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Project Site numbers will be proceeded by the following:

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Superfund - hw
Spills - sp
ERP - e
VCP - v
BCP - c

non-releasable - put .nf.pdf
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TAB #	
1	DATA SUMMARY - PIT #4
2	FEB 5 1991 MEMO: SAMPLES OF 9-20-90 PIT 6, TUNNEL, SAMPLES S-1, S-2, S-3
3	BDF46-90450, BLKT546
4	WELL SAMPLES
5	TRENCH SAMPLES
6	SOIL SAMPLES
7	SOIL GAS SAMPLES
8	SOIL BORINGS
9	G.W. ANALYTICAL RESULTS
10	REGIONAL SUMMARY
11	SAMPLING LOCATION

ATTACHMENT 1
(Document from TAT to EPA)

Analytical Data Summary for Pit #4.

One sample and a blind duplicate sample were collected from Pit #4 on August 3, 1990.

For the Volatile portion of the analysis, all the compounds were less than quantifiable limits with the exception of:

	#4A	#4B
Trichloroethylene	0.45 ppm	0.45 ppm
Toluene	0.47 ppm	0.48 ppm.

The total aggregate volatile total of 0.93 ppm is less than the 1 ppm NJDEP ECRA action level.

For the Semi-Volatile portion of the analyses, all the compounds were less than quantifiable limits with the exception of:

Phenanthrene	2.56 ppm
Fluoranthene	2.22 ppm
Pyrene	2.53 ppm.

The above data was qualified as "J" because the surrogate recovery was out of control. Also, this data was only reported in Sample #4A but not in its blind duplicate #4B. These factors tend to reduce the importance of the data. Note that the total aggregate total would be 7.31 ppm which is less than the 10 ppm NJDEP ECRA Action Level.

For the PCB/Pesticide portion of the analyses, all the compounds tested for were below quantifiable limits with the exception of:

	#4A	#4B
PCB-1248	0.418	0.430
PCB-1260	0.000	0.139

The total aggregate total of 0.418-0.569 is less than the NJDEP ECRA Action Level of 1-5ppm for PCBs.

For the metal portion of the analyses, only Zinc exceeds the NJDEP ECRA Action Level of 350 ppm. However, as the level is only exceeded in the blind duplicate and not in the sample, the issue is not clear cut. There are no guidelines available for the other metals shaded in the table. Comparing the values with ranges normally found in soils, with the exception of Iron and Copper, all the other elements may be eliminated as a problem.

Table 1. Pit 4 Metal Data

	#4A	#4B	NJDEP ECRA	Range in Soils**
Aluminum	5,720	12,200	--	--
Antimony	3	BQL	10	-- 150
Arsenic	18	17	20	0.1-1.94
Barium	211	137	--	--
Beryllium	0	1	1	--
Cadmium	3	2	3	0.01-7
Calcium	7,040	8,300	--	150-320,000
Chromium	170	199	100	5-3,000
Copper	460	308	170	2-100
Cobalt	24	16	--	1-40
Iron	160,000	100,000	--	100-100,000
Lead	438	498	100	1-888
Magnesium	364	27,200	--	--
Manganese	2,290	1,040	--	50-18,300
Mercury	1	BQL	1	0.01-4.6
Nickel	101	69	100	0.1-1,530
Potassium	580	1,200	--	--
Selenium	BQL	BQL	4	0.1-38
Silver	0	0	5	0.01-8
Sodium	215	450	--	--
Thallium	BQL	BQL	--	--
Vanadium	16	19	100	7-500
Zinc	244	353	350	10-2,000

**1984 McClanahan 847C

ATTACHMENT 2
(Document from TAT to EPA)

WESTON Suite 201, 1090 King Georges Post Road,
Edison, NJ 08837, • (201) 225-6116 • FAX (201) 225-7037

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-7367

TAT-02-F-06187 MEMORANDUM

TO: Dwayne Harrington, OSC
Response and Prevention Branch, U.S. EPA

FROM: Beverly Lawson, TAT II
Michael Mentzel, TAT II

DATE: February 5, 1991

SUBJECT: 4000 River Road
Analytical Data Summary
TDD 02-9010-63

INTRODUCTION:

This report summarizes the analytical results of samples collected on August 28, 1990.

The activities described below constitute one part of the comprehensive site investigation conducted by TAT Region 2 at the 4000 River Road site Tonawanda, New York. Further assessment activities will be reported as results are received and finalized by TAT 2.

SAMPLING ACTIVITIES:

On Tuesday, August 28, 1990 TAT members Michael Mentzel, Alison Gimson and Rohan Tadas mobilized the site to collect samples as requested by the EPA OSC. The OSC had designated Wally Cain of NYSDEC as the coordinator of sampling operations. The description of each sample location is now presented.

Sample 6 - Pit designated as Pit 6 located in the drum building (Figure 1). On August 27 this pit was dry with a sludge material at the bottom approximately 5 feet below the floor. The sample was collected with a stainless steel auger by Rohan Tadas and Alison Gimson on August 28 at 0900 hours. It had rained the night of August 27 and approximately one foot of rainwater covered the sludge layer.

Sample T - This "Pit" located was designated the tunnel by Dwayne Harrington. In the roadway next to Pit 3, it is believed that Pit 6 and the tunnel are connected. A sludge material was collected as the sample from approximately five feet below grade. Approximately one foot of rainwater was above the sludge layer.

Sample S-1 - Drum sample given the "S" designation by Steve Hale, EPA ESD. This drum was overpacked by the PRP contractor and was 7/8 full. The material was a viscous, unctuous, sticky, yellow-clear gel. A 1/4" layer of solidified material was on the surface of the gel. The layer was cut with a razor knife and the gel sampled with a glass rod. This drum was located in the room next to the lab. Eight 8 ounce tars were collected. Wally Cain also requested ignitability. Analysis will be performed on this sample. Wally Cain also requested that part of the drum lid be removed as evidence. TAT cut the drum lid and gave it to Wally Cain.

Sample S-2 and Sample S-3 (Duplicate) - Collected from a drum which had been overpacked by the PRP and designated S-2 by Steve Hale EPA ESD. The material in this drum was a brown-black solid resembling homogenous soil or filter cake. Split samples from locations Pit 6, tunnel, drum S and Drum S-2 were given to Wally Cain with proper chain-of-custody.

Samples were shipped to the lab listed below on September 9, 1990:

Accredited Laboratories, Inc.
Foot of Pershing Avenue
P.O. Box 369
Carteret, New Jersey 07008-0369
Telephone (908) 541-2025

ANALYTICAL SUMMARY:

All samples were analyzed for Target Compound List (TCL) and Target Analyte List (TAL) parameters. A private laboratory was utilized through TAT analytical services, however, Contract Lab Program (CLP) procedures were adhered to.

The data was reviewed for QA/QC compliance by certified TAT personnel. Significant analyte values have been summarized in this section. Raw data is available in the TAT file system.

Additionally, sample S-1 was analyzed to determine flash point.

Table 1 correlates the TAT and laboratory documentation. Appendix A summarizes the data which exceeds regulatory guidelines or contributes to removal action requirements. In addition to the contaminant name and concentration, the RCRA hazardous waste number and CERCLA statutory source for designation as a hazardous substance code have been included. Values qualified with a "J" are estimated values. All organic data in this report has been qualified due to exceedance of holding times and in some cases, out of control calibration. This data can be used for general informational purposes. All values in this report have been converted to ppm and rounded to the first decimal place.

It is noteworthy that some of the inorganic data was rejected due to low surrogate recoveries. Any data rejected cannot be used to draw any conclusions as to the presence or absence of the given contaminant in the associated locations. However, it is understood that the rejected data may hold some credence wherever site specific and historical information offer no apparent contradiction.

TABLE 1 - DOCUMENTATION

ACCREDITED LABORATORIES CASE NO.: C-805744
DATE RECEIVED: 9/6/90

Field #	Laboratory Sample #1	Type
Pit 6	9006095	Sludge
Tunnel	9006096	Sludge
S-1	9006097	Drum
S-2	9006098	Drum
S-3	9006099	Duplicate of S-2

OBSERVATIONS:

The ARAR from NJDEP ECRA clean-up guidelines indicated a 1 ppm level for total volatiles and 10 ppm level for total BNA's. The data presented below exceeds these guidelines.

Sample Location: Pit 6 - Polychlorinated Biphenols (PCB's) were detected in the Pit 6 sample at levels approaching the regulatory limit of 50 ppm. This material can be considered a NYSDEC hazardous waste classified with the waste number B005-PCB contaminated solids and sludges.

In addition, significant concentrations of volatile and semivolatile organic constituents listed in 40 CFR 302.4 Appendix A (CERCLA Hazardous Substances) have been detected. Volatile organic compound concentrations of approximately 25 ppm (xylenes) has been detected. Additionally, several other volatile organic compounds have been detected in the 5 to 15 ppm range. The maximum concentration for semivolatiles found was 342 ppm Bis (2 ethylhexyl) pthlate. Several other semivolatile compounds were found ranging from 5 to 30 ppm.

Inorganic contamination appears to be within ranges consistent with normal levels found in industrial soils. The rejected value for lead may indicate further investigation is needed (see Appendix C).

Sample Location: Tunnel - Contamination with Volatile Organic Compounds (VOCs) in this location seemed to be less than that found in Pit 6. Lower values may be due in part to the high water content of the sample. Concentrations of VOCs ranged from approximately 0.7 ppm (tetrachloroethene) to 9 ppm (xylenes).

The only two semivolatile constituents that were detected in the sludge were di-n-buthylphthalate (17 ppm) and bis (2 ethylhexyl) phthalate (15 ppm).

Inorganic contamination appears to be within ranges consistent with normal levels found in soils. The rejected value for lead may indicate further investigation is needed (see Appendix C).

Sample Location: S-1 - The material in this drum contains several VOCs ranging from 5 to 12 ppm. No semivolatile compounds were detected and metals contamination is minimal.

The disposal of the drum falls within the scope of work for the responsible party.

It maybe noteworthy to observe that eight of the ten compounds found in Pit 6 were also found in the S-1 drum. Further investigation as to the correlation of the drummed material to the pit material may need to be pursued.

Sample Location: S-2 and S-3 (Duplicate) - Approximately fourteen volatile organic compounds were detected in the drummed material. Several constituents were present at levels over 100 ppm including 2 butanone (360) and trichloroethylene (850).

Additionally, high levels of semivolatile compounds were found. Of these fourteen had concentrations over 100 ppm. Naphthalene was detected at approximately 1,800 ppm.

On a volume/volume basis, organic constituents make up approximately 0.5% of this material.

Inorganic contamination falls within the ranges found in Appendix C.

The disposal of the drum falls within the scope of work for the responsible party.

APPENDIX A

ANALYTICAL DATA

TARGET COMPOUND LIST

PROJECT: 4000 River Road
DATE: August, 1990
CONCENTRATION: ppm

TAT PM: Lawson

DEC Cleanup Goals (PPM)

VOLATILES	RCRA+	CODE#	SAMPLE # TUNNEL*	PIT6*	S1*	S2*	S3*	
Methylene Chloride	U080	2,4			1.3	2.4		0.4
Acetone	U002	4		3.2	3.2	40.4	63.6	0.2
1,1-Dichloroethene	U078	1,2,4				1.9	3.7	0.4
1,1-Dichloroethane	U076	2,4				8.4	10.6	0.2
Cis-1,2-Dichloroethene						43.9	51.8	0.3
2-Butanone	U159	4		5.1		247.6	360.0	0.3
1,1,1-Trichloroethane	U226	2,4				41.3	51.9	0.8
1,1,2,2-Tetrachloroethane	U209	2,4				5.4	5.5	0.6
Trichloroethene	U228	1,2,4	0.9	2.3	1.2	730.0	850.5	0.7
1,1,2-Trichloroethane	U227	2,4					5.9	
Benzene	U019	1,2,3,4		0.9		0.7	0.9	0.06
2-Hexanone			1.0	16.4	5.4	664.5		~~1.0~~
4-Methyl-2-pentanone	U161	4		1.9	0.1	82.9	101.8	1.0
Tetrachloroethene	U210	2,4	0.7			19.0	19.7	1.4
Toluene	U220	1,2,4	0.9	13.9	2.5			1.5
Chlorobenzene	U037	1,2,4				8.9	10.4	1.7
Ethyl Benzene		1,2	7.6	8.2	3.0	348.8		5.5
Total Xylenes (m,p)	U239	1,4	9.6	25.5	12.1		439.6	1.2
O-Xylene	U239	1,4	1.0	13.6	5.5			

SEMI-VOLATILES/BNA's	RCRA+	CODE#	TUNNEL*	PIT6*	S1*	S2*	S3*	
Phenol	U188	1,2,4				594.4	647.2	0.03
bis(2-Chloroisopropyl) ether	U027	2,4				37.5	37.8	
4-Methylphenol						16.6	18.5	
Hexachloroethane	U131	2,4		12.2		489.7	471.2	
2,4-Dimethylphenol	U101	2,4				25.8	32.9	
Naphthalene	U165	1,2,4		20.7		1796.6	1683.6	13.0
2-Methylnaphthalene						206.9	205.2	
Dimethyl Phthalate	U102	2,4				110.6	109.9	
Acenaphthene		2				124.7	123.3	
4-Nitrophenol	U170	1,2,4				36.3	33.7	
Dibenzofuran						98.1	102.2	
Fluorene		2				125.2	123.9	
4,6-Dinitro-2-methylphenol						40.6		
Phenanthrene		2		19.7		155.3	133.4	50
Anthracene		2				136.6	130.0	
Di-n-butylphthalate			16.8	30.1		87.3	109.8	8.1
Fluoranthene	U120	2,4		20.9		430.3	411.4	50
Pyrene		2		18.8		223.0	218.4	50
Butyl Benzyl Phthalate		2				35.2	35.3	
Benzo(a)anthracene	U018	2,4		8.0		94.7	92.4	0.224
bis(2-ethylhexyl)phthalate	U028	2,4	15.4	341.8		669.7	658.2	50
Chrysene	U050	2,4		9.8		98.8	94.7	0.4
Benzo(b)fluoranthene		2		11.4		149.3	152.4	1.1
Benzo(a)pyrene	U022	2,4		6.3		85.6	84.3	0.061
Methyl Phenol						16.6	18.6	

TARGET COMPOUND LIST

PROJECT: 4000 River Road
DATE: August, 1990
CONCENTRATION: ppm

TAT PM: Lawson

			SAMPLE #				
PESTICIDES/PCB	RCRA+	CODE#	TUNNEL*	PIT6*	S1*	S2*	S3*
delta-BHC		2	0.43				
AROCHLOR-1260	B005**	1,2		73.8			

METALS/CN	RCRA+	CODE#	TUNNEL*	PIT6*	S1*	S2*	S3*
Aluminum			5637	16497	8.45	0.577	666.0
Antimony			7.52	11.9		14.9	18.7
Arsenic			12.3	24.4			
Barium (Rejected)			~~102R~~	99.7R	5.13R	~~648R~~	~~718R~~
Cadium			9.63	9.65		2.67	2.90
Calcium (Rejected)			~~26869R~~	~~5121R~~	~~12.6R~~	~~11328R~~	~~11765R~~
Chromium			116	165		467	515
Cobalt			10.7	11.1		20.1	23.2
Copper			186	414		68	76.6
Iron (Rejected)			192628R	~~179475R~~	~~89.7R~~	6043R	10099R
Lead (Rejected)			~~341R~~	~~1998R~~		~~3030R~~	2980R
Magnesium			~~3097R~~	~~979R~~		~~1255R~~	~~1379R~~
Manganese			1817	1038		50.9	62.8
Mercury			0.178	0.435		0.133	0.174
Nickel			70.9	48		49.4	58.2
Potassium			376	272	8.90	517	581
Sodium (Rejected)			~~153R~~	~~88.8R~~	~~16.9R~~	~~887R~~	~~410R~~
Vanadium			10.5	53			
Zinc (Rejected)			~~662R~~	~~712R~~	3.88R	5456R	~~5767R~~
Cyanide			2.40	4.04		1.57	3.95
% Solids			75.2	45.4	98.7	80.3	79.3
Flash Point (Fahrenheit scale)					>200		

+ = RCRA Waste Number

# = Statutory Source Designation for this hazardous substance under CERCLA
1 = CWA Section 311 (b)(4)
2 = CWA Section 307 (a)
3 = CAA Section 112
4 = RCRA Section 3001

* = Samples locations. Value in ppm, all values have been qualified as estimated.

** = NYSDEC Waste Number

TARGET COMPOUND LIST

PROJECT: 4000 River Road
DATE: August, 1990
CONCENTRATION: ppm

TAT PM: Lawson

			SAMPLE #				
VOLATILES	RCRA+	CODE#	TUNNEL *	PIT6 *	S1 *	S2 *	S3 *
Methylene Chloride	U080	2,4			1.3	2.4	
Acetone	U002	4		3.2	3.2	40.4	63.6
1,1-Dichloroethene	U078	1,2,4				1.9	3.7
1,1-Dichloroethane	U076	2,4				8.4	10.6
Cis 1,2-Dichloroethene						43.9	51.8
2-Butanone	U159	4		5.1		247.6	360.0
1,1,1-Trichloroethane	U226	2,4				41.3	51.9
1,1,2,2-Tetrachloroethane	U209	2,4				5.4	5.5
Trichloroethene	U228	1,2,4	0.9	1.3	1.2	730.0	850.5
1,1,2-Trichloroethane	U227	2,4					5.9
Benzene	U019	1,2,3,4		0.9		0.7	0.9
2-Hexanone			1.0	16.4	5.4	664.5	
4-Methyl-2-pentanone	U161	4		1.9	0.1	82.9	101.8
Tetrachloroetnene	U210	2,4	0.7			19.0	19.7
Toluene	U220	1,2,4	0.9	13.9	2.5		
Chlorobenzene	U037	1,2,4				8.9	10.4
Ethyl Benzene		1,2	7.6	8.2	3.0	348.8	
Total Xylenes (m,p)	U239	1,4	9.6	25.5	12.1		439.6
O-Xylene	U239	1,4	1.0	13.6	5.5		

SEMI-VOLATILES/BNA's	RCRA+	CODE#	TUNNEL *	PIT6 *	S1 *	S2 *	S3 *
Phenol	U188	1,2,4				594.4	647.2
bis(2-Chloroisopropyl) ether	U027	2,4				37.5	37.8
4-Methylphenol						16.6	18.5
Hexachloroethane	U131	2,4		12.2		489.7	471.2
2,4-Dimethylphenol	U101	2,4				25.8	32.9
Naphthalene	U165	1,2,4		20.7		1796.6	1683.6
2-Methylnaphthalene						206.9	205.2
Dimethyl Phthalate	U102	2,4				110.6	109.9
Acenaphthene		2				124.7	123.3
4-Nitrophenol	U170	1,2,4				36.3	33.7
Dibenzofuran						98.1	102.2
Fluorene		2				125.2	123.9
4,6-Dinitro-2-methylphenol						40.6	
Phenanthrene		2		19.7		155.3	133.4
Anthracene		2				136.6	130.0
Di-n-butylphthalate			16.8	30.1		87.3	109.8
Fluoranthene	U120	2,4		20.9		430.3	411.4
Pyrene		2		18.8		223.0	218.4
Butyl Benzyl Phthalate		2				35.2	35.3
Benzo(a)anthracene	U018	2,4		8.0		94.7	92.4
bis(2-ethylhexyl)phthalate	U028	2,4	15.4	341.8		669.7	658.2
Chrysene	U050	2,4		9.8		98.8	94.7
Benzo(b)fluoranthene		2		11.4		149.3	152.4
Benzo(a)pyrene	U022	2,4		6.3		85.6	84.3
Methyl Phenol						16.6	18.6

TARGET COMPOUND LIST

PROJECT: 4000 River Road
DATE: August, 1990
CONCENTRATION: ppm

TAT PM: Lawson

			SAMPLE #				
PESTICIDES/PCB	RCRA+	CODE#	TUNNEL*	PIT6*	S1*	S2*	S3*
delta-BHC		2	0.43				
AROCHLOR-1260	B005**	1,2		73.8			

METALS/CN	RCRA+	CODE#	TUNNEL*	PIT6*	S1*	S2*	S3*
Aluminum			5637	16497	8.45	0.577	666.0
Antimony			7.52	11.9		14.9	18.7
Arsenic			12.3	24.4			
Barium (Rejected)			~~102R~~	99.7R	5.13R	~~648R~~	~~718R~~
Cadium			9.63	9.65		2.67	2.90
Calcium (Rejected)			~~26869R~~	~~5121R~~	~~12.6R~~	~~11328R~~	~~11765R~~
Chromium			116	165		467	515
Cobalt			10.7	11.1		20.1	23.2
Copper			186	414		68	76.6
Iron (Rejected)			~~192628R~~	~~179475R~~	~~89.7R~~	~~6043R~~	~~10099R~~
Lead (Rejected)			~~341R~~	~~1990R~~		~~3030R~~	~~2980R~~
Magnesium			~~3097R~~	~~979R~~		~~1255R~~	~~1379R~~
Manganese			1817	1038		50.9	62.8
Mercury			0.178	0.435		0.133	0.174
Nickel			70.9	48		49.4	58.2
Potassium			376	272	8.90	517	581
Sodium (Rejected)			~~153R~~	~~88.8R~~	~~16.9R~~	~~387R~~	~~410R~~
Vanadium			10.5	53			
Zinc (Rejected)			~~602R~~	~~712R~~	3.88R	5456R	~~5767R~~
Cyanide			2.40	4.04		1.57	3.95
% Solids			75.2	45.4	98.7	80.3	79.3
Flash Point (Fahrenheit scale)					>200		

+ = RCRA Waste Number

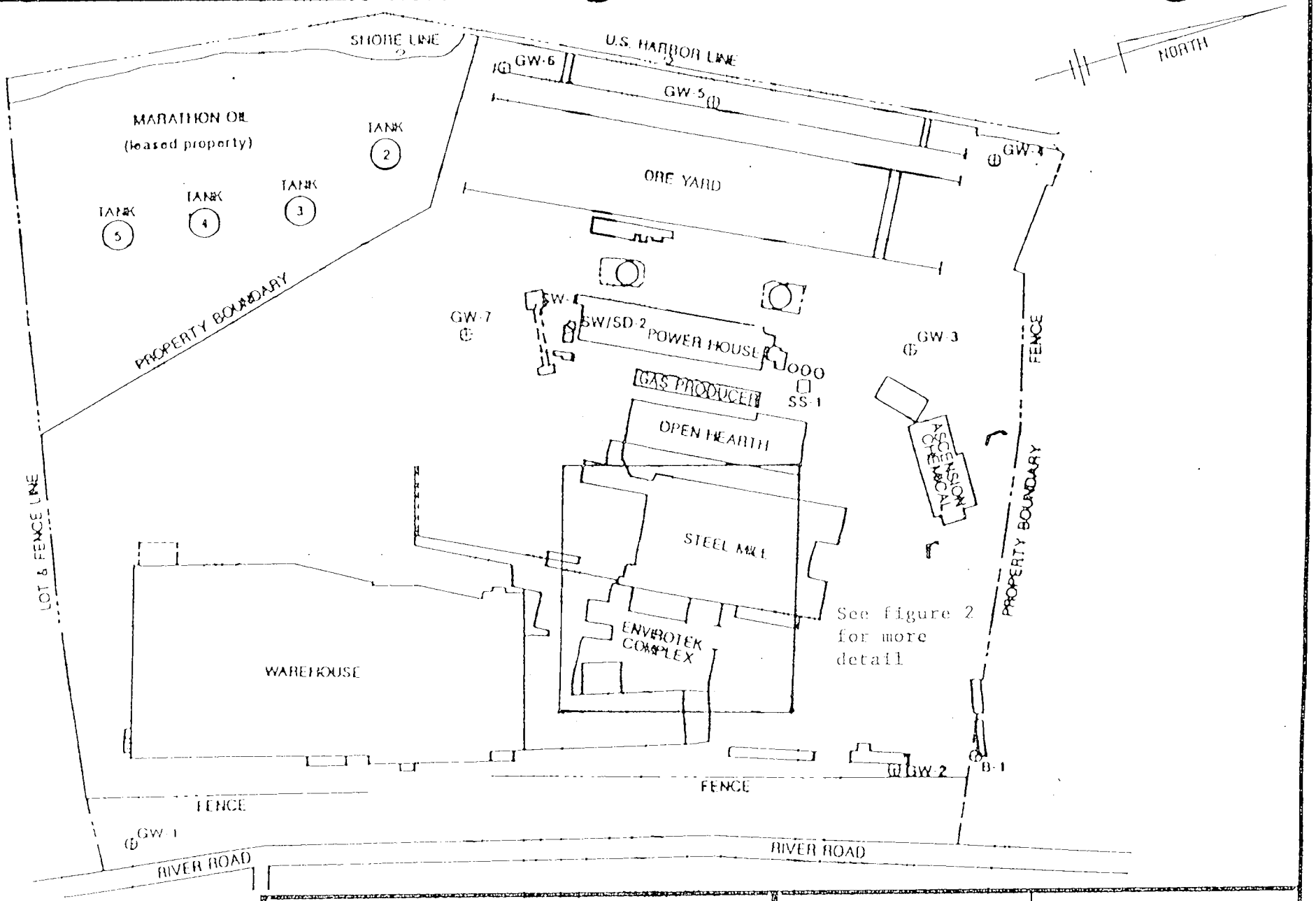
# = Statutory Source Designation for this hazardous substance under CERCLA
1 = CWA Section 311 (b)(4)
2 = CWA Section 307 (a)
3 = CAA Section 112
4 = RCRA Section 3001

* = Samples locations. Value in ppm, all values have been qualified as estimated.

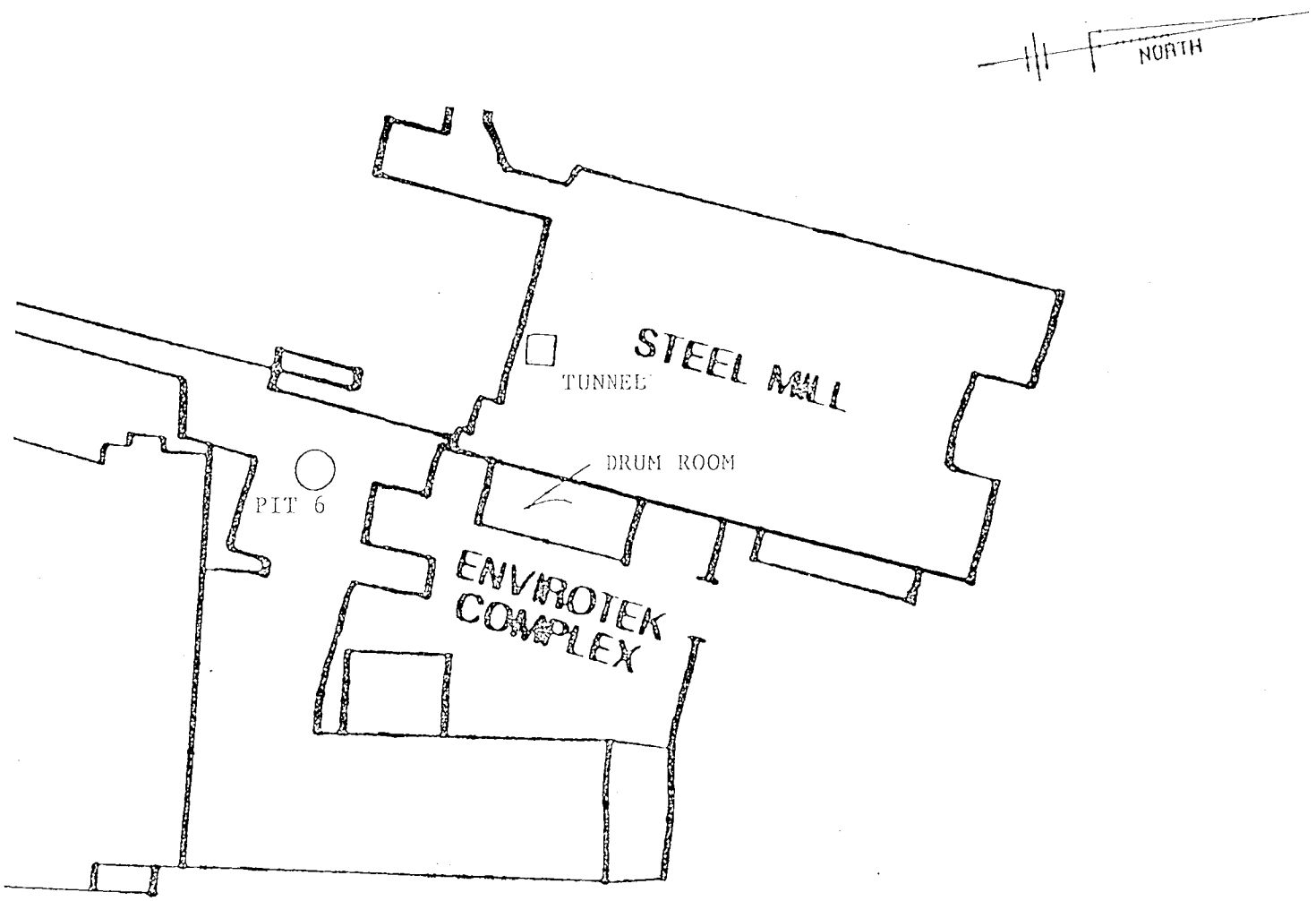
** = NYSDEC Waste Number

APPENDIX B

SITE DIAGRAMS



WESTON SPILL PREVENTION & EMERGENCY RESPONSE DIVISION In Association with ICF Technology Inc., C.C. Johnson & Associates, Inc., Resource Applications, Inc., Geo/Resource Consultants, Inc., and Environmental Toxicology International, Inc.	EPA PM HARRINGTON TAT PM LAWSON	FIGURE 1 SITE DIAGRAM 4000 RIVER ROAD



WESTON SPILL PREVENTION & EMERGENCY RESPONSE DIVISION	EPA PM HARRINGTON	FIGURE 2 SAMPLE LOCATIONS
In Association with ICF Technology Inc., C.C. Johnson & Associates, Inc., Resource Applications, Inc., Geo/Resource Consultants, Inc., and Environmental Toxicology International, Inc.	TAT PM LAWSON	4000 RIVER ROAD

APPENDIX C

CONTAMINANT GUIDELINES

ANALAB INC.

Newark, New Jersey
(201) 344-3136

Analab is a NJDEP certified laboratory specializing in providing professional environmental analytical services

NJDEP Guidelines* For Evaluating Possible ECRA Cleanup Requirements

	CONTAMINANT	SOIL (MG/KG - PPM)	GROUND-WATER (UG/KG-PPB)
METALS	Arsenic	20	50
	Barium		1000
	Cadmium	3	10
	Chromium	100	50
	Copper	170	1000
	Lead	100	50
	Mercury	1	2
	Nickel	100	
	Selenium	4	10
	Silver	5	50
	Zinc	350	5000
ORGANICS	Total Volatiles	1	10
	Total Base Neutrals	10	50
	Total Acid Extractables	10	50
	Total Petroleum Hydrocarbons	100	1000
	Total PCBs	1 to 5	1
OTHER	Cyanide	12	200

* used informally in evaluating possible cleanup requirements

Priority Pollutants • PCBs • Pesticides • HSL Compounds
• Petroleum Hydrocarbons • EP Tox • TCLP • Trace Metals

ASTDR.

REVISED JUNE 22, 1984 MCCLANAHAN 847C

BACKGROUND LEVELS of METALS IN SOILS

ELEMENT		CONCENTRATION IN SOILS mg/kg (ppm) RANGE	TYPICAL MEDIUM	SOURCE
ANTIMONY	Sb	- - 150	6	4, 5 and 7
ARSENIC	As	0.1 - 194	11	2
BORON	B	2 - 130	10	1
CADMIUM	Cd	0.01 - 7	0.5	1
CALCIUM	Ca	LT 150 - 320,000	24,000	3
CHROMIUM	Cr	5 - 3,000	100	1
COBALT	Co	1 - 40	8	1
COPPER	Cu	2 - 100	20	1
FLOURINE	F	6 - 7070	270	2
IRON	Fe	100 - GT 100,000	25,000	2
LEAD	Pb	LT 1 - 888	29	2
MANGANESE	Mn	50 - 18,300	850	1 and 2
MERCURY	Hg	0.01 - 4.6	0.098	2
MOLYBDENUM	Mo	0.2 - 5	2	1
NICKEL	Ni	0.1 - 1,530	34	2
SELENIUM	Se	0.1 - 38	0.2	1
SILVER	Ag	0.01 - 8	0.4	2
STRONTIUM	Sr	LT 3 - 3,500	278	2
THORIUM	Th	2 - 13	9	6
TIN	Sn	2 - 200	10	1
VANADIUM	Va	LT 7 - 500	100	1 and 3
YTTRIUM	Y	LT 10 - 200	29	3
ZINC	Zn	10 - 2,000	54	2

NOTE GT GREATER THAN
LT LESS THAN

1. PARR, JAMES F., MARSH, PAUL B., KLA, JOANNE M., LAND TREATMENT OF HAZARDOUS WASTES, AGRICULTURAL ENVIRONMENTAL QUALITY INSTITUTE, AGRICULTURAL RESEARCH SERVICE, USDA, BELTSVILLE, MARYLAND, NOYES DATA CORPORATION, PARK RIDGE, NEW JERSEY, 1983.
2. URE, A. M., AND M. L. BERROW, "ELEMENTAL CONSTITUENTS OF SOILS" ENVIRONMENTAL CHEMISTRY, VOL 2, pp 94-204 ed H. J. M. BOWEN, ROYAL SOCIETY OF CHEMISTRY, BURLINGHOUSE, LONDON, U.K. 1983.
3. SHACKLETTE, H. T., ET. AL., ET. AL., ELEMENTAL COMPOSITION OF SURFICIAL MATERIAL IN THE CONTERMINOUS UNITED STATES, USGS PROFESSIONAL PAPER 574-D 1971.
4. RAGAINI, R. C., ET. AL., "ENVIRONMENTAL TRACE CONTAMINATION IN KELLOG IDAHO NEAR LEAD SMELTING COMPLEX." ENVIR SCI AND TECHNOL 11 773-780 1977
5. LISK, D. J., "TRACE METALS IN SOILS, PLANTS, AND AMIMALS." ADV AGRON 24 267-311, 1972.
6. LECHLER, T. J., ET. AL., "MAJOR AND TRACE METAL ANALYSIS OF 12 REFERENCE SOILS BY INDUCTIVELY COUPLED PLASMA-ATOMIC EMISSION SPECTROMETRY." SOIL SCIENCE 130 238-241, 1980.
7. "GEOCHEMISTRY OF SOME ROCKS, SOIL, PLANT AND VEGETABLES IN THE CONTERMINOUS UNITED STATES", GEOLOGICAL SURVEY PROFESSIONAL PAPER 574 F 1975

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

OSWER Directive #9355.4-02

MEMORANDUM

SUBJECT: Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites.

FROM: Henry L. Longest II, Director
Office of Emergency and Remedial Response

Bruce Diamond, Director
Office of Waste Programs Enforcement

TO: Directors, Waste Management Division, Regions I, II, IV, V, VII and VIII
Director, Emergency and Remedial Response Division, Region II
Directors, Hazardous Waste Management Division, Regions III and VI
Director, Toxic Waste Management Division, Region IX
Director, Hazardous Waste Division, Region X

PURPOSE

The purpose of this directive is to set forth an interim soil cleanup level for total lead, at 500 to 1000 ppm, which the Office of Emergency and Remedial Response and the Office of Waste Programs Enforcement consider protective for direct contact at residential settings. This range is to be used at both Fund-lead and Enforcement-lead CERCLA sites. Further guidance will be developed after the Agency has developed a verified Cancer Potency Factor and/or a Reference Dose for lead.

BACKGROUND

Lead is commonly found at hazardous waste sites and is a contaminant of concern at approximately one-third of the sites on the National Priorities List (NPL). Applicable or relevant and appropriate requirements (ARARs) are available to provide cleanup levels for lead in air and water but not in soil. The current

"Competent authority" means a national agency responsible under its national law for the control or regulation of a particular aspect of the transportation of hazardous materials (dangerous goods). The term "Appropriate authority", as used in the ICAO Technical Instructions, has the same meaning as "Competent Authority". The Director, Office of Hazardous Materials Transportation, is the United States Competent Authority for purposes of this subchapter and 46 CFR Parts 64 and 146.

"Compressed gas". See §173.300.

"Consumer commodity" means a material that is packaged and distributed in a form intended or suitable for sale through retail sales agencies or instrumentalities for consumption by individuals for purposes of personal care or household use. This term also includes drugs and medicines.

"Containership" means a cargo vessel designed and constructed to transport, within specifically designed cells, portable tanks and freight containers which are lifted on and off with their contents intact.

"Corrosive material". See §173.240.

"Crewmember" means a person assigned to perform duty in an aircraft during flight time.

"Cryogenic liquid. See § 173.300(f).

"Cylinder" means a pressure vessel designed for pressure higher than 40 psia and having a circular cross section. It does not include a portable tank, multi-unit tank car tank, cargo tank, or tank car.

"Designated facility" means a hazardous waste treatment, storage, or disposal facility that has been designated on the manifest by the generator.

"District Commander" means the District Commander of the Coast guard, or his authorized representative, who has jurisdiction in the particular geographical area.

"DOD" means the U.S. Department of Defense.

"EPA" means U.S. Environmental Protection Agency.

"Engine" means a locomotive propelled by any form of energy and used by a railroad.

"Etiologic agent" - see §173.386.

"°F" means degree Fahrenheit.

"Ferry vessel" means a vessel which is limited in its use to the carriage of deck passengers or vehicles or both, operates on a short run on a frequent schedule between two points over the most direct water route, other than in ocean or coastwise service, and is offered as a public service of a type normally attributed to a bridge or tunnel.

"Filling density" has the following meanings:

(1) For compressed gases in cylinders, see § 173.304(a)(2) Table Note 1.

(2) For compressed gases in tank cars, see § 173.314(c) Table Note 1.

(3) For compressed gases in cargo tanks and portable tanks, see § 173.315(a) Table Note 1.

(4) For cryogenic liquids in cylinders, except hydrogen, see § 173.316(c)(1).

(5) For hydrogen, cryogenic liquid in cylinders, see § 173.316(c)(3) Table Note 1.

(6) For cryogenic liquids in cargo tanks, see §173.318(f)(1).

(7) For cryogenic liquids in tank cars, see § 173.319(d)(1).

"Flammable gas". See §173.300(b).

"Flammable liquid". See §173.115(a)(1).

"Flammable solid". See §173.150.

"Flash point" means the minimum temperature at which a substance gives off flammable vapors which in contact with spark or flame will ignite. For liquids, see §173.115 and for solids, see §173.150.

"Freight container" means a reusable container having a volume of 64 cubic feet or more designed and constructed to permit being lifted with its contents intact and intended primarily for containment of packages (in unit form) during transportation.

"Fuel tank" means a tank other than a cargo tank, used to transport flammable or combustible liquid, or compressed gas for the purpose of supplying fuel for propulsion of the transport vehicle to which it is attached, or for the operation of other equipment on the transport vehicle.

"Gross weight" means the weight of a packaging plus the weight of its contents.

"Hazardous material" means a substance or material, including a hazardous substance, which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated.

"Hazardous substance" for the purposes of this subchapter, means a material, including its mixtures and solutions, that—

(1) Is listed in the Appendix to §172.101 of this subchapter;

(2) Is in a quantity, in one package, which equals or exceeds the reportable quantity (RQ) listed in the Appendix to §172.101 of this subchapter; and

(3) When in a mixture or solution, is in a concentration by weight which equals or exceeds the concentration corresponding to the RQ of the material, as shown in the following table:

RQ pounds (kilograms)	Concentration by weight: Percent	PPM
5000 (2270)	10	100,000
1000 (454)	2	20,000
100(45.4)	0.2	2,000
10 (4.54)	0.02	200
1 (0.45)	0.002	20

This definition does not apply to petroleum products that are lubricants or fuels (see 40 CFR 300.6).

"Hazardous waste", for the purposes of this chapter, means any material that is subject to the Hazardous Waste Manifest Requirements of the U.S. Environmental Protection Agency specified in 40 CFR Part 262.

"Hermetically sealed" means closed by fusion, gasketing, crimping, or equivalent means so that no gas or vapor can enter or escape.

"IAEA" means International Atomic Energy Agency.

"IATA" means International Air Transport Association.

"ICAO" means International Civil Aviation Organization.

"IMO" means International Maritime Organization.

"IM Tank Table" means the table (with preface) listing hazardous materials approved by the Associate Director of HMR for carriage in IM portable tanks under special conditions specified therein.

"Intermodal container" means a freight container designed and constructed to permit it to be used interchangeably in two or more modes of transport.

"Intermodal portable tank" or "IM portable tank" means a specific class of portable tanks designed primarily for international intermodal use.

"Irritating material". See §173.381.

"Limited quantity", when specified as such in a section applicable to a particular materal with the exception of Poison B materials, means the maximum amount of a hazardous material for which there is a specific labeling and packaging exception.

"Liquid" means a material that has a vertical flow of over 2 inches (50 mm) within a three minute period, or a material having one gram (1g) or more liquid separation, when determined in accordance with the procedures specified in ASTM D 4359-84, "Standard Test Method for Determining whether a Material is a Liquid or Solid", 1984 edition.

"Magnetic materials". See §173.21 (f).

"Magazine vessel" means a vessel used for the receiving, storing, or dispensing of explosives.

"Marking" means applying the descriptive name, instructions, cautions, weight, or specification marks or combination thereof required by this subchapter to be placed upon outside containers of hazardous materials.

"Mixture" means a material composed of more than one chemical compound or element.

"Mode" means any of the following transportation methods, rail, highway, air, or water.

"Motor vehicle" includes a vehicle, machine, tractor, trailer or semitrailer, or any combination thereof, propelled or drawn by mechanical power and used upon the highways in the transportation of passengers or property. It does not include a vehicle, locomotive, or car operated exclusively on a rail or rails; or a trolley bus operated by electric power derived from a fixed overhead wire, furnishing local passenger transportation similar to street-railway service.

"Name of contents" means the proper shipping name as specified in §§172.101 or 172.102 (when authorized).

(Also Index TAB #2) (4)

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Edison, NJ 08837, • (201) 225-6116 • FAX (201) 225-7037

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-7367

TAT-02-F-06187 **MEMORANDUM**

TO: Dwayne Harrington, OSC
Response and Prevention Branch, U.S. EPA

FROM: Beverly Lawson, TAT II MM
Michael Mentzel, TAT II (MM) for

DATE: February 5, 1991

SUBJECT: 4000 River Road
Analytical Data Summary
TDD 02-9010-63

INTRODUCTION:

This report summarizes the analytical results of samples collected on August 28, 1990.

The activities described below constitute one part of the comprehensive site investigation conducted by TAT Region 2 at the 4000 River Road site Tonawanda, New York. Further assessment activities will be reported as results are received and finalized by TAT 2.

SAMPLING ACTIVITIES:

On Tuesday, August 28, 1990 TAT members Michael Mentzel, Alison Gimson and Rohan Tadas mobilized the site to collect samples as requested by the EPA OSC. The OSC had designated Wally Cain of NYSDEC as the coordinator of sampling operations. The description of each sample location is now presented.

Sample 6 - Pit designated as Pit 6 located in the drum building (Figure 1). On August 27 this pit was dry with a sludge material at the bottom approximately 5 feet below the floor. The sample was collected with a stainless steel auger by Rohan Tadas and Alison Gimson on August 28 at 0900 hours. It had rained the night of August 27 and approximately one foot of rainwater covered the sludge layer.

Sample T - This "Pit" located was designated the tunnel by Dwayne Harrington. In the roadway next to Pit 3, it is believed that Pit 6 and the tunnel are connected. A sludge material was collected as the sample from approximately five feet below grade. Approximately one foot of rainwater was above the sludge layer.

Sample S-1 - Drum sample given the "S" designation by Steve Hale, EPA ESD. This drum was overpacked by the PRP contractor and was 7/8 full. The material was a viscous, unctuous, sticky, yellow-clear gel. A 1/4" layer of solidified material was on the surface of the gel. The layer was cut with a razor knife and the gel sampled with a glass rod. This drum was located in the room next to the lab. Eight 8 ounce tars were collected. Wally Cain also requested ignitability. Analysis will be performed on this sample. Wally Cain also requested that part of the drum lid be removed as evidence. TAT cut the drum lid and gave it to Wally Cain.

