0	0.00	—
1,1-Dichloroethane	2.36E-01	35	0.02	0.7		1.1	1.1	6.82	5.70
1,2-Dichloroethane	5.25E-02	20	0.02	0.4	0.005		0.005	0.03	0.02
1,1-Dichloroethylene	1.04E+01	64	0.02	1.28	0.007		0.007	0.04	0.14
cis-1,2 Dichloroethylene	1.85E-01	29	0.02	0.58	0.07		0.07	0.43	0.31
trans-1,2-Dichloroethylene	2.29E-01	50	0.02	1	0.1		0.1	0.62	0.70
1,2-Dichloropropane	1.15E-01	59	0.02	1.18	0.005		0.005	0.03	0.04
1,3-Dichloropropene	1.21E-01	33	0.02	0.66			0	0.00	—
2.4-Dichlorophenol	9.76E-06		0.02				0	0.00	—
Dieldrin	1.09E-04	18388	0.02	367.76		0.0018	0.0018	0.01	4.11
Diethyl phthalate	2.24E-05	152	0.02	3.04			0	0.00	—
2,4-Dimethylphenol	1.33E-04		0.02				0	0.00	—
Dimethyl phthalate	2.37E-05	32	0.02	0.64			0	0.00	—
2,4-Dinitrophenol	1.98E-07		0.02				0	0.00	—
2,4-Dinotrotolulene	6.03E-06	51	0.02	1.02			0	0.00	—
2,6-Dinotrotolulene	5.33E-06	42	0.02	0.84			0	0.00	—
Di-n-octyl phthalate	3.14E-05	9.8E+08	0.02	19601631		0.73	0.73	4.53	88716980.61
Endosulfan	9.47E-04	738	0.02	14.76			0	0.00	—
Endrin	4.88E-05	9335	0.02	186.7	0.002		0.002	0.01	2.32
Ethylbenzene	3.18E-01	388	0.02	7.76	0.7		0.7	4.34	34.33
Fluoranthene	3.83E-04	72025	0.02	1440.5		0.87	0.87	5.39	7770.56
Fluorene	2.99E-03	9226	0.02	184.52			0	0.00	—
Heptachlor	2.41E-02	11651	0.02	233.02	0.0004		0.0004	0.00	0.58
Heptachlor epoxide	3.40E-04	7236	0.02	144.72	0.0002		0.0002	0.00	0.18
Hexachlorobenzene	2.19E-02	27996	0.02	559.92	0.001		0.001	0.01	3.47
Hexachloro-1,3-butadiene	9.80E-01	6992	0.02	139.84			0	0.00	—
alpha-HCH (alpha-BHC)	2.78E-04	1310	0.02	26.2			0	0.00	—
beta-HCH (beta-BHC)	1.42E-05	1392	0.02	27.84		0.000047	0.000047	0.00	0.01
gamma-HCH (lindane)	1.39E-04	1085	0.02	21.7	0.0002		0.0002	0.00	0.03
Hexachlorocyclopentadien	7.05E-01	9589	0.02	191.78	0.05		0.05	0.31	59.52
Hexachloroethane	1.48E-01	1829	0.02	36.58			0	0.00	—
Indeno(1,2,3-c,d)pyrene	1.99E-07	4364700	0.02	87294		0.000026	0.000026	0.00	14.07
Isophorone	2.54E-04	30	0.02	0.6		7.2	7.2	44.64	30.97
Mercury	4.67E-01		0.02		0.002		0.002	0.01	0.00

CHEMICAL NAME	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Methoxychlor	2.60E-04	77938	0.02	1558.72	0.04		0.04	0.25	386.59
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	0.01	0.00
Phenol	2.44E-05		0.02			22	22	136.40	12.79
Pyrene	3.39E-04	59865	0.02	1197.3		0.68	0.68	4.22	5048.21
Styrene	1.37E-01	573	0.02	11.46	0.1		0.1	0.62	7.18
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	0.03	0.09
Toluene	2.52E-01	171	0.02	3.42	1		1	6.20	22.06
Toxaphene	1.38E-04	501	0.02	10.02	0.003		0.003	0.02	0.19
1,2,4-Trichlorobenzene	1.07E-01	1840	0.02	36.8	0.07		0.07	0.43	16.02
1,1,1-Trichloroethane	7.63E-01	110	0.02	2.2	0.2		0.2	1.24	3.01
1,1,2-Trichloroethane	4.10E-02	61	0.02	1.22	0.005		0.005	0.03	0.04
Trichloroethylene	4.35E-01	112	0.02	2.24	0.005		0.005	0.03	0.07
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	0.01	0.01
Xylenes (total)	2.48E-01	381	0.02	7.62	10		10	62.00	480.94
Inorganics									
Antimony			0.02		0.006		0.006	0.04	0.00
Arsenic			0.02	29	0.05		0.05	0.31	9.02
Barium			0.02	1.4	2		2	12.40	18.52
Beryllium			0.02	4600	0.004		0.004	0.02	114.08
Bromate			0.02		0.01		0.01	0.06	0.01
Cadmium			0.02	120	0.005		0.005	0.03	3.72
Chloramine			0.02		4		4	24.80	2.33

CHEMICAL NAME									
Chlorine			0.02		4		4	24.80	2.33
Chlorine Dioxide			0.02		0.8		0.8	4.96	0.47
Chromium (total)			0.02	19	0.1		0.1	0.62	11.84
Copper			0.02	10000					
Cyanide			0.02		0.2		0.2	1.24	0.12
Fluoride			0.02		4		4	24.80	2.33
Mercury			0.02	145	0.002		0.002	0.01	1.80
Nickel			0.02	21	0.1		0.1	0.62	13.08
Nitrate			0.02		10		10	62.00	5.81
Nitrite			0.02		1		1	6.20	0.58
Selenium			0.02	5	0.05		0.05	0.31	1.58
Sulfate			0.02		500		500	3100.00	290.63
Zinc			0.02	420					
Thallium			0.02	71	0.002		0.002	0.01	0.88
Radionuclides									
Radium 226					20		20	124.00	11.63
Radon					300		300	1860.00	174.38
Tritium				1	20,000		20000	124000.00	135625.00
Actinium 227						0.076	0.076	0.47	0.04
Americium 241						0.15	0.15	0.93	0.09
Bismuth 207						9.4	9.4	58.28	5.46
Cesium 137						1.5	1.5	9.30	0.87
Cobalt 60						2.5	2.5	15.50	1.45
Plutonium 238				100000		0.16	0.16	0.99	99200.09
Plutonium 239				100000		0.15	0.15	0.93	93000.09
Plutonium 240				100000		0.15	0.15	0.93	93000.09
Strontium 90						0.85	0.85	5.27	0.49
Thorium 228						0.21	0.21	1.30	0.12
Thorium 230						1.3	1.3	8.06	0.76
Thorium 232						1.5	1.5	9.30	0.87