Sample S-2 and Sample S-3 (Duplicate) - Collected from a drum which had been overpacked by the PRP and designated S-2 by Steve Hale EPA ESD. The material in this drum was a brown-black solid resembling homogenous soil or filter cake. Split samples from locations Pit 6, tunnel, drum S and Drum S-2 were given to Wally Cain with proper chain-of-custody.

Samples were shipped to the lab listed below on September 9, 1990:

Accredited Laboratories, Inc.
Foot of Pershing Avenue
P.O. Box 369
Carteret, New Jersey 07008-0369
Telephone (908) 541-2025

ANALYTICAL SUMMARY:

All samples were analyzed for Target Compound List (TCL) and Target Analyte List (TAL) parameters. A private laboratory was utilized through TAT analytical services, however, Contract Lab Program (CLP) procedures were adhered to.

The data was reviewed for QA/QC compliance by certified TAT personnel. Significant analyte values have been summarized in this section. Raw data is available in the TAT file system.

Additionally, sample S-1 was analyzed to determine flash point.

Table 1 correlates the TAT and laboratory documentation. Appendix A summarizes the data which exceeds regulatory guidelines or contributes to removal action requirements. In addition to the contaminant name and concentration, the RCRA hazardous waste number and CERCLA statutory source for designation as a hazardous substance code have been included. Values qualified with a "J" are estimated values. All organic data in this report has been qualified due to exceedance of holding times and in some cases, out of control calibration. This data can be used for general informational purposes. All values in this report have been converted to ppm and rounded to the first decimal place.

It is noteworthy that some of the inorganic data was rejected due to low surrogate recoveries. Any data rejected cannot be used to draw any conclusions as to the presence or absence of the given contaminant in the associated locations. However, it is understood that the rejected data may hold some credence wherever site specific and historical information offer no apparent contradiction.

TABLE 1 - DOCUMENTATION

ACCREDITED LABORATORIES CASE NO.: C-805744
DATE RECEIVED: 9/6/90

Field #	Laboratory Sample #1	Type
Pit 6	9006095	Sludge
Tunnel	9006096	Sludge
S-1	9006097	Drum
S-2	9006098	Drum
S-3	9006099	Duplicate of S-2

OBSERVATIONS:

The ARAR from NJDEP ECRA clean-up guidelines indicated a 1 ppm level for total volatiles and 10 ppm level for total BNA's. The data presented below exceeds these guidelines.

Sample Location: Pit 6 - Polychlorinated Biphenols (PCB's) were detected in the Pit 6 sample at levels approaching the regulatory limit of 50 ppm. This material can be considered a NYSDEC hazardous waste classified with the waste number B005-PCB contaminated solids and sludges.

In addition, significant concentrations of volatile and semivolatile organic constituents listed in 40 CFR 302.4 Appendix A (CERCLA Hazardous Substances) have been detected. Volatile organic compound concentrations of approximately 25 ppm (xylenes) has been detected. Additionally, several other volatile organic compounds have been detected in the 5 to 15 ppm range. The maximum concentration for semivolatiles found was 342 ppm Bis (2 ethylhexyl) pthlate. Several other semivolatile compounds were found ranging from 5 to 30 ppm.

Inorganic contamination appears to be within ranges consistent with normal levels found in industrial soils. The rejected value for lead may indicate further investigation is needed (see Appendix C).

Sample Location: Tunnel - Contamination with Volatile Organic Compounds (VOCs) in this location seemed to be less than that found in Pit 6. Lower values may be due in part to the high water content of the sample. Concentrations of VOCs ranged from approximately 0.7 ppm (tetrachloroethene) to 9 ppm (xylenes).

The only two semivolatile constituents that were detected in the sludge were di-n-buthylphthalate (17 ppm) and bis (2 ethylhexyl) phthalate (15 ppm).

Inorganic contamination appears to be within ranges consistent with normal levels found in soils. The rejected value for lead may indicate further investigation is needed (see Appendix C).

Sample Location: S-1 - The material in this drum contains several VOCs ranging from 5 to 12 ppm. No semivolatile compounds were detected and metals contamination is minimal.

The disposal of the drum falls within the scope of work for the responsible party.

It maybe noteworthy to observe that eight of the ten compounds found in Pit 6 were also found in the S-1 drum. Further investigation as to the correlation of the drummed material to the pit material may need to be pursued.

Sample Location: S-2 and S-3 (Duplicate) - Approximately fourteen volatile organic compounds were detected in the drummed material. Several constituents were present at levels over 100 ppm including 2 butanone (360) and trichloroethylene (850).

Additionally, high levels of semivolatile compounds were found. Of these fourteen had concentrations over 100 ppm. Naphthalene was detected at approximately 1,800 ppm.

On a volume/volume basis, organic constituents make up approximately 0.5% of this material.

Inorganic contamination falls within the ranges found in Appendix C.

The disposal of the drum falls within the scope of work for the responsible party.

APPENDIX A

ANALYTICAL DATA

TARGET COMPOUND LIST

PROJECT: 4000 River Road
DATE: August, 1990
CONCENTRATION: ppm

TAT PM: Lawson

			SAMPLE #				
VOLATILES	RCRA+	CODE#	TUNNEL*	PIT6*	S1*	S2*	S3*
Methylene Chloride	U080	2,4			1.3	2.4	
Acetone	U002	4		3.2	3.2	40.4	63.6
1,1-Dichloroethene	U078	1,2,4				1.9	3.7
1,1-Dichloroethane	U076	2,4				8.4	10.6
Cis 1,2-Dichloroethene						43.9	51.8
2-Butanone	U159	4		5.1		247.6	360.0
1,1,1-Trichloroethane	U226	2,4				41.3	51.9
1,1,2,2-Tetrachloroethane	U209	2,4				5.4	5.5
Trichloroethene	U228	1,2,4	0.9	1.3	1.2	730.0	850.5
1,1,2-Trichloroethane	U227	2,4					5.9
Benzene	U019	1,2,3,4		0.9		0.7	0.9
2-Hexanone			1.0	16.4	5.4	664.5	
4-Methyl-2-pentanone	U161	4		1.9	0.1	82.9	101.8
Tetrachloroethene	U210	2,4	0.7			19.0	19.7
Toluene	U220	1,2,4	0.9	13.9	2.5		
Chlorobenzene	U037	1,2,4				8.9	10.4
Ethyl Benzene		1,2	7.6	8.2	3.0	348.8	
Total Xylenes (m,p)	U239	1,4	9.6	25.5	12.1		439.6
O-Xylene	U239	1,4	1.0	13.6	5.5		

SEMI-VOLATILES/BNA's	RCRA+	CODE#	TUNNEL*	PIT6*	S1*	S2*	S3*
Phenol	U188	1,2,4				594.4	647.2
bis(2-Chloroisopropyl) ether	U027	2,4				37.5	37.8
4-Methylphenol						16.6	18.5
Hexachloroethane	U131	2,4		12.2		489.7	471.2
2,4-Dimethylphenol	U101	2,4				25.8	32.9
Naphthalene	U165	1,2,4		20.7		1796.6	1683.6
2-Methylnaphthalene						206.9	205.2
Dimethyl Phthalate	U102	2,4				110.6	109.9
Acenaphthene		2				124.7	123.3
4-Nitrophenol	U170	1,2,4				36.3	33.7
Dibenzofuran						98.1	102.2
Fluorene		2				125.2	123.9
4,6-Dinitro-2-methylphenol						40.6	
Phenanthrene		2		19.7		155.3	133.4
Anthracene		2				136.6	130.0
Di-n-butylphthalate			16.8	30.1		87.3	109.8
Fluoranthene	U120	2,4		20.9		430.3	411.4
Pyrene		2		18.8		223.0	218.4
Butyl Benzyl Phthalate		2				35.2	35.3
Benzo(a)anthracene	U018	2,4		8.0		94.7	92.4
bis(2-ethylhexyl)phthalate	U028	2,4	15.4	341.8		669.7	658.2
Chrysene	U050	2,4		9.8		98.8	94.7
Benzo(b)fluoranthene		2		11.4		149.3	152.4
Benzo(a)pyrene	U022	2,4		6.3		85.6	84.3
Methyl Phenol						16.6	18.6

TARGET COMPOUND LIST

PROJECT: 4000 River Road
DATE: August, 1990
CONCENTRATION: ppm

TAT PM: Lawson

			SAMPLE #				
PESTICIDES/PCB	RCRA+	CODE#	TUNNEL*	PIT6*	S1*	S2*	S3*
delta-BHC		2	0.43				
AROCHLOR-1260	B005**	1,2		73.8			

METALS/CN	RCRA+	CODE#	TUNNEL*	PIT6*	S1*	S2*	S3*
Aluminum			5637	16497	8.45	0.577	666.0
Antimony			7.52	11.9		14.9	18.7
Arsenic			12.3	24.4			
Barium (Rejected)			~~102R~~	~~99.7R~~	~~5.13R~~	~~648R~~	~~718R~~
Cadium			9.63	9.65		2.67	2.90
Calcium (Rejected)			~~26869R~~	~~5121R~~	~~12.6R~~	~~11328R~~	~~11765R~~
Chromium			116	165		467	515
Cobalt			10.7	11.1		20.1	23.2
Copper			186	414		68	76.6
Iron (Rejected)			~~192628R~~	~~179475R~~	~~89.7R~~	~~6043R~~	~~10099R~~
Lead (Rejected)			~~341R~~	~~1990R~~		~~3030R~~	~~2980R~~
Magnesium			~~3097R~~	~~979R~~		~~1255R~~	~~1379R~~
Manganese			1817	1038		50.9	62.8
Mercury			0.178	0.435		0.133	0.174
Nickel			70.9	48		49.4	58.2
Potassium			376	272	8.90	517	581
Sodium (Rejected)			~~153R~~	~~88.8R~~	~~16.9R~~	~~387R~~	~~410R~~
Vanadium			10.5	53			
Zinc (Rejected)			~~602R~~	~~712R~~	~~3.88R~~	~~5456R~~	~~5767R~~
Cyanide			2.40	4.04		1.57	3.95
% Solids			75.2	45.4	98.7	80.3	79.3
Flash Point (Fahrenheit scale)					>200		

+ = RCRA Waste Number

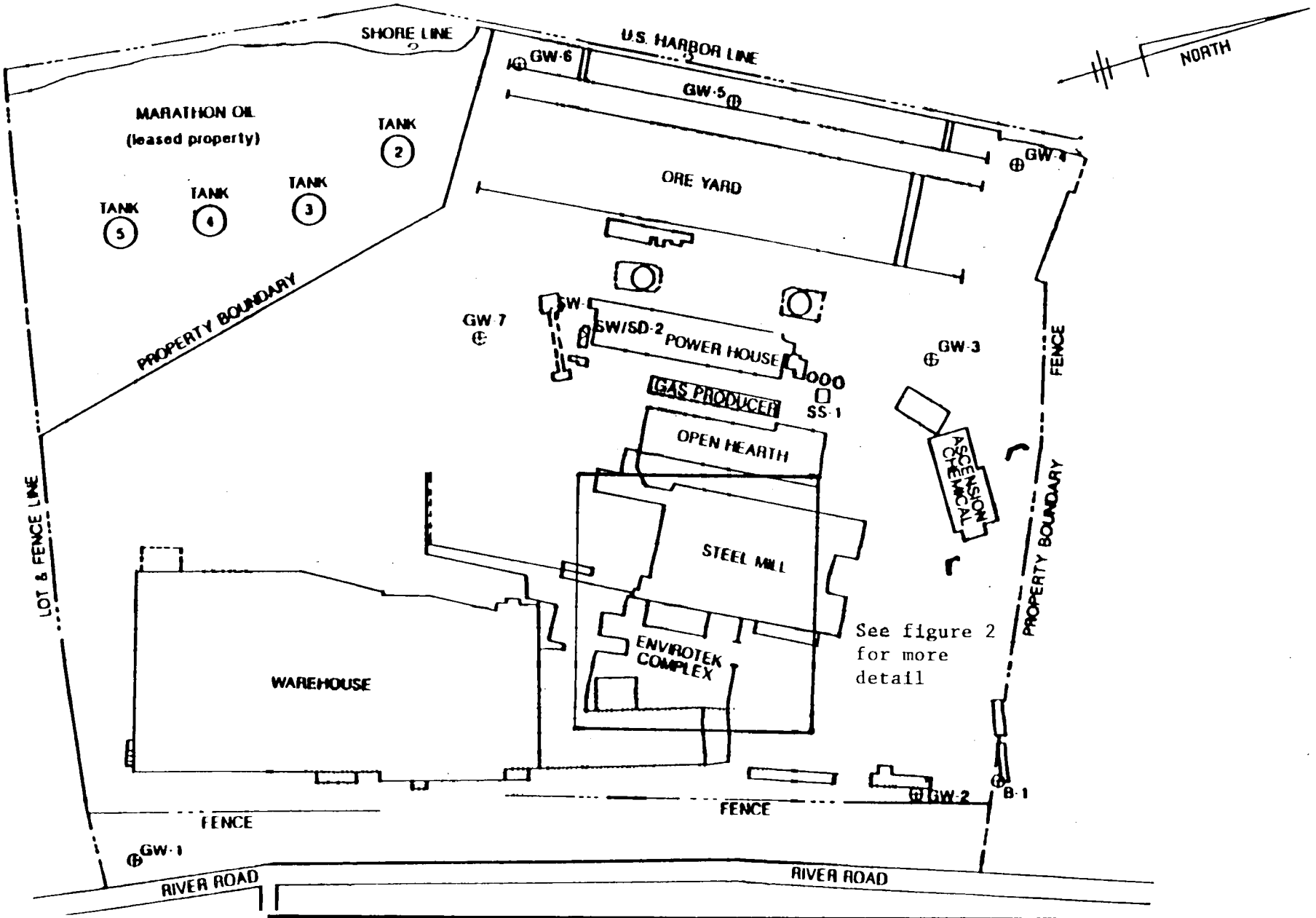
# = Statutory Source Designation for this hazardous substance under CERCLA
1 = CWA Section 311 (b)(4)
2 = CWA Section 307 (a)
3 = CAA Section 112
4 = RCRA Section 3001

* = Samples locations. Value in ppm, all values have been qualified as estimated.

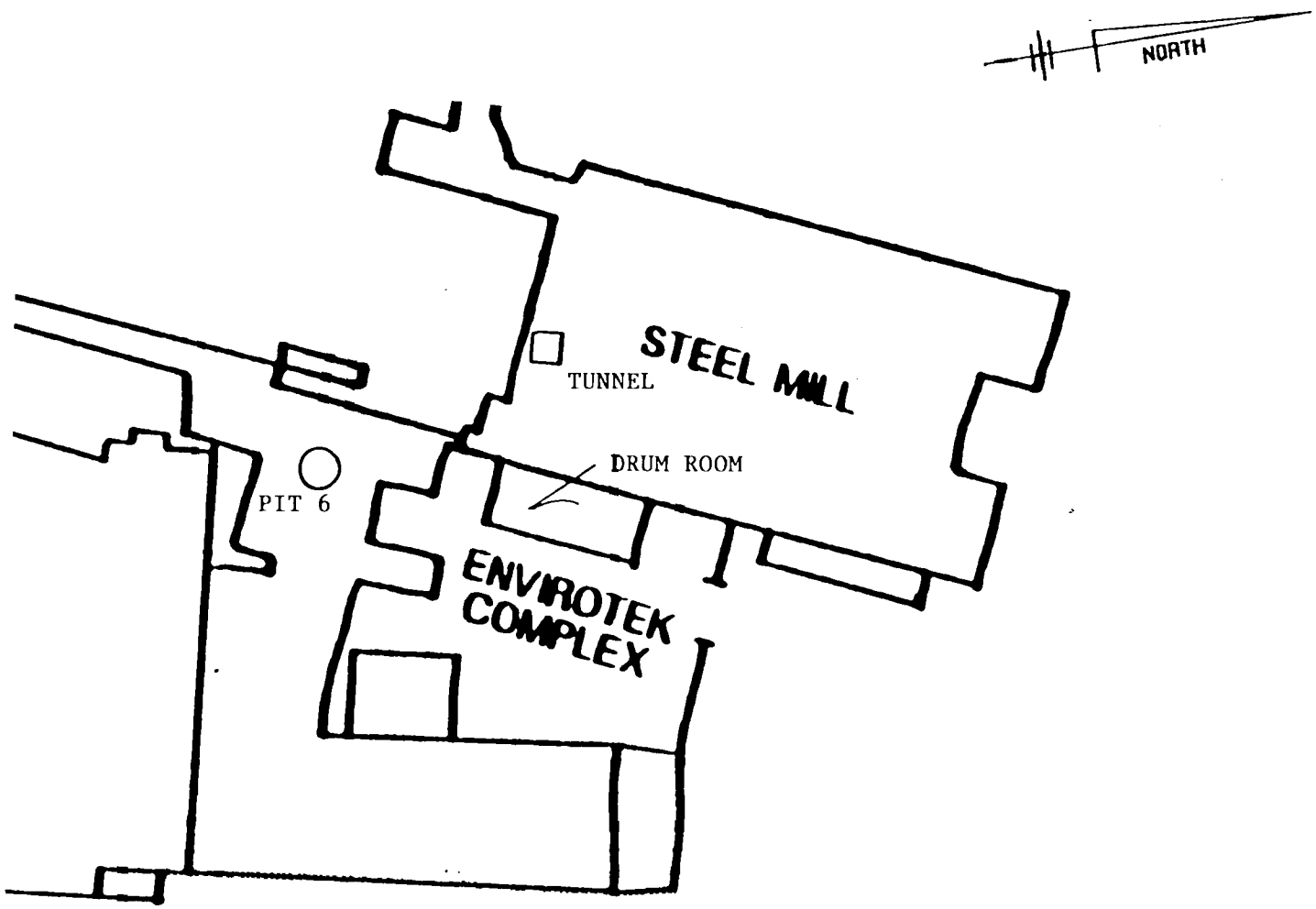
** = NYSDEC Waste Number

APPENDIX B

SITE DIAGRAMS



WESTON — SPILL PREVENTION & EMERGENCY RESPONSE DIVISION	EPA PM: HARRINGTON	FIGURE 1: SITE DIAGRAM
In Association with ICF Technology Inc., C.C. Johnson & Associates, Inc., Resource Applications, Inc., Geo/Resource Consultants, Inc., and Environmental Toxicology International, Inc.	TAT PM: LAWSON	4000 RIVER ROAD



WESTON DESIGNERS/CONSULTANTS SPILL PREVENTION & EMERGENCY RESPONSE DIVISION	EPA PM HARRINGTON	FIGURE 2 SAMPLE LOCATIONS
in Association with ICF Technology Inc., C.C. Johnson & Associates, Inc., Resource Applications, Inc., Geo/Resource Consultants, Inc., and Environmental Toxicology Internatio[illegible]nc.	TAT PM LAWSON	4000 RIVER R[illegible]

APPENDIX C

CONTAMINANT GUIDELINES

ASTDR.

REVISED JUNE 22, 1984 MCCLANAHAN 847C

BACKGROUND LEVELS of METALS IN SOILS

ELEMENT		CONCENTRATION IN SOILS mg/kg (ppm) RANGE	TYPICAL MEDIUM	SOURCE
ANTIMONY	Sb	- - 150	6	4, 5 and 7
ARSENIC	As	0.1 - 194	11	2
BORON	B	2 - 130	10	1
CADMIUM	Cd	0.01 - 7	0.5	1
CALCIUM	Ca	LT 150 - 320,000	24,000	3
CHROMIUM	Cr	5 - 3,000	100	1
COBALT	Co	1 - 40	8	1
COPPER	Cu	2 - 100	20	1
FLOURINE	F	6 - 7070	270	2
IRON	Fe	100 - GT 100,000	25,000	2
LEAD	Pb	LT 1 - 888	29	2
MANGANESE	Mn	50 - 18,300	850	1 and 2
MERCURY	Hg	0.01 - 4.6	0.098	2
MOLYBDENUM	Mo	0.2 - 5	2	1
NICKEL	Ni	0.1 - 1,530	34	2
SELENIUM	Se	0.1 - 38	0.2	1
SILVER	Ag	0.01 - 8	0.4	2
STRONTIUM	Sr	LT 3 - 3,500	278	2
THORIUM	Th	2 - 13	9	6
TIN	Sn	2 - 200	10	1
VANADIUM	Va	LT 7 - 500	100	1 and 3
YTTRIUM	Y	LT 10 - 200	29	3
ZINC	Zn	10 - 2,000	54	2

NOTE GT GREATER THAN
LT LESS THAN

1. PARR, JAMES F., MARSH, PAUL B., KLA, JOANNE M., LAND TREATMENT OF HAZARDOUS WASTES, AGRICULTURAL ENVIRONMENTAL QUALITY INSTITUTE, AGRICULTURAL RESEARCH SERVICE, USDA, BELTSVILLE, MARYLAND, NOYES DATA CORPORATION, PARK RIDGE, NEW JERSEY, 1983.
2. URE, A. M., AND M. L. BERROW, "ELEMENTAL CONSTITUENTS OF SOILS" ENVIRONMENTAL CHEMISTRY, VOL 2, pp 94-204 ed H. J. M. BOWEN, ROYAL SOCIETY OF CHEMISTRY, BURLINGHOUSE, LONDON, U.K. 1983.
3. SHACKLETTE, H. T., ET. AL., ET. AL., ELEMENTAL COMPOSITION OF SURFACIAL MATERIAL IN THE CONTERMINOUS UNITED STATES, USGS PROFESSIONAL PAPER 574-D 1971.
4. RAGAINI, R. C., ET. AL., "ENVIRONMENTAL TRACE CONTAMINATION IN KELLOG IDAHO NEAR LEAD SMELTING COMPLEX." ENVIR SCI AND TECHNOL 11 773-780 1977
5. LISK, D. J., "TRACE METALS IN SOILS, PLANTS, AND ANIMALS." ADV AGRON 24 267-311, 1972.
6. LECHLER, T. J., ET. AL., "MAJOR AND TRACE METAL ANALYSIS OF 12 REFERENCE SOILS BY INDUCTIVELY COUPLED PLASMA-ATOMIC EMISSION SPECTROMETRY." SOIL SCIENCE 130 238-241, 1980.
7. "GEOCHEMISTRY OF SOME ROCKS, SOIL, PLANT AND VEGETABLES IN THE CONTERMINOUS UNITED STATES", GEOLOGICAL SURVEY PROFESSIONAL PAPER 574 F 1975

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP 1 [illegible]

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

OSWER Directive #9355.4-02

MEMORANDUM

SUBJECT: Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites.

FROM: Henry L. Longest II, Director
Office of Emergency and Remedial Response

Bruce Diamond, Director
Office of Waste Programs Enforcement

TO: Directors, Waste Management Division, Regions I, II, IV, V, VII and VIII
Director, Emergency and Remedial Response Division, Region II
Directors, Hazardous Waste Management Division, Regions III and VI
Director, Toxic Waste Management Division, Region IX
Director, Hazardous Waste Division, Region X

PURPOSE

The purpose of this directive is to set forth an interim soil cleanup level for total lead, at 500 to 1000 ppm, which the Office of Emergency and Remedial Response and the Office of Waste Programs Enforcement consider protective for direct contact at residential settings. This range is to be used at both Fund-lead and Enforcement-lead CERCLA sites. Further guidance will be developed after the Agency has developed a verified Cancer Potency Factor and/or a Reference Dose for lead.

BACKGROUND

Lead is commonly found at hazardous waste sites and is a contaminant of concern at approximately one-third of the sites on the National Priorities List (NPL). Applicable or relevant and appropriate requirements (ARARs) are available to provide cleanup levels for lead in air and water but not in soil. The current

"Competent authority" means a national agency responsible under its national law for the control or regulation of a particular aspect of the transportation of hazardous materials (dangerous goods). The term "Appropriate authority", as used in the ICAO Technical Instructions, has the same meaning as "Competent Authority". The Director, Office of Hazardous Materials Transportation, is the United States Competent Authority for purposes of this subchapter and 46 CFR Parts 64 and 146.

"Compressed gas". See §173.300.

"Consumer commodity" means a material that is packaged and distributed in a form intended or suitable for sale through retail sales agencies or instrumentalities for consumption by individuals for purposes of personal care or household use. This term also includes drugs and medicines.

"Containership" means a cargo vessel designed and constructed to transport, within specifically designed cells, portable tanks and freight containers which are lifted on and off with their contents intact.

"Corrosive material". See §173.240.

"Crewmember" means a person assigned to perform duty in an aircraft during flight time.

"Cryogenic liquid. See § 173.300(f).

"Cylinder" means a pressure vessel designed for pressure higher than 40 psia and having a circular cross section. It does not include a portable tank, multi-unit tank car tank, cargo tank, or tank car.

"Designated facility" means a hazardous waste treatment, storage, or disposal facility that has been designated on the manifest by the generator.

"District Commander" means the District Commander of the Coast guard, or his authorized representative, who has jurisdiction in the particular geographical area.

"DOD" means the U.S. Department of Defense.

"EPA" means U.S. Environmental Protection Agency.

"Engine" means a locomotive propelled by any form of energy and used by a railroad.

"Etiologic agent" - see §173.386.

"°F" means degree Fahrenheit.

"Ferry vessel" means a vessel which is limited in its use to the carriage of deck passengers or vehicles or both, operates on a short run on a frequent schedule between two points over the most direct water route, other than in ocean or coastwise service, and is offered as a public service of a type normally attributed to a bridge or tunnel.

"Filling density" has the following meanings:

(1) For compressed gases in cylinders, see § 173.304(a)(2) Table Note 1.

(2) For compressed gases in tank cars, see § 173.314(c) Table Note 1.

(3) For compressed gases in cargo tanks and portable tanks, see § 173.315(a) Table Note 1.

(4) For cryogenic liquids in cylinders, except hydrogen, see § 173.316(c)(1).

(5) For hydrogen, cryogenic liquid in cylinders, see § 173.316(c)-(3) Table Note 1.

(6) For cryogenic liquids in cargo tanks, see §173.318(f)(1).

(7) For cryogenic liquids in tank cars, see § 173.319(d)(1).

"Flammable gas". See §173.300(b).

"Flammable liquid". See §173.115(a)(1).

"Flammable solid". See §173.150.

"Flash point" means the minimum temperature at which a substance gives off flammable vapors which in contact with spark or flame will ignite. For liquids, see §173.115 and for solids, see §173.150.

"Freight container" means a reusable container having a volume of 64 cubic feet or more designed and constructed to permit being lifted with its contents intact and intended primarily for containment of packages (in unit form) during transportation.

"Fuel tank" means a tank other than a cargo tank, used to transport flammable or combustible liquid, or compressed gas for the purpose of supplying fuel for propulsion of the transport vehicle to which it is attached, or for the operation of other equipment on the transport vehicle.

"Gross weight" means the weight of a packaging plus the weight of its contents.

"Hazardous material" means a substance or material, including a hazardous substance, which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated.

"Hazardous substance" for the purposes of this subchapter, means a material, including its mixtures and solutions, that—

(1) Is listed in the Appendix to §172.101 of this subchapter;

(2) Is in a quantity, in one package, which equals or exceeds the reportable quantity (RQ) listed in the Appendix to §172.101 of this subchapter; and

(3) When in a mixture or solution, is in a concentration by weight which equals or exceeds the concentration corresponding to the RQ of the material, as shown in the following table:

RQ pounds (kilograms)	Concentration by weight	
	Percent	PPM
5000 (2270)	10	100,000
1000 (454)	2	20,000
100(45.4)	0.2	2,000
10 (4.54)	0.02	200
1 (0.45)	0.002	20

This definition does not apply to petroleum products that are lubricants or fuels (see 40 CFR 300.6).

"Hazardous waste", for the purposes of this chapter, means any material that is subject to the Hazardous Waste Manifest Requirements of the U.S. Environmental Protection Agency specified in 40 CFR Part 262.

"Hermetically sealed" means closed by fusion, gasketing, crimping, or equivalent means so that no gas or vapor can enter or escape.

"IAEA" means International Atomic Energy Agency.

"IATA" means International Air Transport Association.

"ICAO" means International Civil Aviation Organization.

"IMO" means International Maritime Organization.

"IM Tank Table" means the table (with preface) listing hazardous materials approved by the Associate Director of HMR for carriage in IM portable tanks under special conditions specified therein.

"Intermodal container" means a freight container designed and constructed to permit it to be used interchangeably in two or more modes of transport.

"Intermodal portable tank" or "IM portable tank" means a specific class of portable tanks designed primarily for international intermodal use.

"Irritating material". See §173.381.

"Limited quantity", when specified as such in a section applicable to a particular materal with the exception of Poison B materials, means the maximum amount of a hazardous material for which there is a specific labeling and packaging exception.

"Liquid" means a material that has a vertical flow of over 2 inches (50 mm) within a three minute period, or a material having one gram (lg) or more liquid separation, when determined in accordance with the procedures specified in ASTM D 4359-84, "Standard Test Method for Determining whether a Material is a Liquid or Solid", 1984 edition.

"Magnetic materials". See §173.21 (f).

"Magazine vessel" means a vessel used for the receiving, storing, or dispensing of explosives.

"Marking" means applying the descriptive name, instructions, cautions, weight, or specification marks or combination thereof required by this subchapter to be placed upon outside containers of hazardous materials.

"Mixture" means a material composed of more than one chemical compound or element.

"Mode" means any of the following transportation methods, rail, highway, air, or water.

"Motor vehicle" includes a vehicle, machine, tractor, trailer or semitrailer, or any combination thereof, propelled or drawn by mechanical power and used upon the highways in the transportation of passengers or property. It does not include a vehicle, locomotive, or car operated exclusively on a rail or rails, or a trolley bus operated by electric power derived from a fixed overhead wire, furnishing local passenger transportation similar to street-railway service.

"Name of contents" means the proper shipping name as specified in §§172.101 or 172.102 (when authorized).

ATTACHMENT 3
(Document from TAT to EPA)

Complete Results
Also in our file

Inter-Office Memorandum

To: Dwayne Harrington

Thru: Beverly Lawson

From: Anibal Diaz/Ron Starks

Date: May 1, 1991

Observations

The data reveals trace contamination of little significance in comparison to available guidelines (see Data Summary, and TCLP and CCWE lists).

A. Volatiles
Only BDF46 and BDF49 showed any contamination.

B. BNA
No significant contamination found.

C. Pesticides and PCB
Data was rejected (R) and should not be used.

Recommendation

The valid data does not justify remediation. However, since some of the data was rejected, it may be necessary to conduct additional sampling to determine if remediation is required.

OTHER ANALYTES WORK TABLE

SK
AA

PROJECT 4000 River Road

SAMPLING DATE 12/5/90

TAT PM Beverly Lawson

SAMPLE #/CONCENTRATION ( )

VOLATILES	Minimum Detection Range	BDF46 mg/Kg	BDF49 mg/Kg	BDF50 mg/Kg	VBLKT5 mg/Kg	VBLKT6 mg/Kg	~~EMB~~
1. Chloromethane							
2. Bromomethane							
3. Vinyl Chloride							
4. Chloroethane							
5. Methylene Chloride			.6 BJ	1 BJ	7J	.8J	~~7BJ~~
6. Acetone			7BJ	3BJ	1J	2J	~~1BJ~~
7. Carbon Disulfide							
8. 1,1-Dichloroethene							
9. 1,1-Dichloroethane							
10. trans-1,2-Dichloroethene							
11. Chloroform							
12. 1,2-Dichloroethane							
13. 2-Butanone							
14. 1,1,1-Trichloroethane							
15. Carbon Tetrachloride							
16. Bromodichloromethane							
17. 1,2-Dichloropropane							
18. cis-1,3-Dichloropropene							
19. Trichloroethene							
20. Dibromochloromethane							
21. 1,1,2-Trichloroethane							
22. Benzene							
23. trans-1,3-Dichloropropene							
24. Bromoform							
25. 4-Methyl-2-pentanone							
26. 2-Hexanone							
27. Tetrachloroethene		6					
28. Toluene							
29. 1,1,2,2-Tetrachloroethane							
30. Chlorobenzene							
31. Ethyl Benzene							
32. Styrene							
33. Total Xylenes (o,m,p)		9J					

OTHER ANALYTES WORK TABLE

PROJECT _____ PAGE 3 OF 3

SAMPLING DATE _____ TAT PM _____

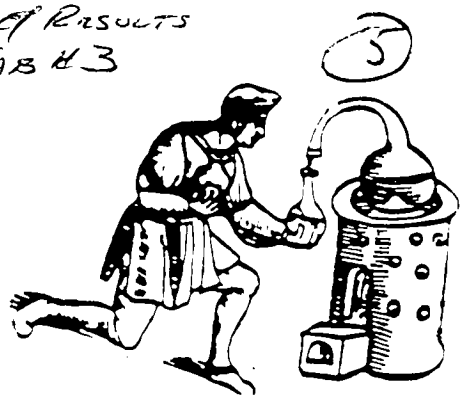
SAMPLE #/CONCENTRATION ( )

SEMI-VOLATILES/BNA's	Minimum Detection Range	BDF46 mg/Kg	BDF47 mg/Kg	BDF48 mg/Kg			
64. 2,6-Dinitrotoluene							
65. 3-Nitroaniline							
66. Acenaphthene							
67. 2,4-Dinitrophenol							
68. 4-Nitrophenol							
69. Dibenzofuran							
70. 2,4-Dinitrotoluene							
71. Diethylphthalate							
72. 4-Chlorophenyl Phenyl ether							
73. Fluorene							
74. 4-Nitroaniline							
75. 4,6-Dinitro-2-methylphenol							
76. N-nitrosodiphenylamine							
77. 4-Bromophenyl Phenyl ether							
78. Hexachlorobenzene		R					
79. Pentachlorophenol							
80. Phenanthrene		4J	4J				
81. Anthracene							
82. Carbazole							
83. Di-n-butylphthalate							
84. Fluoranthene		7J					
85. Pyrene		7J	5J	2J			
86. Butyl Benzyl Phthalate							
87. 3,3'-Dichlorobenzidine							
88. Benzo(a)anthracene		3J					
89. Chrysene		4J	3J				
90. bis(2-ethylhexyl)phthalate		11J	10J	19J			
91. Di-n-octyl Phthalate							
92. Benzo(b)fluoranthene							
93. Benzo(k)fluoranthene							
94. Benzo(a)pyrene		3J					
95. Indeno1,2,3-cd)pyrene							
96. Dibenz(a,h)anthracene							
97. Benzo(g,h,i)perylene							

March 29, 1991

Cover Memo of Results in Index Tab #3

5



Inter-Office Memorandum

To: Dwayne Harrington

Thru: Beverly Lawson

From: Anibal Diaz/Ron Starks

Date: May 1, 1991

Observations

The data reveals trace contamination of little significance in comparison to available guidelines (see Data Summary, and TCLP and CCWE lists).

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Only BDF46 and BDF49 showed any contamination.

B. BNA
No significant contamination found.

C. Pesticides and PCB
Data was rejected (R) and should not be used.

Recommendation

The valid data does not justify remediation. However, since some of the data was rejected, it may be necessary to conduct additional sampling to determine if remediation is required.

Data Summary

OTHER ANALYTES WORK TABLE

SK
AH

PROJECT 4000 River Road

SAMPLING DATE 12/5/90

TAT PM Beverly Lawson

SAMPLE #/CONCENTRATION ( )

VOLATILES	Minimum Detection Range	BDF46 mg/Kg	BDF49 mg/Kg	BDF50 mg/Kg	VBLKT5 mg/Kg	VBLKT6 mg/Kg	~~CM5~~
1. Chloromethane							
2. Bromomethane							
3. Vinyl Chloride							
4. Chloroethane							
5. Methylene Chloride			.6 BJ	1 BJ	7J	.8J	~~1 BJ~~
6. Acetone			7 BJ	3 BJ	1 J	2 J	~~1 BJ~~
7. Carbon Disulfide							
8. 1,1-Dichloroethene							
9. 1,1-Dichloroethane							
10. trans-1,2-Dichloroethene							
11. Chloroform							
12. 1,2-Dichloroethane							
13. 2-Butanone							
14. 1,1,1-Trichloroethane							
15. Carbon Tetrachloride							
16. Bromodichloromethane							
17. 1,2-Dichloropropane							
18. cis-1,3-Dichloropropene							
19. Trichloroethene							
20. Dibromochloromethane							
21. 1,1,2-Trichloroethane							
22. Benzene							
23. trans-1,3-Dichloropropene							
24. Bromoform							
25. 4-Methyl-2-pentanone							
26. 2-Hexanone							
27. Tetrachloroethene		6					
28. Toluene							
29. 1,1,2,2-Tetrachloroethane							
30. Chlorobenzene							
31. Ethyl Benzene							
32. Styrene							
33. Total Xylenes (o,m,p)		.9J					

OTHER ANALYTES WORK TABLE

PROJECT _____ PAGE 2 OF 3

SAMPLING DATE _____ TAT PM _____

SAMPLE #/CONCENTRATION ( )

SEMI-VOLATILES/BNA's	Minimum Detection Range	BDF46 mg/Kg	BDF47 mg/Kg	BDF48 mg/Kg			
64. 2,6-Dinitrotoluene							
65. 3-Nitroaniline							
66. Acenaphthene							
67. 2,4-Dinitrophenol							
68. 4-Nitrophenol							
69. Dibenzofuran							
70. 2,4-Dinitrotoluene							
71. Diethylphthalate							
72. 4-Chlorophenyl Phenyl ether							
73. Fluorene							
74. 4-Nitroaniline							
75. 4,6-Dinitro-2-methylphenol							
76. N-nitrosodiphenylamine							
77. 4-Bromophenyl Phenyl ether							
78. Hexachlorobenzene		R					
79. Pentachlorophenol							
80. Phenanthrene		4J	4J				
81. Anthracene							
82. Carbazole							
83. Di-n-butylphthalate							
84. Fluoranthene		7J					
85. Pyrene		7J	5J	2J			
86. Butyl Benzyl Phthalate							
87. 3,3'-Dichlorobenzidine							
88. Benzo(a)anthracene		3J					
89. Chrysene		4J	3J				
90. bis(2-ethylhexyl)phthalate		11J	10J	14J			
91. Di-n-octyl Phthalate							
92. Benzo(b)fluoranthene							
93. Benzo(k)fluoranthene							
94. Benzo(a)pyrene		3J					
95. Indeno1,2,3-cd)pyrene							
96. Dibenz(a,h)anthracene							
97. Benzo(g,h,i)perylene							

March 29, 1991

AN

OTHER ANALYTES WORK TABLE

PROJECT _____ PAGE 3 OF 3

SAMPLING DATE _____ TAT PM _____

SAMPLE #/CONCENTRATION ( )

PESTICIDES/PCB	Minimum Detection Range	BDF46 mg/Kg	BDF47 mg/Kg	BDF48 mg/Kg	BDF49 mg/Kg		
98. alpha-BHC							
99. beta-BHC		R	R	R	R		
100. delta-BHC							
101. gamma-BHC (Lindane							
102. Heptachlor							
103. Aldrin							
104. Heptachlor Epoxide		R	R	R	R		
105. Endosulfan I			R	R	R		
106. Dieldrin							
107. 4,4'-DDE							
108. Endrin		R	R	R	R		
109. Endosulfan II		R	R	R	R		
110. 4,4'-DDD							
111. Endosulfan Sulfate							
112. 4,4'-DDT							
113. Methoxychlor							
114. Endrin Ketone		R	R	R	R		
115. Endrin Aldehyde							
116. Alpha-Chlordane							
117. Gamma-Chlordane							
118. Toxaphene							
119. AROCHLOR-1016							
120. AROCHLOR-1221							
121. AROCHLOR-1232							
122. AROCHLOR-1248							
123. AROCHLOR-1242							
124. AROCHLOR-1254							
125. AROCHLOR-1260							

March 29, 1991

QA/QC Compliance Reviews

MMB QA/QC Compliance Review Summary

Site: 4000 River Rd

Fraction: TCL

Sampling Date: 12/5/90

Reviewer: Marybath P.

Analyte	SN	Qualifier	Reason
Methylene Chloride Acetone	BDF 46, 47, 48	U	Method Blank Contamination
Heptachlor Epoxide Endrin Endosulfan II Endrin Ketone Endosulfan Sulfate	BDF 46, 47, 48, 49	R	Out of Control Calibration (RF<0.05)

ATTACHMENT 1
SOP NO. HW-6

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. 15487 SDG No. BDF46 LABORATORY AQUA I SITE 4000 River Rd.

DATA ASSESSMENT:

The current functional guidelines (1988) for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "U" (non-detects), "R" (unusable),or "JN" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Reviewer's Signature: James S. Davis Date: 3/4/1991

Verified By: Maybeth Packard Date: 3/6/1991

ATTACHMENT 1
SOP NO. HW-6

DATA ASSESSMENT:

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip field, rinse and water blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field blanks measure cross- contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for the common contaminants), the analytes are qualified as non- detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

A) Method blank contamination

VOA: Methylene Chloride – 'U' qualified in BDF 46, 47, 48
Acetone – 'U' qualified in BDF 46, 47, 48,

BNA: No qualification required

PCB: No qualification required

B) Field or rinse blank contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

Field blanks not taken same day as samples. Therefore not valid for qualification

C) Trip blank contamination

RECORD OF COMMUNICATION

☐ PHONE CALL ☐ DISCUSSION ☐ FIELD TRIP ☐ CONFERENCE
☐ OTHER (Specify)

TO: GEORGE KARRAS

FROM: RSCC/ESAT

DATE 1/17/91

TIME

SUBJECT: CLP Organic Data Packages for Quality Assurance Review

SUMMARY OF CONVERSATION:

Attached are the following CLP Organic/SAS Data Packages to be reviewed for Quality Assurance.

SITE	CASE/SAS NO.	LABORATORY	MATRIX	NO. of SAMPLES
4000 RIVER ROAD TATW/SA	15487	AQUAI	WATER	2
			SOIL	3

CONCLUSIONS/ACTION TAKEN OR REQUIRED

INFORMATION COPIES TO:

EPA Form 1320-6 (7-78) PREVIOUS EPA RSCC FORM STOCK WHICH MAY BE USED UNTIL SUPPLY IS EXHAUSTED.

ATTACHMENT 1
SOP NO. HW-6

DATA ASSESSMENT:

5. CALIBRATION:

A) PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <30% and %D must be <25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ" (if %D or RSD >50%). If there is a gross deviation of %RSD and %D, the non-detects may be rejected ("R").

For the PCB/PESTICIDE fraction, %RSD for aldrin, endrin, DDT, and dibutylchlorendate must not exceed 10%. Percent D must be within 15% on the quantitation column and 20% on the confirmation column.

VOA: Acetone, 2-butanone, 2-Hexanone had %D > 30%, however, no qualification required.

BNA: No qualification required

PCB: No qualification required.

ATTACHMENT 1
SOP NO. HW-6

DATA ASSESSMENT:

7. INTERNAL STANDARDS PERFORMANCE:

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction.

VOA: No qualification required

BNA: No qualification required

PCB: No qualification required

DATA ASSESSMENT:

9. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of the data.

VOA: No qualification required

BNA: No qualification required

PCB: No qualification required

REJECTION SUMMARY FORM
(No. of Compounds/No. of Fractions (Samples)

Type of Review: Organic Date: 3/4/91 Case #: 15487

Project: 4000 River Road Lab Name: AQUATEC

Reviewer's Initials: JED Number of Samples: 5

Analytes Rejected Due to Exceeding Review Criteria:

High Conc.

	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Sampl
Acids (15)	0	0	0	0			5	0/75
B/N (50)	0	0	0	0			5	0/250
VOA (35)	0	0	0	6			7	6/210
PEST (20)	0	0	19	0			5	19/100
PCB (7)	0	0	0	0			5	0/35
TCDD (1)	—	—	—	—	—	—	—	—

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)	0	0	0	0			5	0/75
B/N (50)	0	0	0	0			5	0/250
VOA (35)	0	0	0	0			7	0/210
PEST (20)	0	0	0	0			5	0/100
PCB (7)	0	0	0	0			5	0/35
TCDD (1)	—	—	—	—	—	—	—	—

aquatec INC. ENVIRONMENTAL SERVICES

75 GREEN MOUNTAIN DRIVE, SOUTH BURLINGTON, VERMONT 05403, TELEPHONE (802) 658-1074

January 10, 1991

U.S. Environmental Protection Agency
Contract Laboratory Program
Sample Management Office
300 North Lee Street, Suite 200
Alexandria, VA 22314

Re: Contract No. 68D90072
Aquatec Project No. 89072
Case No. 15487, SDG No. BDF46

Dear Sir/Madam:

Enclosed are the analytical results for Case No. 15487, SDG No. BDF46.

This case consists of three (3) solid samples and one liquid sample for full organic analysis, and one liquid sample for volatile organic analysis only.

All samples were received intact by Aquatec on December 7, 1990.

Laboratory numbers were assigned and are designated as follows:

EPA	Aquatec	Matrix
BDF46	125331	Solid
BDF47	125332	Solid
BDF48	125333	Solid
BDF49	125334	WML
BDF50	125335	WML
CMS	125337	Corn Oil

According to the OTR received, samples BDF49 and BDF50 were designated as the field blank and trip blank, respectively. Mr. Brent Eldred at SMO was contacted and made aware that these samples, if screened, would screen low according to high concentration protocol. The laboratory called to verify that the Region wanted these samples analyzed according to the high concentration protocol. The Region confirmed that these samples be analyzed in addition to the solids samples received.

Only two VOA vials were received for sample BDF50, the trip blank, therefore, only volatile organic analysis was performed on this sample rather than full organic analysis as suggested by the OTR. Refer to the chain-of-custody signifying the sample containers received.

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SAMPLE DELIVERY GROUP (SDG)
TRAFFIC REPORT (TR) COVER SHEET

Lab Name: Aquatec, Inc. **Contract No.:** ~~68D90072~~ 68D90072

Lab Code: AQUAI **Case No.:** 15487 **SAS No.:** _____ - ___

Full Sample Analysis Price in Contract: $830.00

SDG No./First Sample in SDG: BDF46 **Sample Receipt Date:** 12/07/90 (MM/DD/YY)
(Lowest EPA Sample Number in first shipment of samples received under SDG)

Last Sample in SDG: BDF50 **Sample Receipt Date:** 12/07/90 (MM/DD/YY)
(Highest EPA Sample Number in last shipment of samples received under SDG)

EPA Sample Numbers in the SDG (listed in alphanumeric order):

1	BDF46	11	
2	BDF47	12	
3	BDF48	13	
4	BDF49	14	
5	BDF50	15	
6		16	
7		17	
8		18	
9		19	
10		20	

Note: There are a maximum of 20 field samples in an SDG.

Attach Traffic Reports to this form in alphanumeric order (i.e., the order listed on this form).

Janine L. Barker

Sample Custodian

December 12, 1990

Date

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HIGH CONCENTRATION VOLATILE ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BDF46

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: SOLID Lab Sample ID: 125331

Phase Weight: 1.0 (g) Lab File ID: D125331EV

Final Extract Volume: 10.0 (mL) Date Received: 12/07/90

Aliquot Volume: 100 (uL) Date Separated: _____

Conversion Factor: 0.500 Date Analyzed: 01/04/91

Number TICs found: 1

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (mg/Kg)	Q
1.		UNKNOWN POLYCHLOROHYDROCARBO	25.00	4	J N
2.					
3.					
4.					
5.					
6.					
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HIGH CONCENTRATION VOLATILE ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BDF47

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: SOLID Lab Sample ID: 125332

Phase Weight: 1.2 (g) Lab File ID: D125332EV

Final Extract Volume: 10.0 (mL) Date Received: 12/07/90

Aliquot Volume: 100 (uL) Date Separated: _____

Conversion Factor: 0.417 Date Analyzed: 01/04/91

Number TICs found: 0

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (mg/Kg)	Q
1.					
2.					
3.					
4.					
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HIGH CONCENTRATION VOLATILE ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BDF48

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: SOLID Lab Sample ID: 125333

Phase Weight: 1.0 (g) Lab File ID: D125333EV

Final Extract Volume: 10.0 (mL) Date Received: 12/07/90

Aliquot Volume: 100 (uL) Date Separated: _____

Conversion Factor: 0.500 Date Analyzed: 01/04/91

Number TICs found: 0

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (mg/Kg)	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
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HIGH CONCENTRATION VOLATILE ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BDF49

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: WML Lab Sample ID: 125334

Phase Weight: 1.0 (g) Lab File ID: D125334EV

Final Extract Volume: 10.0 (mL) Date Received: 12/07/90

Aliquot Volume: 100 (uL) Date Separated: _____

Conversion Factor: 0.500 Date Analyzed: 01/04/91

Number TICs found: 0

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (mg/Kg)	Q
1.					
2.					
3.					
4.					
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HIGH CONCENTRATION VOLATILE ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BDF50

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: WML Lab Sample ID: 125335

Phase Weight: 1.0 (g) Lab File ID: D125335E2V

Final Extract Volume: 10.0 (mL) Date Received: 12/07/90

Aliquot Volume: 100 (uL) Date Separated: _____

Conversion Factor: 0.500 Date Analyzed: 01/04/91

Number TICs found: 0

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (mg/Kg)	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
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11.					
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HIGH CONCENTRATION VOLATILE ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKT5

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: _____ Lab Sample ID: DBQB002FV

Phase Weight: 1.0 (g) Lab File ID: DBQB002FV

Final Extract Volume: 10.0 (mL) Date Received: _____

Aliquot Volume: 100 (uL) Date Separated: _____

Conversion Factor: 0.500 Date Analyzed: 01/04/91

Number TICs found: 0

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (mg/Kg)	Q
1.					
2.					
3.					
4.					
5.					
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HIGH CONCENTRATION VOLATILE ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKT6

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: _____ Lab Sample ID: DBQB001GV

Phase Weight: 1.0 (g) Lab File ID: DBQB001GV

Final Extract Volume: 10.0 (mL) Date Received: _____

Aliquot Volume: 100 (uL) Date Separated: _____

Conversion Factor: 0.500 Date Analyzed: 01/04/91

Number TICs found: 0

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (mg/Kg)	Q
1.					
2.					
3.					
4.					
5.					
6.					
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HIGH CONCENTRATION EXTRACTABLE ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDF46

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: SOLID Lab Sample ID: 125331

Phase Weight: 1.1 (g) Lab File ID: A125331S

Final Extract Volume: 1.0 (mL) Date Received: 12/07/90

Injection Volume: 1 (uL) Date Separated: _____

Conversion Factor: 1.818 Date Extracted: 12/13/90

pH: 6.9 Date Analyzed: 12/27/90

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
108-95-2	Phenol	18	U
111-44-4	bis(2-Chloroethyl)ether	18	U
95-57-8	2-Chlorophenol	18	U
541-73-1	1,3-Dichlorobenzene	18	U
106-46-7	1,4-Dichlorobenzene	18	U
100-51-6	Benzyl alcohol	18	U
95-50-1	1,2-Dichlorobenzene	18	U
95-48-7	2-Methylphenol	18	U
108-60-1	bis(2-Chloroisopropyl)ether	18	U
106-44-5	4-Methylphenol	18	U
621-64-7	N-Nitroso-di-n-propylamine	18	U
67-72-1	Hexachloroethane	18	U
98-95-3	Nitrobenzene	18	U
78-59-1	Isophorone	18	U
88-75-5	2-Nitrophenol	18	U
105-67-9	2,4-Dimethylphenol	18	U
65-85-0	Benzoic acid	91	U
111-91-1	bis(2-Chloroethoxy)methane	18	U
120-83-2	2,4-Dichlorophenol	18	U
120-82-1	1,2,4-Trichlorobenzene	18	U
91-20-3	Naphthalene	18	U
106-47-8	4-Chloroaniline	18	U
87-68-3	Hexachlorobutadiene	18	U
59-50-7	4-Chloro-3-methylphenol	18	U
91-57-6	2-Methylnaphthalene	18	U
77-47-4	Hexachlorocyclopentadiene	18	U
88-06-2	2,4,6-Trichlorophenol	18	U
95-95-4	2,4,5-Trichlorophenol	91	U
91-58-7	2-Chloronaphthalene	18	U
88-74-4	2-Nitroaniline	91	U
131-11-3	Dimethylphthalate	18	U
208-96-8	Acenaphthylene	18	U
606-20-2	2,6-Dinitrotoluene	18	U

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HIGH CONCENTRATION EXTRACTABLE ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDF46

Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: SOLID Lab Sample ID: 125331

Phase Weight: 1.1 (g) Lab File ID: A125331S

Final Extract Volume: 1.0 (mL) Date Received: 12/07/90

Injection Volume: 1 (uL) Date Separated: _____

Conversion Factor: 1.818 Date Extracted: 12/13/90

pH: 6.9 Date Analyzed: 12/27/90

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
959-98-8	Endosulfan I	18	U
5103-71-9	alpha-Chlordane	18	U
25429-29-2	Pentachlorobiphenyl	91	U
72-55-9	4,4'-DDE	18	U
60-57-1	Dieldrin	18	U
26601-64-9	Hexachlorobiphenyl	91	U
72-20-8	Endrin	18	~~U~~ R
33213-65-9	Endosulfan II	18	~~U~~ R
72-54-8	4,4'-DDD	18	U
28655-71-2	Heptachlorobiphenyl	91	U
85-68-7	Butylbenzylphthalate	18	U
1031-07-8	Endosulfan sulfate	18	U
50-29-3	4,4'-DDT	18	U
53494-70-5	Endrin ketone	18	~~U~~ R
56-55-3	Benzo(a)anthracene	3	J
72-43-5	Methoxychlor	18	U
218-01-9	Chrysene	4	J
55722-26-4	Octachlorobiphenyl	180	U
91-94-1	3,3'-Dichlorobenzidine	36	U
117-81-7	bis(2-Ethylhexyl)phthalate	16	J
53742-07-7	Nonachlorobiphenyl	180	U
2051-24-3	Decachlorobiphenyl	180	U
117-84-0	Di-n-octylphtalate	18	U
205-99-2	Benzo(b)fluoranthene	18	U
207-08-9	Benzo(k)fluoranthene	18	U
50-32-8	Benzo(a)pyrene	3	J
193-39-5	Indeno(1,2,3-cd)pyrene	18	U
53-70-3	Dibenz(a,h)anthracene	18	U
191-24-2	Benzo(g,h,i)perylene	18	U

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HIGH CONCENTRATION EXTRACTABLE ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDF47

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: SOLID Lab Sample ID: 125332

Phase Weight: 1.1 (g) Lab File ID: A125332S

Final Extract Volume: 1.0 (mL) Date Received: 12/07/90

Injection Volume: 1 (uL) Date Separated: _____

Conversion Factor: 1.818 Date Extracted: 12/13/90

pH: 8.1 Date Analyzed: 12/27/90

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
108-95-2	Phenol	18	U
111-44-4	bis(2-Chloroethyl)ether	18	U
95-57-8	2-Chlorophenol	18	U
541-73-1	1,3-Dichlorobenzene	18	U
106-46-7	1,4-Dichlorobenzene	18	U
100-51-6	Benzyl alcohol	18	U
95-50-1	1,2-Dichlorobenzene	18	U
95-48-7	2-Methylphenol	18	U
108-60-1	bis(2-Chloroisopropyl)ether	18	U
106-44-5	4-Methylphenol	18	U
621-64-7	N-Nitroso-di-n-propylamine	18	U
67-72-1	Hexachloroethane	18	U
98-95-3	Nitrobenzene	18	U
78-59-1	Isophorone	18	U
88-75-5	2-Nitrophenol	18	U
105-67-9	2,4-Dimethylphenol	18	U
65-85-0	Benzoic acid	91	U
111-91-1	bis(2-Chloroethoxy)methane	18	U
120-83-2	2,4-Dichlorophenol	18	U
120-82-1	1,2,4-Trichlorobenzene	18	U
91-20-3	Naphthalene	18	U
106-47-8	4-Chloroaniline	18	U
87-68-3	Hexachlorobutadiene	18	U
59-50-7	4-Chloro-3-methylphenol	18	U
91-57-6	2-Methylnaphthalene	18	U
77-47-4	Hexachlorocyclopentadiene	18	U
88-06-2	2,4,6-Trichlorophenol	18	U
95-95-4	2,4,5-Trichlorophenol	91	U
91-58-7	2-Chloronaphthalene	18	U
88-74-4	2-Nitroaniline	91	U
131-11-3	Dimethylphthalate	18	U
208-96-8	Acenaphthylene	18	U
606-20-2	2,6-Dinitrotoluene	18	U

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HIGH CONCENTRATION EXTRACTABLE ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDF47

Lab Name:AQUATEC, INC. Contract:68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: SOLID Lab Sample ID: 125332

Phase Weight: 1.1 (g) Lab File ID: A125332S

Final Extract Volume: 1.0 (mL) Date Received: 12/07/90

Injection Volume: 1 (uL) Date Separated: _____

Conversion Factor: 1.818 Date Extracted: 12/13/90

pH: 8.1 Date Analyzed: 12/27/90

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
959-98-8	Endosulfan I	18	U R
5103-71-9	alpha-Chlordane	18	U
25429-29-2	Pentachlorobiphenyl	91	U
72-55-9	4,4'-DDE	18	U
60-57-1	Dieldrin	18	U
26601-64-9	Hexachlorobiphenyl	91	U
72-20-8	Endrin	18	U R
33213-65-9	Endosulfan II	18	U R
72-54-8	4,4'-DDD	18	U
28655-71-2	Heptachlorobiphenyl	91	U
85-68-7	Butylbenzylphthalate	18	U
1031-07-8	Endosulfan sulfate	18	U
50-29-3	4,4'-DDT	18	U
53494-70-5	Endrin ketone	18	U R
56-55-3	Benzo(a)anthracene	18	U
72-43-5	Methoxychlor	18	U
218-01-9	Chrysene	3	J
55722-26-4	Octachlorobiphenyl	180	U
91-94-1	3,3'-Dichlorobenzidine	36	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	J
53742-07-7	Nonachlorobiphenyl	180	U
2051-24-3	Decachlorobiphenyl	180	U
117-84-0	Di-n-octylphtalate	18	U
205-99-2	Benzo(b)fluoranthene	18	U
207-08-9	Benzo(k)fluoranthene	18	U
50-32-8	Benzo(a)pyrene	18	U
193-39-5	Indeno(1,2,3-cd)pyrene	18	U
53-70-3	Dibenz(a,h)anthracene	18	U
191-24-2	Benzo(g,h,i)perylene	18	U

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HIGH CONCENTRATION EXTRACTABLE ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDF48

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: SOLID Lab Sample ID: 125333

Phase Weight: 1.0 (g) Lab File ID: A125333S

Final Extract Volume: 1.0 (mL) Date Received: 12/07/90

Injection Volume: 1 (uL) Date Separated: _____

Conversion Factor: 2.000 Date Extracted: 12/13/90

pH: 7.8 Date Analyzed: 12/27/90

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
108-95-2	Phenol	20	U
111-44-4	bis(2-Chloroethyl)ether	20	U
95-57-8	2-Chlorophenol	20	U
541-73-1	1,3-Dichlorobenzene	20	U
106-46-7	1,4-Dichlorobenzene	20	U
100-51-6	Benzyl alcohol	20	U
95-50-1	1,2-Dichlorobenzene	20	U
95-48-7	2-Methylphenol	20	U
108-60-1	bis(2-Chloroisopropyl)ether	20	U
106-44-5	4-Methylphenol	20	U
621-64-7	N-Nitroso-di-n-propylamine	20	U
67-72-1	Hexachloroethane	20	U
98-95-3	Nitrobenzene	20	U
78-59-1	Isophorone	20	U
88-75-5	2-Nitrophenol	20	U
105-67-9	2,4-Dimethylphenol	20	U
65-85-0	Benzoic acid	100	U
111-91-1	bis(2-Chloroethoxy)methane	20	U
120-83-2	2,4-Dichlorophenol	20	U
120-82-1	1,2,4-Trichlorobenzene	20	U
91-20-3	Naphthalene	20	U
106-47-8	4-Chloroaniline	20	U
87-68-3	Hexachlorobutadiene	20	U
59-50-7	4-Chloro-3-methylphenol	20	U
91-57-6	2-Methylnaphthalene	20	U
77-47-4	Hexachlorocyclopentadiene	20	U
88-06-2	2,4,6-Trichlorophenol	20	U
95-95-4	2,4,5-Trichlorophenol	100	U
91-58-7	2-Chloronaphthalene	20	U
88-74-4	2-Nitroaniline	100	U
131-11-3	Dimethylphthalate	20	U
208-96-8	Acenaphthylene	20	U
606-20-2	2,6-Dinitrotoluene	20	U

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HIGH CONCENTRATION EXTRACTABLE ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDF48

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: SOLID Lab Sample ID: 125333

Phase Weight: 1.0 (g) Lab File ID: A125333S

Final Extract Volume: 1.0 (mL) Date Received: 12/07/90

Injection Volume: 1 (uL) Date Separated: _____

Conversion Factor: 2.000 Date Extracted: 12/13/90

pH: 7.8 Date Analyzed: 12/27/90

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
959-98-8	Endosulfan I	20	U R
5103-71-9	alpha-Chlordane	20	U
25429-29-2	Pentachlorobiphenyl	100	U
72-55-9	4,4'-DDE	20	U
60-57-1	Dieldrin	20	U
26601-64-9	Hexachlorobiphenyl	100	U
72-20-8	Endrin	20	U R
33213-65-9	Endosulfan II	20	U R
72-54-8	4,4'-DDD	20	U
28655-71-2	Heptachlorobiphenyl	100	U
85-68-7	Butylbenzylphthalate	20	U
1031-07-8	Endosulfan sulfate	20	U
50-29-3	4,4'-DDT	20	U
53494-70-5	Endrin ketone	20	U R
56-55-3	Benzo(a)anthracene	20	U
72-43-5	Methoxychlor	20	U
218-01-9	Chrysene	20	U
55722-26-4	Octachlorobiphenyl	200	U
91-94-1	3,3'-Dichlorobenzidine	40	U
117-81-7	bis(2-Ethylhexyl)phthalate	14	J
53742-07-7	Nonachlorobiphenyl	200	U
2051-24-3	Decachlorobiphenyl	200	U
117-84-0	Di-n-octylphtalate	20	U
205-99-2	Benzo(b)fluoranthene	20	U
207-08-9	Benzo(k)fluoranthene	20	U
50-32-8	Benzo(a)pyrene	20	U
193-39-5	Indeno(1,2,3-cd)pyrene	20	U
53-70-3	Dibenz(a,h)anthracene	20	U
191-24-2	Benzo(g,h,i)perylene	20	U

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HIGH CONCENTRATION EXTRACTABLE ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDF49 FB

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: WML Lab Sample ID: 125334

Phase Weight: 1.0 (g) Lab File ID: A125334S

Final Extract Volume: 1.0 (mL) Date Received: 12/07/90

Injection Volume: 1 (uL) Date Separated: _____

Conversion Factor: 2.000 Date Extracted: 12/13/90

pH: 7.4 Date Analyzed: 12/27/90

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
108-95-2	Phenol	20	U
111-44-4	bis(2-Chloroethyl)ether	20	U
95-57-8	2-Chlorophenol	20	U
541-73-1	1,3-Dichlorobenzene	20	U
106-46-7	1,4-Dichlorobenzene	20	U
100-51-6	Benzyl alcohol	20	U
95-50-1	1,2-Dichlorobenzene	20	U
95-48-7	2-Methylphenol	20	U
108-60-1	bis(2-Chloroisopropyl)ether	20	U
106-44-5	4-Methylphenol	20	U
621-64-7	N-Nitroso-di-n-propylamine	20	U
67-72-1	Hexachloroethane	20	U
98-95-3	Nitrobenzene	20	U
78-59-1	Isophorone	20	U
88-75-5	2-Nitrophenol	20	U
105-67-9	2,4-Dimethylphenol	20	U
65-85-0	Benzoic acid	100	U
111-91-1	bis(2-Chloroethoxy)methane	20	U
120-83-2	2,4-Dichlorophenol	20	U
120-82-1	1,2,4-Trichlorobenzene	20	U
91-20-3	Naphthalene	20	U
106-47-8	4-Chloroaniline	20	U
87-68-3	Hexachlorobutadiene	20	U
59-50-7	4-Chloro-3-methylphenol	20	U
91-57-6	2-Methylnaphthalene	20	U
77-47-4	Hexachlorocyclopentadiene	20	U
88-06-2	2,4,6-Trichlorophenol	20	U
95-95-4	2,4,5-Trichlorophenol	100	U
91-58-7	2-Chloronaphthalene	20	U
88-74-4	2-Nitroaniline	100	U
131-11-3	Dimethylphthalate	20	U
208-96-8	Acenaphthylene	20	U
606-20-2	2,6-Dinitrotoluene	20	U

1HD

HIGH CONCENTRATION EXTRACTABLE ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDF49

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: WML Lab Sample ID: 125334

Phase Weight: 1.0 (g) Lab File ID: A125334S

Final Extract Volume: 1.0 (mL) Date Received: 12/07/90

Injection Volume: 1 (uL) Date Separated: _____

Conversion Factor: 2.000 Date Extracted: 12/13/90

pH: 7.4 Date Analyzed: 12/27/90

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
959-98-8	Endosulfan I	20	U R
5103-71-9	alpha-Chlordane	20	U
25429-29-2	Pentachlorobiphenyl	100	U
72-55-9	4,4'-DDE	20	U
60-57-1	Dieldrin	20	U
26601-64-9	Hexachlorobiphenyl	100	U
72-20-8	Endrin	20	U R
33213-65-9	Endosulfan II	20	U R
72-54-8	4,4'-DDD	20	U
28655-71-2	Heptachlorobiphenyl	100	U
85-68-7	Butylbenzylphthalate	20	U
1031-07-8	Endosulfan sulfate	20	U
50-29-3	4,4'-DDT	20	U
53494-70-5	Endrin ketone	20	U R
56-55-3	Benzo(a)anthracene	20	U
72-43-5	Methoxychlor	20	U
218-01-9	Chrysene	20	U
55722-26-4	Octachlorobiphenyl	200	U
91-94-1	3,3'-Dichlorobenzidine	40	U
117-81-7	bis(2-Ethylhexyl)phthalate	20	U
53742-07-7	Nonachlorobiphenyl	200	U
2051-24-3	Decachlorobiphenyl	200	U
117-84-0	Di-n-octylphtalate	20	U
205-99-2	Benzo(b)fluoranthene	20	U
207-08-9	Benzo(k)fluoranthene	20	U
50-32-8	Benzo(a)pyrene	20	U
193-39-5	Indeno(1,2,3-cd)pyrene	20	U
53-70-3	Dibenz(a,h)anthracene	20	U
191-24-2	Benzo(g,h,i)perylene	20	U

1HB

HIGH CONCENTRATION EXTRACTABLE ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBLKE2

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: _____

Phase Weight: 1.0 (g)

Final Extract Volume: 1.0 (mL)

Injection Volume: 1 (uL)

Conversion Factor: 2.000

pH: ___

Lab Sample ID: AB1213A2S

Lab File ID: AB1213A2S

Date Received: _____

Date Separated: _____

Date Extracted: 12/13/90

Date Analyzed: 12/27/90

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
108-95-2	Phenol	20	U
111-44-4	bis(2-Chloroethyl)ether	20	U
95-57-8	2-Chlorophenol	20	U
541-73-1	1,3-Dichlorobenzene	20	U
106-46-7	1,4-Dichlorobenzene	20	U
100-51-6	Benzyl alcohol	20	U
95-50-1	1,2-Dichlorobenzene	20	U
95-48-7	2-Methylphenol	20	U
108-60-1	bis(2-Chloroisopropyl)ether	20	U
106-44-5	4-Methylphenol	20	U
621-64-7	N-Nitroso-di-n-propylamine	20	U
67-72-1	Hexachloroethane	20	U
98-95-3	Nitrobenzene	20	U
78-59-1	Isophorone	20	U
88-75-5	2-Nitrophenol	20	U
105-67-9	2,4-Dimethylphenol	20	U
65-85-0	Benzoic acid	100	U
111-91-1	bis(2-Chloroethoxy)methane	20	U
120-83-2	2,4-Dichlorophenol	20	U
120-82-1	1,2,4-Trichlorobenzene	20	U
91-20-3	Naphthalene	20	U
106-47-8	4-Chloroaniline	20	U
87-68-3	Hexachlorobutadiene	20	U
59-50-7	4-Chloro-3-methylphenol	20	U
91-57-6	2-Methylnaphthalene	20	U
77-47-4	Hexachlorocyclopentadiene	20	U
88-06-2	2,4,6-Trichlorophenol	20	U
95-95-4	2,4,5-Trichlorophenol	100	U
91-58-7	2-Chloronaphthalene	20	U
88-74-4	2-Nitroaniline	100	U
131-11-3	Dimethylphthalate	20	U
208-96-8	Acenaphthylene	20	U
606-20-2	2,6-Dinitrotoluene	20	U

1HD

HIGH CONCENTRATION EXTRACTABLE ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBLKE2

Lab Name:AQUATEC, INC. Contract:68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: _____ Lab Sample ID: AB1213A2S

Phase Weight: 1.0 (g) Lab File ID: AB1213A2S

Final Extract Volume: 1.0 (mL) Date Received: _____

Injection Volume: 1 (uL) Date Separated: _____

Conversion Factor: 2.000 Date Extracted: 12/13/90

pH: ___ Date Analyzed: 12/27/90

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
959-98-8	Endosulfan I	20	U
5103-71-9	alpha-Chlordane	20	U
25429-29-2	Pentachlorobiphenyl	100	U
72-55-9	4,4'-DDE	20	U
60-57-1	Dieldrin	20	U
26601-64-9	Hexachlorobiphenyl	100	U
72-20-8	Endrin	20	U
33213-65-9	Endosulfan II	20	U
72-54-8	4,4'-DDD	20	U
28655-71-2	Heptachlorobiphenyl	100	U
85-68-7	Butylbenzylphthalate	20	U
1031-07-8	Endosulfan sulfate	20	U
50-29-3	4,4'-DDT	20	U
53494-70-5	Endrin ketone	20	U
56-55-3	Benzo(a)anthracene	20	U
72-43-5	Methoxychlor	20	U
218-01-9	Chrysene	20	U
55722-26-4	Octachlorobiphenyl	200	U
91-94-1	3,3'-Dichlorobenzidine	40	U
117-81-7	bis(2-Ethylhexyl)phthalate	20	U
53742-07-7	Nonachlorobiphenyl	200	U
2051-24-3	Decachlorobiphenyl	200	U
117-84-0	Di-n-octylphtalate	20	U
205-99-2	Benzo(b)fluoranthene	20	U
207-08-9	Benzo(k)fluoranthene	20	U
50-32-8	Benzo(a)pyrene	20	U
193-39-5	Indeno(1,2,3-cd)pyrene	20	U
53-70-3	Dibenz(a,h)anthracene	20	U
191-24-2	Benzo(g,h,i)perylene	20	U

1HB

HIGH CONCENTRATION EXTRACTABLE ANALYSIS DATA SHEET

EPA SAMPLE NO.

CMS

Lab Name:AQUATEC, INC. Contract:68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: _____ Lab Sample ID: 125337

Phase Weight: 1.0 (g) Lab File ID: A125337S

Final Extract Volume: 1.0 (mL) Date Received: _____

Injection Volume: 1 (uL) Date Separated: _____

Conversion Factor: 2.000 Date Extracted: 12/13/90

pH: ___ Date Analyzed: 12/28/90

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
108-95-2	Phenol	20	U
111-44-4	bis(2-Chloroethyl)ether	20	U
95-57-8	2-Chlorophenol	20	U
541-73-1	1,3-Dichlorobenzene	20	U
106-46-7	1,4-Dichlorobenzene	20	U
100-51-6	Benzyl alcohol	20	U
95-50-1	1,2-Dichlorobenzene	20	U
95-48-7	2-Methylphenol	20	U
108-60-1	bis(2-Chloroisopropyl)ether	20	U
106-44-5	4-Methylphenol	20	U
621-64-7	N-Nitroso-di-n-propylamine	20	U
67-72-1	Hexachloroethane	20	U
98-95-3	Nitrobenzene	20	U
78-59-1	Isophorone	20	U
88-75-5	2-Nitrophenol	20	U
105-67-9	2,4-Dimethylphenol	20	U
65-85-0	Benzoic acid	100	U
111-91-1	bis(2-Chloroethoxy)methane	20	U
120-83-2	2,4-Dichlorophenol	20	U
120-82-1	1,2,4-Trichlorobenzene	20	U
91-20-3	Naphthalene	20	U
106-47-8	4-Chloroaniline	20	U
87-68-3	Hexachlorobutadiene	20	U
59-50-7	4-Chloro-3-methylphenol	20	U
91-57-6	2-Methylnaphthalene	20	U
77-47-4	Hexachlorocyclopentadiene	20	U
88-06-2	2,4,6-Trichlorophenol	20	U
95-95-4	2,4,5-Trichlorophenol	100	U
91-58-7	2-Chloronaphthalene	20	U
88-74-4	2-Nitroaniline	100	U
131-11-3	Dimethylphthalate	20	U
208-96-8	Acenaphthylene	20	U
606-20-2	2,6-Dinitrotoluene	20	U

1HD

HIGH CONCENTRATION EXTRACTABLE ANALYSIS DATA SHEET

EPA SAMPLE NO.

CMS

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: _____ Lab Sample ID: 125337

Phase Weight: 1.0 (g) Lab File ID: A125337S

Final Extract Volume: 1.0 (mL) Date Received: _____

Injection Volume: 1 (uL) Date Separated: _____

Conversion Factor: 2.000 Date Extracted: 12/13/90

pH: ___ Date Analyzed: 12/28/90

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
959-98-8	Endosulfan I	20	U
5103-71-9	alpha-Chlordane	20	U
25429-29-2	Pentachlorobiphenyl	100	U
72-55-9	4,4'-DDE	20	U
60-57-1	Dieldrin	100	U
26601-64-9	Hexachlorobiphenyl	20	U
72-20-8	Endrin	20	U
33213-65-9	Endosulfan II	20	U
72-54-8	4,4'-DDD	20	U
28655-71-2	Heptachlorobiphenyl	100	U
85-68-7	Butylbenzylphthalate	20	U
1031-07-8	Endosulfan sulfate	20	U
50-29-3	4,4'-DDT	20	U
53494-70-5	Endrin ketone	20	U
56-55-3	Benzo(a)anthracene	20	U
72-43-5	Methoxychlor	20	U
218-01-9	Chrysene	20	U
55722-26-4	Octachlorobiphenyl	200	U
91-94-1	3,3'-Dichlorobenzidine	40	U
117-81-7	bis(2-Ethylhexyl)phthalate	20	U
53742-07-7	Nonachlorobiphenyl	200	U
2051-24-3	Decachlorobiphenyl	200	U
117-84-0	Di-n-octylphtalate	20	U
205-99-2	Benzo(b)fluoranthene	20	U
207-08-9	Benzo(k)fluoranthene	20	U
50-32-8	Benzo(a)pyrene	20	U
193-39-5	Indeno(1,2,3-cd)pyrene	20	U
53-70-3	Dibenz(a,h)anthracene	20	U
191-24-2	Benzo(g,h,i)perylene	20	U

1HG

HIGH CONCENTRATION AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDF47

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: SOLID

Phase Weight: 0.5375 (g)

Final Extract Volume: 50.0 (mL)

Injection Volume: 1.0 (uL)

Conversion Factor: 93.023

pH: 8.1

Lab Sample ID: 125332

Date Received: 12/07/90

Date Separated: _____

Date Extracted: 12/13/90

Date Analyzed: 01/03/91

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
8001-35-2	Toxaphene	47	U
12674-11-2	Aroclor-1016	9.3	U
11104-28-2	Aroclor-1221	9.3	U
11141-16-5	Aroclor-1232	9.3	U
53469-21-9	Aroclor-1242	9.3	U
12672-29-6	Aroclor-1248	9.3	U
11097-69-1	Aroclor-1254	9.3	U
11096-82-5	Aroclor-1260	9.3	U

1HG

HIGH CONCENTRATION AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDF48

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: SOLID

Phase Weight: 0.5413 (g)

Final Extract Volume: 50.0 (mL)

Injection Volume: 1.0 (uL)

Conversion Factor: 92.370

pH: 7.8

Lab Sample ID: 125333

Date Received: 12/07/90

Date Separated: _____

Date Extracted: 12/13/90

Date Analyzed: 01/03/91

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
8001-35-2	Toxaphene	46	U
12674-11-2	Aroclor-1016	9.2	U
11104-28-2	Aroclor-1221	9.2	U
11141-16-5	Aroclor-1232	9.2	U
53469-21-9	Aroclor-1242	9.2	U
12672-29-6	Aroclor-1248	9.2	U
11097-69-1	Aroclor-1254	9.2	U
11096-82-5	Aroclor-1260	9.2	U

1HG

HIGH CONCENTRATION AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

ABLKE8

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: _____ Lab Sample ID: ABLKE8

Phase Weight: 0.5125 (g) Date Received: _____

Final Extract Volume: 50.0 (mL) Date Separated: _____

Injection Volume: 1.0 (uL) Date Extracted: 12/13/90

Conversion Factor: 97.561 Date Analyzed: 01/03/91

pH: ____ Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
8001-35-2	Toxaphene	49	U
12674-11-2	Aroclor-1016	9.8	U
11104-28-2	Aroclor-1221	9.8	U
11141-16-5	Aroclor-1232	9.8	U
53469-21-9	Aroclor-1242	9.8	U
12672-29-6	Aroclor-1248	9.8	U
11097-69-1	Aroclor-1254	9.8	U
11096-82-5	Aroclor-1260	9.8	U

1HG

HIGH CONCENTRATION AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

IBLKA2

Lab Name: AQUATEC, INC. Contract: 68D90072

Lab Code: AQUAI Case No.: 15487 SAS No.: _____ SDG No.: BDF46

Phase Type: _____ Lab Sample ID: IBLKA2

Phase Weight: 0.5000 (g) Date Received: _____

Final Extract Volume: 50.0 (mL) Date Separated: _____

Injection Volume: 1.0 (uL) Date Extracted: _____

Conversion Factor: 100.000 Date Analyzed: 01/03/91

pH: ____ Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (mg/Kg)	Q
8001-35-2	Toxaphene	50	U
12674-11-2	Aroclor-1016	10	U
11104-28-2	Aroclor-1221	10	U
11141-16-5	Aroclor-1232	10	U
53469-21-9	Aroclor-1242	10	U
12672-29-6	Aroclor-1248	10	U
11097-69-1	Aroclor-1254	10	U
11096-82-5	Aroclor-1260	10	U

ATTACHMENT 4
(Document from TAT to EPA)

(3)

WESTON 1090 King Georges Post Rd., Suite 201, Edison, NJ 08837 201-225-6116

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-WO-0036

TO: Dwayne Harrington

FROM: Beverly Lawson (BL)
Linda Biebl (LB)

DATE: June 11, 1991

SUBJECT: 4,000 River Road Data

ACTION:

Attached is a data summary (organic and inorganic) for the well samples taken at the 4,000 River Road Site in December 1990. The data is compared to the current MCL's and RAL's. Locations where specific contaminant levels exceed the guidelines have been highlighted.

Since the MCL is applicable to drinking water, the guideline may be stricter than necessary to assess contamination of the monitoring wells. Categories of contaminants that may be of concern are listed below.

A. Exceeding the MCL and RAL:
   Vinyl Chloride;
   Antimony;
   Beryllium.

B. Exceeding the MCL but not the RAL:
   Trichloroethene;
   Benzene;
   PCE.

C. Exceeding the RAL but not the MCL:
   Arsenic.

VOLATILES	MCL (ug/l)	Ral (ug/l)	WS001	WSOO2	WSOO3	WSOO4	WSOO5	WSOO6	WSOO7	WS008	WSOO9	WS010	WS011
1. Chloromethane	--	270											
2. Bromomethane	--	25											
3. Vinyl Chloride	2	1.8							3J	10			
4. Chloroethane	--	--											
5. Methylene Chloride	5	470								2J			
6. Acetone	--	1800	12	12J	20	13	9J	20	60	250D	20	26	
7. Carbon Disulfide	--	--		5J									
8. 1,1-Dichloroethene	7	5.8											
9. 1,1-Dichloroethane	--	1800								5			
10. trans 1,2-Dichloroethene	--	--							62	160			
11. Chloroform	100	180											
12. 1,2-Dichloroethane	5	39							4J				
13. 2-Butanone (MEK)	--	880			29					45			
14. 1,1,1-Trichloroethane	200	1600											
15. Carbon Tetrachloride	5	12											
16. Bromodichloromethane	100	27											
17. 1,2-Dichloropropane	5	52											
18. cis-1,3-Dichloropropene	--	5.3											
19. Trichloroethene	5	320							36	57			
20. Dibromochloromethane	100	42											
21. 1,1,2-Trichloroethane	5	61											
22. Benzene	5	121	42		2J	0.9J		0.7J	0.9J	1J			
23. trans-1,3-Dichloropropene		5.3											
24. Bromoform	100	350											
25. 4-Methyl-2-pentanone	--	--							20	23			
26. 2-Hexanone	--	--											
27. Tetrachloroethene (PCE)	5	69							9J	4J			
28. Toluene	2000	3500	0.8J		0.6J				59	78			
29. 1,1,2,2-Tetrachloroethane	--	18											
30. Chlorobenzene	100	350											
31. Ethyl Benzene	700	1800							3J	7			
32. Styrene	100	3500											
33. Total Xylenes (o,m,p)	10,000	35000					1J		16	22			

SEMI-[redacted]ATILES	MCL (ug/l)	RAL (ug/l)	WS001	WSOO2	WSOO3	[redacted]S004	WSOO5	WSOO6	WSOO7	WS008	WSOO9	WS010	WS011
34. Phenol	—	21000								6J			
35. bis(2-Chloroethyl) ether	—	—											
36. 2-Chlorophenol	—	180											
37. 1,3-Dichlorobenzene	600	—											
38. 1,4-Dichlorobenzene	75	150											
39. 1,2-Dichlorobenzene	600	1800											
40. 2-Methylphenol	—	—											
41. 2-2-oxybis(1-Chloropropane	—	700											
42. 4-Methylphenol	—	—											
43. N-Nitroso-di-n-dipropylamin	—	—											
44. Hexachloroethane	—	—											
45. Nitrobenzene	—	—											
46. Isophorone	—	850											
47. 2-Nitrophenol	—	—											
48. 2,4-Dimethylphenol	—	—											
49. bis(2-Chloroethoxy) methane	—	—											
50. 2,4-Dichlorophenol	—	110											
51. 1,2,4-Trichlorobenzene	9	46											
52. Naphthalene	—	140		3J	3J				2J				
53. 4-Chloroaniline	—	—											
54. Hexachlorobutadiene	—	45											
55. 4-Chloro-3-methylphenol	—	—											
56. 2-Methylnaphthalene	—	—											
57. Hexachlorocyclopentadiene	50	250											
58. 2,4,6-Trichlorophenol	—	320											
59. 2,4,5-Trichlorophenol	—	—											
60. 2-Chloronaphthalene	—	—											
61. 2-Nitroaniline	—	—											
62. Dimethylphthalate	—	—											
63. Acenapthylene	—	—											
64. 2,6-Dinitrotoluene	—	5.2											
65. 3-Nitroaniline	—	—											
66. Acenaphthene	—	—											
67. 2,4-Dinitrophenol	—	—											
68. 4-Nitrophenol	—	—											

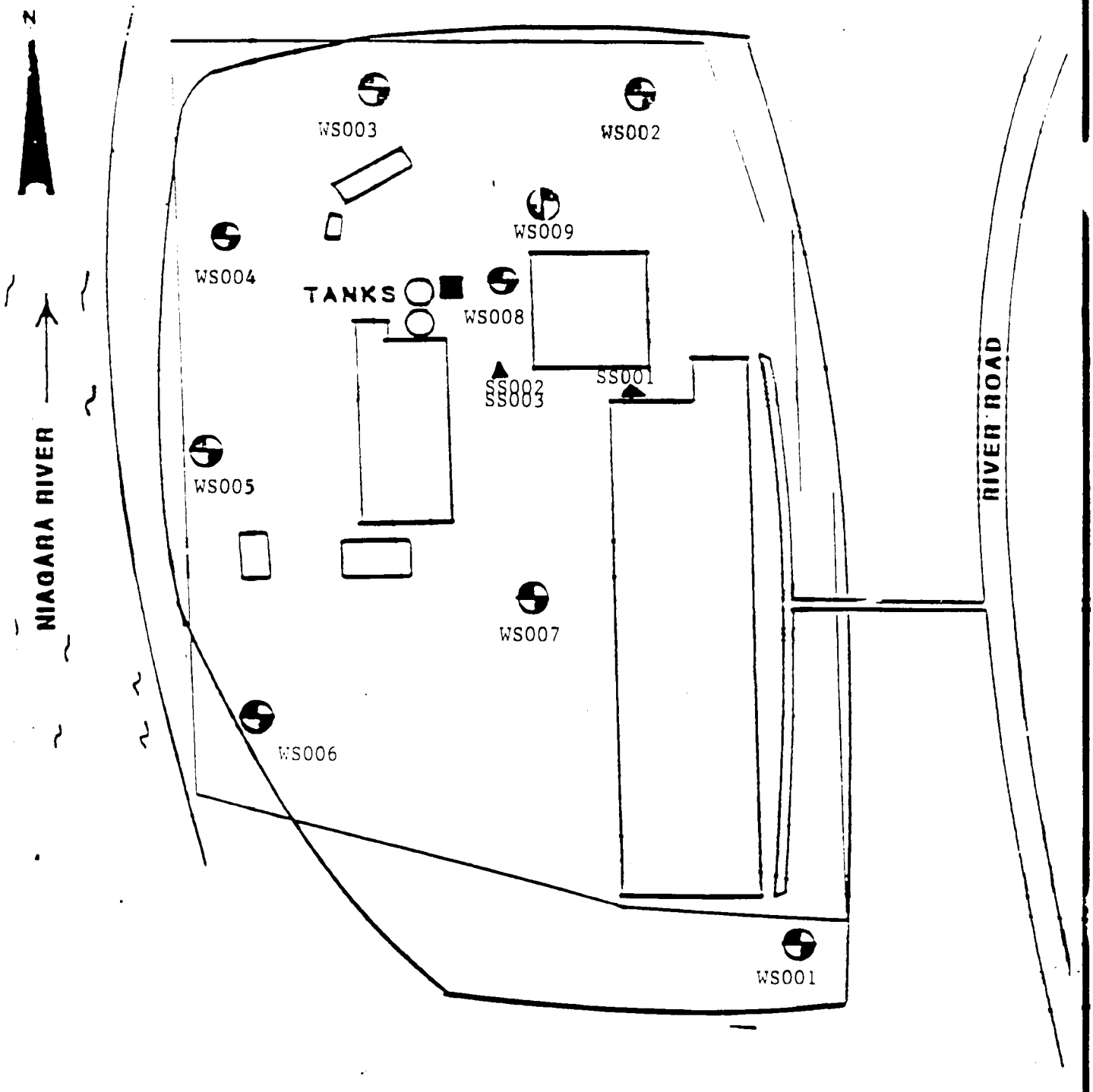
*formally known as bis(2-chloroisopropyl)ether

SEMI-VOLATILES/BNA's	MCL (ug/l)	RAL (ug/l)	WS001	WSOO2	WSOO3	WS004	WSOO5	WSOO6	WSOO7	WS008	WSOO9	WS010	WS011
69. Dibenzofuran	--	--											
70. 2,4-Dinitrotoluene	--	5.2											
71. Diethylphthalate	--	28000											
72. 4-Chlorophenyl Phenylether	--	--											
73. Fluorene	--	1400											
74. 4-Nitroaniline	--	--											
75. 4,6-Dinitro-2-methylphenol	--	--											
76. N-nitrosodiphenylamine	--												
77. 4-Bromophenyl-Phenylether	--												
78. Hexachlorobenzene	1	2.2											
79. Pentachlorophenol	200	29											
80. Phenanthrene	--	--											
81. Anthracene	--	11000											
82. Carbazole	--	--											
83. Di-n-butylphthalate	--	3500											
84. Fluoranthene	--	--											
85. Pyrene	--	1100											
86. Butyl Benzyl Phthalate	100	7000											
87. 3,3-Dichlorobenzidine	--	--											
88. Benzo(a)anthracene	0.1	--											
89. Chrysene	0.2	--											
90. bis(2-ethylhexyl)phthalate	--	--											
91. Di-n-octyl Phthalate	--	--											
92. Benzo(b)fluoranthene	0.2	--											
93. Benzo(k)fluoranthene	0.2	--											
94. Benzo(a)pyrene	0.2	--											
95. Indeno(1,2,3-cd)pyrene	0.4	--											
96. Dibenz(a,h)anthracene	0.3	--											
97. Benzo(g,h,i)perylene	--												

PESTICIDES/PCB	MCL (ug/l)	RAL (ug/l)	WS001	WSOO2	WSOO3	WSOO4	WSOO5	WSOO6	WSOO7	WS008	WSOO9	WS010	WS011
98. alpha-BHC	—	—											
99. beta-BHC	—	—											
100. delta-BHC	—	—											
101. gamma-BHC (Lindane)	—	2.7											
102. Heptachlor	0.4	0.78											
103. Aldrin	—	0.21											
104. Heptachlor Epoxide	**0.2**	**0.38**											
105. Endosulfan I	—	—											
106. Dieldrin	—	0.22											
107. 4,4'-DDE	—	—				0.14J							
108. Endrin	—	11											
109. Endosulfan II	—	—											
110. 4,4'-DDD	—	—				0.180J							
111. Endosulfan Sulfate	—	—											
112. 4,4'-DDT	—	—				0.180J							
113. Methoxychlor	—	880											
114. Endrin Ketone	0.2	11											
115. Endrin aldehyde	0.2	11											
116. alpha-chlordane	2	2.1											
117. gamma-chlordane	2	2.1											
118. Toxaphene	5	3.2											
119. AROCHLOR-1016	0.5	0.45											
120. AROCHLOR-1221	0.5	0.45											
121. AROCHLOR-1232	0.5	0.45											
122. AROCHLOR-1242	0.5	0.45											
123. AROCHLOR-1248	0.5	0.45											
124. AROCHLOR-1254	0.5	0.45											
125. AROCHLOR-1260	0.5	0.45											

METALS	MCL (ug/l)	RAL (ug/l)	WS001	WSOO2	WSOO3	WS004	WSOO5	WSOO6	WSOO7	WS008	WSOO9	WS010	WS011
126. Aluminum	—	—	1,990J	719J	1,020J	13,400J	799J	373J	5790J	1,280J	1,290J	131B	60.8J
127. Antimony	10	14			16.5B								
128. Arsenic *	50	2				7.7B	46.8	3.5B					
129. Asbestos	7,000,000*												
130. Barium	5,000	1,800	128B	109BJ	53.6B	403	275	24.5B	96B	96.5B	76.3B	389	
131. Beryllium	1	0.81				1.8B							
132. Boron	—	3,200											
133. Calcium	—	—	104,000	118,000	186,000	142,000	103,000	31,800	247,000	219,000	162,000	122,000	431B
134. Cadmium	10	18				4.1B							
135. Chromium III	—	35,000				77.1						4.3B	
136. Cobalt	—	—				13.9B			3.7B	2.1B			
137. Copper	1,300	1,300	66.3	5.9B	8.8B	109	7.9B	35.8	23.2B	39.4	321	26.4	7.1B
138. Cyanide	200	700	10	44	10	89		10J		23	13	38	
139. Fluoride	4,000	2,100											
140. Iron	—	—	6,100	10,200J	1,090	40,100	33,300	997	6,300	1,480	1,650	67,700	36.3BJ
141. Lead	50	—	4.6J	10.8J	6.6J	424	3.5J		17.6J	2.6BJ	6.9J	22.4J	
142. Magnesium	—	—	42,000	20,000	389B	12,600	14,500	8,770	5,960	530B	1,800B	18,600	25.8B
143. Manganese	—	3,500	531	638	25.2	1,910	437	108	256	37.5	84.9	759	
144. Mercury	2	11				0.22							
145. Molybdenum	—	140											
146. Nickel	100	700	11.4B			31.9B			16.1B	16.1B	13B		
147. Nitrate	10,000	—											
148. Nitrite	1,000	3,500											
149. Nitrate + Nitrite	10,000	—											
150. Potassium	—	—	6,290	9,210J	16,700	20,400	15,600	10,100	31,600	36,800	10,800	15,100	
151. Selenium	50	110			4BJ					2.8BJ	13.3J		
152. Silver	50	110											
153. Sodium	—	—	89,100	22,700	15,000	19,100	47,000	15,700	20,500	25,100	5,870	18,600	663B
154. Strontium	—	—											
155. Sulfate	—	—											
156. Thallium	2	2.5											
157. Vanadium	—	250	7.2B	2.4B	90.8	149	4.3B	2.4B	8.9B	11.1B	10.6B	2.4B	
158. White Phosphorus	—	0.7											
159. Zinc	—	7,000	32.8	26.1	20.7	459	22.6	17.1B	41.9	34.3	61.8	43.7	6.1B

* fibers/liter



WESTON Roy F. Weston, Inc. MAJOR PROGRAMS DIVISION	EPA PM D. Harrington	Envirotek II, 4000 River Rd, Tonawanda
In Association with ICF Technology Inc., C.C. Johnson & Malhotra, P.C., Resource Applications, Inc. and R.E. Sarriera Associates	TAT PM B. Lawson	Sampling Locations December 4-5, 1990

ATTACHMENT 5
(Document from TAT to EPA)

WESTON® 1090 King Georges Post Road
MANAGERS ENGINEERS CONSULTANTS Suite 201, Edison, NJ 08837 1-201-225-6116

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-WO-0036

TO: Dwayne Harrington

FROM: Beverly Lawson
Michael Mentzel, QC MM

DATE: March 6, 1991

SUBJECT: 4,000 River Road Trench Sample

ACTION:

Enclosed are the analytical results from the private laboratory procured for the trench sample taken at 4,000 River Road on January 30, 1991.

Volatile organics were not detected, with the exception of methylene chloride which was found at 0.019 ppm. The results however, indicate contamination of the field blank so that the importance of the result is negated. The volatile organics contamination are minimal compared to NJDEP ECRA guidelines.

The BNA contamination is in excess of the 10 ppm ECRA guidelines, with phenol and naphthalene compounds which may be indicative of coal tar products.

The PCB results revealed a 0.6 reading of Aroclor 1254. Again, this level is under the ECRA guidelines.

The metal analysis does not reveal any gross contamination, however the following compounds are above the ECRA guidelines:

Cadmium
Lead
Zinc

ACCREDITED LABORATORIES
VOLATILE ORGANIC ANALYSIS DATA

CASE NUMBER	6692	MATRIX	Sludge
SAMPLE NUMBER	P100842	DILUTION FACTOR	1.00
DATA FILE	>D4034	ANALYZED BY	PAUL
CLIENT NAME	RFWI 01	DATE ANALYZED	02/13/91

Cas #	Compound	UG/KG	MDL
67641	Acetone	8(B)	13
107028	Acrolein	U	66
107131	Acrylonitrile	U	7
71432	Benzene	U	7
75274	Bromodichloromethane	U	7
75252	Bromoform	U	7
74839	Bromomethane	U	13
78933	2-Butanone	U	13
75150	Carbon Disulfide	U	7
56235	Carbon Tetrachloride	U	7
108907	Chlorobenzene	U	7
75003	Chloroethane	U	13
67663	Chloroform	U	7
110758	2-Chloroethylvinylether	U	13
74873	Chloromethane	U	13
75354	1,1-Dichloroethene	U	7
75343	1,1-Dichloroethane	U	7
156592	cis-1,2-Dichloroethene	U	7
156605	trans-1,2-Dichloroethene	U	7
107062	1,2-Dichloroethane	U	7

Cas #	Compound	UG/KG	MDL
78875	1,2-Dichloropropane	U	7
10061015	cis-1,3-Dichloropropene	U	7
10061026	trans-1,3-Dichloropropene	U	7
124481	Dibromochloromethane	U	7
100414	Ethylbenzene	2(J)	7
591786	2-Hexanone	U	13
75092	Methylene Chloride	19(B)	7
108101	4-Methyl-2-pentanone	U	13
100425	Styrene	U	7
127184	Tetrachloroethene	U	7
79345	1,1,2,2-Tetrachloroethane	U	7
108883	Toluene	U	7
71556	1,1,1-Trichloroethane	U	7
79016	1,1,2-Trichloroethane	U	7
79016	Trichloroethene	U	7
75694	Trichlorofluoromethane	U	13
1330207	m,p-Xylene	9	7
1330207	o-Xylene	7	7
108054	Vinyl Acetate	U	13
75014	Vinyl Chloride	U	13

SURROGATE COMPOUNDS	RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	99.2 %	70 - 121	OK
Toluene-d8	107.4 %	81 - 117	OK
Bromofluorobenzene	90.2 %	74 - 121	OK

(J) Indicates detected below MDL
(U) Indicates compound analysed for but not detected
(B) Indicates analyte found in both the blank and sample
(D) Indicates a secondary dilution

Percent Solid of 76.1 is used for all Target compounds.

ACCREDITED LABORATORIES, INC
BNA ORGANIC ANALYSIS DATA

CASE NUMBER	6692	MATRIX	Soil
SAMPLE NUMBER	9100842(S)BNA	DILUTION FACTOR	1.00
DATA FILE	>B6172	DATE EXTRACTED	02/01/91
CLIENT NAME	WESTON,ROY F.,INC 01	DATE ANALYZED	02/06/91
FIELD ID		ANALYZED BY	STEVE

Cas #	Compound	UG/KG	MDL	Cas #	Compound	UG/KG	MDL
108952	Phenol	716	434	24171	2,4,6-Trichlorophenol	U	434
95578	2-Chlorophenol	U	434	95954	2,4,5-Trichlorophenol	U	2168
95687	2-Methylphenol	645	434	4232273	2,4-Dinitrophenol	U	2168
108394	3-Methylphenol	668	434	100027	4-Nitrophenol	U	2168
106445	4-Methylphenol	667	434	534521	4,6-Dinitro-2-methylphenol	U	2168
88755	2-Nitrophenol	U	434	87865	Pentachlorophenol	U	2168
105679	2,4-Dimethylphenol	1640	434	121142	2,4-Dinitrotoluene	U	434
120832	2,4-Dichlorophenol	U	434	84662	Diethylphthalate	U	434
111444	bis(-2-Chloroethyl)Ether	U	434	7005723	4-Chlorophenyl-phenylether	U	434
541731	1,3-Dichlorobenzene	U	434	86737	Fluorene	1055	434
106467	1,4-Dichlorobenzene	U	434	100016	4-Nitroaniline	U	2168
100516	Benzyl Alcohol	U	434	58902	2,3,4,6-Tetrachlorophenol	U	434
95501	1,2-Dichlorobenzene	U	434	156105	N-Nitrosodiphenylamine	723	434
108601	bis(2-Chloroisopropyl)ether	U	434	36563470	4-Bromophenyl-phenylether	U	434
621647	N-Nitroso-Di-n-propylamine	U	434	118741	Hexachlorobenzene	U	434
67721	Hexachloroethane	U	434	85018	Phenanthrene	2675	434
98953	Nitrobenzene	U	434	120127	Anthracene	682	434
78591	Isophorone	U	434	84742	Di-n-Butylphthalate	U	434
65850	Benzoic Acid	U	2168	206440	Fluoranthene	2036	434
111911	bis(-2-Chloroethoxy)Methane	U	434	129000	Pyrene	1745	434
120821	1,2,4-Trichlorobenzene	U	434	85687	Butylbenzylphthalate	U	434
91203	Naphthalene	1055	434	91941	3,3'-Dichlorobenzidine	U	867
106478	4-Chloroaniline	U	434	56553	Benzo(a)Anthracene	526	434
87683	Hexachlorobutadiene	U	434	117817	Bis(2-Ethylhexyl)Phthalate	2580	434
91576	2-Methylnaphthalene	629	434	218019	Chrysene	510	434
77474	Hexachlorocyclopentadiene	U	434	117840	Di-n-octyl phthalate	U	434
91587	2-Chloronaphthalene	U	434	205992	Benzo(b)fluoranthene	U	434
88744	2-Nitroaniline	U	2168	207089	Benzo(k)Fluoranthene	U	434
131113	Dimethyl Phthalate	U	434	50328	Benzo(a)Pyrene	U	434
208968	Acenaphthylene	U	434	193395	Indeno(1,2,3-cd)Pyrene	U	434
99092	3-Nitroaniline	U	2168	53703	Dibenzo(a,h)Anthracene	U	434
83329	Acenaphthene	661	434	191242	Benzo(g,h,i)Perylene	U	434
132649	Dibenzofuran	580	434	62759	N-Nitrosodimethylamine	U	434
606202	2,6-Dinitrotoluene	U	434	92875	Benzidine	U	434
59507	4-Chloro-3-methylphenol	U	434	110861	Pyridine	U	434

SURROGATE COMPOUNDS	RECOVERY	LIMITS	STATUS
2-Fluorophenol	56.2 %	25 - 121	OK
Phenol-d5	68.0 %	24 - 113	OK
Nitrobenzene-d5	67.6 %	23 - 120	OK
2-Fluorobiphenyl	124.6 %	30 - 115	OUT
2,4,6-Tribromophenol	60.1 %	19 - 122	OK
Terphenyl-d14	112.2 %	18 - 137	OK

Percent Solid of 76.1 is used for all Target compounds.

(J) Indicates detected below MDL
(U) Indicates compound analysed for but not detected
(B) Indicates analyte found in both the blank and sample

ACCREDITED LABORATORIES, INC.

PESTICIDES & PCBS

CLIENT: Weston, Roy F., Inc.
CASE #: 806692
SAMPLE: 9100842
FIELD #: 01

MATRIX: SOIL
ANALYST: MT
DATE EXTRACTED: 02/04/91
DATE ANALYZED: 02/06/91

COMPOUND	RESULT * (ug/Kg)	DETECTION * LIMIT (ug/Kg)
alpha-BHC	ND	2.19
beta-BHC	ND	2.19
delta-BHC	ND	2.19
gamma-BHC (Lindane)	ND	2.19
Heptachlor	ND	2.19
Aldrin	ND	2.19
Heptachlor Epoxide	ND	2.19
Endosulfan I	ND	2.19
Dieldrin	ND	4.38
4,4' - DDE	ND	4.38
Endrin	ND	4.38
Endosulfan II	ND	4.38
4,4' - DDD	ND	4.38
Endosulfan Sulfate	ND	4.38
4,4' - DDT	ND	4.38
Endrin Aldehyde	ND	4.38
Endrin Ketone	ND	4.38
Methoxychlor	ND	21.9
Chlordane	ND	21.9
Toxaphene	ND	43.8
Aroclor-1016	ND	43.8
Aroclor-1221	ND	43.8
Aroclor-1232	ND	43.8
Aroclor-1242	ND	43.8
Aroclor-1248	ND	43.8
Aroclor-1254	643 ppb	43.8
Aroclor-1260	ND	43.8

ND = Not Detected
* = Based on dry weight
% Solids = 76.1%

Accredited Laboratories, Inc.
Foot of Pershing Avenue, P.O. Box 369
Carteret, New Jersey 07008-0369
Telephone: (908) 541-2025

AMAX

February 15, 1991

Sample No.: 9100842
Field ID: 01
Date Sampled: 2/1/91
Description: Soil
Client: Roy F. Weston, Inc.

Parameters	Results	MDL	Units
Metals Screen			
Date of Analysis: 2/11,12,14			
Aluminum	3882	6.6	mg/kg
Antimony	ND	6.6	mg/kg
Arsenic	5.78	0.53	mg/kg
Barium	35.3	6.6	mg/kg
Beryllium	ND	1.3	mg/kg
Cadmium	3.4	1.3	mg/kg
Calcium	14431	6.6	mg/kg
Chromium	30.5	6.6	mg/kg
Cobalt	ND	6.6	mg/kg
Copper	29.2	6.6	mg/kg
Iron	17380	6.6	mg/kg
Lead	379	6.6	mg/kg
Magnesium	974	6.6	mg/kg
Manganese	858	6.6	mg/kg
Mercury	ND	0.13	mg/kg
Nickel	11.6	6.6	mg/kg
Potassium	508	6.6	mg/kg
Selenium	ND	0.53	mg/kg
Silver	ND	3.9	mg/kg
Sodium	121	6.6	mg/kg
Thallium	ND	6.6	mg/kg
Vanadium	ND	6.6	mg/kg
Zinc	445	3.9	mg/kg

(2)

WESTON Suite 201, 1090 King Georges Post Road,
Edison, NJ 08837, • (201) 225-6116 • FAX (201) 225-7037

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-7367

TO: Dwayne Harrington

FROM: Beverly Lawson
Michael Mentzel, QC MM

DATE: March 6, 1991

SUBJECT: 4,000 River Road Trench Sample

ACTION:

Enclosed are the analytical results from the private laboratory procured for the trench sample taken at 4,000 River Road on January 30, 1991.

Volatile organics were not detected, with the exception of methylene chloride which was found at 0.019 ppm. The results however, indicate contamination of the field blank so that the importance of the result is negated. The volatile organics contamination are minimal compared to NJDEP ECRA guidelines.

The BNA contamination is in excess of the 10 ppm ECRA guidelines, with phenol and napthalene compounds which may be indicative of coal tar products.

The PCB results revealed a 0.6 reading of Aroclor 1254. Again, this level is under the ECRA guidelines.

The metal analysis does not reveal any gross contamination, however the following compounds are above the ECRA guidlines:

Cadmium
Lead
Zinc

If you have any further question, please call.

Accredited Laboratories, Inc.

Foot of Pershing Avenue, P.O. Box 369
Carteret, New Jersey 07008-0369
Telephone: (908) 541-2025

AMAX

ANALYTICAL DATA REPORT

for

Roy F. Weston, Inc.
1090 King George Post Road
Edison, NJ 08837

ACCREDITED LABORATORIES CASE No.: C-806692
DATE RECEIVED: 2/1/91

Client Description	Field ID	Laboratory Sample #
Soil	01	9100842

Accredited Laboratories, Inc. New Jersey Certification Number 12486. This data has been reviewed and accepted by:

Yun-shen Lee, Ph.D. 2/15/91
Technical Director

YSL:JP

ACCREDITED LABORATORIES
VOLATILE ORGANIC ANALYSIS DATA

CASE NUMBER	6692	MATRIX	Sludge
SAMPLE NUMBER	9100842	DILUTION FACTOR	1.00
DATA FILE	>D4034	ANALYZED BY	PAUL
CLIENT NAME	RFWI 01	DATE ANALYZED	02/13/91

Cas #	Compound	UG/KG	MDL
67641	Acetone	8(B)	13
107028	Acrolein	U	66
107131	Acrylonitrile	U	7
71432	Benzene	U	7
75274	Bromodichloromethane	U	7
75252	Bromoform	U	7
74839	Bromomethane	U	13
78933	2-Butanone	U	13
75150	Carbon Disulfide	U	7
56235	Carbon Tetrachloride	U	7
108907	Chlorobenzene	U	7
75003	Chloroethane	U	13
67663	Chloroform	U	7
110758	2-Chloroethylvinylether	U	13
74873	Chloromethane	U	13
75354	1,1-Dichloroethene	U	7
75353	1,1-Dichloroethane	U	7
156592	cis-1,2-Dichloroethene	U	7
156605	trans-1,2-Dichloroethene	U	7
107062	1,2-Dichloroethane	U	7

Cas #	Compound	UG/KG	MDL
78875	1,2-Dichloropropane	U	7
10061015	cis-1,3-Dichloropropene	U	7
10061026	trans-1,3-Dichloropropene	U	7
124481	Dibromochloromethane	U	7
100414	Ethylbenzene	2(J)	7
591786	2-Hexanone	U	13
75092	Methylene Chloride	19(B)	7
108101	4-Methyl-2-pentanone	U	13
100425	Styrene	U	7
127184	Tetrachloroethene	U	7
79345	1,1,2,2-Tetrachloroethane	U	7
108883	Toluene	U	7
71556	1,1,1-Trichloroethane	U	7
79016	1,1,2-Trichloroethane	U	7
79016	Trichloroethene	U	7
75694	Trichlorofluoromethane	U	13
1330207	m,p-Xylene	9	7
1330207	o-Xylene	7	7
108054	Vinyl Acetate	U	13
75014	Vinyl Chloride	U	13

SURROGATE COMPOUNDS	RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	99.2 %	70 - 121	OK
Toluene-d8	107.4 %	81 - 117	OK
Bromofluorobenzene	90.2 %	74 - 121	OK

(J) Indicates detected below MDL
(U) Indicates compound analysed for but not detected
(B) Indicates analyte found in both the blank and sample
(D) Indicates a secondary dilution

Percent Solid of 76.1 is used for all Target compounds.

ACCREDITED LABORATORIES, INC
BNA ORGANIC ANALYSIS DATA

CASE NUMBER	6692	MATRIX	Soil
SAMPLE NUMBER	9100842(S)BNA	DILUTION FACTOR	1.00
DATA FILE	>B6172	DATE EXTRACTED	02/01/91
CLIENT NAME	WESTON,ROY F.,INC 01	DATE ANALYZED	02/06/91
FIELD ID		ANALYZED BY	STEVE

Cas #	Compound	UG/KG	MDL	Cas #	Compound	UG/KG	MDL
108952	Phenol	716	434	24171	2,4,6-Trichlorophenol	U	434
95578	2-Chlorophenol	U	434	95954	2,4,5-Trichlorophenol	U	2168
95687	2-Methylphenol	645	434	4232273	2,4-Dinitrophenol	U	2168
108394	3-Methylphenol	668	434	100027	4-Nitrophenol	U	2168
106445	4-Methylphenol	667	434	534521	4,6-Dinitro-2-methylphenol	U	2168
88755	2-Nitrophenol	U	434	87865	Pentachlorophenol	U	2168
105679	2,4-Dimethylphenol	1640	434	121142	2,4-Dinitrotoluene	U	434
120832	2,4-Dichlorophenol	U	434	84662	Diethylphthalate	U	434
111444	bis(-2-Chloroethyl)Ether	U	434	7005723	4-Chlorophenyl-phenylether	U	434
541731	1,3-Dichlorobenzene	U	434	86737	Fluorene	1055	434
106467	1,4-Dichlorobenzene	U	434	100016	4-Nitroaniline	U	2168
100516	Benzyl Alcohol	U	434	58902	2,3,4,6-Tetrachlorophenol	U	434
95501	1,2-Dichlorobenzene	U	434	156105	N-Nitrosodiphenylamine	723	434
108601	bis(2-Chloroisopropyl)ether	U	434	36563470	4-Bromophenyl-phenylether	U	434
621647	N-Nitroso-Di-n-propylamine	U	434	118741	Hexachlorobenzene	U	434
67721	Hexachloroethane	U	434	85018	Phenanthrene	2675	434
98953	Nitrobenzene	U	434	120127	Anthracene	682	434
78591	Isophorone	U	434	84742	Di-n-Butylphthalate	U	434
65850	Benzoic Acid	U	2168	206440	Fluoranthene	2036	434
111911	bis(-2-Chloroethoxy)Methane	U	434	129000	Pyrene	1745	434
120821	1,2,4-Trichlorobenzene	U	434	85687	Butylbenzylphthalate	U	434
91203	Naphthalene	1055	434	91941	3,3'-Dichlorobenzidine	U	867
106478	4-Chloroaniline	U	434	56553	Benzo(a)Anthracene	526	434
87683	Hexachlorobutadiene	U	434	117817	Bis(2-Ethylhexyl)Phthalate	2500	434
91576	2-Methylnaphthalene	629	434	218019	Chrysene	510	434
77474	Hexachlorocyclopentadiene	U	434	117840	Di-n-octyl phthalate	U	434
91587	2-Chloronaphthalene	U	434	205992	Benzo(b)fluoranthene	U	434
88744	2-Nitroaniline	U	2168	207089	Benzo(k)Fluoranthene	U	434
131113	Dimethyl Phthalate	U	434	50328	Benzo(a)Pyrene	U	434
208968	Acenaphthylene	U	434	193395	Indeno(1,2,3-cd)Pyrene	U	434
99092	3-Nitroaniline	U	2168	53703	Dibenzo(a,h)Anthracene	U	434
83329	Acenaphthene	661	434	191242	Benzo(g,h,i)Perylene	U	434
132649	Dibenzofuran	580	434	62759	N-Nitrosodimethylamine	U	434
606202	2,6-Dinitrotoluene	U	434	92875	Benzidine	U	434
59507	4-Chloro-3-methylphenol	U	434	110861	Pyridine	U	434

SURROGATE COMPOUNDS	RECOVERY	LIMITS	STATUS
2-Fluorophenol	56.2 %	25 - 121	OK
Phenol-d5	68.0 %	24 - 113	OK
Nitrobenzene-d5	67.6 %	23 - 120	OK
2-Fluorobiphenyl	124.6 %	30 - 115	OUT
2,4,6-Tribromophenol	60.1 %	19 - 122	OK
Terphenyl-d14	112.2 %	18 - 137	OK

Percent Solid of 76.1 is used for all Target compounds.

(J) Indicates detected below MDL
(U) Indicates compound analysed for but not detected
(B) Indicates analyte found in both the blank and sample
(D) Indicates a secondary dilution

ACCREDITED LABORATORIES, INC.

PESTICIDES & PCBS

CLIENT: Weston, Roy F., Inc.
CASE #: 806692
SAMPLE: 9100842
FIELD #: 01

MATRIX: SOIL
ANALYST: MT
DATE EXTRACTED: 02/04/91
DATE ANALYZED: 02/06/91

COMPOUND	RESULT * (ug/Kg)	DETECTION * LIMIT (ug/Kg)
alpha-BHC	ND	2.19
beta-BHC	ND	2.19
delta-BHC	ND	2.19
gamma-BHC (Lindane)	ND	2.19
Heptachlor	ND	2.19
Aldrin	ND	2.19
Heptachlor Epoxide	ND	2.19
Endosulfan I	ND	2.19
Dieldrin	ND	2.19
4,4' - DDE	ND	4.38
Endrin	ND	4.38
Endosulfan II	ND	4.38
4,4' - DDD	ND	4.38
Endosulfan Sulfate	ND	4.38
4,4' - DDT	ND	4.38
Endrin Aldehyde	ND	4.38
Endrin Ketone	ND	4.38
Methoxychlor	ND	4.38
Chlordane	ND	21.9
Toxaphene	ND	21.9
Aroclor-1016	ND	43.8
Aroclor-1221	ND	43.8
Aroclor-1232	ND	43.8
Aroclor-1242	ND	43.8
Aroclor-1248	ND	43.8
Aroclor-1254	643	43.8
Aroclor-1260	ND	43.8

ND = Not Detected
* = Based on dry weight
% Solids = 76.1%

Accredited Laboratories, Inc.

Foot of Pershing Avenue, P.O. Box 369
Carteret, New Jersey 07008-0369
Telephone: (908) 541-2025

AMAX

February 15, 1991

Sample No.: 9100842
Field ID: 01
Date Sampled: 2/1/91
Description: Soil
Client: Roy F. Weston, Inc.

Parameters	Results	MDL	Units
Metals Screen			
Date of Analysis: 2/11,12,14			
Aluminum	3882	6.6	mg/kg
Antimony	ND	6.6	mg/kg
Arsenic	5.78	0.53	mg/kg
Barium	35.3	6.6	mg/kg
Beryllium	ND	1.3	mg/kg
Cadmium	3.4	1.3	mg/kg
Calcium	14431	6.6	mg/kg
Chromium	30.5	6.6	mg/kg
Cobalt	ND	6.6	mg/kg
Copper	29.2	6.6	mg/kg
Iron	17380	6.6	mg/kg
Lead	379	6.6	mg/kg
Magnesium	974	6.6	mg/kg
Manganese	858	6.6	mg/kg
Mercury	ND	0.13	mg/kg
Nickel	11.6	6.6	mg/kg
Potassium	508	6.6	mg/kg
Selenium	ND	0.53	mg/kg
Silver	ND	3.9	mg/kg
Sodium	121	6.6	mg/kg
Thallium	ND	6.6	mg/kg
Vanadium	ND	6.6	mg/kg
Zinc	445	3.9	mg/kg

Initial Calibration Data
HSL Compounds

Case No: _____ Instrument ID: MSD #4

Contractor: Accredited Labs Calibration Date: 01/18/91

Contract No:

Minimum $\overline{RF}$ for SPCC is .3 Maximum % RSD for CCC is 25.0%

Laboratory ID:	>D3630	>D3631	>D3632	>D3633	>D3634					
Compound	RF 10.00	RF 20.00	RF 50.00	RF 100.00	RF 200.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
Acrolein	.05452	.04819	.04455	.04046	.04228	.549	.04600	12.108		
Acrylonitrile	.21510	.22558	.21967	.20100	.24126	.721	.22052	6.676		
Chloromethane	.91756	.74815	.64834	.54278	.62371	.330	.69611	20.666		**
Bromomethane	.88009	.84760	.73505	.51822	.38198	.412	.67259	32.050		
Vinyl Chloride	.72228	.71375	.61493	.49960	.55005	.344	.62012	15.855	*	
Chloroethane	.19015	.20656	.23128	.19962	.22586	.429	.21069	8.275		
Methylene Chloride	1.77871	1.80189	1.39886	1.01103	1.73124	.686	1.54435	22.001		
Acetone	.29752	.25665	.25615	.17222	.21660	570	.23983	19.764		
Carbon Disulfide	2.54652	2.60773	2.22510	1.99239	2.30588	.686	2.33553	10.692		
Trichlorofluoromethane	1.63294	1.76853	1.60712	1.28496	1.03115	.465	1.46494	20.512		
1,1-Dichloroethene	1.75025	1.90191	1.71119	1.48051	1.74077	.582	1.71692	8.825	*	
1,1-Dichloroethane	2.31744	2.31883	2.11887	1.85119	2.17203	.832	2.15567	8.897		**
T-butyl alcohol	.06279	.07245	.07707	.07301	.08906	.626	.07486	12.695		
trans-1,2-Dichloroethene	1.45985	1.36652	1.39999	1.24122	1.43566	.748	1.38065	6.200		
Chloroform	2.60135	2.56817	2.26891	2.02477	2.32945	.973	2.35853	10.015	*	
1,2-Dichloroethane-d4	1.47502	1.58762	1.42870	1.27853	1.45856	1.053	1.44568	7.687		
1,2-Dichloroethane	1.16694	1.27426	1.11945	1.03071	1.17144	1.108	1.15256	7.677		
2-Butanone	.16090	.17545	.21135	.13360	.14970	.799	.16620	17.765		
Methyl t-butyl ether	.52455	.41136	.42352	.32510	.34895	.635	.40669	19.120		
1,1,1-Trichloroethane	.52191	.52594	.51120	.40142	.44636	.900	.48137	11.443		
Carbon Tetrachloride	.60767	.61984	.61255	.49259	.55316	.956	.57716	9.383		
Vinyl Acetate	.85306	.88239	.44828	.70940	.87445	.728	.75352	24.494		
Bromodichloromethane	.68355	.74255	.72985	.59700	.67307	1.100	.68520	8.387		
1,2-Dichloropropane	.48125	.48557	.48245	.41775	.47669	1.068	.46874	6.119	*	
cis-1,3-Dichloropropene	.63039	.66151	.63519	.54459	.65725	1.171	.62578	7.567		
Trichloroethene	.48000	.48102	.51244	.39491	.44965	1.044	.46356	9.573		
Benzene	.93452	.91162	.86255	.70974	.81760	.982	.84721	10.522		
Dibromochloromethane	.68412	.73129	.71348	.59751	.69295	1.323	.68387	7.551		
1,1,2-Trichloroethane	.36001	.38161	.36109	.30389	.34809	1.255	.35094	8.244		
trans-1,3-Dichloropropene	.28210	.29741	.27948	.25381	.30295	1.275	.28315	6.773		

RF - Response Factor (Subscript is amount in ug/l)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
HSL Compounds

Case No: Instrument ID: MSD #4

Contractor: Accredited Labs Calibration Date: 01/18/91

Contract No:

Minimum $\overline{RF}$ for SPCC is .3 Maximum % RSD for CCC is 25.0%

Laboratory ID:	>03630	>03631	>03632	>03633	>03634					
Compound	RF 10.00	RF 20.00	RF 50.00	RF 100.00	RF 200.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
2-Chloroethylvinylether	.16220	.18034	.16420	.15801	.18489	1.141	.16993	7.005		
Bromoform	.51375	.57700	.58313	.47641	.55842	1.523	.54175	8.401		**
2-Hexanone	.66887	.72414	.63683	.53581	.60773	.820	.63467	11.052		
4-Methyl-2-pentanone	.33144	.32761	.38054	.24294	.25437	.900	.30738	18.761		
Tetrachloroethene	.67861	.76147	.65372	.55646	.63833	.926	.65772	11.236		
1,1,2,2-Tetrachloroethane	.85968	.91714	.82085	.62859	.74614	1.102	.79448	14.051		**
Toluene-d8	1.44032	1.54957	1.32254	1.15453	1.36911	.861	1.36721	10.714		
Toluene	1.05543	1.14215	1.00108	.84853	1.00938	.849	1.01132	10.566	*	
Chlorobenzene	.99177	1.02204	.89540	.81175	.94574	1.005	.93334	8.909		**
Bromofluorobenzene	1.16799	1.26288	1.04084	.87821	1.06391	1.111	1.08277	13.356		
Ethylbenzene	1.31865	1.38094	1.24174	1.08273	1.24532	1.008	1.25388	8.903	*	
Styrene	.81281	.93985	.84236	.75089	.83926	1.058	.83707	8.150		
m,p-Xylene	1.25730	1.29852	1.23854	1.00122	1.14109	1.015	1.18734	10.024		
o-Xylene	1.27633	1.39737	1.40503	1.03520	1.15621	1.055	1.25403	12.690		
cis-1,2-Dichloroethene	.88674	.80935	.83778	.65439	.73272	.585	.78420	11.673		

(Conc=20.0,40.0,100.0,200

RF - Response Factor (Subscript is amount in ug/l)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 02/12/91

Contractor: Accredited Labs Time: 12:38

Contract No: Laboratory ID: 204014

Instrument ID: MSD #4 Initial Calibration Date: 01/18/91

Minimum $\overline{RF}$ for SPCC is .3 Maximum % Diff for CCC is 25.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
Acrolein	.04600	.04578	.47			(Conc=100.00)
Acrylonitrile	.22052	.20539	6.86			(Conc=100.00)
Chloromethane	.69611	.58532	15.91		**	
Bromomethane	.67259	.86188	28.14			
Vinyl Chloride	.62012	.69338	11.81	*		
Chloroethane	.21069	.24940	18.37			
Methylene Chloride	1.54435	1.35657	12.16			
Acetone	.23983	.30125	25.61			
Carbon Disulfide	2.33553	1.92718	17.48			
Trichlorofluoromethane	1.46494	1.47089	.41			
1,1-Dichloroethene	1.71692	1.75564	2.26	*		
1,1-Dichloroethane	2.15567	2.14742	.38		**	
T-butyl alcohol	.07488	.07979	6.57			
trans-1,2-Dichloroethene	1.38065	1.62776	17.90			
Chloroform	2.35853	2.35728	.05	*		
1,2-Dichloroethane-d4	1.44568	1.21963	15.64			
1,2-Dichloroethane	1.15256	1.51104	31.10			
2-Butanone	.16620	.20246	21.82			
Methyl t-butyl ether	.40669	.42465	4.41			
1,1,1-Trichloroethane	.48137	.57982	20.45			
Carbon Tetrachloride	.57716	.61701	6.90			
Vinyl Acetate	.75352	.78658	4.39			
Bromodichloromethane	.68520	.85498	24.78			
1,2-Dichloropropane	.46874	.45599	2.72	*		
cis-1,3-Dichloropropene	.62578	.76763	22.67			
Trichloroethene	.46356	.49022	5.75			
Benzene	.84721	.91131	7.57			
Dibromochloromethane	.68387	.74980	9.64			
1,1,2-Trichloroethane	.35094	.35718	1.78			
trans-1,3-Dichloropropene	.28315	.34307	21.16			
2-Chloroethylvinylether	.16993	.17644	3.84			
Bromoform	.54179	.59311	9.48		**	

RF - Response Factor from daily standard file at 50.00 ug/l

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 02/12/91

Contractor: Accredited Labs Time: 12:38

Contract No: Laboratory ID: >04014

Instrument ID: MSD #4 Initial Calibration Date: 01/18/91

Minimum $\overline{RF}$ for SPCC is .3 Maximum % Diff for CCC is 25.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
2-Hexanone	.63467	.65396	3.04			
4-Methyl-2-pentanone	.30738	.31708	3.16			
Tetrachloroethene	.65772	.71215	8.28			
1,1,2,2-Tetrachloroethane	.79448	.84906	6.87		**	
Toluene-d8	1.36721	1.14662	16.13			
Toluene	1.01132	1.21873	20.51	*		
Chlorobenzene	.93334	.99752	6.88		**	
Bromofluorobenzene	1.08277	.82805	23.52			
Ethylbenzene	1.25388	1.48848	18.71	*		
Styrene	.83703	.80125	4.28			
m,p-Xylene	1.18734	1.14082	3.92			(Conc=100.00)
o-Xylene	1.25403	1.23746	1.32			
cis-1,2-Dichloroethene	.78420	.76805	2.06			

RF - Response Factor from daily standard file at 50.00 ug/l

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
HSL Compounds

Case No: _____ Instrument ID: MSD # 2 _____

Contractor: Accredited Labs _____ Calibration Date: 12/14/90 _____

Contract No: _____

Minimum $\overline{RF}$ for SPCC is 0.050 Maximum % RSD for CCC is 30.0%

Laboratory ID:	>B5915	>B5947	>B5949	>B5950	>B5951					
Compound	RF 20.00	RF 50.00	RF 80.00	RF 120.00	RF 160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
2-Nitropropane	2.77122	3.16728	2.60986	3.11347	2.78264	.314	2.88890	8.317		
Pyridine	2.76078	3.00314	2.34744	2.58224	2.68885	.392	2.67649	8.981		
N-Nitrosodimethylamine	1.15315	1.27268	1.43173	1.19557	1.38153	.398	1.28693	9.224		
2-Fluorophenol	1.29645	1.38730	1.33969	1.26586	1.28174	.724	1.31421	3.747		
Aniline	1.60331	2.20507	1.89947	1.86668	1.95632	.937	1.90617	11.288		
Phenol-d5	1.78557	1.81830	1.88215	1.76960	1.66750	.948	1.78462	4.393		
Phenol	2.17078	2.24158	2.22748	2.20572	1.94294	.952	2.15770	5.700	*	
bis(-2-Chloroethyl)Ether	1.64137	1.68880	1.70552	1.55749	1.47777	.956	1.61419	5.916		
2-Chlorophenol	1.59531	1.47530	1.54433	1.46395	1.37818	.962	1.49142	5.552		
1,3-Dichlorobenzene	1.54485	1.37391	1.37620	1.27865	1.29103	.991	1.37293	7.740		
1,4-Dichlorobenzene	1.54485	1.36718	1.35246	1.33808	1.22641	1.002	1.36580	8.383	*	
Benzyl Alcohol	.81832	.77696	.87751	.86933	.80678	1.050	.82978	5.146		
1,2-Dichlorobenzene	1.48513	1.17303	1.19526	1.24075	1.20839	1.038	1.26051	10.149		
2-Methylphenol	1.28478	1.26301	1.26451	1.14619	1.10564	1.085	1.21283	6.685		
bis(2-Chloroisopropyl)ether	2.68979	1.97491	2.28138	2.12299	2.11066	1.083	2.23595	12.342		
3-Methylphenol	4.05673	3.33418	3.71240	3.21759	3.05389	1.126	3.47496	11.673		
4-Methylphenol	4.05464	3.33510	3.71760	3.22051	3.05506	1.126	3.47658	11.644		
N-Nitroso-Di-n-propylamine	1.09320	1.05850	1.27139	1.19606	1.20868	1.127	1.16557	7.515		**
Hexachloroethane	.42063	.40645	.39160	.34329	.36724	1.118	.38584	8.015		
Nitrobenzene-d5	.48259	.48891	.47709	.48229	.47806	.874	.48179	.971		
Nitrobenzene	.49915	.47422	.48919	.45270	.49885	.877	.48282	4.071		
Isophorone	.95153	.99102	.97440	.97329	.93154	.923	.96435	2.395		
2-Nitrophenol	.24289	.24370	.24176	.23177	.24414	.936	.24085	2.141	*	
2,4-Dimethylphenol	.27175	.31363	.30958	.30097	.30262	.954	.29971	5.490		
Benzoic Acid	.13254	.11162	.17220	.17933	.15851	.993	.15084	18.751		
bis(-2-Chloroethoxy)Methane	.53996	.52269	.51061	.54167	.53867	.969	.53072	2.558		
2,4-Dichlorophenol	.29664	.29901	.28246	.28403	.27198	.982	.28682	3.866	*	
1,2,4-Trichlorobenzene	.31938	.29466	.27827	.27875	.27739	.994	.28969	6.241		
Naphthalene	1.01068	.95801	.92099	.87667	.85609	1.004	.92449	6.740		
4-Chloroaniline	.36421	.40569	.39019	.39201	.37296	1.023	.38501	4.270		

RF - Response Factor (Subscript is amount in ug/l)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
HSL Compounds

Case No: _____ Instrument ID: MSD # 2

Contractor: Accredited Labs Calibration Date: 12/14/90

Contract No: _____

Minimum $\overline{RF}$ for SPCC is 0.050 Maximum % RSD for CCC is 30.0%

Laboratory ID: >B5915 >B5947 >B5949 >B5950 >B5951

Compound	RF 20.00	RF 50.00	RF 80.00	RF 120.00	RF 160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
Hexachlorobutadiene	.15434	.14830	.11781	.12926	.13675	1.041	.13729	10.655	*	
4-Chloro-3-methylphenol	.41144	.43208	.40245	.39792	.35757	1.119	.40029	6.808	*	
2-Methylnaphthalene	.57033	.60987	.54496	.56295	.53636	1.132	.56489	5.059		
Hexachlorocyclopentadiene	.13045	.21884	.15588	.17813	.25273	.885	.18721	26.139		**
2,4,6-Trichlorophenol	.43025	.41545	.40722	.37986	.38853	.898	.40426	5.027	*	
2,4,5-Trichlorophenol	.43130	.42140	.40790	.36257	.37727	.904	.40009	7.307		
2-Chloronaphthalene	1.20045	1.09170	1.12735	1.05083	1.11143	.920	1.11635	4.930		
2-Fluorobiphenyl	1.39761	1.19049	1.19441	1.14843	1.16721	.909	1.21963	8.299		
2-Nitroaniline	.60559	.60300	.66223	.60043	.59831	.942	.61391	4.422		
Dimethyl Phthalate	1.52141	1.51761	1.42177	1.33684	1.28119	.975	1.41576	7.567		
Acenaphthylene	1.94123	1.77771	1.63639	1.62161	1.56019	.978	1.70743	8.963		
3-Nitroaniline	.33955	.39471	.37861	.37645	.29854	1.090	.35757	10.820		
Acenaphthene	1.24888	1.14774	1.12485	1.07097	1.08301	1.005	1.13509	6.235	*	
2,4-Dinitrophenol	.14283	.20904	.22227	.21444	.18822	1.015	.19536	16.360		**
4-Nitrophenol	.25422	.29096	.31470	.29557	.25105	1.031	.28130	9.834		**
Dibenzofuran	1.61004	1.53892	1.45913	1.42891	1.36042	1.028	1.47949	6.564		
2,6-Dinitrotoluene	.36751	.37790	.38743	.34120	.33705	.982	.36222	6.149		
2,4-Dinitrotoluene	.52070	.56576	.53631	.50817	.40724	1.037	.50764	11.841		
2,3,4,6-Tetrachlorophenol	.62518	.61591	.52555	.50930	.47538	1.053	.55027	12.129		
Diethylphthalate	1.65643	1.45293	1.22188	1.09108	1.09314	1.076	1.30309	18.912		
4-Chlorophenyl-phenylether	.60276	.60215	.50400	.47048	.45937	1.079	.52775	13.292		
Fluorene	1.18878	1.03802	.92744	.89832	.86397	1.076	.98331	13.434		
4-Nitroaniline	.33927	.39442	.37849	.37636	.31242	1.090	.36019	9.300		
2,4,6-Tribromophenol	.30302	.33203	.25952	.27368	.23816	1.113	.28128	13.109		
4,6-Dinitro-2-methylphenol	.14031	.15605	.15949	.14921	.14091	.909	.14920	5.809		
N-Nitrosodiphenylamine	.52889	.40936	.36222	.34270	.33524	.912	.39568	20.183	*	
Azobenzene	3.23944	2.55670	2.68147	2.49382	2.68328	.915	2.73094	10.830		
4-Bromophenyl-phenylether	.21060	.22026	.18425	.18392	.18280	.950	.19637	9.035		
Hexachlorobenzene	.29062	.25514	.25315	.23837	.23438	.966	.25433	8.730		
Pentachlorophenol	.25714	.26314	.24741	.23260	.22762	.988	.24558	6.230	*	

RF - Response Factor (Subscript is amount in ug/l)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
HSL Compounds

Case No: Instrument ID: MSD # 2

Contractor: Accredited Labs Calibration Date: 12/14/90

Contract No:

Minimum $\overline{RF}$ for SPCC is 0.050 Maximum % RSD for CCC is 30.0%

Laboratory ID:	>B5915	>B5947	>B5949	>B5950	>B5951					
Compound	RF 20.00	RF 50.00	RF 80.00	RF 120.00	RF 160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
Phenanthrene	1.06568	.92190	.91310	.85593	.89419	1.003	.93016	8.589		
Anthracene	1.04665	.91197	.92747	.86952	.90714	1.009	.93255	7.211		
1,2-Diphenylhydrazine	-	-	-	-	-	-	-	-		
Di-n-Butylphthalate	1.96230	1.62909	1.52189	1.47504	1.42610	1.081	1.60289	13.381		
Fluoranthene	1.41569	1.17743	1.18093	1.12810	1.08683	1.142	1.19780	10.671	*	
Benzidine	-	.13139	.01375	.01805	.04166	.885	.05121	107.094		
Pyrene	1.32455	1.31619	1.34728	1.26178	1.44361	.891	1.33868	4.970		(Conc=20.0,50.0,80.0,1
Terphenyl-d14	1.04793	.93437	1.01314	.87629	1.03103	.908	.98055	7.416		
Butylbenzylphthalate	.87024	.84575	.90546	.86019	.91385	.957	.87910	3.341		
3,3'-Dichlorobenzidine	.34264	.41059	.35358	.36370	.39768	.999	.37364	7.809		
Benzo(a)Anthracene	1.06909	.98449	.97405	.93079	1.12584	.998	1.01685	7.758		
Bis(2-Ethylhexyl)Phthalate	1.15287	1.15974	1.10396	1.04738	1.21658	1.012	1.13611	5.605		
Chrysene	1.12131	1.08099	.97320	.93202	1.13686	1.003	1.04888	8.712		
Di-n-octyl phthalate	2.04658	1.61681	2.09701	1.89584	1.69608	.940	1.87047	11.270	*	
Benzo(b)fluoranthene	1.01824	.91699	1.38482	1.23078	1.24384	.967	1.15893	16.242		
Benzo(k)Fluoranthene	.97038	.82656	.75177	.78178	.65585	.969	.79727	14.456		
Benzo(a)Pyrene	1.00364	.91835	1.00544	1.01126	.90863	.995	.96946	5.291	*	
Indeno(1,2,3-cd)Pyrene	1.04543	1.12736	1.06050	1.15749	1.07356	1.119	1.09287	4.349		
Dibenzo(a,h)Anthracene	1.19993	.99903	.93188	.94612	.93474	1.123	1.00234	11.347		
Benzo(g,h,i)Perylene	1.00549	.93361	.79824	.87242	.84586	1.155	.89112	9.032		

RF - Response Factor (Subscript is amount in ug/l)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 02/05/91

Contractor: Accredited Labs Time: 14:35

Contract No: Laboratory ID: >B6159

Instrument ID: MSD # 2 Initial Calibration Date: 12/14/90

Minimum $\overline{RF}$ for SPCC is 0.050 Maximum % Diff for CCC is 25.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
2-Nitropropane	2.88890	1.37323	52.47		
Pyridine	2.67649	2.86274	6.96		
N-Nitrosodimethylamine	1.28693	.83364	35.22		
2-Fluorophenol	1.31421	1.18712	9.67		
Aniline	1.90617	2.21819	16.37		
Phenol-d5	1.78462	1.78421	.02		
Phenol	2.15770	2.06677	4.21	*	
bis(-2-Chloroethyl)Ether	1.61419	1.69586	5.06		
2-Chlorophenol	1.49142	1.43060	4.08		
1,3-Dichlorobenzene	1.37293	1.32989	3.13		
1,4-Dichlorobenzene	1.36580	1.38668	1.53	*	
Benzyl Alcohol	.82978	1.05471	27.11		
1,2-Dichlorobenzene	1.26051	1.32899	5.43		
2-Methylphenol	1.21283	1.42032	17.11		
bis(2-Chloroisopropyl)ether	2.23595	1.95465	12.58		
3-Methylphenol	3.47496	4.41619	27.09		
4-Methylphenol	3.47658	4.41877	27.10		
N-Nitroso-Di-n-propylamine	1.16557	1.35991	16.67		**
Hexachloroethane	.38584	.47637	23.46		
Nitrobenzene-d5	.48179	.42282	12.24		
Nitrobenzene	.48282	.42329	12.33		
Isophorone	.96435	.93691	2.85		
2-Nitrophenol	.24085	.21138	12.24	*	
2,4-Dimethylphenol	.29971	.29397	1.92		
Benzoic Acid	.15084	.20754	37.59		
bis(-2-Chloroethoxy)Methane	.53072	.53203	.25		
2,4-Dichlorophenol	.28682	.28298	1.34	*	
1,2,4-Trichlorobenzene	.28969	.25652	11.45		
Naphthalene	.92449	.97548	5.52		
4-Chloroaniline	.38501	.43361	12.62		
Hexachlorobutadiene	.13729	.10968	20.11	*	
4-Chloro-3-methylphenol	.40029	.38528	3.75	*	

RF - Response Factor from daily standard file at 50.00 ug/l

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 02/05/91

Contractor: Accredited Labs Time: 14:35

Contract No: Laboratory ID: >B6159

Instrument ID: MSD # 2 Initial Calibration Date: 12/14/90

Minimum $\overline{RF}$ for SPCC is 0.050 Maximum % Diff for CCC is 25.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
2-Methylnaphthalene	.56489	.61683	9.19		
Hexachlorocyclopentadiene	.18721	.23106	23.42		**
2,4,6-Trichlorophenol	.40426	.33154	17.99	*	
2,4,5-Trichlorophenol	.40009	.38585	3.56		
2-Chloronaphthalene	1.11635	1.01632	8.96		
2-Fluorobiphenyl	1.21963	1.06440	12.73		
2-Nitroaniline	.61391	.53009	13.65		
Dimethyl Phthalate	1.41576	1.43687	1.49		
Acenaphthylene	1.70743	1.57875	7.54		
3-Nitroaniline	.35757	.42347	18.43		
[illegible]phthene	1.13509	1.05408	7.14	*	
2,4-Dinitrophenol	.19536	.22348	14.39		**
4-Nitrophenol	.28130	.21470	23.67		**
Dibenzofuran	1.47949	1.40762	4.86		
2,6-Dinitrotoluene	.36222	.36605	1.06		
2,4-Dinitrotoluene	.50764	.52757	3.93		
2,3,4,6-Tetrachlorophenol	.55027	.55886	1.56		
Diethylphthalate	1.30309	1.52913	17.35		
4-Chlorophenyl-phenylether	.52775	.49840	5.56		
Fluorene	.98331	1.01617	3.34		
4-Nitroaniline	.36019	.42944	19.22		
2,4,6-Tribromophenol	.28128	.22101	21.43		
4,6-Dinitro-2-methylphenol	.14920	.15733	5.45		
N-Nitrosodiphenylamine	.39568	.44138	11.55	*	
Azobenzene	2.73094	2.35398	13.80		
4-Bromophenyl-phenylether	.19637	.16267	17.16		
Hexachlorobenzene	.25433	.18976	25.39		
Pentachlorophenol	.24558	.19329	21.29	*	
Phenanthrene	.93016	.88257	5.12		
Anthracene	.93255	.89212	4.33		
1,2-Diphenylhydrazine	-	-	-		
Di-n-Butylphthalate	1.60289	1.55719	2.85		

RF - Response Factor from daily standard file at 50.00 ug/l

[illegible] - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No:

Contractor: Accredited Labs

Contract No:

Instrument ID: MSD # 2

Calibration Date: 02/05/91

Time: 14:35

Laboratory ID: >B6159

Initial Calibration Date: 12/14/90

Minimum $\overline{RF}$ for SPCC is 0.050 Maximum % Diff for CCC is 25.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
Fluoranthene	1.19780	1.11893	6.58	*	
Benzidine	.05121	.14927	191.47		
Pyrene	1.33868	1.40267	4.78		
Terphenyl-d14	.98055	.93420	4.73		
Butylbenzylphthalate	.87910	.95040	8.11		
3,3'-Dichlorobenzidine	.37364	.48193	28.98		
Benzo(a)Anthracene	1.01685	1.11229	9.39		
Bis(2-Ethylhexyl)Phthalate	1.13611	1.35223	19.02		
Chrysene	1.04888	1.10974	5.80		
Di-n-octyl phthalate	1.87047	2.32742	24.43	*	
Benzo(b)fluoranthene	1.15893	1.21664	4.98		
Benzo(k)Fluoranthene	.79727	.99863	25.26		
Benzo(a)Pyrene	.96946	1.05565	8.89	*	
Indeno(1,2,3-cd)Pyrene	1.09287	.92498	15.36		
Dibenzo(a,h)Anthracene	1.00234	.78280	21.90		
Benzo(g,h,i)Perylene	.89112	.74178	16.76		

RF - Response Factor from daily standard file at 50.00 ug/l

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

*** Calibration Table ***

Calibration file: DATA:MS1.0 Last Update: 20 Dec 90 2:24 PM
Reference Peak Window: 10.00 % of Retention Time
Non-Reference Peak Window: 10.00 % of Retention Time
Sample Amount: 0.000 Uncalibrated Peak RF: 0.000 Multiplier: 1.000

Ret Time	Pk#	Signal Descr	Amt ug/ml	Lvl	(Area)	Pk-Type	Partial Name
2.604	1	GC Signal 1	5.000e-3	1	1109.7	1	alpha-BHC
			0.012500	2	4127.1		
			0.025000	3	11684		
			0.037500	4	17345		
			0.050000	5	18287		
2.783	2	GC Signal 1	0.010000	1	1985.3	1	beta-BHC
			0.025000	2	5684.0		
			0.050000	3	12929		
			0.075000	4	17539		
			0.10000	5	23573		
3.135	3	GC Signal 1	0.010000	1	2181.4	1	delta-BHC
			0.025000	2	7200.4		
			0.050000	3	15865		
			0.075000	4	28454		
			0.10000	5	41410		
5.913	4	GC Signal 1	9.960e-3	1	2864.0	1	ALDRIN
			0.024900	2	6660.2		
			0.049800	3	23594		
			0.074700	4	34164		
			0.099600	5	50366		
10.332	5	GC Signal 1	0.012600	1	3550.7	1	4,4'-DDE
			0.031500	2	9724.8		
			0.063000	3	25948		
			0.094500	4	38625		
			0.12600	5	58648		
11.580	6	GC Signal 1	9.840e-3	1	1129.1	1	ENDRIN
			0.024600	2	3470.7		
			0.049200	3	13599		
			0.073800	4	19778		
			0.098400	5	30149		
13.012	7	GC Signal 1	0.021360	1	4832.3	1	4,4'-DDD
			0.053400	2	12648		
			0.10680	3	34785		
			0.16020	4	48448		
			0.21360	5	74492		
15.156	8	GC Signal 1	0.016280	1	2311.6	1	ENDO SULFATE
			0.040700	2	6261.3		
			0.081400	3	18826		
			0.12210	4	28362		
			0.16280	5	40268		
19.483	9	GC Signal 1	0.020000	1	12278	1	END KETONE
			0.050000	2	34813		
			0.10000	3	85776		
			0.15000	4	116540		
			0.20000	5	128351		
34.112	10	GC Signal 1	0.050000	1	17822	1	DBO
			0.12500	2	43548		
			0.25000	3	108825		
			0.37500	4	[illegible]		
			0.50000	5	[illegible]		

*** Calibration Table ***

Calibration file: DATA:MB2.0 Last Update: 21 Dec 90 10:14 am
Reference Peak Window: ±0.00 % of Retention Time
Non-Reference Peak Window: ±0.00 % of Retention Time
Sample Amount: 0.000 Uncalibrated Peak RF: 0.000 Multiplier: 1.000

Ret Time	Pk#	Signal Descr	Amt ug/ml	Lvl	(Area)	Pk-Type	Partial Name
1.401	1	GC Signal 2	5.000e-3	1	2025.4	1	alpha-BHC
			0.012500	2	6801.5		
			0.025000	3	13759		
			0.037000	4	21735		
			0.050000	5	24317		
2.046	2	GC Signal 2	0.010000	1	2577.7	1	beta-BHC
			0.025000	2	7085.7		
			0.050000	3	12504		
			0.075000	4	18645		
			0.10000	5	25102		
2.385	3	GC Signal 2	0.010000	1	2482.8	1	delta-BHC
			0.025000	2	10157		
			0.050000	3	20152		
			0.075000	4	33236		
			0.10000	5	45853		
2.607	4	GC Signal 2	9.860e-3	1	3564.8	1	ALDRIN
			0.024900	2	15125		
			0.049800	3	28815		
			0.074700	4	45700		
			0.099600	5	64266		
5.735	5	GC Signal 2	0.012600	1	6102.7	1	4,4'-DDE
			0.031500	2	15493		
			0.063000	3	30473		
			0.094500	4	48482		
			0.12600	5	69231		
7.374	6	GC Signal 2	9.840e-3	1	2811.9	1	ENDRIN
			0.024600	2	7235.9		
			0.049200	3	14308		
			0.073800	4	22695		
			0.098400	5	31799		
8.827	7	GC Signal 2	0.021360	1	8888.1	1	4,4'-DDD
			0.053400	2	22965		
			0.10680	3	43766		
			0.16020	4	68197		
			0.21360	5	97288		
14.176	8	GC Signal 2	0.016280	1	5113.7	1	ENDO SUL
			0.040700	2	13071		
			0.081400	3	23888		
			0.12210	4	36851		
			0.16280	5	51434		
19.080	9	GC Signal 2	0.070000	1	40024	1	DBC+BK
			0.17500	2	107868		
			0.35000	3	198581		
			0.52500	4	311755		
			0.70000	5	414801		

*** Calibration Table ***

Calibration file: DATA:MA1.C Last Update: 20 Dec 90 2:03 PM
Reference Peak Window: 10.00 % of Retention Time
Non-Reference Peak Window: 10.00 % of Retention Time
Sample Amount: 0.000 Uncalibrated Peak RF: 0.000 Multiplier: 1.000

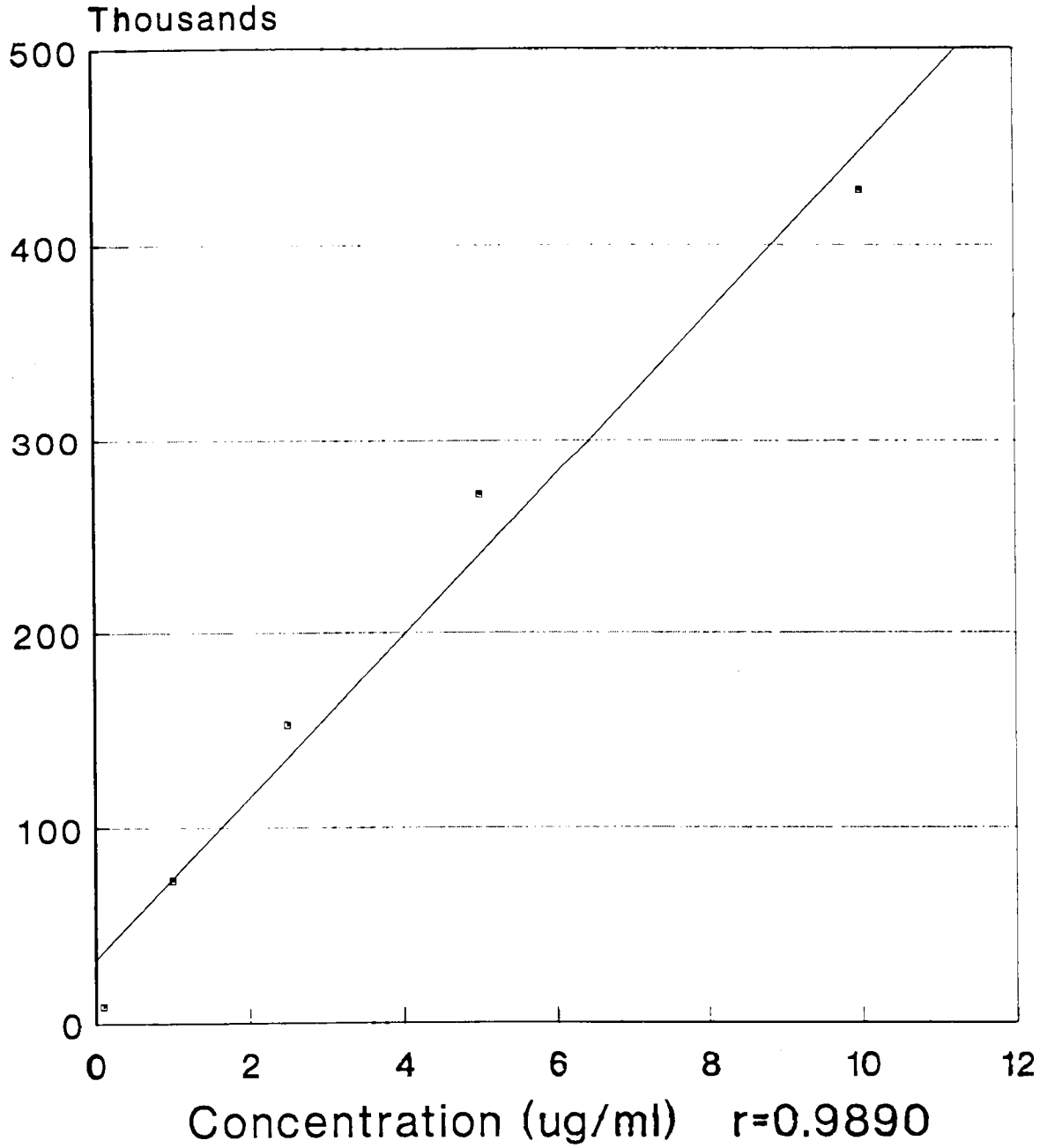
Ret Time	Pk #	Signal Descr	Amt ug/ml	Lvl	[Area]	Pk-Type	Partial Name
3.025	1	GC Signal 1	5.120e-3	1	1577.4	I	LINDANE
			0.012800	2	4516.9		
			0.025600	3	11442		
			0.034800	4	15759		
			0.051200	5	22211		
4.787	2	GC Signal 1	0.011080	1	2788.8	I	HEPTACHLOR
			0.027700	2	7588.1		
			0.055400	3	18330		
			0.083100	4	27176		
			0.11080	5	34812		
5.901	3	GC Signal 1	8.560e-3	1	3160.9	I	ALDRIN
			0.014900	2	5872.5		
			0.049800	3	22056		
			0.074700	4	32489		
			0.099600	5	44460		
7.181	4	GC Signal 1	8.800e-3	1	3579.3	I	HEPT EPOX
			0.024750	2	9065.7		
			0.049500	3	21354		
			0.074250	4	30816		
			0.099000	5	41604		
8.893	5	GC Signal 1	0.010000	1	3898.3	I	ENDOSULFAN I
			0.025000	2	9417.1		
			0.050000	3	22504		
			0.075000	4	32652		
			0.10000	5	44200		
10.360	6	GC Signal 1	0.010000	1	3220.5	I	DIELDRIN
			0.025000	2	8043.2		
			0.050000	3	20110		
			0.075000	4	30227		
			0.10000	5	41871		
11.629	7	GC Signal 1	0.020000	1	6610.3	I	ENDOSULFAN II
			0.050000	2	17504		
			0.10000	3	41127		
			0.15000	4	59223		
			0.20000	5	77742		
13.062	8	GC Signal 1	0.025000	1	11683	I	END ALDEHYDE
			0.062500	2	27281		
			0.12500	3	59252		
			0.18750	4	81151		
			0.25000	5	106603		
18.935	9	GC Signal 1	0.020120	1	2598.3	I	4,4'-DDT
			0.050300	2	6436.0		
			0.10060	3	18532		
			0.15090	4	28895		
			0.20120	5	36367		
25.021	10	GC Signal 1	0.10340	1	13193	I	METHOXYCHLOR
			0.25850	2	37588		
			0.51700	3	90029		
			0.77550	4	129223		
			1.0340	5	166587		
34.019	11	GC Signal 1	0.050000	1	19812	I	DEC
			0.12500	2	47140		
			0.25000	3	111016		
			0.37500	4	160043		

*** Calibration Table ***

Calibration file: DATA:MA2.0 Last Update: 20 Dec 90 1:57 pm
Reference Peak Window: 10.00 % of Retention Time
Non-Reference Peak Window: 10.00 % of Retention Time
Sample Amount: 0.000 Uncalibrated Peak RF: 0.000 Multiplier: 1.000

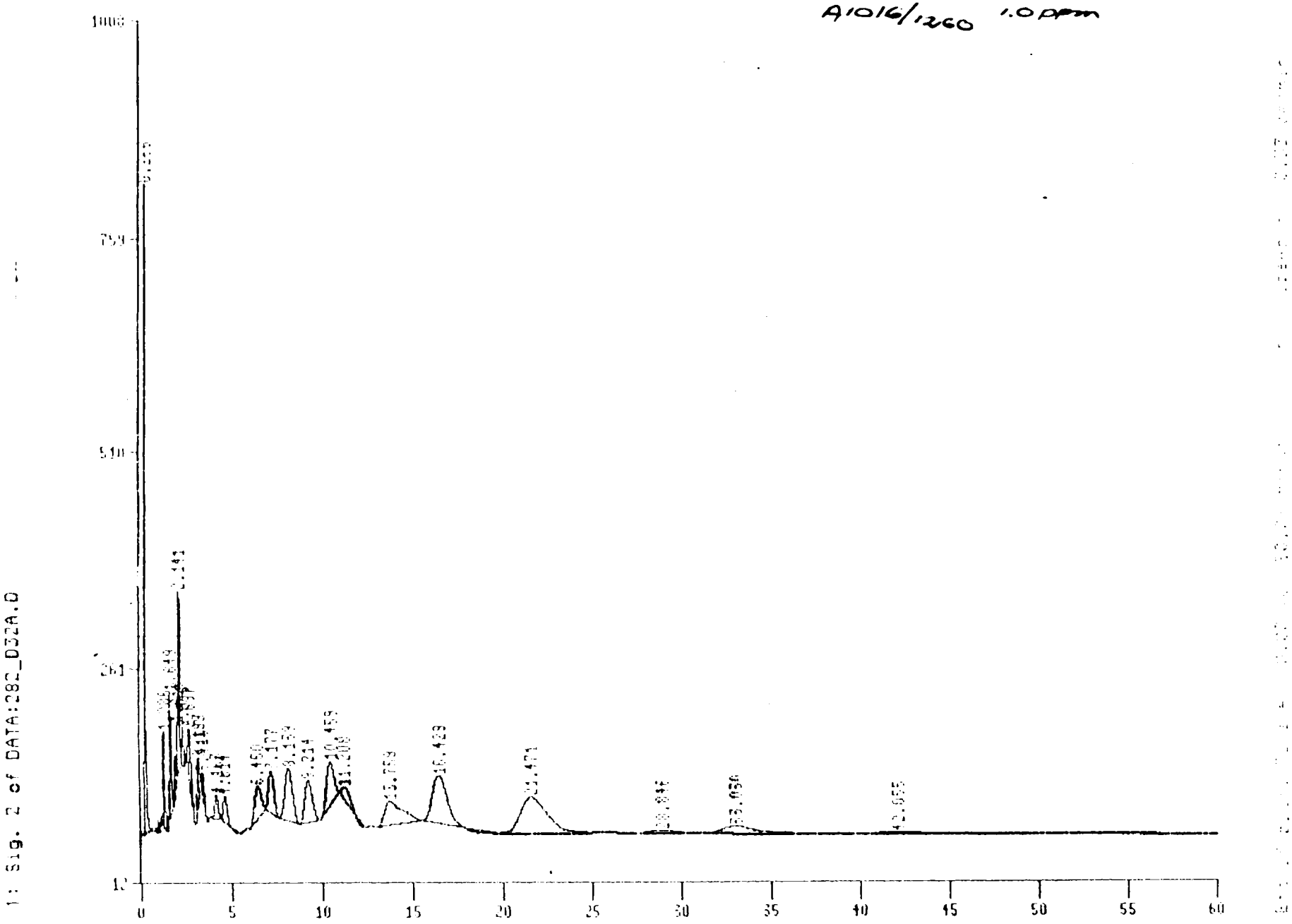
Ret Time	Pk#	Signal Descr	Amt ug/ml	Lvl	[Area]	Pk-Type	Partial Name
1.768	1	GC Signal 2	5.120e-3	1	2381.8	1	LINDANE
			0.012800	2	6403.0		
			0.025600	3	13845		
			0.034800	4	21358		
			0.051200	5	27629		
2.156	2	GC Signal 2	0.011080	1	4029.2	1	HEPTACHLOR
			0.027700	2	10218		
			0.055400	3	21991		
			0.083100	4	34158		
			0.11080	5	42846		
2.610	3	GC Signal 2	9.960e-3	1	4814.5	1	ALDRIN
			0.024900	2	12937		
			0.049800	3	27514		
			0.074700	4	42653		
			0.099600	5	54938		
3.920	4	GC Signal 2	9.900e-3	1	4431.8	1	HEPT EPOX
			0.024750	2	12541		
			0.049500	3	26162		
			0.074250	4	38813		
			0.099000	5	51093		
4.537	5	GC Signal 2	0.010000	1	5116.9	1	ENDOSULFAN 1
			0.025000	2	13819		
			0.050000	3	26038		
			0.075000	4	43957		
			0.10000	5	56070		
5.046	6	GC Signal 2	0.010000	1	4982.5	1	DIELDRIN
			0.025000	2	11736		
			0.050000	3	25437		
			0.075000	4	41431		
			0.10000	5	54429		
5.545	7	GC Signal 2	0.020000	1	11738	1	ENDOSULFAN 2
			0.050000	2	29273		
			0.10000	3	58614		
			0.15000	4	91244		
			0.20000	5	119452		
10.543	8	GC Signal 2	0.020120	1	2128.2	1	DDT
			0.050300	2	6125.7		
			0.10060	3	16894		
			0.15090	4	28669		
			0.20120	5	35383		
11.891	9	GC Signal 2	0.025000	1	10832	1	END ALD
			0.062500	2	25365		
			0.12500	3	56297		
			0.18750	4	86740		
			0.25000	5	116069		
18.581	10	GC Signal 2	0.050000	1	23501	1	DBC
			0.12500	2	57365		
			0.25000	3	119635		
			0.37500	4	193498		
			0.50000	5	249218		
20.333	11	GC Signal 2	0.10340	1	10833	1	METHOXYCHLOR
			0.25850	2	28374		
			0.51700	3	64332		
			0.77550	4	102787		

Accredited Laboratories Inc.
A-1260



5 Point Calibration Curve
QC 91010 01/22/91

A1016/1260 1.0 ppm



ACCREDITED LABORATORIES INC. METALS QUALITY CONTROL REPORT

Known Matrix Composition: Sand
QC Sample Matrix: Soil

QC report # 910207B1
QC Sample ID: 9100878

METALS

	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg
Sample Prep Date 1991	02/07	02/07	02/07	02/07	02/07	02/07	02/07	02/07	02/07	02/07	02/07	02/07	02/07
Sample Prep Analyst	ES	ES	ES	ES	ES	ES	ES	ES	ES	ES	ES	ES	ES
Date of Analysis 1991	02/11	02/11	02/13	02/11	02/11	02/11	02/11	02/11	02/11	02/11	02/11	02/12	02/11
Analyst	SAMB	SAMB	AJL	SAMB	SAMB	SAMB	SAMB	SAMB	SAMB	SAMB	SAMB	AJL	SAMB
KNOWN MATRIX QC													
Blank concentration	12.7	<5.0	<0.40	<5.0	<1.00	<1.00	5.18	<5.0	<5.0	<5.0	6.7	<5.0	<5.0
Conc. of Added Spike	100	100	2.00	100	20.0	20.0	100	40.0	100	100	100	100	40.0
Spike Concentration	104.0	92.0	2.00	89.2	17.1	16.1	95.4	37.4	90.0	88.4	97.6	89.5	39.8
Spike Duplicate Conc.	100.0	88.2	2.14	90.0	14.1	15.6	92.4	37.2	91.0	85.4	97.8	89.5	40.2
% Spike Recovery	91.3	92.0	100.0	89.2	85.5	80.5	90.2	93.5	90.0	88.4	90.9	89.5	99.5
% Spike Dup. Recovery	87.3	88.2	107.0	90.0	70.5	78.0	87.2	93.0	91.0	85.4	91.1	89.5	100.5
Mean Spike Recovery	89.3	90.1	103.5	89.6	78.0	79.3	88.7	90.5	90.5	86.9	91.0	89.5	100.0
RPD	4.48	4.22	6.76	0.89	19.23	3.15	3.38	0.54	1.10	3.45	0.22	0.00	1.00
SAMPLE MATRIX QC													
Conc. of Added Spike	109	109	2.17	109	21.7	21.7	109	43.4	109	109	109	109	43.4
Sample Concentration	3940	ND	2.71	18.5	ND	ND	497	ND	ND	6.0	7640	5.6	1050
Spike Concentration	4260.0	33.0	3.76	125.0	19.7	18.6	693.0	42.8	90.3	105.0	6470.0	106.0	1020.0
Duplicate Conc.	3870.0	38.2	4.13	124.0	20.1	19.1	604.0	44.7	92.3	101.0	5840.0	100.0	921.0
% Spike Recovery	293.6	30.3	46.4	97.7	90.8	85.7	179.8	98.6	82.8	90.8	-1070	92.1	-69.1
% Spike Dup. Recovery	-64.2	35.0	65.4	96.8	92.6	88.0	98.2	103.0	84.7	87.1	-1650	86.6	-297.2
Mean Spike Recovery	114.7	32.7	56.9	97.2	91.7	86.9	139.0	100.8	83.8	89.0	-1360	89.4	-183.2
RPD	312.00	14.61	29.96	0.94	2.01	2.65	58.75	4.34	2.19	4.12	10.20	6.16	124.53

COMMENTS: When sample concentration is greater than four times the concentration of added spike, the sample matrix QC is invalid for that parameter. Low Sb and As recoveries on sample matrix QC, possibly due to matrix interferences. Known matrix appears contaminated with Al, Ca and Fe.

DEFINITION OF TERMS

Blank concentration: The concentration of a digested and analyzed known matrix blank

Conc. of Added Spike: The theoretical final concentration of the spike and spike duplicate added to the known matrix

Spike Concentration or Spike Duplicate Concentration: The actual concentration of the digested spike and spike duplicate.

Percent Spike Recovery (%SR) or Spike Duplicate recovery (%SDR) is determined using the following formula:

(Actual concentration - Sample concentration) x 100% / Theoretical concentration

Mean % Spike Recovery: (%SR + %SDR) / 2

RPD: Relative Percent Difference is defined as ABS(SR - SDR)/((SR+SDR)/2)*100

Note: This QC data report is for ALL sample #'s 9100842 and 9100878.

QC report reviewed and accepted by: William J. Horton Date: 2/21/91

ACCREDITED LABORATORIES INC. METALS QUALITY CONTROL REPORT

Known Matrix Composition: Sand
QC Sample Matrix: Soil

QC report # 9102078I
QC Sample ID: 9100878

METALS

	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn
Sample Prep Date 1991	02/07	02/07	02/07	02/07	02/07	02/07	02/07	02/07	02/07
Sample Prep Analyst	ES	ES	ES	ES	ES	ES	ES	ES	ES
Date of Analysis 1991	02/11	02/11	02/14	02/14	02/12	02/11	02/14	02/11	02/11
Analyst	SAMB	SAMB	AJL	AJL	AJL	SAMB	AJL	SAMB	SAMB
KNOWN MATRIX QC									
Blank concentration	<5.0	<5.0	<5.0	<0.40	<3.0	<5.0	<5.0	<5.0	<3.0
Conc. of Added Spike	40.0	100	30.0	2.00	100	100	100	100	100.0
Spike Concentration	35.6	86.4	32.8	1.60	87.4	99.4	96.4	90.2	79.8
Spike Duplicate Conc.	39.8	84.8	31.8	1.52	83.6	103.6	92.9	92.2	82.4
% Spike Recovery	89.5	86.4	109.3	80.0	87.4	99.4	96.4	90.2	79.8
% Spike Dup. Recovery	99.5	84.8	106.0	76.0	83.6	103.6	92.9	92.2	82.4
Mean Spike Recovery	94.5	85.6	107.7	78.0	85.5	101.5	91.2	91.2	81.1
RPD	10.58	1.87	3.10	5.13	4.44	4.14	3.70	2.19	3.21
SAMPLE MATRIX QC									
Conc. of Added Spike	43.4	109	32.6	2.17	109	109	109	109	109
Sample Concentration	31.1	ND	324	ND	ND	21.4	ND	ND	14.1
Spike Concentration	83.2	86.6	357.0	0.78	49.0	150.0	105.0	100.0	110.0
Duplicate Conc.	83.6	86.9	359.0	0.91	44.5	146.0	101.0	103.0	107.0
% Spike Recovery	120.0	79.4	101.2	35.9	45.0	118.0	96.3	91.7	88.0
% Spike Dup. Recovery	121.0	79.7	107.4	41.9	40.8	114.3	92.7	94.5	85.2
Mean Spike Recovery	120.5	79.6	104.3	38.9	42.9	116.1	94.5	93.1	86.6
RPD	0.76	0.35	5.88	15.38	9.63	3.15	3.88	2.96	3.18

COMMENTS: Low Ag and Se recoveries on sample matrix QC, possibly due to matrix interferences.

DEFINITION OF TERMS

Blank concentration: The concentration of a digested and analyzed known matrix blank

Conc. of Added Spike: The theoretical final concentration of the spike and spike duplicate added to the known matr

Spike Concentration or Spike Duplicate Concentration: The actual concentration of the digested spike and spike duplicate.

Percent Spike Recovery (%SR) or Spike Duplicate recovery (%SDR) is determined using the following formula:

(Actual concentration - Sample concentration) x 100% / Theoretical concentration

Mean % Spike Recovery: (%SR + %SDR) / 2

RPD: Relative Percent Difference is defined as ABS(SR - SDR)/((SR+SDR)/2)*100

Note: This QC data report is for ALL sample #'s 9100842 and 9100878.

QC report reviewed and accepted by: William J. Carter Date: 2/21/91

ACCREDITED LABORATORIES INC. METALS QUALITY CONTROL REPORT

Known Matrix Composition: Sand
QC Sample Matrix: Soil

QC report # 910212HB
QC Sample ID: 9100878

	METALS
	Hg
Sample Prep Date 1991	02/12
Sample Prep Analyst	WC
Date of Analysis 1991	02/12
Analyst	WC
KNOWN MATRIX QC	
Blank concentration	<0.10
Conc. of Added Spike	0.4000
Spike Concentration	0.3718
Spike Duplicate Conc.	0.4394
% Spike Recovery	93.0
% Spike Dup. Recovery	109.9
Mean Spike Recovery	101.4
RPD	16.67
SAMPLE MATRIX QC	
Conc. of Added Spike	0.4343
Sample Concentration	ND
Spike Concentration	0.3194
Duplicate Conc.	0.3402
% Spike Recovery	73.5
% Spike Dup. Recovery	78.3
Mean Spike Recovery	75.9
RPD	6.31

COMMENTS:

DEFINITION OF TERMS

Blank concentration: The concentration of a digested and analyzed known matrix blank

Conc. of Added Spike: The theoretical final concentration of the spike and spike duplicate added to the known matrix

Spike Concentration or Spike Duplicate Concentration: The actual concentration of the digested spike and spike duplicate.

Percent Spike Recovery (%SR) or Spike Duplicate recovery (%SDR) is determined using the following formula:

(Actual concentration - Sample concentration) x 100% / Theoretical concentration

Mean % Spike Recovery: (%SR + %SDR) / 2

RPD: Relative Percent Difference is defined as ABS(SR - SDR)/((SR+SDR)/2)*100

Note: This QC data report is for ALL sample #'s 9100745, 9100842, 9100848, 9100849, 9100852-9100854, 9100876-9100879 and 9100950.

QC report reviewed and accepted by: William J. Carter Date: 2/13/91

CHAIN OF CUSTODY RECORD

ENVIRONMENTAL PROTECTION AGENCY - REGION II
ENVIRONMENTAL SERVICES DIVISION
EDISON, NEW JERSEY 08817

T2

Name of Unit and Address: ROY F WESTON
1090 KING GEORGES POST RD
EDISON NJ 08837

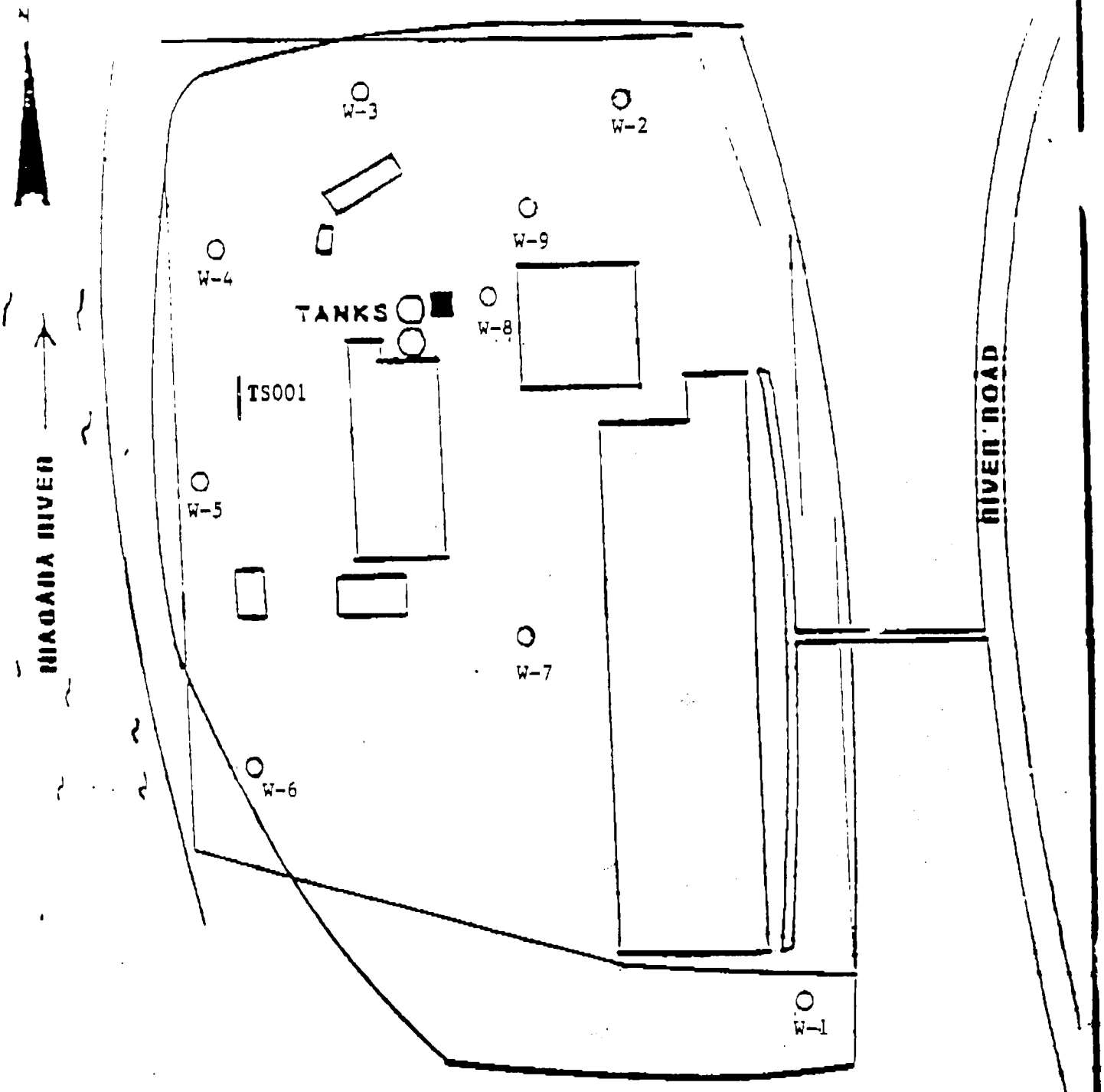
GA OFC. D. HARRINGTON (908)906-6899
TO: Accredited Lab Inc
Foot of Pershing Ave P.O Box 369
CARTERET NJ 07008-0369

Sample Number	Number of Containers	Description of Samples
01		2x 8oz Soil for TCL/TAL Low Level 9100842 QA level I as per Beverly Larson. 2/1/91 C-806692

Person Assuming Responsibility for Sample: BK lawson — Time: 1000 — Date: 2/1

Sample Number	Relinquished By:	Received By:	Time	Date	Reason for Change of Custody
ALL	LAB	L. Sinko	2:30	2/1/91	LAB ANALYSIS

Page No.



WESTON Roy F. Weston, Inc. MAJOR PROGRAMS DIVISION	EPA PM D. Harrington	Envirotek II, 4000 River Rd, Tonawanda
In Association with ICF Technology Inc., C.C. Johnson & Malhotra, P.C., Ransome Applegreen, Inc. and R.E. Services Associates	TAT PM B. Lawson	Sampling Location January 30, 1991

ATTACHMENT 6
(Document from TAT to EPA)

WESTON Suite 201, 1090 King Georges Post Road,
Edison, NJ 08837, • (201) 225-6116 • FAX (201) 225-7037

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-7367

TAT-02-F-06188 MEMORANDUM

TO: Dwayne Harrington, EPA OSC

FROM: Beverly Lawson, TAT II PM for
Michael Mentzel, TAT II QC MM

DATE: February 6, 1991

SUBJECT: Envirotek II Subsurface Soil Sampling Analytical Results
September 10 & 11, 1990

This memorandum summarizes the analytical results of the subsurface (24" depth) soil sampling activities performed by TAT on September 10 and 11, 1990, at the Envirotek II/4000 River Road site, Tonawanda, New York. Analytical results are summarized in Attachment A.

A description of each sample location follows. Refer to Attachment B for a graphic representation of the sample locations.

NOTE: Samples 1, 2, 3, 4 and 20 (20 is a duplicate of #2) were taken along the quay (Area "A"). This is the area along the waterfront. It is likely that this entire apron is man made, utilizing gravel and sand fill designed to support road, rail lines, and cargo handling.

- Sample 1 - Sandy and clay entire depth with 50% larger gravel-rocks. Sample taken at 19" 1450 hours.

- Sample 2 and 20 (Duplicate) - Entire depth sand and fine gravel (dredged fill). Sample obtained at 1430 hours.

- Sample 3 - Depth 24" sand and fines, highly visible green and blue stains towards the 24" level, fines look like dredged fill. Sample obtained 1410 hours.

- Sample 4 - Sample taken at 22" depth, soil profile 80% ballast, 20% sand. Sample obtained at 1400 hours.

NOTE: Sample 5, 6, 7, and 8 were taken at area near the waterfront (Area "B") - Not the level immediately on the water, but the "plateau" at a ten foot higher elevation. It is a large, graded field which had been cleared for the TAT Region IV magnetometer survey.

- Sample 5 - Light brown granular fill dirt, 20% tan, oil looking "sand coating" material. Much debris such as 1/4" ID rubber base (such as diesel fuel line material), greasy rags which looked and smelled like they had been used on large equipment. Sample obtained at a 24" depth at 1335 hours.

- Sample 6 - Compact sandy strata at 16"-18" then dark fill dirt. Sample obtained at 1340 hours.

- Sample 7 - Soil is clean fill, dark soil consistent through 2' depth. Sample obtained at 1450 hours.

- Sample 8 - TATs able to reach required depth for sampling. Soil was largely dark brown, clean fill with light compacted sand layer at 16-18" depth. Sample 8 obtained at 1430 hours.

NOTE: Samples 9, 10, 11, and 12 were located in the vicinity of monitoring well #7 (Area "C").

- Sample 9 - Profile largely similar to #10, dark granular dirt with 50 - 65% ballast. Sample obtained 20-22" depth after backhoe arrives and penetrates to this depth. Sample obtained at 1130 hours.

- Sample 10 - At 8-10" 30% granular black dirt 70% ballast. 10-12" tan compacted sand/"oil" layer, <u>may</u> be part of old sand casting materials. At 12" hit rocks debris and blue stains on compacted sand. Sample taken 18-20" at 1050 hours, unable to penetrate further depth.

- Sample 11 - Sample taken at 1145 hours from ± 20" depth. Soil profile very similar to #9 and 10.

- Sample 12 - Sample obtained at 1200 hours from 12" level. Unable to penetrate 12-14" with backhoe. Hard brick dust underneath this depth.

NOTE: Samples 13, 14, and 15 collected south of the steel mill along the access road (Area "D")

- Sample 13 - Top 16 - 18" light density, granular dark dirt with 50% soil ballast rock. From 20-24" dirt is tan sandy strata with some slag. Sample hole is clearly located in middle of former rail spur. Sample taken at 0945 hours, depth 24" amidst much metal debris (rail spikes and tie plates).

- Sample 14 - Located immediately to right of apron. Fourteen inch level 60% slack granular soil 40% ballast rock. Below 14" tan granular - gritty dirt with 20% rock 20% slag at 24" 1/2 dirt 1/2 gravel. Sample obtained at 1030 hours, 24" depth.

- Sample 15 - Located on left side of access road - first 1 - 8" consist of 30% dark granular dirt, 50% rail ballast 20% larger rocks. Eight-twelve inches breaking through bricks, slag, 20" grey gravel, granitic appearance. Sample taken at 24", 1015 hours, grey gravelly strata.

NOTE: Samples 16, 17, 18, and 19 taken from area to north of the steel mill (Area "E").

- Sample 16 - 24" at 1525 hours. 85% rail ballast, 15% dark granular dirt.

- Sample 17 - 18" at 1530 hours. Large grained dark dry dirt with 100% ballast below 18" level.

- Sample 18 - 18 -20" depth at 1515 hours. Dirt is granular, dark, and 85% ballast.

- Sample 19 - Taken at 22" at 1520 hours. Dark dry dirt with some sandy compacted layers (very gritty). 65% ballast.

- Sample 20 - Duplicated of Sample 2.

Samples were shipped to the lab listed below on September 12, 1990.

Accredited Laboratories, Inc.
Foot of Pershing Avenue, P.O. Box 369
Carteret, New Jersey 07008-0369
Telephone: (908) 541-2025

The laboratory had assigned a unique lab number to each sample location. Table 1 cross references the two documentation systems and summarizes pertinent information.

ANALYTICAL SUMMARY

All samples were analyzed for Target Compound List (TCL) and Target Analyte List (TAL) parameters. A private laboratory was utilized through TAT Analytical Services. However, Contract Lab Program (CLP) procedures were adhered to.

The data was reviewed for QA/QC compliance by certified TAT personnel significant analyte values have been summarized in this section. Actual raw lab data is available in the TAT file system.

It is noteworthy that TAT qualified some of the data due to holding times being exceeded, low surrogate recoveries, and inadequate calibration. Any data rejected cannot be used to draw any conclusions as to the presence of absence of the given contaminant in the associated locations. However, it is understood that the rejected data may hold some credence wherever site specific and historical information offer no apparent contradiction. Values qualified with a "J" in the raw data are estimated values. All data reported in Attachment A are estimated.

Relatively few Volatile Organic Compounds (VOCs) were found in the soil and slag which cover the site. This is to be expected given the nature and history of the area. Some exceptions, however, are discussed below. Excluding sample location #5, maximum aggregate total VOC contamination is well below the ARAR NJDEP guidelines of 1 ppm for evaluating possible ECRA clean up requirements.

Groundwater samples collected in November 1990 should provide additional information as to the potential for off-site migration.

No PCB or pesticide contamination was detected in any sample collected.

Contamination by inorganic compounds appears consistent with background levels to be expected at an industrial property (see Appendix C), no further discussion will be made concerning inorganic material.

VOLATILE ORGANIC COMPOUNDS (VOCs) DISCUSSION

Four observations can be made upon interpretation of the analytical data. First every sample collected contained contamination by methylene chloride. Since methylene chloride was not used in the sample decontamination process and the laboratory reported no detection in the blank, inadvertent contamination can most likely be ruled out. Secondary, all the samples collected from areas "C" and "D" were contaminated with tetrachloroethene (PCE). These areas are located south of the former steel mill. Third sample #1 showed contamination with ortho xylene at 24 ppb.

Lastly, sample #5 exhibited substantial contamination by 10 VOCs. Based upon the sample description this location may have been an isolated dumping ground.

Compounds and values are listed in Attachment A.

In addition to values listed above, VOCs were detected in most samples at concentrations below the method detection limit. These reported values area of little consequence and need not be considered in the decision making process of this project. A summary of these values are included below. These values have not been included in the data summary tables.

Two-butanone was found in nearly every sample at concentrations ranging from one to four ppb. This compound was also found in the method blank for three days prior to the run date.

Carbon disulfide was found in sample #17 at 2 ppb.

Trichloroethene was found in samples #8, 9, 11, 13, 14, 15, and 16, ranging from 1 to 5 ppb.

Toluene was found in samples 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, and 20 ranging from 1 to 4 ppb.

Benzene was found in sample #17 at 1 ppb.

Xylenes were found in samples #10 and 13 at 2 ppb.

SEMIVOLATILE ORGANIC COMPOUND DISCUSSION

As shown in the tables included in Attachment A, contamination by semivolatile organic compounds is prevalent in the soil/slag throughout the site. In many cases the aggregate total of semivolatile exceeds the NJDEP ARAR of 10 ppm (10,000 ppb).

CONCLUSION

Volatile organic contamination is insignificant except in location 5.

Semivolatile contamination appears to exceed the ARAR for triggering a clean-up under the New Jersey ECRA law.

PCB/Pesticide and inorganic contamination does not add to the requirements for a removal action.

ATTACHMENT A

DATA SUMMARY

TABLE I

ENVIROTEK II
SOIL SAMPLING
SEPTEMBER 10-11, 1990

AREA	FIELD SAMPLING #	SAMPLING LOCATION	LAB SAMPLE #	SOIL PROFILE
A	1	20'EAST OF NIAGARA RIVER	9006244	SANDY, CLAY-LKIE, LARGE AMOUNT OF BALLAST ROCK AT 24" LEVEL
A	2	20' EAST OF NIAGARA RIVER	9006244	SANDY, FINE GRAVEL
A	3	20' EAST OF NIAGARA RIVER	9006246	SANDY SOIL WITH VISIBLE GREEN AND BLUE COLORATION
A	4	20'EAST OF NIAGARA RIVER	9006247	20% SAND, 80% BALLAST ROCK
B	5	40'EAST OF NIAGARA RIVER ON UPPER LEVEL ABOVE SERVICE ROAD	9006248	LOOSE FILL DIRT, 20% OILY "SAND CASTING" MATERIAL
B	6	40'EAST OF NIAGARA RIVER ON UPPER LEVEL ABOVE SERVICE ROAD	9006249	SANDY STRATA TO 18" FILL DIRT FROM 18"-24"
B	7	40'EAST OF NIAGARA RIVER ON UPPER LEVEL ABOVE SERVICE ROAD	9006243	CLEAN FILL, DARK SOIL TO 24" DEPTH
B	8	40'EAST OF NIAGARA RIVER ON UPPER LEVEL ABOVE SERVICE ROAD	9006242	CLEAN FILL SOIL WITH SANDY LAYER AT 16"-18"
C	9	20'SOUTH/SOUTHWEST OF GROUNDWELL #7	9006250	30% GRANULAR BLACK DIRT REMAINDER BEING BALLAST ROCK
C	10	5' WEST OF GROUNDWELL #7	9006251	30% GRANULAR BLACK DIRT, REMAINDER BEING BALLAST ROCK
C	11	20'EAST OF GROUNDWELL #7	9006252	30% GRANULAR BLACK DIRT REMAINDER BEING BALLAST ROCK
D	12	20' SOUTH/SOUTHEAST OF GROUNDWELL #7	9006253	HIGHLY COMPACTED SOIL SLAG AT 12" LEVEL
D	13	15' SOUTH OF PIT #3	9006254	LIGHT, GRANULAR, BLACK DIRT WITH 50% BALLAST ROCK, SANDY STRATA FROM 20"-24"
D	14	10' SOUTH OF PIT #3	9006255	30% SLAG, 50% SAND, 20% BALLAST ROCK FROM 0"-24"
D	15	12' SOUTH/SOUTHWEST OF PIT #3	9006256	30% DARK GRANULAR DIRT, 50% BALLAST ROCK AND 20% LARGE ROCKS
E	16	0'NORTH OF PROCESS BUILDING, ON LEFT OF SERVICE ROAD	9006257	85% BALLAST ROCK, 15% DARK GRANULAR DIRT
E	17	20'NORTH OF PROCESS BUILDING ON LEFT OF SERVICE ROAD	9006258	DARK, DRY SOIL WITH 100S BALLAST ROCK BELOW 18" LEVEL
E	18	20' NORTH OF PROCESS BUILDING ON RIGHT OF SERVICE ROAD	9006259	GRANULAR DARK DIRT WITH 85% BALLAST ROCK
E	19	10' NORTH OF PROCESS BUILDING ON RIGHT OF SERVICE ROAD	9006260	SANDY SOIL WITH 65% BALLAST ROCK
A	20	DUPLICATE SAMPLE SEE SAMPLE #2	9006261	DUPLICATE #2

TARGET COMPOUND LIST WORK TABLE

PROJECT: 4000 River Road
DATE: January, 1991
TAT PM: Lawson

CONCENTRATION: ppb

VOLATILES	SAMPLE # 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Chloromethane																				
2. Bromomethane																				
3. Vinyl Chloride																				
4. Chloroethane																				
5. Methylene Chloride	6J	11	8	33	131J	13	49	33	48	96	110	94J	117J	50J	95	150	263	88	119	44
6. Acetone					2124															
7. Carbon Disulfide																				
8. 1,1-Dichloroethene																				
9. 1,1-Dichloroethane																				
10. trans-1,2-Dichloroethene																				
11. Chloroform																				
12. 1,2-Dichloroethane																				
13. 2-Butanone					156J															
14. 1,1,1-Trichloroethane																				
15. Carbon Tetrachloride																				
16. Vinyl Acetate																				
17. Bromodichloromethane																				
18. 1,1,2,2-Tetrachloroethane																				
19. 1,2-Dichloropropane					760															
20. trans-1,3-Dichloropropene																				
21. Trichloroethene																				
22. Dibromochloromethane																				
23. 1,1,2-Trichloroethane																				
24. Benzene					70J															
25. cis-1,3-Dichloropropene																				
26. 2-Chloroethyl Vinyl Ether																				
27. Bromoform																				
28. 2-Hexanone																				
29. 4-Methyl-2-pentanone																				
30. Tetrachloroethene					1052				13	20J	13J	23J	114J	28J	6J					
31. Toluene					5506															
32. Chlorobenzene																				
33. Ethyl Benzene					2365															
34. Styrene																				
35. Total Xylenes (o,m,p)					9862															
36. O-Xylene	24				4865															

AREA A

TARGET COMPOUND LIST WORK TABLE

PROJECT: 4000 River Road
DATE: January, 1991
TAT PM: Lawson

CONCENTRATION: ppb

	SAMPLE #				
SEMI-VOLATILES/BNA's	*1*	*2*	*3*	*4*	*20*
bis(2-Chloroisopropyl) ether	172				
Hexachloroethane	165				
Isophorone	254				
Naphthalene	230				
Fluorene		62	56	63	97
4,6-Dinitro-2-methylphenol	1132				
4-Bromophenyl Phenyl ether			203	222	194
Phenanthrene	403				
Di-n-butylphthalate	633			143	
Benzidine	185				
Benzo(a)anthracene	242				
bis(2-ethylhexyl)phthalate	1010	638	129	515	281
Chrysene	274				
Di-n-octyl Phthalate	543				

CONCENTRATION: ppm

METALS/CN	*1*	*2*	*3*	*4*	*20*
Aluminum	~~3700R~~	~~1200R~~	~~1080R~~	~~1320R~~	~~1660R~~
Antimony			5.71		
Arsenic	46	8.01	4.38		7.66
Barium	374	11.3	5.94	7.48	13.8
Calcium	~~15900R~~	~~35200R~~	~~29700R~~	~~10200R~~	~~36200R~~
Chromium	11.4	5.3			
Cobalt	19.3				
Copper	15.8				8.28
Iron	~~44600R~~	~~4640R~~	~~3940R~~	~~3810R~~	~~5470R~~
Lead	15.7		6.66	7.29	7.22
Magnesium	~~1520R~~	~~6880R~~	~~6080R~~	~~3740R~~	~~12400R~~
Manganese	~~29800R~~	~~356R~~	~~220R~~	~~92.9R~~	~~337R~~
Potassium	451	142	128	164	937
Sodium	58.1	38.9	42.5	36	56.9
Zinc	29.5	16.6	18.7	19.2	
% Solids	82.5	95.7	96.9	89.3	85.6

AREA B
TARGET COMPOUND LIST WORK TABLE

PROJECT: 4000 River Road
DATE: January, 1991
TAT PM: Lawson

CONCENTRATION: ppb

	SAMPLE #			
SEMI-VOLATILES/BNA's	*5*	*6*	*7*	*8*
Phenol		1398		
2-Methylphenol			274	
4-Methylphenol		1495	107	
Benzoic Acid			87	
Naphthalene		29658		505
2-Methylnaphthalene		15865	276	233
Acenaphthene	97	22601		
Dibenzofuran	68			103
Fluorene	82	7634	76	41
Phenanthrene	200		536	459
Anthracene	211		115	92
Di-n-butylphthalate				314
Fluoranthene	127		334	187
Pyrene	75	26651	338	162
Butyl Benzyl Phthalate		713	127	41
Benzo(a)anthracene		5741	221	95
bis(2-ethylhexyl)phthalate		6607	1950	1769
Chrysene		7370	253	123
Di-n-octyl Phthalate			205	85
Benzo(b)fluoranthene		4165	575	201
Benzo(k)fluoranthene		8904	797	278
Benzo(a)pyrene			283	82
3 Methyl phenol			107	
2,3,4,6-Tetrachlorophenol		35968		

CONCENTRATION: ppm

METALS/CN	*5*	*6*	*7*	*8*
Aluminum	~~11300R~~	~~4820R~~	~~6380R~~	~~5350R~~
Arsenic	37.6	7.85	15	10.2
Barium	291	70.3	96.1	81.6
Cadium	6.54	7.56	6.4	8.92
Calcium	~~13700R~~	~~25800R~~	~~43000R~~	~~34900R~~
Chromium	575	35.7	77.6	41.2
Cobalt	21.6			
Copper	998	40.5	92.2	43.4
Iron	~~33600R~~	~~10000R~~	~~41,800R~~	~~18,700R~~
Lead	197	269	227	275
Magnesium	~~1740R~~	~~968R~~	~~1360R~~	~~1100R~~
Manganese	~~2610R~~	~~1190R~~	~~1610R~~	~~1450R~~
Nickel	142	11.2	34.1	12.8
Potassium	187	408	489	506
Sodium	176	119	172	157
Vanadium	18.9			
Zinc	264	1049	902	1071
Cyanide		3.6	4.27	1.34
% Solids	88.9	92.8	92.1	91.9

TARGET COMPOUND LIST WORK TABLE

PROJECT: 4000 River Road
DATE: January, 1991
TAT PM: Lawson

CONCENTRATION: ppb

	SAMPLE #		AREA C			AREA D	
SEMI-VOLATILES/BNA's	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Naphthalene		1037					
2-Methylnaphthalene	284	924					
Acenapthylene		112					
Acenaphthene	70			3196			
Dibenzofuran		392					
Phenanthrene	577	696	5210	749	713	503	
Anthracene	609	734	869	2032			
Di-n-butylphthalate	220						
Fluoranthene	122	148	13441	2102	1581		
Pyrene	232	164	20957	5362	2741	784	
Benzo(a)anthracene	458	88	14012	2091	1249		
bis(2-ethylhexyl)phthalate	2389	362					134
Chrysene	513	94	13657	3341	1544		
Benzo(b)fluoranthene	316		21632	6933			
Benzo(k)fluoranthene	438			14823			
Benzo(a)pyrene			9500				
Indeno(1,2,3-cd)pyrene			11415				
Benzo(g,h,i)perylene			18062				

CONCENTRATION: ppm

	AREA C				AREA D		
METALS/CN	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Aluminum	~~5740R~~	~~36800R~~	~~10400R~~	~~16800R~~	~~3050R~~	~~3500R~~	~~7980R~~
Antimony		20.8					
Arsenic	33.5	56.7	50.6	29.1	3.47	4.47	
Barium	621	633	167	680	39.3	32.3	174
Beryllium		3.66		2.1			
Cadium	4.98		2.56	3.04			
Calcium	~~14900R~~	~~14600R~~	~~23300R~~	~~103000R~~	~~59900R~~	~~2630R~~	~~108000R~~
Chromium	37.4		28.4	36.2	5.76	7.12	16.3
Cobalt	7.45	8.74	7.21	6.57			
Copper	19.1	12100	24.6	259	16.4	21.1	27.6
Iron	~~21700R~~	~~13600R~~	~~51600R~~	~~73600R~~	~~13700R~~	~~17400R~~	~~24900R~~
Lead	218	3570	777	1110	34.3	43.8	52.5
Magnesium	~~2370R~~	~~33400R~~	~~4600R~~	~~18800R~~	~~36300R~~	~~558R~~	~~44300R~~
Manganese	~~7920R~~	~~3720R~~	~~2400R~~	~~2660R~~	~~599R~~	~~263R~~	~~3350R~~
Mercury	0.72		0.12	0.32	0.25	0.12	0.33
Nickel	11.9	15.1	15.5	15.5			
Potassium	664	2190	995	981	535	613	699
Selenium		1.64					
Silver		~~6.66R~~					
Sodium	92.1	369	173	262	120	84	236
Vanadium	40.9	9.62	29.8	12.4	7.58	6.18	27.5
Zinc	977	309	486	322	66.6	86.3	123
Cyanide	1.52		0.77				0.51
% Solids	79.6	71.5	87.3	88.9	93.3	90.3	86

AREA E

TARGET COMPOUND LIST WORK TABLE

PROJECT: 4000 River Road
DATE: January, 1991
TAT PM: Lawson

CONCENTRATION: ppb

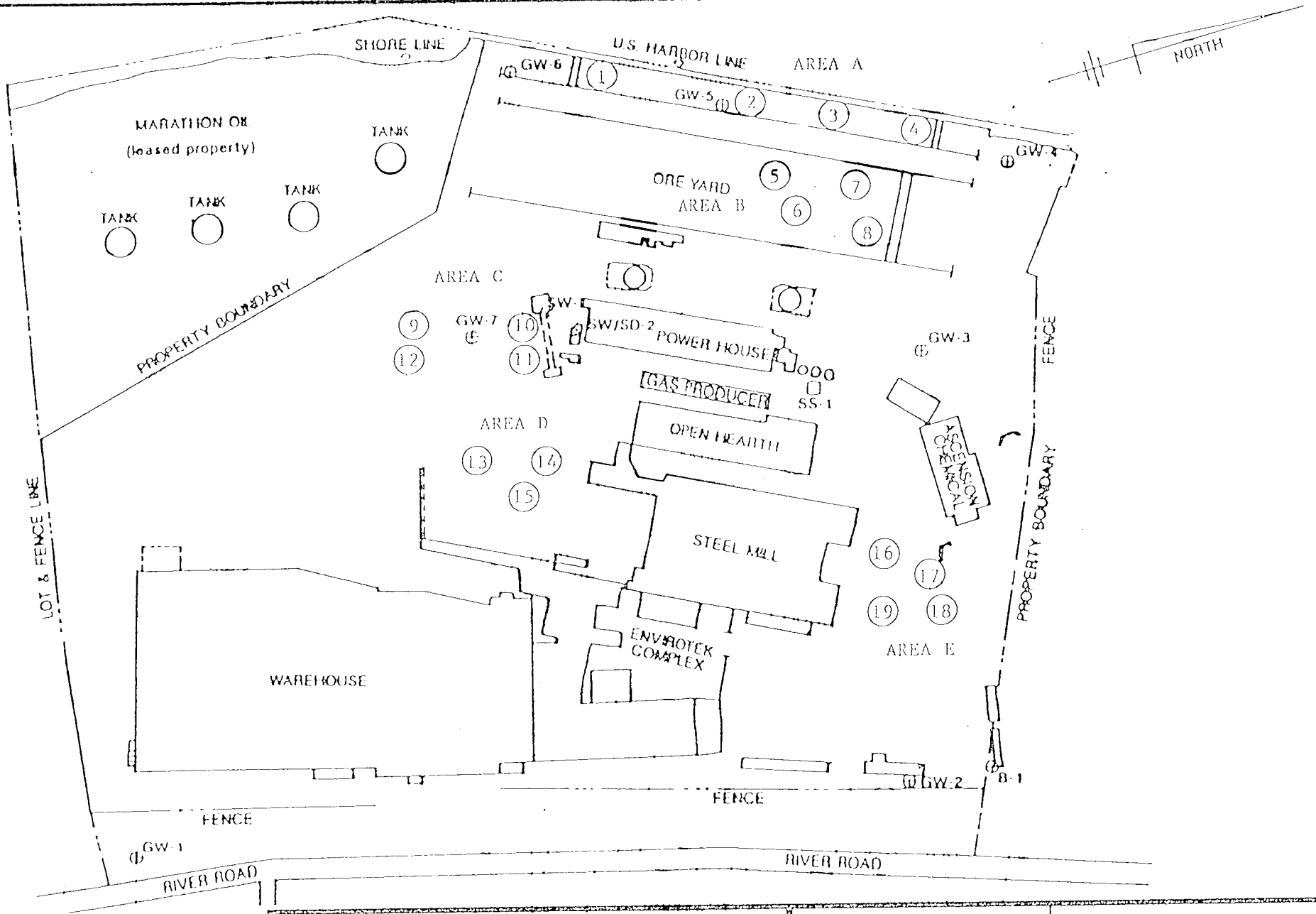
	SAMPLE #			
SEMI-VOLATILES/BNA's	*16*	*17*	*18*	*19*
Phenanthrene		683		1550
Fluoranthene				2095
Pyrene				1518
Benzo(a)anthracene				1373
bis(2-ethylhexyl)phthalate	1291			
Chrysene		406		1515
Benzo(b)fluoranthene				2303
Benzo(a)pyrene				1500
Indeno(1,2,3-cd)pyrene				686

CONCENTRATION: ppm

METALS/CN	*16*	*17*	*18*	*19*
Aluminum	~~2060R~~	~~6630R~~	~~17500R~~	~~10500R~~
Arsenic	8.45	16.1	60.5	29.1
Barium	30	113	396	135
Beryllium			2.43	1.3
Cadium		2.09	2.93	1.79
Calcium	~~5650R~~	~~52700R~~	~~86700R~~	~~67300R~~
Chromium	6.45	13.4	33.6	98.7
Cobalt			6.99	9.3
Copper	21.1	51.1	29.2	289
Iron	~~13400R~~	~~29800R~~	~~119000R~~	~~67300R~~
Lead	22.8	118	80.1	1360
Magnesium	~~1300R~~	~~23100R~~	~~20100R~~	~~29500R~~
Manganese	~~160R~~	~~1280R~~	~~5500R~~	~~2920R~~
Mercury	0.71	0.38	0.17	0.18
Nickel	7.75	9.88	8.59	33.6
Potassium	252	681	1470	1010
Sodium	117	213	551	610
Vanadium	8.16	13.8	48.5	23.2
Zinc	52.9	190	184	2580
Cyanide		6.18	5.76	0.44
% Solids	89.8	88.1	84.6	80.9

ATTACHMENT B

SAMPLING LOCATION MAP



Soil sample location = (1)

WESTON — SPILL PREVENTION & EMERGENCY RESPONSE DIVISION

In Association with ICF Technology Inc., C.C. Johnson & Associates, Inc., Resource Applications, Inc., Geo/Resource Consultants, Inc., and Environmental Toxicology International, Inc.

EPA PM
HARRINGTON

TAT PM
LAWSON

SOIL SAMPLE LOCATIONS

4000 RIVER ROAD

ATTACHMENT C

CONTAMINANT GUIDELINES

Langan Environmental Services, Inc.
River Drive Center 2
Elmwood Park, New Jersey 07407
(201) 794-6900

NJ DEP Guidelines* - Contaminants In Soil

	Compound	Guideline (ppm-mg/kg)
Metals	arsenic	20
	cadmium	3
	chromium	100
	copper	170
	lead	100
	mercury	1
	nickel	100
	selenium	4
	silver	5
	zinc	350
Organics	total volatiles	1
	total base neutral extractables	10
	total acid extractables	10
	total petroleum hydrocarbons	100
	total PCB's	1 to 5
Other	cyanide	12

*used informally in evaluating possible cleanup requirements

Dr. Donald J. Murphy, P.E.
PRESIDENT

Langan Environmental Services, Inc.
River Drive Center 2
Elmwood Park, New Jersey 07407
(201) 794-6900

NJ DEP Guidelines* - Contaminants In Groundwater

	Compound	Guideline (ppb-ug/l)
Metals	arsenic	50
	barium	1000
	chromium	50
	lead	50
	copper	1000
	zinc	5000
	cadmium	10
	selenium	10
	mercury	2
	silver	50
Organics	total volatiles	10
	total base neutral extractables	50
	total acid extractables	50
	total petroleum hydrocarbons	1000
	total PCB's	1
Other	cyanide	200

*used informally in evaluating possible cleanup requirements

Dr. Donald J. Murphy, P.E.
PRESIDENT

ASTDR.

REVISED JUNE 22, 1984 MCCLANAHAN 847C

BACKGROUND LEVELS of METALS IN SOILS

ELEMENT		CONCENTRATION IN SOILS mg/kg (ppm) RANGE	TYPICAL MEDIUM	SOURCE
ANTIMONY	Sb	- - 150	6	4, 5 and 7
ARSENIC	As	0.1 - 194	11	2
BORON	B	2 - 130	10	1
CADMIUM	Cd	0.01 - 7	0.5	1
CALCIUM	Ca	LT 150 - 320,000	24,000	3
CHROMIUM	Cr	5 - 3,000	100	1
COBALT	Co	1 - 40	8	1
COPPER	Cu	2 - 100	20	1
FLOURINE	F	6 - 7070	270	2
IRON	Fe	100 - GT 100,000	25,000	2
LEAD	Pb	LT 1 - 888	29	2
MANGANESE	Mn	50 - 18,300	850	1 and 2
MERCURY	Hg	0.01 - 4.6	0.098	2
MOLYBDENUM	Mo	0.2 - 5	2	1
NICKEL	Ni	0.1 - 1,530	34	2
SELENIUM	Se	0.1 - 38	0.2	1
SILVER	Ag	0.01 - 8	0.4	2
STRONTIUM	Sr	LT 3 - 3,500	278	2
THORIUM	Th	2 - 13	9	6
TIN	Sn	2 - 200	10	1
VANADIUM	Va	LT 7 - 500	100	1 and 3
YTTRIUM	Y	LT 10 - 200	29	3
ZINC	Zn	10 - 2,000	54	2

NOTE GT GREATER THAN
LT LESS THAN

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7. "GEOCHEMISTRY OF SOME ROCKS, SOIL, PLANT AND VEGETABLES IN THE CONTERMINOUS UNITED STATES", GEOLOGICAL SURVEY PROFESSIONAL PAPER 574 F 1975

WESTON Suite 201, 1090 King Georges Post Road,
Edison, NJ 08837, • (201) 225-6116 • FAX (201) 225-7037

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-7367

TAT-02-F-06188 **MEMORANDUM**

TO: Dwayne Harrington, EPA OSC

FROM: Beverly Lawson, TAT II PM for
Michael Mentzel, TAT II QC MM

DATE: February 6, 1991

SUBJECT: Envirotek II Subsurface Soil Sampling Analytical Results
September 10 & 11, 1990

This memorandum summarizes the analytical results of the subsurface (24" depth) soil sampling activities performed by TAT on September 10 and 11, 1990, at the Envirotek II/4000 River Road site, Tonawanda, New York. Analytical results are summarized in Attachment A.

A description of each sample location follows. Refer to Attachment B for a graphic representation of the sample locations.

NOTE: Samples 1, 2, 3, 4 and 20 (20 is a duplicate of #2) were taken along the quay (Area "A"). This is the area along the waterfront. It is likely that this entire apron is man made, utilizing gravel and sand fill designed to support road, rail lines, and cargo handling.

- Sample 1 - Sandy and clay entire depth with 50% larger gravel-rocks. Sample taken at 19" 1450 hours.

- Sample 2 and 20 (Duplicate) - Entire depth sand and fine gravel (dredged fill). Sample obtained at 1430 hours.

- Sample 3 - Depth 24" sand and fines, highly visible green and blue stains towards the 24" level, fines look like dredged fill. Sample obtained 1410 hours.

- Sample 4 - Sample taken at 22" depth, soil profile 80% ballast, 20% sand. Sample obtained at 1400 hours.

NOTE: Sample 5, 6, 7, and 8 were taken at area near the waterfront (Area "B") - Not the level immediately on the water, but the "plateau" at a ten foot higher elevation. It is a large, graded field which had been cleared for the TAT Region IV magnetometer survey.

- Sample 5 - Light brown granular fill dirt, 20% tan, oil looking "sand coating" material. Much debris such as 1/4" ID rubber base (such as diesel fuel line material), greasy rags which looked and smelled like they had been used on large equipment. Sample obtained at a 24" depth at 1335 hours.

- Sample 6 - Compact sandy strata at 16"-18" then dark fill dirt. Sample obtained at 1340 hours.

- Sample 7 - Soil is clean fill, dark soil consistent through 2' depth. Sample obtained at 1450 hours.

- Sample 8 - TATs able to reach required depth for sampling. Soil was largely dark brown, clean fill with light compacted sand layer at 16-18" depth. Sample 8 obtained at 1430 hours.

NOTE: Samples 9, 10, 11, and 12 were located in the vicinity of monitoring well #7 (Area "C").

- Sample 9 - Profile largely similar to #10, dark granular dirt with 50 - 65% ballast. Sample obtained 20-22" depth after backhoe arrives and penetrates to this depth. Sample obtained at 1130 hours.

- Sample 10 - At 8-10" 30% granular black dirt 70% ballast. 10-12" tan compacted sand/"oil" layer, <u>may</u> be part of old sand casting materials. At 12" hit rocks debris and blue stains on compacted sand. Sample taken 18-20" at 1050 hours, unable to penetrate further depth.

- Sample 11 - Sample taken at 1145 hours from ± 20" depth. Soil profile very similar to #9 and 10.

- Sample 12 - Sample obtained at 1200 hours from 12" level. Unable to penetrate 12-14" with backhoe. Hard brick dust underneath this depth.

NOTE: Samples 13, 14, and 15 collected south of the steel mill along the access road (Area "D")

- Sample 13 - Top 16 - 18" light density, granular dark dirt with 50% soil ballast rock. From 20-24" dirt is tan sandy strata with some slag. Sample hole is clearly located in middle of former rail spur. Sample taken at 0945 hours, depth 24" amidst much metal debris (rail spikes and tie plates).

- Sample 14 - Located immediately to right of apron. Fourteen inch level 60% slack granular soil 40% ballast rock. Below 14" tan granular - gritty dirt with 20% rock 20% slag at 24" 1/2 dirt 1/2 gravel. Sample obtained at 1030 hours, 24" depth.

- Sample 15 - Located on left side of access road - first 1 - 8" consist of 30% dark granular dirt, 50% rail ballast 20% larger rocks. Eight-twelve inches breaking through bricks, slag, 20" grey gravel, granitic appearance. Sample taken at 24", 1015 hours, grey gravelly strata.

NOTE: Samples 16, 17, 18, and 19 taken from area to north of the steel mill (Area "E").

- Sample 16 - 24" at 1525 hours. 85% rail ballast, 15% dark granular dirt.

- Sample 17 - 18" at 1530 hours. Large grained dark dry dirt with 100% ballast below 18" level.

- Sample 18 - 18 -20" depth at 1515 hours. Dirt is granular, dark, and 85% ballast.

- Sample 19 - Taken at 22" at 1520 hours. Dark dry dirt with some sandy compacted layers (very gritty). 65% ballast.

- Sample 20 - Duplicated of Sample 2.

Samples were shipped to the lab listed below on September 12, 1990.

Accredited Laboratories, Inc.
Foot of Pershing Avenue, P.O. Box 369
Carteret, New Jersey 07008-0369
Telephone: (908) 541-2025

The laboratory had assigned a unique lab number to each sample location. Table 1 cross references the two documentation systems and summarizes pertinent information.

TABLE I

ENVIROTEK II
SOIL SAMPLING
SEPTEMBER 10-11, 1990

AREA	FIELD SAMPLING #	SAMPLING LOCATION	LAB SAMPLE #	SOIL PROFILE
A	1	20'EAST OF NIAGARA RIVER	9006244	SANDY, CLAY-LKIE, LARGE AMOUNT OF BALLAST ROCK AT 24" LEVEL
A	2	20' EAST OF NIAGARA RIVER	9006244	SANDY, FINE GRAVEL
A	3	20' EAST OF NIAGARA RIVER	9006246	SANDY SOIL WITH VISIBLE GREEN AND BLUE COLORATION
A	4	20'EAST OF NIAGARA RIVER	9006247	20% SAND, 80% BALLAST ROCK
B	5	40'EAST OF NIAGARA RIVER ON UPPER LEVEL ABOVE SERVICE ROAD	9006248	LOOSE FILL DIRT, 20% OILY "SAND CASTING" MATERIAL
B	6	40'EAST OF NIAGARA RIVER ON UPPER LEVEL ABOVE SERVICE ROAD	9006249	SANDY STRATA TO 18" FILL DIRT FROM 18"-24"
B	7	40'EAST OF NIAGARA RIVER ON UPPER LEVEL ABOVE SERVICE ROAD	9006243	CLEAN FILL, DARK SOIL TO 24" DEPTH
B	8	40'EAST OF NIAGARA RIVER ON UPPER LEVEL ABOVE SERVICE ROAD	9006242	CLEAN FILL SOIL WITH SANDY LAYER AT 16"-18"
C	9	20'SOUTH/SOUTHWEST OF GROUNDWELL #7	9006250	30% GRANULAR BLACK DIRT REMAINDER BEING BALLAST ROCK
C	10	5' WEST OF GROUNDWELL #7	9006251	30% GRANULAR BLACK DIRT, REMAINDER BEING BALLAST ROCK
C	11	20'EAST OF GROUNDWELL #7	9006252	30% GRANULAR BLACK DIRT REMAINDER BEING BALLAST ROCK
D	12	20' SOUTH/SOUTHEAST OF GROUNDWELL #7	9006253	HIGHLY COMPACTED SOIL SLAG AT 12" LEVEL
D	13	15' SOUTH OF PIT #3	9006254	LIGHT, GRANULAR, BLACK DIRT WITH 50% BALLAST ROCK, SANDY STRATA FROM 20"-24"
D	14	10' SOUTH OF PIT #3	9006255	30% SLAG, 50% SAND, 20% BALLAST ROCK FROM 0"-24"
D	15	12' SOUTH/SOUTHWEST OF PIT #3	9006256	30% DARK GRANULAR DIRT, 50% BALLAST ROCK AND 20% LARGE ROCKS
E	16	0'NORTH OF PROCESS BUILDING, ON LEFT OF SERVICE ROAD	9006257	85% BALLAST ROCK, 15% DARK GRANULAR DIRT
E	17	20'NORTH OF PROCESS BUILDING ON LEFT OF SERVICE ROAD	9006258	DARK, DRY SOIL WITH 1005 BALLAST ROCK BELOW 18" LEVEL
E	18	20' NORTH OF PROCESS BUILDING ON RIGHT OF SERVICE ROAD	9006259	GRANULAR DARK DIRT WITH 85% BALLAST ROCK
E	19	10' NORTH OF PROCESS BUILDING ON RIGHT OF SERVICE ROAD	9006260	SANDY SOIL WITH 65% BALLAST ROCK
A	20	DUPLICATE SAMPLE SEE SAMPLE #2	9006261	DUPLICATE #2

ANALYTICAL SUMMARY

All samples were analyzed for Target Compound List (TCL) and Target Analyte List (TAL) parameters. A private laboratory was utilized through TAT Analytical Services. However, Contract Lab Program (CLP) procedures were adhered to.

The data was reviewed for QA/QC compliance by certified TAT personnel, significant analyte values have been summarized in this section. Actual raw lab data is available in the TAT file system.

It is noteworthy that TAT qualified some of the metals data due to holding times being exceeded, low surrogate recoveries, and inadequate calibration. Any data rejected cannot be used to draw any conclusions as to the presence of absence of the given contaminant in the associated locations. However, it is understood that the rejected data may hold some credence wherever site specific and historical information offer no apparent contradiction. Values qualified with a "J" in the raw data are estimated values. All data reported in Attachment A are estimated.

Relatively few Volatile Organic Compounds (VOCs) were found in the soil and slag which cover the site. This is to be expected given the nature and history of the area. Some exceptions, however, are discussed below. Excluding sample location #5, maximum aggregate total VOC contamination is well below the ARAR NJDEP guidelines of 1 ppm for evaluating possible ECRA clean up requirements.

Groundwater samples collected in November 1990 should provide additional information as to the potential for off-site migration.

No PCB or pesticide contamination was detected in any sample collected.

Contamination by inorganic compounds appears consistent with background levels to be expected at an industrial property (see Appendix C), no further discussion will be made concerning inorganic material.

VOLATILE ORGANIC COMPOUNDS (VOCs) DISCUSSION

Four observations can be made upon interpretation of the analytical data. First every sample collected contained contamination by methylene chloride. Since methylene chloride was not used in the sample decontamination process and the laboratory reported no detection in the blank, inadvertent contamination can most likely be ruled out. Secondary, all the samples collected from areas "C" and "D" were contaminated with tetrachloroethene (PCE). These areas are located south of the former steel mill. Third sample #1 showed contamination with ortho xylene at 24 ppb.

Lastly, sample #5 exhibited substantial contamination by 10 VOCs. Based upon the sample description this location may have been an isolated dumping ground.

Compounds and values are listed in Attachment A.

In addition to values listed above, VOCs were detected in most samples at concentrations below the method detection limit. These reported values area of little consequence and need not be considered in the decision making process of this project. A summary of these values are included below. These values have not been included in the data summary tables.

Two-butanone was found in nearly every sample at concentrations ranging from one to four ppb. This compound was also found in the method blank for three days prior to the run date.

Carbon disulfide was found in sample #17 at 2 ppb.

Trichloroethene was found in samples #8, 9, 11, 13, 14, 15, and 16, ranging from 1 to 5 ppb.

Toluene was found in samples 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, and 20 ranging from 1 to 4 ppb.

Benzene was found in sample #17 at 1 ppb.

Xylenes were found in samples #10 and 13 at 2 ppb.

SEMIVOLATILE ORGANIC COMPOUND DISCUSSION

As shown in the tables included in Attachment A, contamination by semivolatile organic compounds is prevalent in the soil/slag throughout the site. In many cases the aggregate total of semivolatile exceeds the NJDEP ARAR of 10 ppm (10,000 ppb).

CONCLUSION

Volatile organic contamination is insignificant except in location 5.

Semivolatile contamination appears to exceed the ARAR for triggering a clean-up under the New Jersey ECRA law.

PCB/Pesticide and inorganic contamination does not add to the requirements for a removal action.

ATTACHMENT A

DATA SUMMARY

TARGET COMPOUND LIST WORK TABLE

PROJECT: 4000 River Road
DATE: January, 1991
TAT PM: Lawson

CONCENTRATION: ppb

VOLATILES	SAMPLE # 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Chloromethane																				
2. Bromomethane																				
3. Vinyl Chloride																				
4. Chloroethane																				
5. Methylene Chloride	6J	11	8	33	131J	13	49	33	48	96	110	94J	117J	50J	95	150	263	88	119	44
6. Acetone					2124															
7. Carbon Disulfide																				
8. 1,1-Dichloroethene																				
9. 1,1-Dichloroethane																				
10. trans-1,2-Dichloroethene																				
11. Chloroform																				
12. 1,2-Dichloroethane																				
13. 2-Butanone					156J															
14. 1,1,1-Trichloroethane																				
15. Carbon Tetrachloride																				
16. Vinyl Acetate																				
17. Bromodichloromethane																				
18. 1,1,2,2-Tetrachloroethane																				
19. 1,2-Dichloropropane					760															
20. trans-1,3-Dichloropropene																				
21. Trichloroethene																				
22. Dibromochloromethane																				
23. 1,1,2-Trichloroethane																				
24. Benzene					70J															
25. cis-1,3-Dichloropropene																				
26. 2-Chloroethyl Vinyl Ether																				
27. Bromoform																				
28. 2-Hexanone																				
29. 4-Methyl-2-pentanone																				
30. Tetrachloroetnene					1052				13	20J	13J	23J	114J	28J	6J					
31. Toluene					5506															
32. Chlorobenzene																				
33. Ethyl Benzene					2365															
34. Styrene																				
35. Total Xylenes (o,m,p)					9862															
36. O-Xylene	24				4865															

AREA A

TARGET COMPOUND LIST WORK TABLE

PROJECT: 4000 River Road
DATE: January, 1991
TAT PM: Lawson

CONCENTRATION: ppb

SAMPLE #

SEMI-VOLATILES/BNA's	1	2	3	4	20
bis(2-Chloroisopropyl) ether	172				
Hexachloroethane	165				
Isophorone	254				
Naphthalene	230				
Fluorene		62	56	63	97
4,6-Dinitro-2-methylphenol	1132				
4-Bromophenyl Phenyl ether			203	222	194
Phenanthrene	403				
Di-n-butylphthalate	633			143	
Benzidine	185				
Benzo(a)anthracene	242				
bis(2-ethylhexyl)phthalate	1010	638	129	515	281
Chrysene	274				
Di-n-octyl Phthalate	543				

CONCENTRATION: ppm

METALS/CN	1	2	3	4	20
Aluminum	~~3700R~~	~~1200R~~	~~1080R~~	~~1320R~~	~~1660R~~
Antimony			5.71		
Arsenic	46	8.01	4.38		7.66
Barium	374	11.3	5.94	7.48	13.8
Calcium	~~15900R~~	~~35200R~~	~~29700R~~	~~10200R~~	~~36200R~~
Chromium	11.4	5.3			
Cobalt	19.3				
Copper	15.8				8.28
Iron	~~44600R~~	~~4640R~~	~~3940R~~	~~3810R~~	~~5470R~~
Lead	15.7		6.66	7.29	7.22
Magnesium	~~1520R~~	~~8880R~~	~~6080R~~	~~3740R~~	~~12400R~~
Manganese	~~29800R~~	~~356R~~	~~220R~~	~~92.9R~~	~~337R~~
Potassium	451	142	128	164	937
Sodium	58.1	38.9	42.5	36	56.9
Zinc	29.5	16.6	18.7	19.2	
% Solids	82.5	95.7	96.9	89.3	85.6

AREA B
TARGET COMPOUND LIST WORK TABLE

PROJECT: 4000 River Road
DATE: January, 1991
TAT PM: Lawson

CONCENTRATION: ppb

	SAMPLE #			
SEMI-VOLATILES/BNA's	***5***	***6***	***7***	***8***
Phenol		1398		
2-Methylphenol			274	
4-Methylphenol		1495	107	
Benzoic Acid			87	
Naphthalene		29658		505
2-Methylnaphthalene		15865	276	233
Acenaphthene	97	22601		
Dibenzofuran	68			103
Fluorene	82	7634	76	41
Phenanthrene	200		536	459
Anthracene	211		115	92
Di-n-butylphthalate				314
Fluoranthene	127		334	187
Pyrene	75	26651	338	162
Butyl Benzyl Phthalate		713	127	41
Benzo(a)anthracene		5741	221	95
bis(2-ethylhexyl)phthalate		6607	1950	1769
Chrysene		7370	253	123
Di-n-octyl Phthalate			205	85
Benzo(b)fluoranthene		4165	575	201
Benzo(k)fluoranthene		8904	797	278
Benzo(a)pyrene			283	82
3 Methyl phenol			107	
2,3,4,6-Tetrachlorophenol		35968		

CONCENTRATION: ppm

METALS/CN	***5***	***6***	***7***	***8***
Aluminum	~~11300R~~	~~4820R~~	~~6380R~~	~~5350R~~
Arsenic	37.6	7.85	15	10.2
Barium	291	70.3	96.1	81.6
Cadium	6.54	7.56	6.4	8.92
Calcium	~~13700R~~	~~25800R~~	~~43000R~~	~~34800R~~
Chromium	575	35.7	77.6	41.2
Cobalt	21.6			
Copper	998	40.5	92.2	43.4
Iron	~~33800R~~	~~10000R~~	~~41,800R~~	~~18,700R~~
Lead	197	269	227	275
Magnesium	~~1740R~~	~~968R~~	~~1360R~~	~~1100R~~
Manganese	~~2810R~~	~~1190R~~	~~1610R~~	~~1450R~~
Nickel	142	11.2	34.1	12.8
Potassium	187	408	489	506
Sodium	176	119	172	157
Vanadium	18.9			
Zinc	264	1049	902	1071
Cyanide		3.6	4.27	1.34
% Solids	88.9	92.8	92.1	91.9

TARGET COMPOUND LIST WORK TABLE

PROJECT: 4000 River Road
DATE: January, 1991
TAT PM: Lawson

CONCENTRATION: ppb

	SAMPLE #						
			AREA C			AREA D	
SEMI-VOLATILES/BNA's	9	10	11	12	13	14	15
Naphthalene		1037					
2-Methylnaphthalene	284	924					
Acenapthylene		112					
Acenaphthene	70			3196			
Dibenzofuran		392					
Phenanthrene	577	696	5210	749	713	503	
Anthracene	609	734	869	2032			
Di-n-butylphthalate	220						
Fluoranthene	122	148	13441	2102	1581		
Pyrene	232	164	20957	5362	2741	784	
Benzo(a)anthracene	458	88	14012	2091	1249		
bis(2-ethylhexyl)phthalate	2389	362					134
Chrysene	513	94	13657	3341	1544		
Benzo(b)fluoranthene	316		21632	6933			
Benzo(k)fluoranthene	438			14823			
Benzo(a)pyrene			9500				
Indeno1,2,3-cd)pyrene			11415				
Benzo(g,h,i)perylene			18062				

CONCENTRATION: ppm

			AREA C			AREA D	
METALS/CN	9	10	11	12	13	14	15
Aluminum	~~5740R~~	~~36300R~~	~~10400R~~	~~18300R~~	~~3050R~~	~~3500R~~	~~7980R~~
Antimony		20.8					
Arsenic	33.5	56.7	50.6	29.1	3.47	4.47	
Barium	621	633	167	680	39.3	32.3	174
Beryllium		3.66		2.1			
Cadium	4.98		2.56	3.04			
Calcium	~~14900R~~	~~14600R~~	~~23300R~~	~~108000R~~	~~59900R~~	~~2630R~~	~~108000R~~
Chromium	37.4		28.4	36.2	5.76	7.12	16.3
Cobalt	7.45	8.74	7.21	6.57			
Copper	19.1	12100	24.6	259	16.4	21.1	27.6
Iron	~~217000R~~	~~13600R~~	~~51600R~~	~~73600R~~	~~13700R~~	~~17400R~~	~~24900R~~
Lead	218	3570	777	1110	34.3	43.8	52.5
Magnesium	~~2370R~~	~~33400R~~	~~4600R~~	~~18800R~~	~~36300R~~	~~658R~~	~~44300R~~
Manganese	~~7920R~~	~~3720R~~	~~2400R~~	~~2660R~~	~~599R~~	~~263R~~	~~3350R~~
Mercury	0.72		0.12	0.32	0.25	0.12	0.33
Nickel	11.9	15.1	15.5	15.5			
Potassium	664	2190	995	981	535	613	699
Selenium		1.64					
Silver		~~6.66R~~					
Sodium	92.1	369	173	262	120	84	236
Vanadium	40.9	9.62	29.8	12.4	7.58	6.18	27.5
Zinc	977	309	486	322	66.6	86.3	123
Cyanide	1.52		0.77				0.51
% Solids	79.6	71.5	87.3	88.9	93.3	90.3	86

AREA E

TARGET COMPOUND LIST WORK TABLE

PROJECT: 4000 River Road
DATE: January, 1991
TAT PM: Lawson

CONCENTRATION: ppb

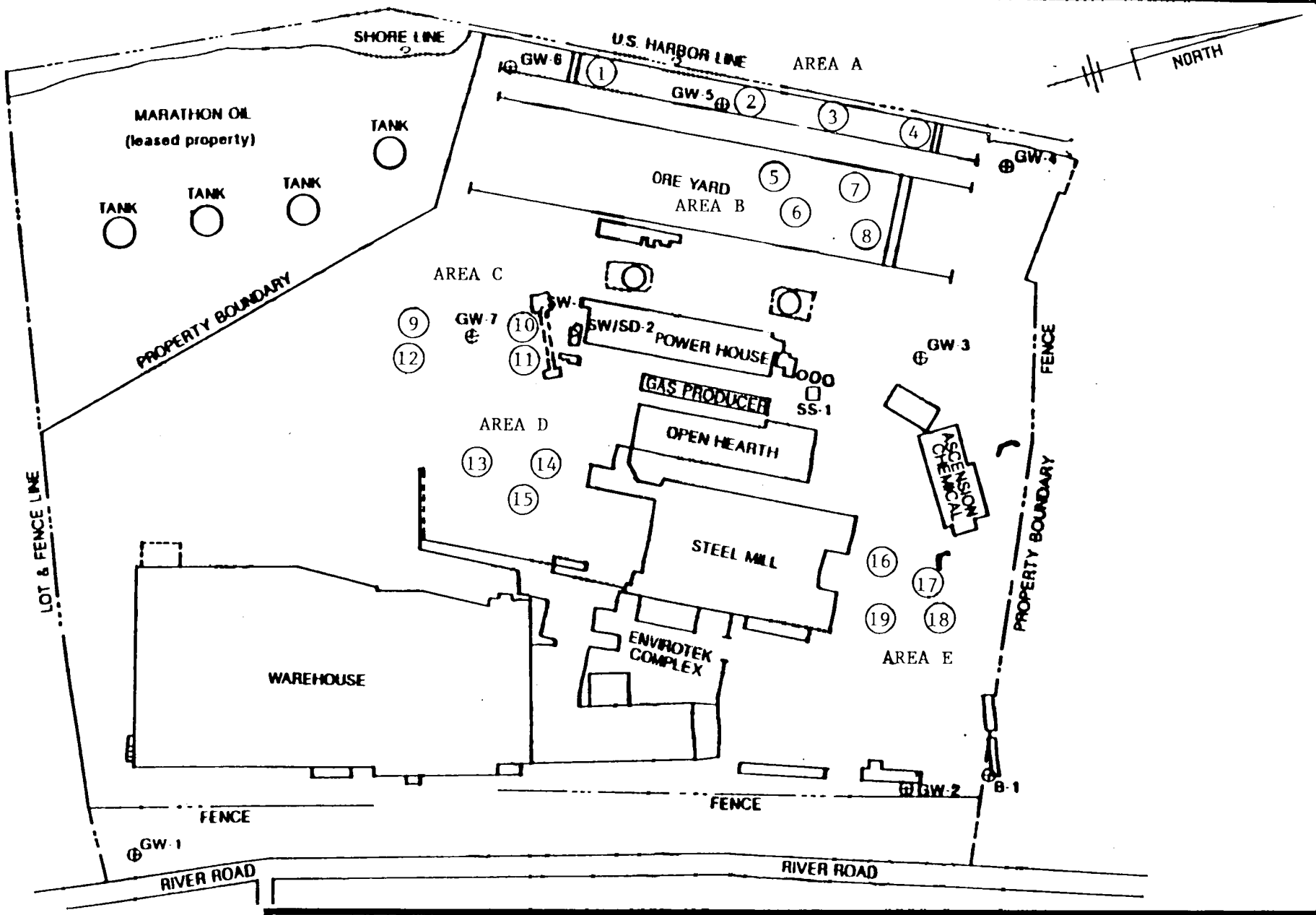
	SAMPLE #			
SEMI-VOLATILES/BNA's	*16*	*17*	*18*	*19*
Phenanthrene		683		1550
Fluoranthene				2095
Pyrene				1518
Benzo(a)anthracene				1373
bis(2-ethylhexyl)phthalate	1291			
Chrysene		406		1515
Benzo(b)fluoranthene				2303
Benzo(a)pyrene				1500
Indeno1,2,3-cd)pyrene				686

CONCENTRATION: ppm

METALS/CN	*16*	*17*	*18*	*19*
Aluminum	~~2060R~~	~~6630R~~	~~17500R~~	~~10500R~~
Arsenic	8.45	16.1	60.5	29.1
Barium	30	113	396	135
Beryllium			2.43	1.3
Cadium		2.09	2.93	1.79
Calcium	~~5650R~~	~~52700R~~	~~86700R~~	~~67300R~~
Chromium	6.45	13.4	33.6	98.7
Cobalt			6.99	9.3
Copper	21.1	51.1	29.2	289
Iron	~~13400R~~	~~29800R~~	~~119000R~~	~~67300R~~
Lead	22.8	118	80.1	1360
Magnesium	~~1300R~~	~~23100R~~	~~20100R~~	~~29500R~~
Manganese	~~168R~~	~~1280R~~	~~5500R~~	~~2920R~~
Mercury	0.71	0.38	0.17	0.18
Nickel	7.75	9.88	8.59	33.6
Potassium	252	681	1470	1010
Sodium	117	213	551	610
Vanadium	8.16	13.8	48.5	23.2
Zinc	52.9	190	184	2580
Cyanide		6.18	5.76	0.44
% Solids	89.8	88.1	84.6	80.9

ATTACHMENT B

SAMPLING LOCATION MAP



Soil sample location = (1)

WESTON MANAGERS DESIGNERS CONSULTANTS

SPILL PREVENTION & EMERGENCY RESPONSE DIVISION

In Association with ICF Technology Inc., C.C. Johnson & Associates, Inc., Resource Applications, Inc., Geo/Resource Consultants, Inc., and Environmental Toxicology International, Inc.

EPA PM
HARRINGTON

TAT PM
LAWSON

SOIL SAMPLE LOCATIONS

4000 RIVER ROAD

ATTACHMENT C

CONTAMINANT GUIDELINES

Langan Environmental Services, Inc.
River Drive Center 2
Elmwood Park, New Jersey 07407
(201) 794-6900

NJ DEP Guidelines*- Contaminants in Soil

	Compound	Guideline (ppm-mg/kg)
Metals	arsenic	20
	cadmium	3
	chromium	100
	copper	170
	lead	100
	mercury	1
	nickel	100
	selenium	4
	silver	5
	zinc	350
Organics	total volatiles	1
	total base neutral extractables	10
	total acid extractables	10
	total petroleum hydrocarbons	100
	total PCB's	1 to 5
Other	cyanide	12

*used informally in evaluating possible cleanup requirements

Dr. Donald J. Murphy, P.E.
PRESIDENT

Langan Environmental Services, Inc.
River Drive Center 2
Elmwood Park, New Jersey 07407
(201) 794-6900

NJ DEP Guidelines*- Contaminants in Groundwater

	Compound	Guideline (ppb-ul/l)
Metals	arsenic	50
	barium	1000
	chromium	50
	lead	50
	copper	1000
	zinc	5000
	cadmium	10
	selenium	10
	mercury	2
	silver	50
Organics	total volatiles	10
	total base neutral extractables	50
	total acid extractables	50
	total petroleum hydrocarbons	1000
	total PCB's	1
Other	cyanide	200

*used informally in evaluating possible cleanup requirements

Dr. Donald J. Murphy, P.E.
PRESIDENT

ASTDR.

REVISED JUNE 22, 1984 MCCLANAHAN 847C

BACKGROUND LEVELS of METALS IN SOILS

ELEMENT		CONCENTRATION IN SOILS mg/kg (ppm) RANGE	TYPICAL MEDIUM	SOURCE
ANTIMONY	Sb	- - 150	6	4, 5 and 7
ARSENIC	As	0.1 - 194	11	2
BORON	B	2 - 130	10	1
CADMIUM	Cd	0.01 - 7	0.5	1
CALCIUM	Ca	LT 150 - 320,000	24,000	3
CHROMIUM	Cr	5 - 3,000	100	1
COBALT	Co	1 - 40	8	1
COPPER	Cu	2 - 100	20	1
FLOURINE	F	6 - 7070	270	2
IRON	Fe	100 - GT 100,000	25,000	2
LEAD	Pb	LT 1 - 888	29	2
MANGANESE	Mn	50 - 18,300	850	1 and 2
MERCURY	Hg	0.01 - 4.6	0.098	2
MOLYBDENUM	Mo	0.2 - 5	2	1
NICKEL	Ni	0.1 - 1,530	34	2
SELENIUM	Se	0.1 - 38	0.2	1
SILVER	Ag	0.01 - 8	0.4	2
STRONTIUM	Sr	LT 3 - 3,500	278	2
THORIUM	Th	2 - 13	9	6
TIN	Sn	2 - 200	10	1
VANADIUM	Va	LT 7 - 500	100	1 and 3
YTTRIUM	Y	LT 10 - 200	29	3
ZINC	Zn	10 - 2,000	54	2

NOTE GT GREATER THAN
LT LESS THAN

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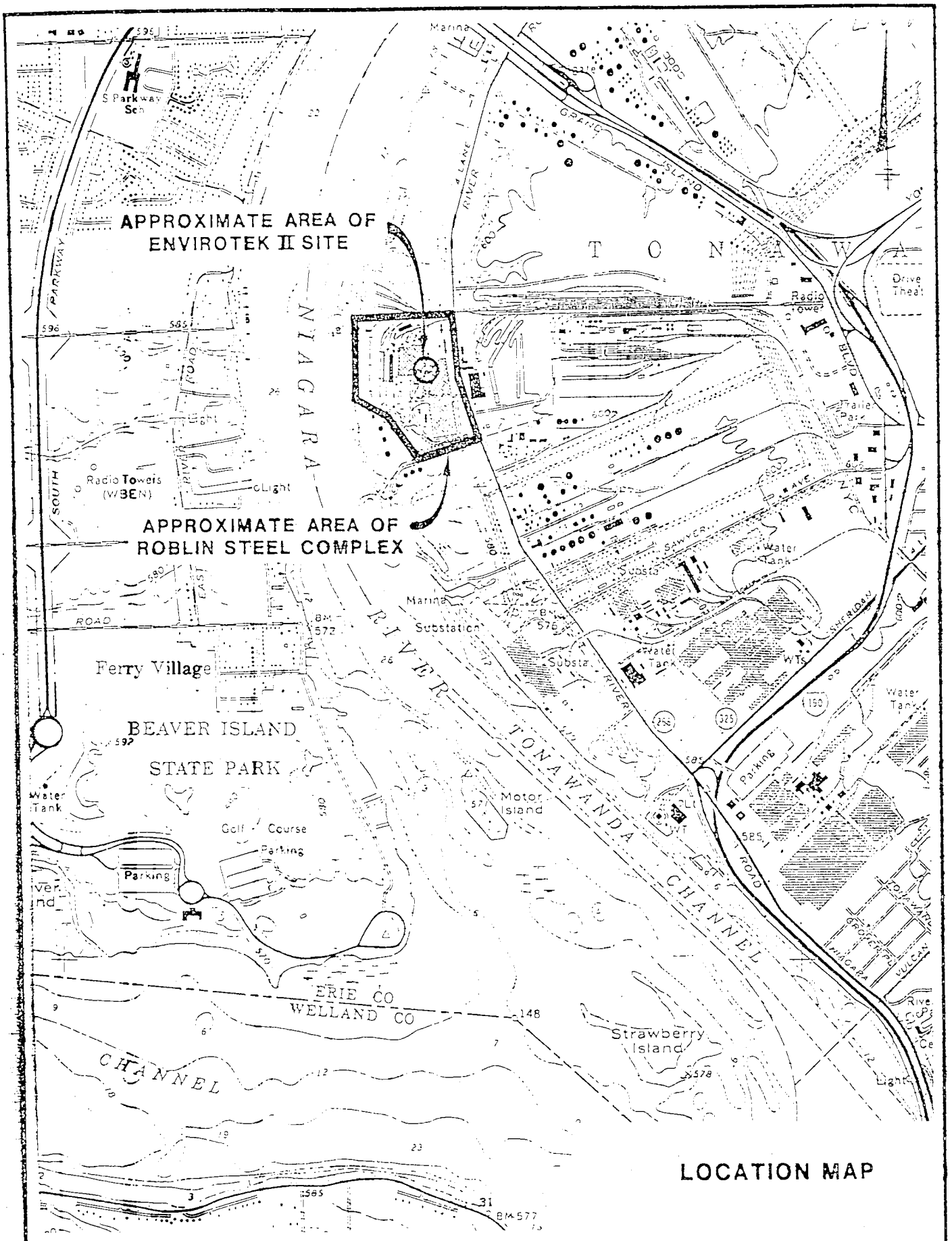
2. URE, A. M., AND M. L. BERROW, "ELEMENTAL CONSTITUENTS OF SOILS" ENVIRONMENTAL CHEMISTRY, VOL 2, pp 94-204 ed H. J. M. BOWEN, ROYAL SOCIETY OF CHEMISTRY, BURLINGHOUSE, LONDON, U.K. 1983.
3. SHACKLETTE, H. T., ET. AL., ET. AL., ELEMENTAL COMPOSITION OF SURFACIAL MATERIAL IN THE CONTERMINOUS UNITED STATES, USGS PROFESSIONAL PAPER 574-D 1971.
4. RAGAINI, R. C., ET. AL., "ENVIRONMENTAL TRACE CONTAMINATION IN KELLOG IDAHO NEAR LEAD SMELTING COMPLEX." ENVIR SCI AND TECHNOL 11 773-780 1977
5. LISK, D. J., "TRACE METALS IN SOILS, PLANTS, AND AMIMALS." ADV AGRON 24 267-311, 1972.
6. LECHLER, T. J., ET. AL., "MAJOR AND TRACE METAL ANALYSIS OF 12 REFERENCE SOILS BY INDUCTIVELY COUPLED PLASMA-ATOMIC EMISSION SPECTROMETRY." SOIL SCIENCE 130 238-241, 1980.
7. "GEOCHEMISTRY OF SOME ROCKS, SOIL, PLANT AND VEGETABLES IN THE CONTERMINOUS UNITED STATES", GEOLOGICAL SURVEY PROFESSIONAL PAPER 574 F 1975

ATTACHMENT 7
(From "Results of Sampling Plan, Envirotek II Superfund Site"
by the Technical Committee Participating PRPs by Blasland & Bouck,
June 1991)

FIGURE 1

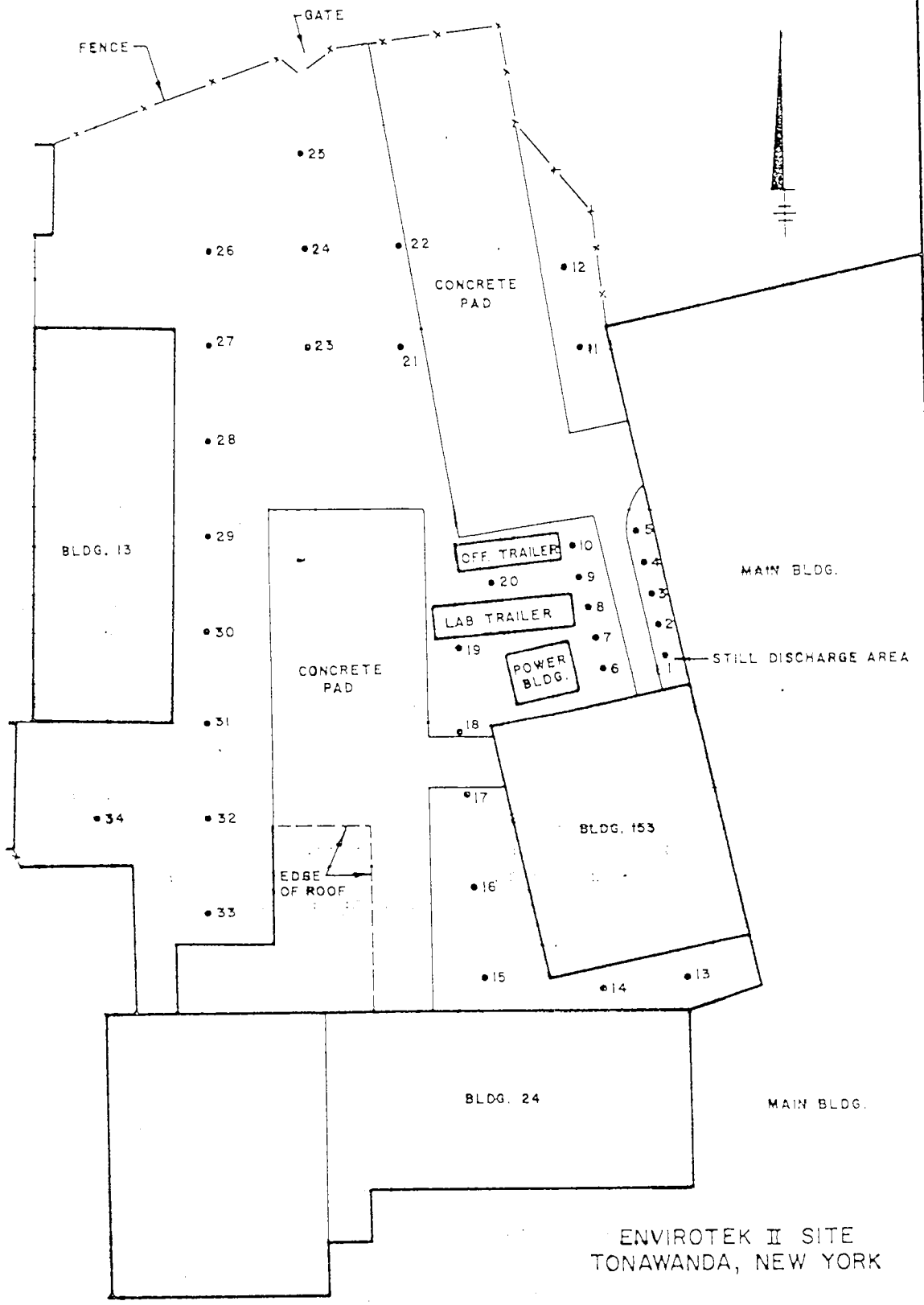


LOCATION MAP

6/90
580.01.06

BLASLAND & BOUCK ENGINEERS, P.C.
ENGINEERS & GEOSCIENTISTS

FIGURE 3



ENVIROTEK II SITE
TONAWANDA, NEW YORK

LEGEND

• SOIL GAS SAMPLE LOCATION

SOIL GAS SAMPLE LOCATIONS

SCALE

0 50'

NOTE: SAMPLES WERE NOT COLLECTED AT POINTS 4 AND 9

(9/11/90)

BLASLAND & BOUCK ENGINEERS, P.C.
ENGINEERS & GEOSCIENTISTS

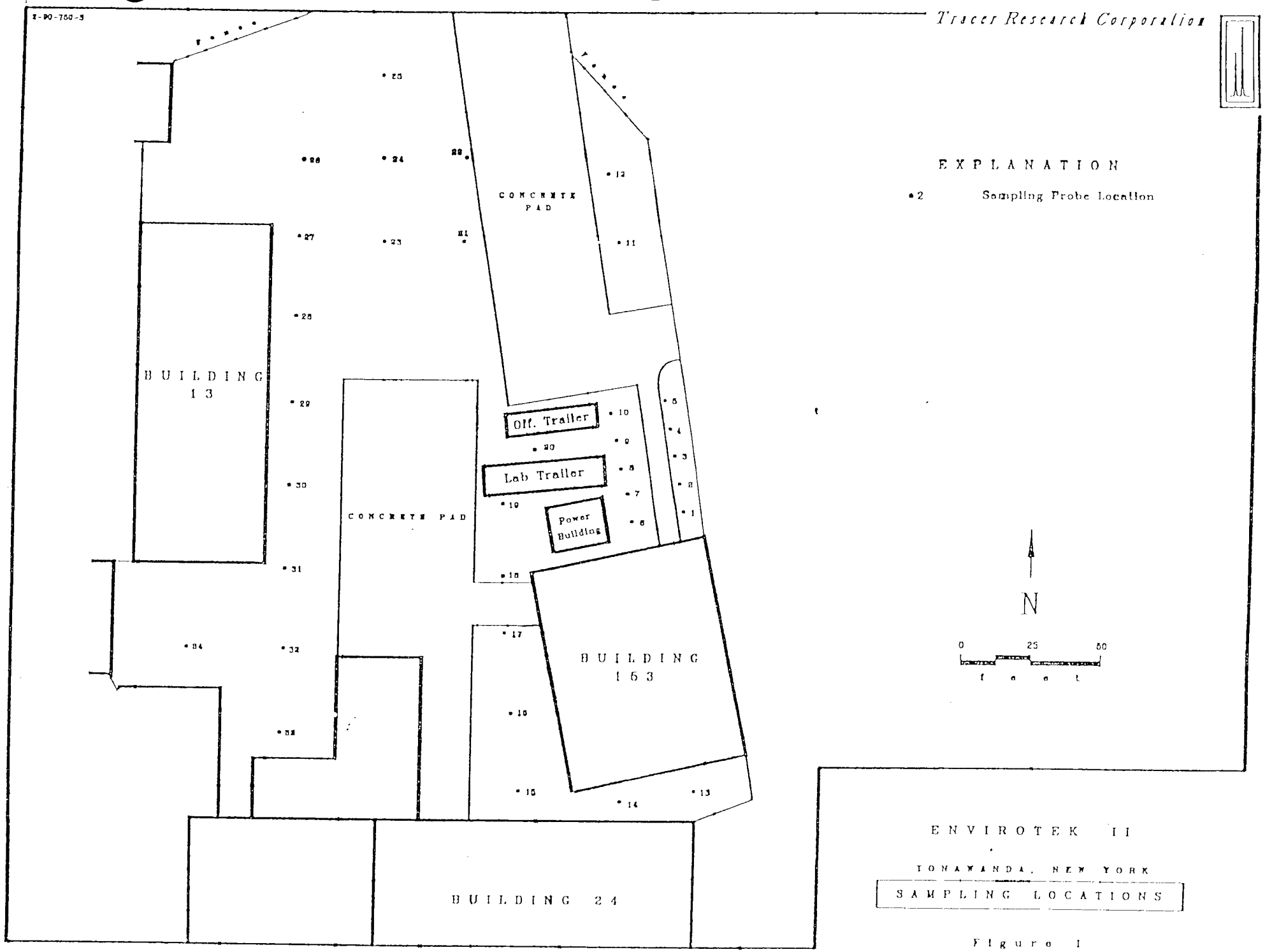
TABLE 3

SUMMARY OF
SOIL VAPOR SAMPLES - ANALYTICAL RESULTS

ENVIROTEK II SITE

Sample	TCA ug/l	TCE ug/l	PCE ug/l	Benzene ug/l	Toluene ug/l	EthylBen ug/l	Xylene ug/l
Air Sample	0.005	0.003	0.02	<0.2	<0.1	<0.1	<0.1
GP-1-2'	5000	3100	19000	<35	340	400	370
GP-1-5.5'	2100	1100	4800	<18	10	<12	17
GP-2-6'	1600	540	2400	<34	<2	<2	<2
GP-2-2'	12000	1500	8500	<420	1300	340	500
GP-3-2'	8100	2400	6000	<68	140	14	82
GP-3-6'	830	260	1800	<17	<2	<2	<2
GP-5-2'	1100	210	740	<17	6	<2	7
GP-5-6'	450	77	400	<7	<2	<2	<2
GP-6-2'	450	290	2500	<4	<2	<2	<2
GP-6-6'	1100	290	5300	<4	<2	<2	<2
GP-6-9'	2100	680	16000	<35	160	120	72
GP-7-2'	670	830	26000	<4	8	2	57
GP-7-6'	1100	440	2500	<4	<2	<2	<2
GP-7-9'	1000	680	2000	<17	12	<2	8
GP-8-2'	700	980	9600	<17	4	<2	7
GP-8-6'	770	240	1400	<17	<2	<2	<2
GP-8-9'	820	140	1200	<17	15	<4	36
GP-10-2'	930	340	2800	<17	6	<2	<2
GP-11-3'	3	0.5	2	<0.3	<0.2	<0.2	<0.2
GP-12-4'	0.7	0.3	0.9	<0.2	<0.1	<0.1	<0.1
GP-13-3'	0.2	0.06	0.6	<0.2	<0.1	<0.1	<0.1
GP-14-4'	21	57	320	<2	<1	<1	<1
GP-15-4'	58	<49	610	<2	<1	<1	<1
GP-16-4'	350	110	1900	<3	<2	<2	<2
GP-17-4'	270	170	1300	<3	<2	<2	<2
GP-18-4'	130	57	260	<2	<0.2	<0.2	<0.2
GP-19-4'	67	21	61	<2	<0.2	<0.2	<0.2
GP-20-3'	136	14	40	<0.8	2	<0.6	4
GP-21-4'	0.2	0.4	4	<0.3	<0.2	<0.2	<0.2
GP-22-4'	0.04	0.1	0.8	<0.3	<0.2	<0.2	<0.2
GP-23-3'	0.1	0.005	0.7	<0.2	<0.1	<0.1	<0.1
GP-24-2.5'	0.01	0.03	0.1	<0.2	<0.1	<0.1	<0.1
GP-25-4'	0.01	0.08	0.2	<0.2	<0.1	<0.1	<0.1
GP-26-4'	0.1	<0.01	2	<0.2	<0.1	<0.1	<0.1
GP-27-4'	0.4	0.005	0.8	<0.2	<0.1	<0.1	<0.1
GP-28-4'	2	2	16	<0.3	<0.2	<0.2	<0.2
GP-29-4'	4	8	23	<0.3	<0.2	<0.2	<0.2
GP-30-4'	1	2	6	<0.2	<0.1	<0.1	<0.1
GP-31-3'	23	15	25	<0.3	<0.2	<0.2	<0.2
GP-32-4'	23	20	7	<0.3	<0.2	<0.2	<0.2
GP-33-4'	5	76	4	<0.3	<0.2	<0.2	<0.2
GP-34-2.5'	2	2	0.3	<0.2	<0.1	<0.1	<0.1

V27.91



ENVIROTEK II

TONAWANDA, NEW YORK

SAMPLING LOCATIONS

Figure 1

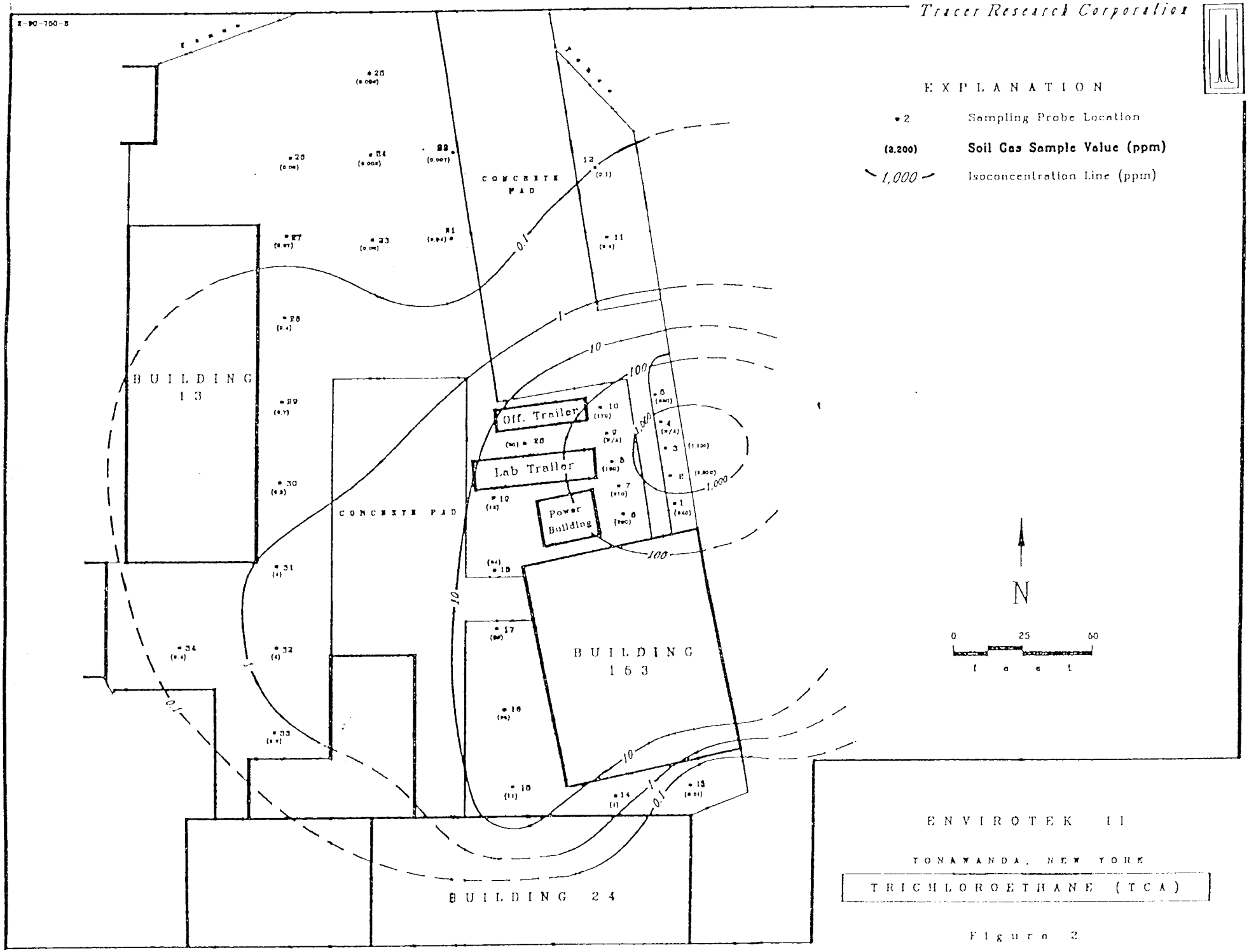

Tracer Research Corporation
EXPLANATION
• 2 Sampling Probe Location
(2,200) Soil Gas Sample Value (ppm)
1,000 Isoconcentration Line (ppm)
BUILDING 13
BUILDING 153
BUILDING 24
CONCRETE PAD
CONCRETE PAD
Off. Trailer
Lab Trailer
Power Building
0.1
1
10
100
1,000
N
0
25
50
feet
ENVIROTEK II
TONAWANDA, NEW YORK
TRICHLOROETHANE (TCA)

Figure 2

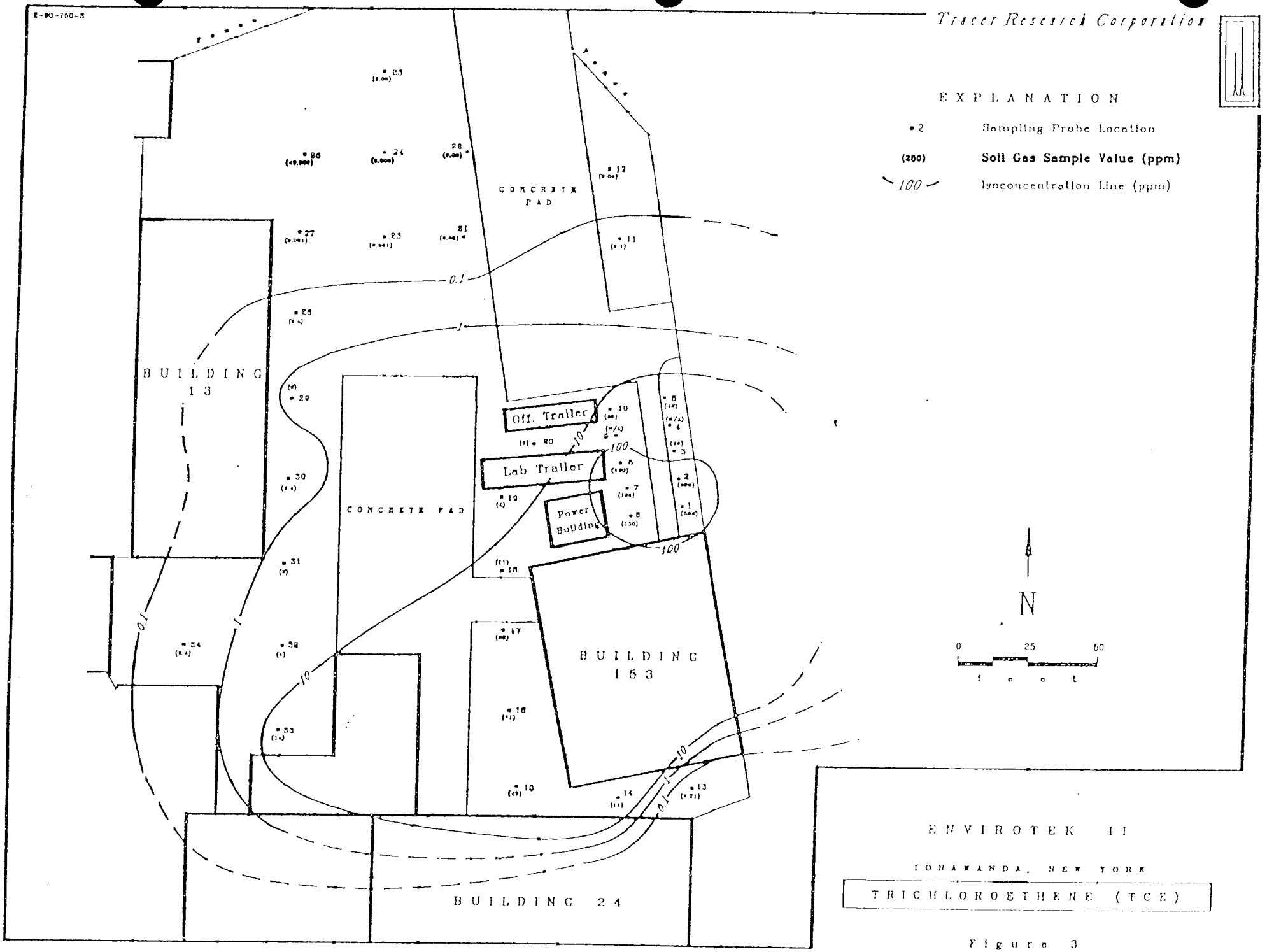

Tracer Research Corporation
EXPLANATION
• 2 Sampling Probe Location
(200) Soil Gas Sample Value (ppm)
100 Isoconcentration Line (ppm)
CONCRETE PAD
BUILDING 13
Off. Trailer
Lab Trailer
Power Building
CONCRETE PAD
BUILDING 153
BUILDING 24
0.1
1
10
100
N
0 25 50
feet
ENVIROTEK II
TONAWANDA, NEW YORK
TRICHLOROETHENE (TCE)

Figure 3

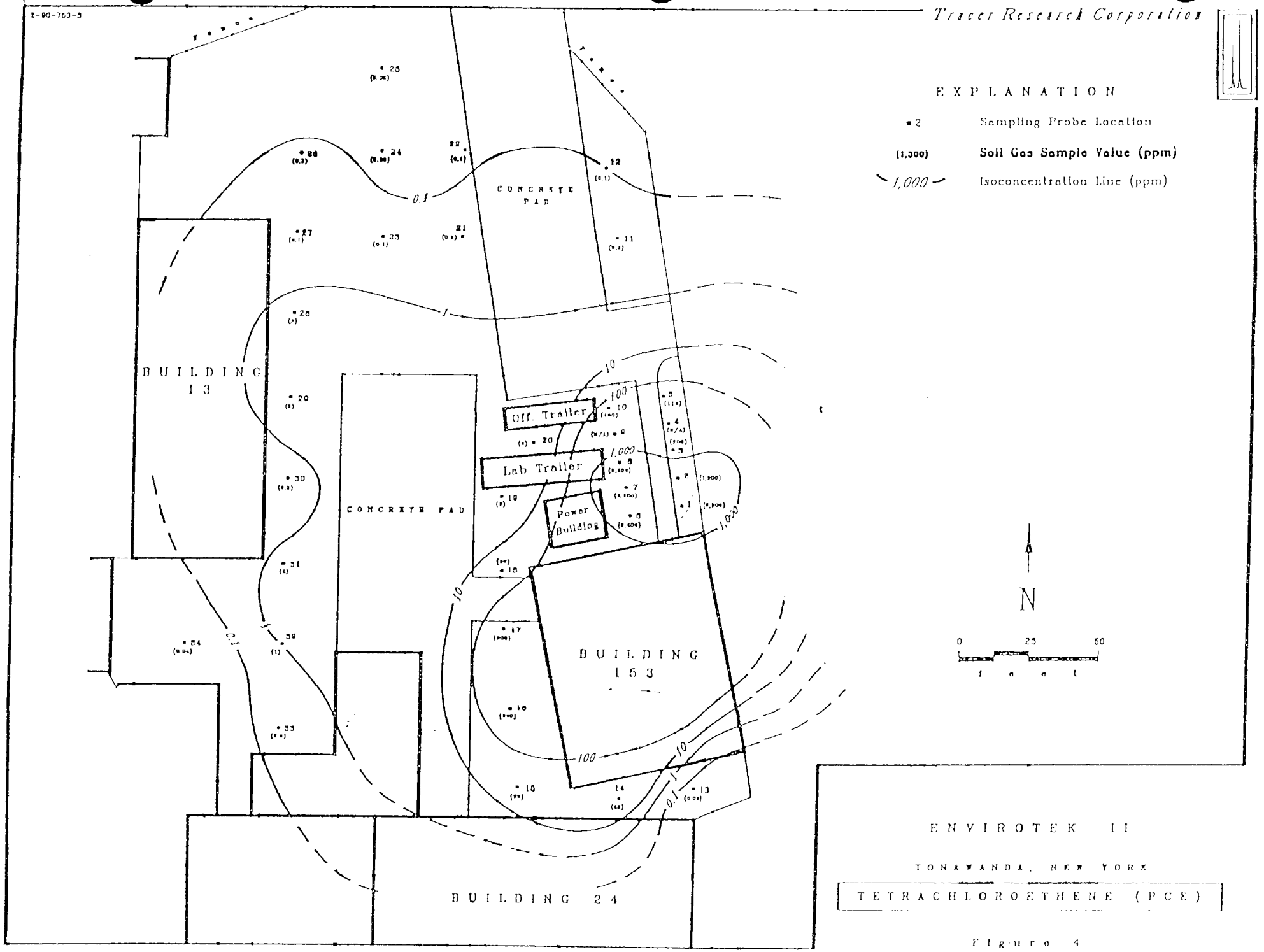

Tracer Research Corporation
EXPLANATION
• 2 Sampling Probe Location
(1,300) Soil Gas Sample Value (ppm)
1,000 Isoconcentration Line (ppm)
CONCRETE PAD
BUILDING 13
Off. Trailer
Lab Trailer
Power Building
CONCRETE PAD
BUILDING 153
BUILDING 24
N
0 25 50
feet
ENVIROTEK II
TONAWANDA, NEW YORK
TETRACHLOROETHENE (PCE)

Figure 4

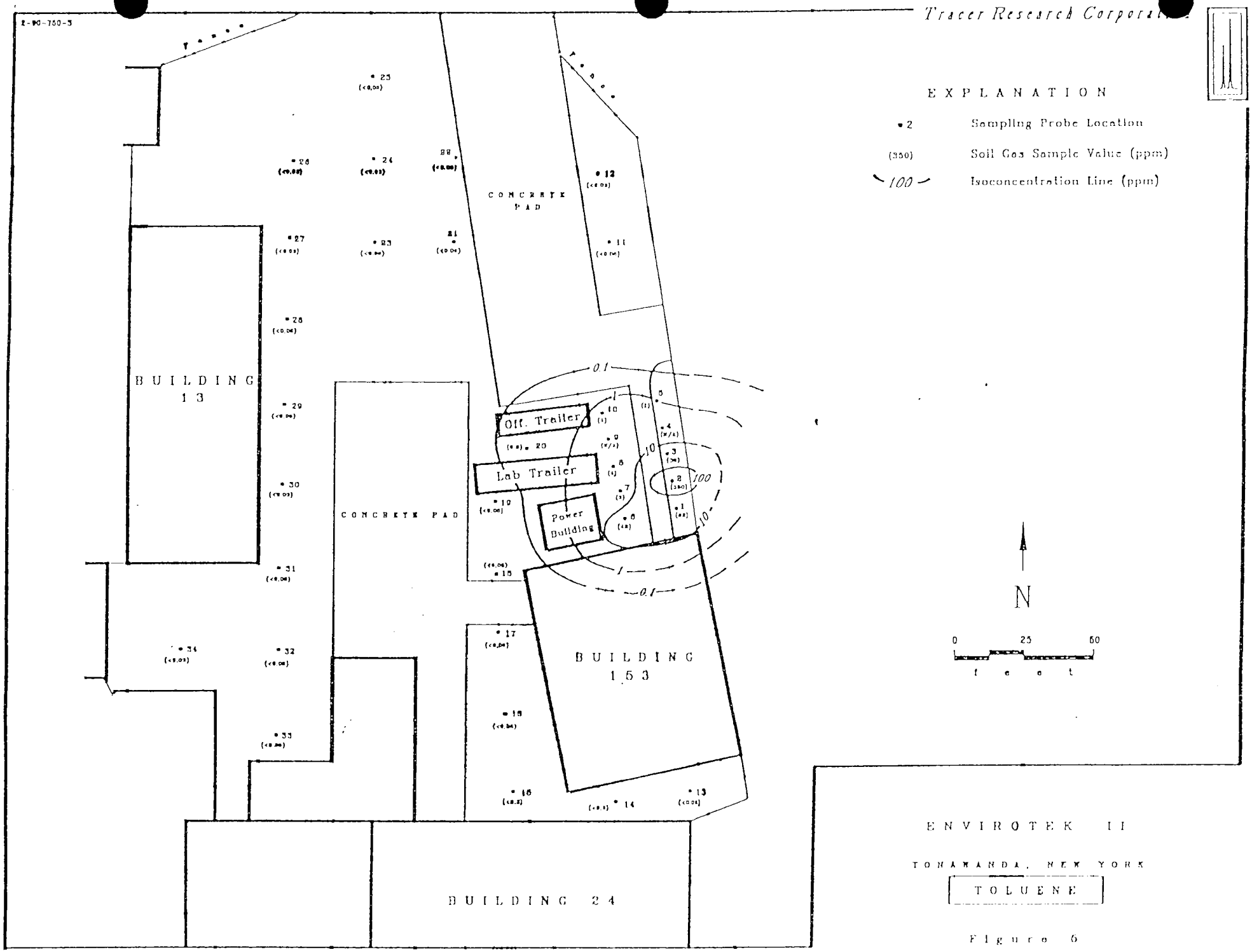

Tracer Research Corporation
EXPLANATION
• 2 Sampling Probe Location
(350) Soil Gas Sample Value (ppm)
100 Isoconcentration Line (ppm)
BUILDING 13
CONCRETE PAD
CONCRETE PAD
Off. Trailer
Lab Trailer
Power Building
BUILDING 153
BUILDING 24
0.1
1
10
100
N
0 25 50
f e e t
ENVIROTEK II
TONAWANDA, NEW YORK
TOLUENE

Figure 6

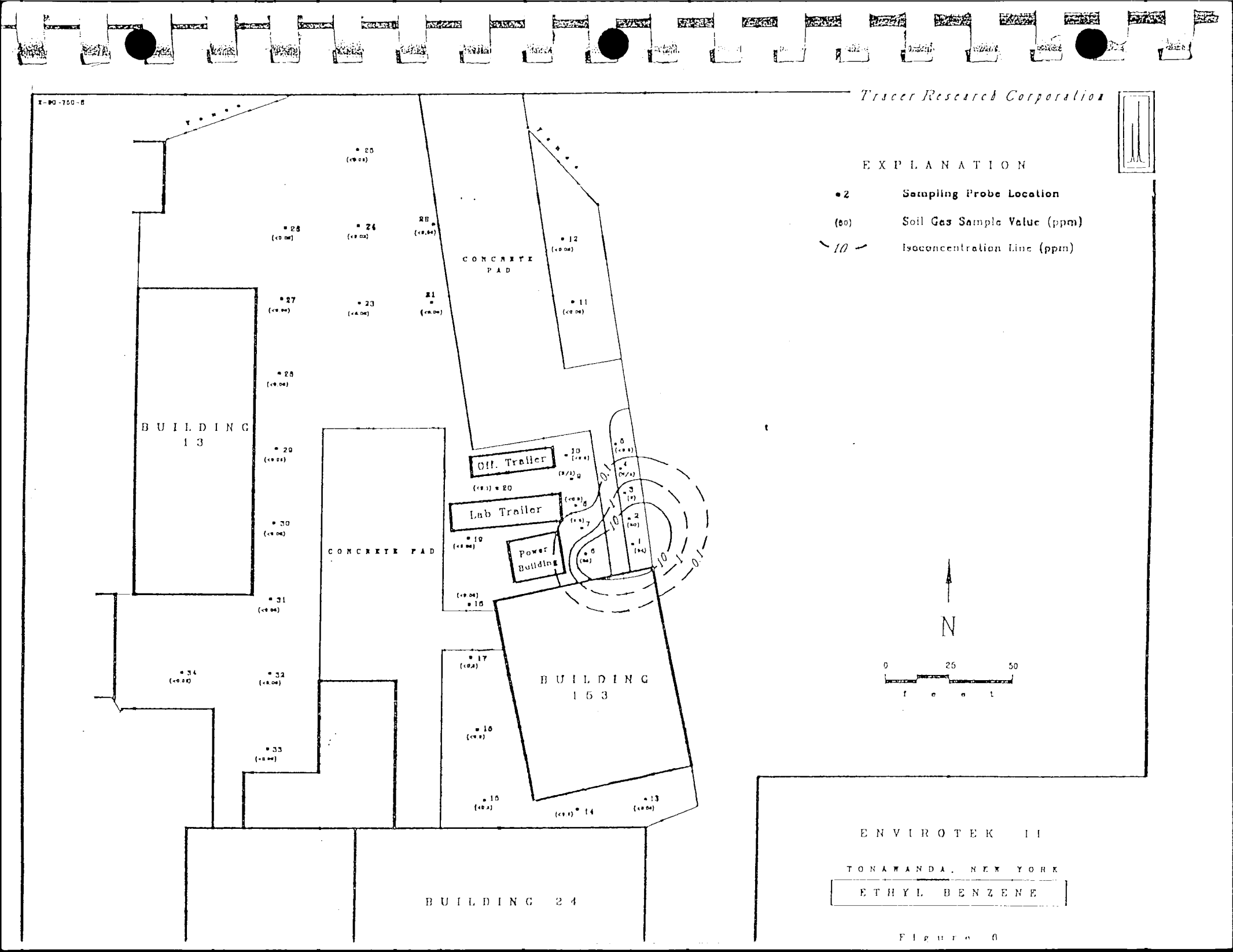

Tracer Research Corporation
EXPLANATION
•2 Sampling Probe Location
(60) Soil Gas Sample Value (ppm)
10 Isoconcentration Line (ppm)
CONCRETE PAD
CONCRETE PAD
BUILDING 13
Off. Trailer
Lab Trailer
Power Building
BUILDING 153
BUILDING 24
N
0 25 50
feet
ENVIROTEK II
TONAWANDA, NEW YORK
ETHYL BENZENE

Figure 6

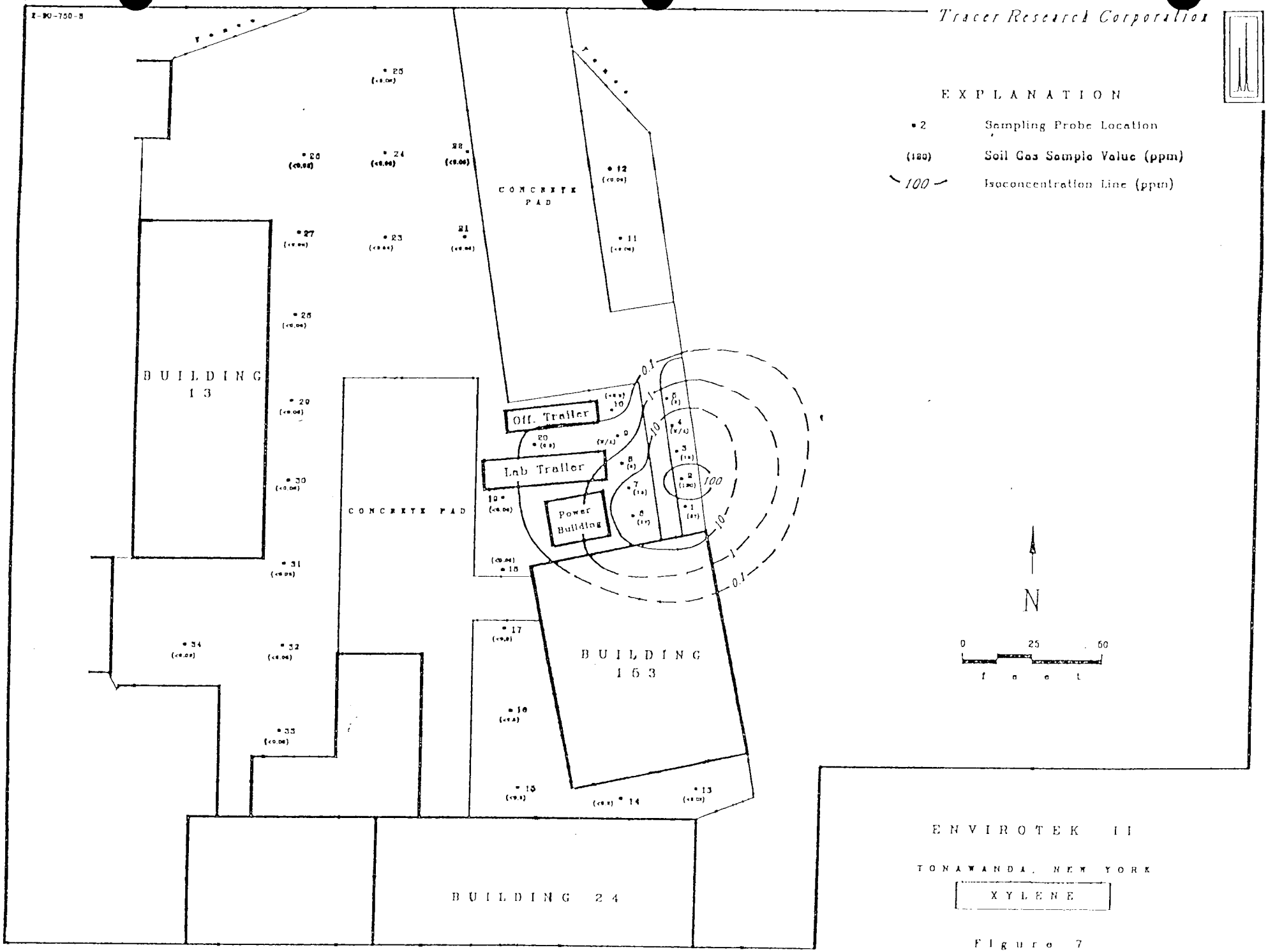
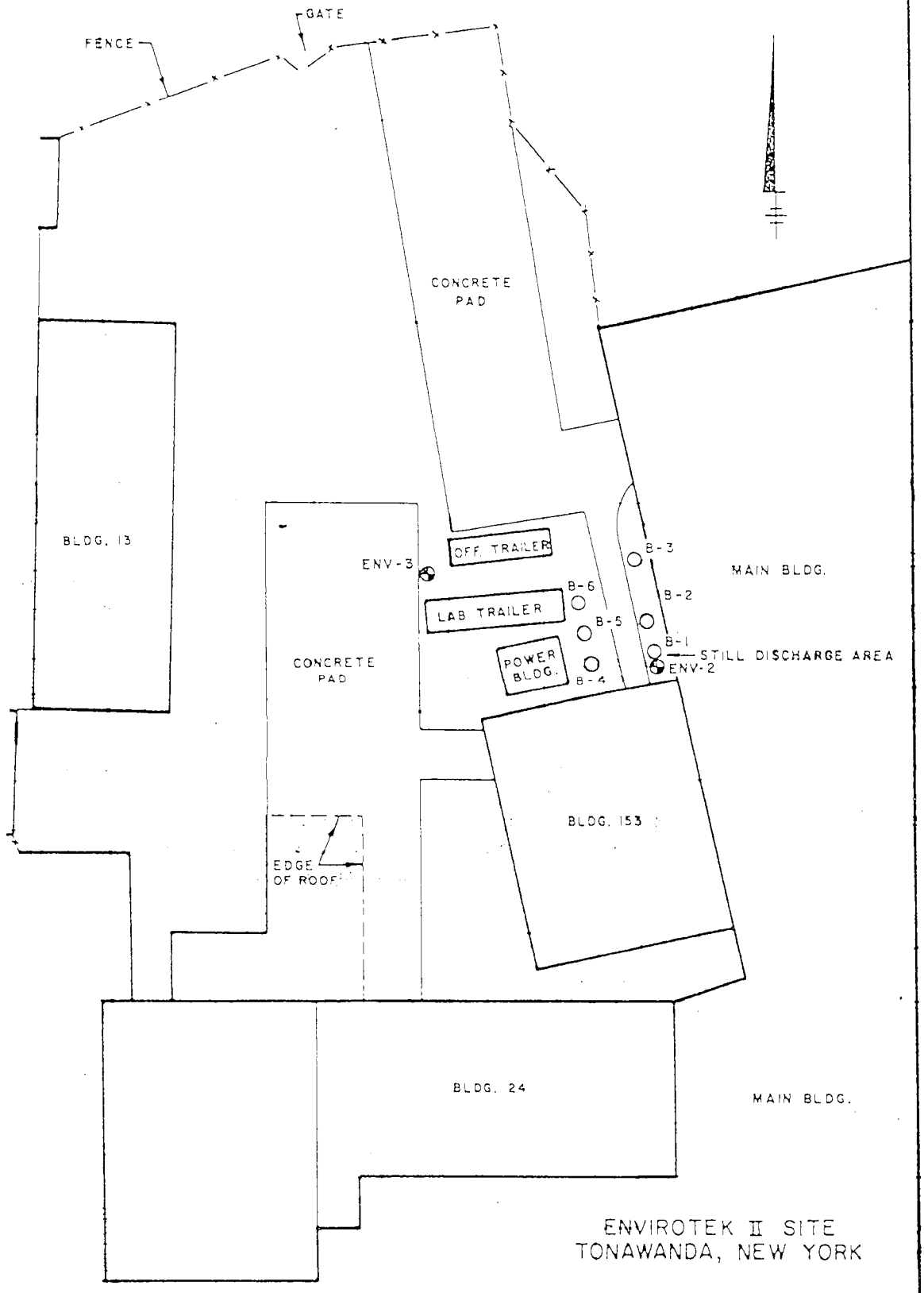

Tracer Research Corporation
EXPLANATION
• 2 Sampling Probe Location
(180) Soil Gas Sample Value (ppm)
100 Isoconcentration Line (ppm)
BUILDING 13
CONCRETE PAD
CONCRETE PAD
Off. Trailer
Lab Trailer
Power Building
BUILDING 163
BUILDING 24
0.1
1
10
100
N
0 25 50
f e e t
ENVIROTEK II
TONAWANDA, NEW YORK
XYLENE

Figure 7

ATTACHMENT 8
(From "Results of Sampling Plan, Envirotek II Superfund Site"
by the Technical Committee Participating PRPs by Blasland & Bouck,
June 1991)

FIGURE 5



ENVIROTEK II SITE
TONAWANDA, NEW YORK

LEGEND

○ SOIL BORING LOCATION

EXISTING MONITORING WELL

SOIL BORING LOCATION MAP

SCALE

0 50'

(10/22/90)

BLASLAND & BOUCK ENGINEERS, P.C.
ENGINEERS & GEOSCIENTISTS

TABLE 7

ENVIROTEK II SITE
TONAWANDA, NEW YORK
SUMMARY OF SOIL BORING ANALYTICAL RESULTS
STILL DISCHARGE AREA
OCTOBER 1990

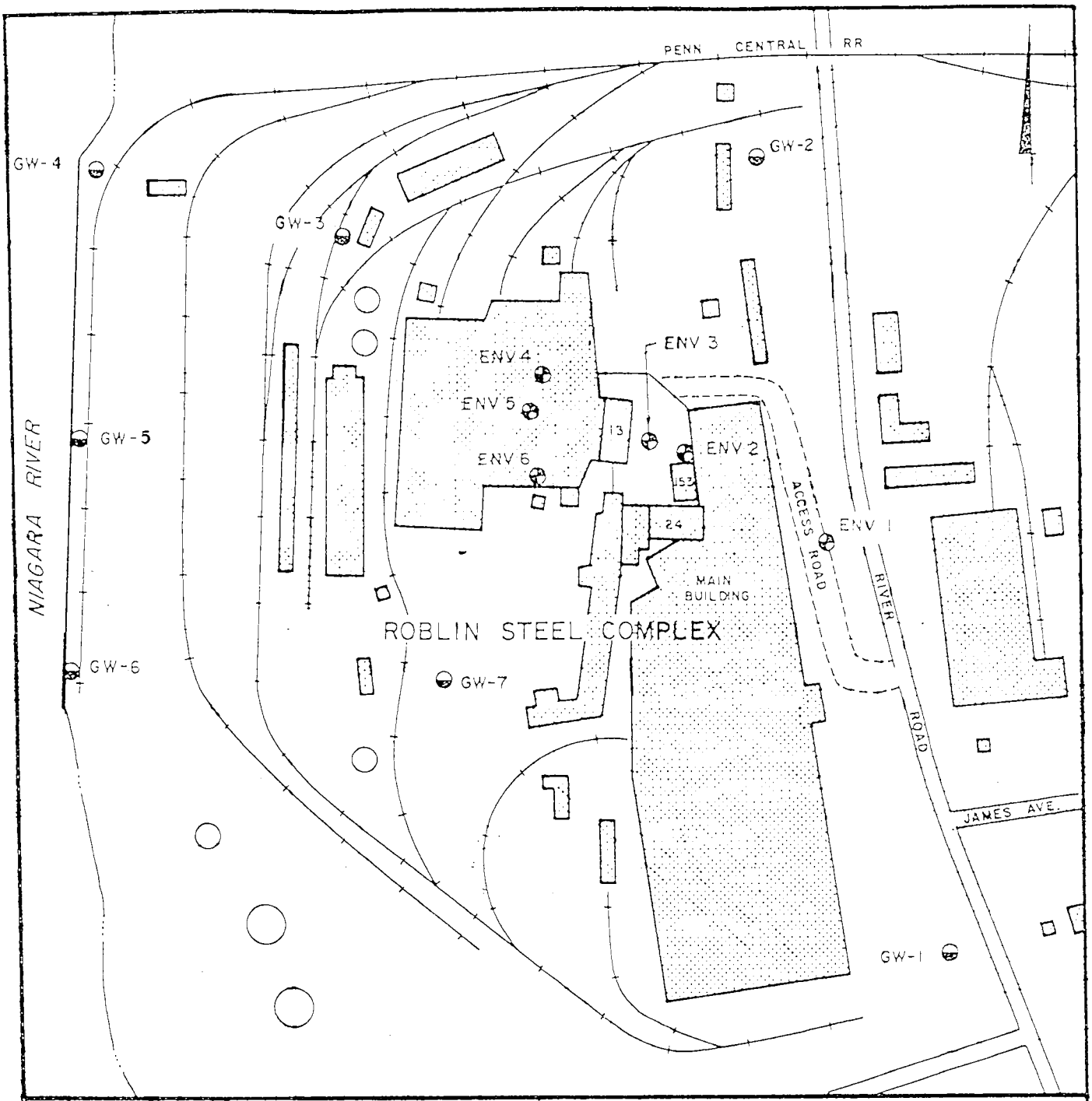
VOLATILE ORGANIC COMPOUNDS	B-1 (4-6)	B-2 (6-8)	B-3 (6-8)	B-4 (8-10)	B-5 (8-10)	B-6 (8-10)
1,2-Dichloroethene (total)	--	--	--	2.2	14	--
1,1,1-Trichloroethane	BMDL	--	BMDL	1.2	14	BMDL
Trichloroethene	BMDL	--	BMDL		3.6	BMDL
Tetrachloroethene	145	128	7.8	1.3	13	121
Toluene	--	--	--	1.2	82	BMDL
Ethylbenzene	9.9	BMDL	--	10	27	--
Xylene (total)	106	397	--	50	126	41
SEMI VOLATILE ORGANIC COMPOUNDS						
2-Methylphenol	--	--	--	BMDL	--	--
2,4-Dimethylphenol	--	--	--	--	--	BMDL
Napthalene	--	1.8	--	--	--	BMDL
2-Methylnapthalene	--	BMDL	--	--	--	--
Acenaphthene	--	BMDL	--	--	--	--
Fluorene	--	2.9	--	--	--	--
Phenanthrene	BMDL	18.0	--	BMDL	--	--
Anthracene	--	BMDL	--	--	--	--
Di-n-Butylphthalate	--	BMDL	--	--	--	--
Fluoranthene	--	3.7	--	--	--	--
Pyrene	BMDL	24.0	--	BMDL	BMDL	BMDL
Benzo(a)Anthracene	--	BMDL	--	--	--	--
Chrysene	--	1.7	--	BMDL	BMDL	BMDL
Bis(2-Ethylhexyl)Phthalate	4.0	9.0	BMDL	BMDL	BMDL	BMDL
Benzo(b)Fluoranthene	--	1.8	--	--	--	--
Benzo(k)Fluoranthene	--	BMDL	--	--	--	--
Benzo(a)Pyrene	--	BMDL	--	--	--	--
Indeno (1,2,3-cd)Pyrene	--	BMDL	--	--	--	--
Benzo(g,h,i)Perylene	--	BMDL	--	--	--	--

Notes:

Concentrations presented in mg/kg (ppm)
-- = Not detected.
BMDL = Below Method Detection Limit
Only compounds detected above detection limits in at least one sample are presented.

ATTACHMENT 9
(From "Results of Sampling Plan, Envirotek II Superfund Site"
by the Technical Committee Participating PRPs by Blasland & Bouck,
June 1991)

FIGURE 4



LEGEND

GW-6 ⊖ DEC MONITORING WELL

ENV 1 ⊕ MONITORING WELL INSTALLED NOVEMBER 1990

ENVIROTEK II SITE
TONAWANDA, NEW YORK

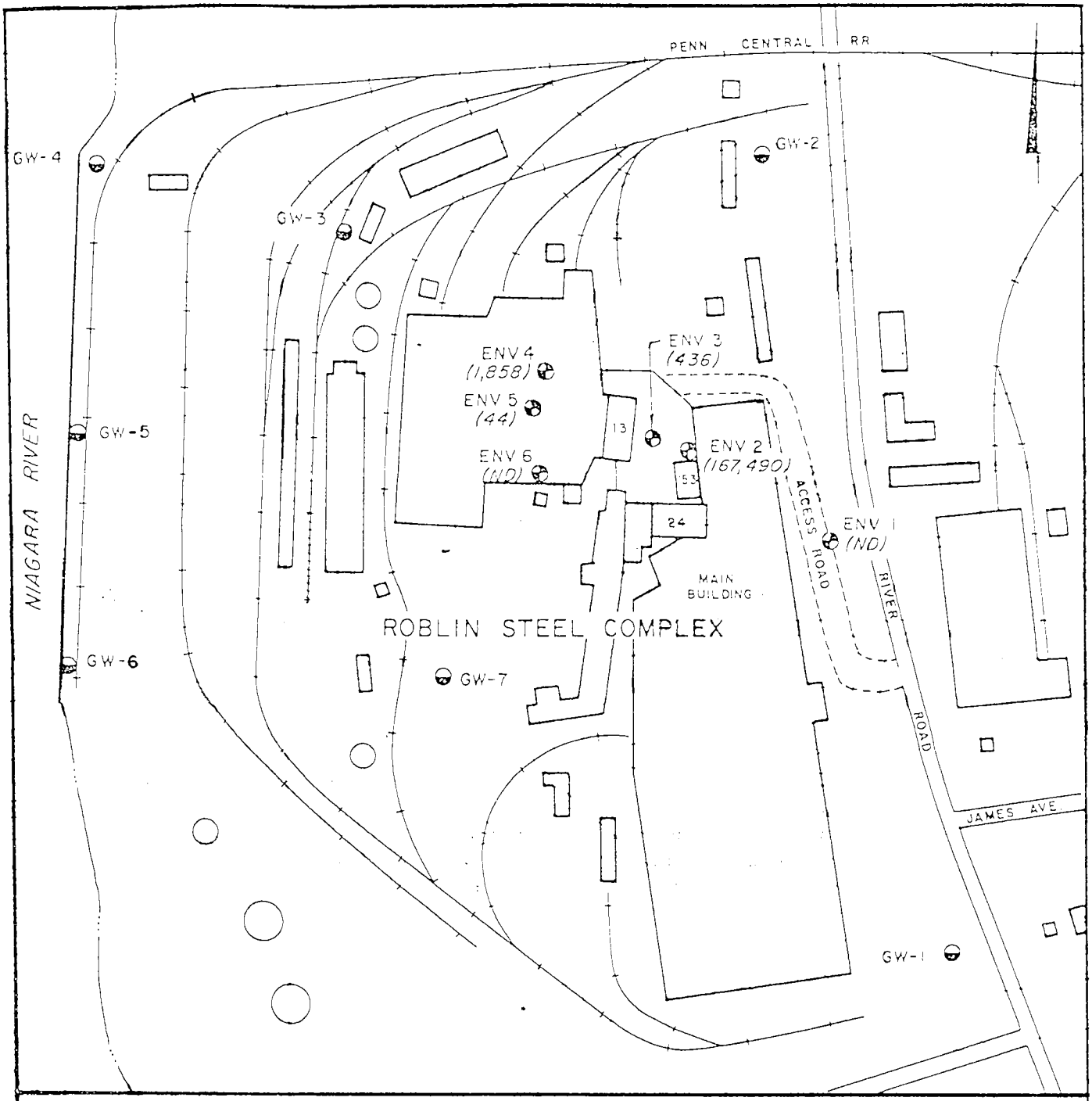
MONITORING WELL LOCATION MAP

SCALE

300' 0 300'

BLASLAND & BOUCK ENGINEERS, P.C.
ENGINEERS & GEOSCIENTISTS

FIGURE 8



LEGEND

GW-6 DEC MONITORING WELL

ENV 5 (44) MONITORING WELL INSTALLED NOVEMBER 1990 (TOTAL VOLATILE ORGANIC CONCENTRATION in ppb)

ENVIROTEK II SITE
TONAWANDA, NEW YORK

DISTRIBUTION OF VOC IN GROUND WATER

SCALE
300' 0 300'

BLASLAND & BOUCK ENGINEERS, P.C.
ENGINEERS & GEOSCIENTISTS

TABLE 4

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS
VOLATILE ORGANIC ANALYSIS

ENVIROTEK II SITE
TONAWANDA, NEW YORK

Compound	ENV-1	ENV-2	ENV-3	ENV-4	ENV-5	Duplicate ENV-5	ENV-6	Trip Blank	Equipment Blank
Vinyl Chloride	--	3400	--	--	--	--	--	--	--
Chloroethane	--	--	79	--	--	--	--	--	--
Methylene Chloride	--	6100	--	--	--	--	--	--	--
Acetone	--	1600	--	--	--	--	--	--	--
1,1-Dichloroethene	--	300	--	--	--	--	--	--	--
1,1-Dichloroethane	--	4800	250	--	8	9	--	--	--
1,2-Dichloroethene	--	46000	--	110	36	37	--	--	--
1,2-Dichloroethane	--	750	--	--	--	--	--	--	--
1,1,1-Trichloroethane	--	21000	--	--	--	--	--	--	--
Trichloroethene	--	29000	--	560	--	--	--	--	--
4-Methyl-2-pentanone	--	--	82	110	--	--	--	--	--
Tetrachlorethene	--	40000	--	--	--	--	--	--	--
Toluene	--	8600	11	760	--	--	--	--	--
Ethylbenzene	--	840	--	58	--	--	--	--	--
Xylene (Total)	--	5100	14	260	--	--	--	--	--
TOTAL VOCs	--	167490	436	1858	44	46	--	--	--

Notes:

Results are reported in ug/L.
Only compounds detected above detection limits in at least one sample are presented.
-- = Undetected.
Samples collected on 11/19/90.

TABLE 5

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS
SEMIVOLATILE ORGANIC ANALYSIS

ENVIROTEK II SITE
TONAWANDA, NEW YORK

Compound	ENV-1	ENV-2	ENV-3	ENV-4	ENV-5	Duplicate ENV-5	ENV-6	Equipment Blank
2-Methylphenol	--	21	BMQL	BMQL	--	--	--	--
4-Methylphenol	--	30	--	BMQL	--	--	--	--
Isophorone	--	10	--	--	--	--	--	--
2,4-Dimethylphenol	--	15	--	--	--	--	--	--
Benzoic Acid	--	13	BMQL	BMQL	BMQL	BMQL	BMQL	--
Naphthalene	--	19	--	--	--	--	--	--
2-Methylnaphthalene		BMQL	--	--	--	--	--	--
Phenanthrene	--	BMQL	--	--	--	--	--	--
Anthracene	--	BMQL	--	--	--	--	--	--
Fluoranthene	BMQL	--	BMQL	--	--	--	--	--
Pyrene	BMQL	BMQL	BMQL	--	--	--	--	--
Benzo(a)anthracene	BMQL	--	BMQL	--	--	--	--	--
Bis(2-Ethylhexyl)-phthalate	--	25	--	--	--	--	--	--
Chrysene	--	--	BMQL	--	--	--	--	--
Benzo(a)pyrene	--	--	BMQL	--	--	--	--	--

Notes:

Results are reported in ug/L.
Only compounds detected above detection limits in at least one sample are presented.
BMQL = Below Method Quantitation Limit.
-- = Undetected.
Samples collected on 11/19/90.

TABLE 6

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS
INORGANIC ANALYSIS

ENVIROTEK II SITE
TONAWANDA, NEW YORK

Analyte	ENV-1 Total	ENV-1 Dissolved	ENV-2 Total	ENV-2 Dissolved	ENV-3 Total	ENV-3 Dissolved	ENV-4 Total	ENV-4 Dissolved	NYSDEC Ground-Water Standards**
Aluminum	20900	54.0 B	84500	294	29200	--	133000	107 B	--
Antimony	--	11.1 BW	5.4 B	4.9 B	15.1 BN	15.0 BW	14.2 BN	24.0 B	--
Arsenic	12.8 N	5.2 BW	27.8 NS	2.5 BW	15.6 N	--	41.0 BN	2.0 BW	25.0
Barium	195 B	53 B	1120	43.0 B	355	115 B	1590	52.0 B	1000
Beryllium	21.0	--	43.0	--	56.0	--	71.0	--	--
Cadmium	--	--	9.0	--	3.0 B	--	8.0	--	10.0
Calcium	233000	112000	445000	125000	91100	49300	701000	261000	--
Chromium	52.0	--	71.0	--	70.0	--	105	--	50.0
Cobalt	27.0 B	--	35.0 B	--	30.0 B	--	66.0	--	--
Copper	73.0 *	8.0 B	119 *	8.0 B	173 *	--	178 *	--	200
Iron	54800	79.0 B	101000	41.0 B	159000	96.0 B	127000	74.0 B	300
Lead	53.1 SN	4.2 S	8400 N	2.1 B	460 N	1.4 B	220 BN	3.2	25
Magnesium	41900	13700	54600	548 B	40200	26100	145000	7400	--
Manganese	4520	3270	6680	6.0 B	3960	366	5930	12.0 B	300
Mercury	--	--	--	--	--	--	--	0.26	2.0
Nickel	94.0	11.0 B	97.0	--	90.0	9.0 B	203	--	--
Potassium	7750	5980	10100	7980	17200	16900	24500	22200	--
Selenium	1.0 BWN	--	7.6 N+	1.0 BW	1.0 BWN	1.6 BW	13.5 BN	2.7 BW	10
Silver	--	--	--	--	--	--	--	--	50.0
Sodium	21200	23400	7860	8210	12600	14200	19500	21900	20000
Thallium	--	--	--	--	--	--	--	--	--
Vanadium	139	39.0 B	247	43.0 B	155	28.0 B	422	91.0	--
Zinc	249	20.0	1360	15	401	--	743	23.0	300
Cyanide	--	NR	--	NR	--	NR	10.8 N	NR	100

Notes: See next page

TABLE 6
(Cont'd)

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS
INORGANIC ANALYSIS

ENVIROTEK II SITE
TONAWANDA, NEW YORK

Analyte	ENV-5 Total	ENV-5 Dissolved	Duplicate ENV-5 Total	Duplicate ENV-5 Dissolved	ENV-6 Total	ENV-6 Dissolved	Equipment Blank Total	Equipment Blank Dissolved	NYSDEC Ground-Water Standards**
Aluminum	77000	76.0 B	70700	96.0 B	31300	78.0 B	67.0 B	--	--
Antimony	16.9 B	3.7 BW	--	9.5 BW	12.9 B	14.3 B	--	10.5 BWM	--
Arsenic	35.6	2.0 BW	33.1 N	1.0 B	20.0 N	2.7 BW	--	3.4 BW	25.0
Barium	1010	48.0 B	921	46.0 B	284	29.0 B	19.0 B	--	1000
Beryllium	18.0	--	18.0	--	8.0	--	--	--	--
Cadmium	2.0 B	--	--	--	--	--	--	--	10.0
Calcium	281000	99800	263000	96100	251000	173000	--	--	--
Chromium	120	--	87.0	--	63.0	--	7.0 B	--	50.0
Cobalt	55	--	50.0	--	25.0 B	--	--	--	--
Copper	193 *	--	148 *	--	90.0 *	7.0 B	8.0 B	--	200
Iron	98100	104	95300	94.0 B	58500	54.0 B	169	19.0 B	300
Lead	89.6 N	2.6 B	90.2 N	2.3 B	52.4 N	1.5 B	3.6 N	2.8 B	25
Magnesium	89300	21100	83700	20500	29100	7060	45.0 B	--	--
Manganese	4160	50.0	3860	41.0	1320	21.0	4.0 B	1.0 B	300
Mercury	0.47	--	0.28	--	0.30	--	--	--	2.0
Nickel	171	--	141	--	90.0	--	16.0 B	--	--
Potassium	20900	17300	21400	19200	32500	26200	--	--	--
Selenium	14.0 N+	--	9.9 NS	--	17.5 NS	7.3 S	--	2.0 BW	10
Silver	--	--	--	--	--	--	--	--	50.0
Sodium	11200	12300	11900	13700	24000	21200	95.0 B	308 B	20000
Thallium	--	--	--	--	--	--	--	--	--
Vanadium	239	41.0	224	39.0 B	144	56.0	--	--	--
Zinc	501	10.0 B	486	11.0 B	280	22	--	--	300
Cyanide	23.4 N	NR	--	NR	--	NR	--	NR	100

Notes:
Results are reported in ug/L.
** - Standard and guidance values obtained from "Part 703, Groundwater Classifications, Quality Standards, and Effluent and/or Limitations" (Environmental Conservation Law, 17-0301, 17-0809).
-- - The analyte was analyzed for, but not detected.
B - The reported value was obtained from a reading that was less than the Contract Required Detection Limit, but greater than or equal to the Instrument Detection Limit.
M - Duplicate injection precision not met.
N - Spike sample recovery not within control limits.
S - The reported value was determined by the Method of Standard Additions (MSA).
W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
+ - Correlation coefficient for the MSA is less than 0.995.
NR - Analyte not required to be analyzed.
Total - Analysis of non-filtered samples.
Dissolved - Analysis of samples filtered with a 0.45 micron field filter.
Samples collected on 11/19/90.

ATTACHMENT 10
(From "Results of Sampling Plan, Envirotek II Superfund Site"
by the Technical Committee Participating PRPs by Blasland & Bouck,
June 1991)

DRAFT

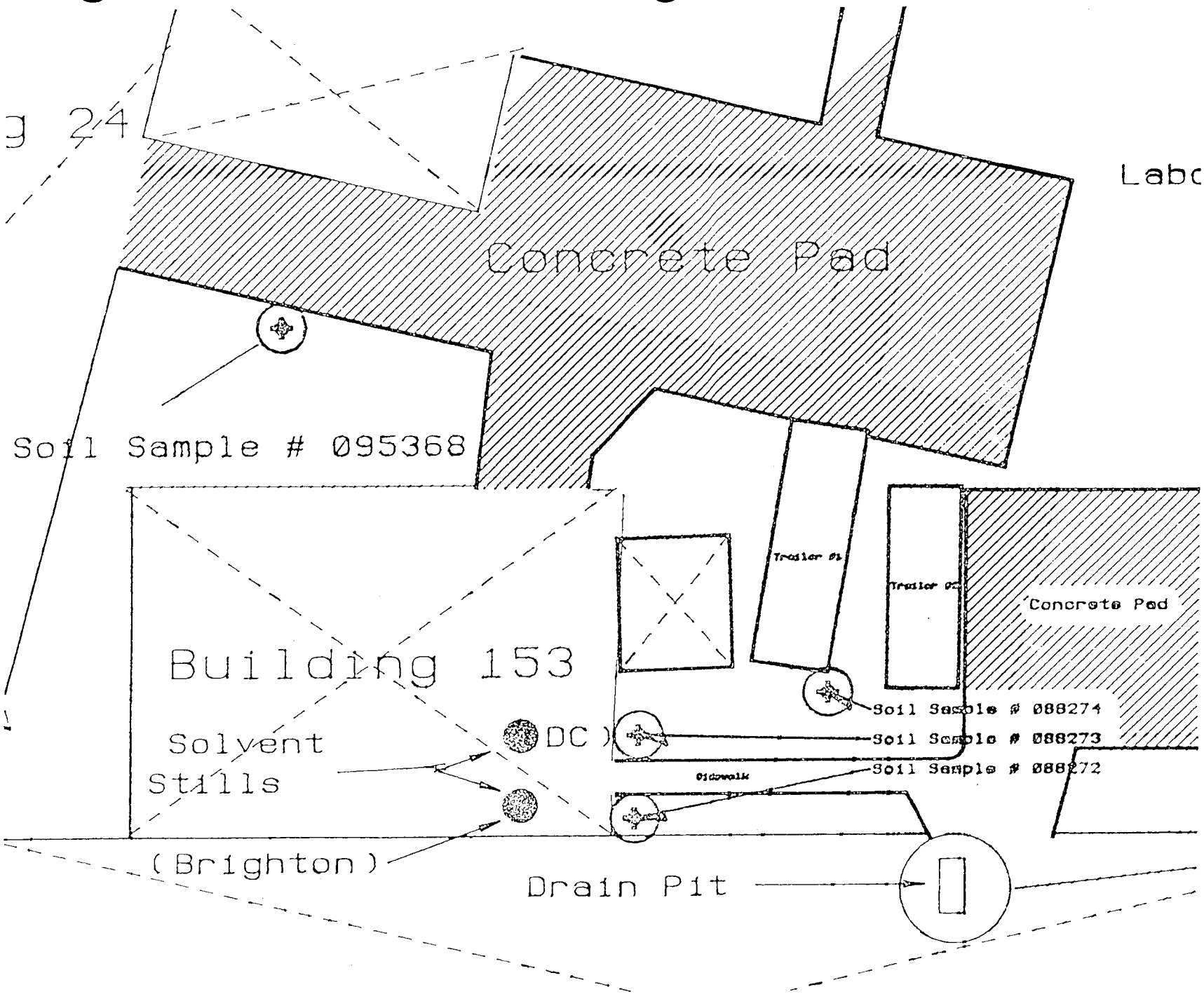
Envirotek II Superfund Site
Removal Summary
July - November 1990

Wastestream	Location	Matrix	Total Volume	Disposal Facility (TSDF)	Disposal EPA ID No.	Disposal/Treatment Method
Halogenated & Non-halogenated Hazardous Waste Solvents & Still Bottoms (D001, F002, F003, F005)	Bldgs. 13, 24, 153, Pits 1, 2, 3	liquid solid	✓29,574 gals. 169,000 lbs.	Petro-Chem Detroit, MI	MID980615298	Fuels Blending
Inorganic Hazardous Waste (D002, D008)	Bldgs. 13, 24, 153	liquid solid	3,339 gals. 1,089 lbs.	CyanoKem Detroit, MI	MID098011992	Wastewater Treatment
Halogenated PCB Contaminated Hazardous Waste (F002, F003, F005, B007)	Bldg. 153	solid	9,000 lbs.	CWM Model City, NY	NYD049836679	Incineration
Non-Hazardous Wastewater	Pits 1, 2, 3, 3a	liquid	125,000 gals.	CECOS Niagara Falls, NY	NYD080336241	Wastewater Treatment
Hazardous Wastewater (F002, F003, F005)	Pits 1, 2, 3, 3a, 5, decon-water	liquid	✓38,500 gals.	CECOS Niagara Falls, NY	NYD080336241	Wastewater Treatment
Lab-Packs	Bldgs. 13 & 153	solid liquid	146 containers	CWM Model City, NY	NYD049836679	Incineration
Hazardous Waste Contaminated Debris/Soil (F002, F003, F005)	Pits 1, 2, 3, 3a, 5 Bldgs. 13, 24, 153	solid	695,080 lbs.	CWM Model City, NY	NYD049836679	Landfill
Miscellaneous Non-Hazardous Liquid	Bldgs. 13 & 24	liquid	273 gals.	CWM Model City, NY	NYD049836679	Incineration

Envirotek II Superfund Site
Removal Summary
July - November 1990

Wastestream	Location	Matrix	Total Volume	Disposal Facility (TSDF)	Disposal EPA ID No.	Disposal/ Treatment Method
RCRA Empty Drums	Bldgs. 12, 24, 153		149 gals.	Harbison Bros., Inc.		Reconditioning
Miscellaneous Flammable Liquids (D001)	Bldg. 153	liquid	150 gals.	CWM Model City, NY	NYD049836679	Incineration
Miscellaneous Halogenated & Non-Halogenated Hazardous Waste (F002, F003, F005)	Bldg. 153	solid	21,600 lbs.	CWM Model City, NY	NYD049836679	Incineration
Inorganic Hazardous Waste (D005)	Bldg. 13	solid	400 lbs.	CECOS	NYD080336241	Wastewater Treatment
Halogenated Hazardous Waste Sludge (F002, F003, F005)	Pits 2, 3, 3a	liquid	3,000 gals.	CWM Chicago	ILD000672121	Incineration

ATTACHMENT 11
(Document from ESD to EPA)


Concrete Pad
Soil Sample # 095368
Building 153
Solvent
Stills
DC
(Brighton)
Drain Pit
Trailer #1
Trailer #2
Concrete Pad
Soil Sample # 088274
Soil Sample # 088273
Soil Sample # 088272
Sidewalk

ENVIRONMENTAL PROTECTION AGENCY 088272A
REGION II
ENVIRONMENTAL SERVICES DIVISION

CASE NUMBER: 89R0398 - ENVIROTEK

SAMPLE NUMBER: 088272

SAMPLE IDENTIFICATION: AREA #5 EAST SIDE

DATE SAMPLED: 9/27/89

CHAIN OF CUSTUDY: _____ THIS FILE yes

FIELD DATA SHEET: _____ THIS FILE yes

SAMPLE REQUEST: _____ THIS FILE yes

LAB ANALYSIS FILE: 088272B

PHOTOGRAPHIC EVIDENCE: yes

LABORATORY RESULTS SUMMARY

FLASH POINT: N/A

RCRA HAZ: YES ___ NO X N/A

CORROSIVITY: N/A

RCRA HAZ: YES ___ NO X N/A

VOLITILE ORGANICS:

	CONCENTRATION:
1,1,1 Trichloroethane	87,000 ms/K ppm ?
Trichloroethylene	19,000
tetrachloroethylene	1,100,000
toluene	23,000
ethylbenzene	1,300,000
xylenes (Total)	8,000,000

ENVIRONMENTAL PROTECTION AGENCY
REGION II
ENVIRONMENTAL SERVICES DIVISION

CASE NUMBER: 89R0398 - ENVIROTEK

SAMPLE NUMBER: 088273

SAMPLE IDENTIFICATION: AREA #5 WEST SIDE

DATE SAMPLED: 9/27/89

CHAIN OF CUSTUDY: _____ THIS FILE yes

FIELD DATA SHEET: _____ THIS FILE yes

SAMPLE REQUEST: _____ THIS FILE yes

LAB ANALYSIS FILE: _____

PHOTOGRAPHIC EVIDENCE: yes

LABORATORY RESULTS SUMMARY

FLASH POINT: N/A RCRA HAZ: YES ___ NO ✓

CORROSIVITY: N/A RCRA HAZ: YES ___ NO ✓

VOLITILE ORGANICS:	CONCENTRATION:
Trichloroethylene	3,900
Tetrachloroethylene	300,000

ENVIRONMENTAL PROTECTION AGENCY
REGION II
ENVIRONMENTAL SERVICES DIVISION

CASE NUMBER: 89R0398 - ENVIROTEK

SAMPLE NUMBER: 088274

SAMPLE IDENTIFICATION: Spill Area - North of Bld 153
WEST OF LAB TRAILER

DATE SAMPLED: 9/27/89

CHAIN OF CUSTUDY: _____ THIS FILE yes

FIELD DATA SHEET: _____ THIS FILE yes

SAMPLE REQUEST: _____ THIS FILE yes

LAB ANALYSIS FILE: _____

PHOTOGRAPHIC EVIDENCE: Yes

LABORATORY RESULTS SUMMARY

FLASH POINT: N/A RCRA HAZ: YES ___ NO X

CORROSIVITY: N/A RCRA HAZ: YES ___ NO X

VOLITILE ORGANICS:	CONCENTRATION:
1,1-Dichloroethylene	650 ug/K
1,2-Trans Dichloroethylenes	1,100 ug/K
1,1,1-Trichloroethane	120,000 ug/K
trichloroethylene	140,000 ug/K
tetrachoroethylene	4,200,000 ug/K
toluene	240,000 ug/K
ethylbenzene	37,000 ug/K
xylene (Total)	620,000 ug/K