INSTALLATION RESTORATION PROGRAM

IDAHO AIR NATIONAL GUARD
GOWEN FIELD, BOISE, IDAHO

SITE INSPECTION REPORT

VOLUME II

FINAL

HAZWRAP SUPPORT CONTRACTOR OFFICE
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13. ABSTRACT (Maximum 200 words)

Site Inspection Report on sites believed to be contaminated with hazardous material. The report describes the potential contamination and the data collected to determine the accuracy of the assessment. Conclusions are drawn from the data collected as to the hazard to human health and reccommendations made for future work. This study was conducted under the Air National Guard's Installation Restoration Program.

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INSTALLATION RESTORATION PROGRAM
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SITE INSPECTION REPORT

VOLUME II

Prepared by:

Science Applications International Corporation

Submitted by:

Hazardous Waste Remedial Actions Program
Martin Marietta Energy Systems, Inc.

For the

U.S. Department of Energy
Under Contract No. DE-AC05-84OR21400

Submitted to:

Air National Guard Support Center
Andrews Air Force Base, Maryland

March 21, 1989

TABLE OF CONTENTS- VOLUME II

Partial contents of Volume II of this report include Appendices A through K. Field tests were conducted to determine chemical contamination of soils, ground water, aquifers and surface water. Data (primarily in the form of data tables) obtained from test results are presented. Quality control and public health are discussed.

TABLE OF CONTENTS - VOLUME I

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

APPENDIX A

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APPENDIX B

GLOSSARY OF ABBREVIATIONS

GLOSSARY OF ABBREVIATIONS

Ag	Silver
AIC	Acceptable Intake Value for Chronic Exposure
AIS	Acceptable Intake Value for Subchronic Exposure
ARAR	Applicable or Relevant and Appropriate Requirements
As	Arsenic
AWQC	Ambient Water Quality Criteria
B	analyte detected in method blank associated with sample and in sample itself
Be	Beryllium
BLS	Below Land Surface
Cd	Cadmium
CDI	Chronic Daily Intake
CERCLA	Comprehensive Environmental Response Compensation Liability Act
$CHBrCl_2$	Bromodichloromethane
$CHBr_2Cl$	Dibromochloromethane
CLP	Contract Lab Program
cm	centimeter
Cr	Chromium
C_s	Concentration of subject chemical in soil
Cu	Copper
D	average daily dose for subchronic or chronic exposure
EPA	Environmental Protection Agency
ft	feet
GC	Gas Chromatography
GW	Groundwater
Hg	Mercury
HIF	Human Intake Factor
HPLC	High Pressure Liquid Chromatography
I	hydraulic gradient
I.D.	Inside Diameter
IRP	Installation Restoration Program

GLOSSARY OF ABBREVIATIONS (Continued)

K	hydraulic conductivity
kg	kilogram
l	liter
LOAEL	Lowest Observable Adverse Effect Level
MCL	Maximum Contaminant Limit
MCLG	Maximum Contaminant Level Goals
mg	milligram
ml	milliliter
MSL	Mean Sea Level
MS	Mass Spectroscopy
MW	Monitoring Well
n	effective porosity
NCE	Noncarcinogenic Health Effects
ND	Not Detected
Ni	Nickel
NOAEL	No Observable Adverse Effect Level
NT	Not Tested
O.D.	Outside Diameter
Pb	Lead
PCE	Tetrachloroethylene
PCP	Pentachlorophenol
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
q_1*	95% upper bound estimate of the slope of the dose response curve (carcinogenic potency factor)
R	estimate of excess or additional lifetime risk (Risk Measure)
RCRA	Resource Conservation Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
RL	Reference Level
RMCL	Recommended Maximum Concentration Level

GLOSSARY OF ABBREVIATIONS (Continued)

RPD	Relative Percent Difference
SAIC	Science Applications International Corporation
SARA	Superfund Amendments and Reauthorization Act
SB	Soil Boring
Sb	Antimony
SD	stream sediment sample
Se	Selenium
sec	second
SL	composite near-surface soil sample
TCA	Trichloroethane
TCE	Trichloroethylene
Tl	Thallium
TRC	Tracer Research Corporation
TS	Tar Sample
ug	microgram
ul	microliter
V	horizontal groundwater flow rate
VOC	Volatile Organic Compound
Zn	Zinc

APPENDIX C

MONITORING WELL COMPLETION FORMS AND LOGS

BORING LOGS

A summary of the types of information provided in the boring logs (Appendix C and Appendix D) is presented in the following paragraphs.

DEPTH

Sample depths were measured in feet below land surface (BLS). The sample depth indicated next to a sample refers to the depth of the top of the sample interval.

LITHOLOGIC SYMBOLS

The lithologic symbols provide a visual description of the type of soil collected in the sample interval. The lithologic symbols are keyed to the specific soil types.

SOIL TYPE

Soil types are identified based on the Unified Soil Classification System (USCS). The following USCS abbreviations and lithologic symbols were used for soil type identification:

- GW - silty gravels; gravel-sand-silt-mixtures
- SW - well graded sands, gravelly sands, little or no fines
- SP - poorly graded sands, gravelly sands, little or no fines
- SM - silty sands, sand-silt mixtures
- SC - clayey sands, sand-clay mixtures
- CL - inorganic clay

BLOW COUNT

The blow count indicates the number of blows required for a 40lb hammer to drive a splitspoon sampler 18 inches. The blows are counted every six inches to provide an indication of the density of the subsurface material.

TOP AND BOTTOM OF SAMPLE

Indicates the interval sampled by the split-spoon sampling device.

RECOVERY

The recovery is a measurement of the amount of material retained by the 2.0 foot splitspoon sampler. In cases where no sample was retained by the splitspoon sampler, "No Recovery" was indicated on the Boring Log. Also, where samples were not collected with splitspoon samplers, the recovery measurement was not possible.

SAMPLE NUMBER

The sample numbering system identifies 4 characteristics of the sample:

```
Type of boring┐   ┌──────Boring #
              ↓   ↓
              MW-5-1-2
                 ↑  ↑
Site # ──────────┘  └──────Sample #
```

For example, sample number MW-5-1-2 was the second sample collected at monitoring well 1 at Site 5.

LITHOLOGIC DESCRIPTION

The types of lithologic characteristics described in the boring logs are identified below:

- Lithology
- Grain size - very fine, fine, medium, coarse, very coarse
- Percent composition of the particular grain size
- Roundness/sphericity
- Density
- Plasticity
- Wetness
- Color
- Other distinguishing characteristics.

Lithology

The lithology of the sample refers to the specific type of material of which the sample is comprised (i.e., gravel, sand, silt, or clay).

Grain Size

The grain size of the sample refers to the degree of coarseness of the particles in each lithologic category (i.e., very fine to very coarse).

Percent Composition

The percent composition is provided with each lithologic and grain size description as an estimate of the percentage of those materials in the sample.

Roundness/Sphericity

The degree of roundness/sphericity of the samples were identified using the following abbreviations:

Wetness

The degree of wetness in the soil samples was described as follows:

- dry
- moist
- wet.

Color

Colors of soil samples were identified using the Munsell system of color notations. Colors were identified by both name and number in order to provide a precise reference point for the actual soil color.

Other Distinguishing Characteristics

In addition to the previously mentioned categories of sample description, any additional unusual or distinguishing characteristics of the sample were provided.

HNU RESULT

This portion of the sample description provides an indication of potential sample contamination. The HNU photoionization meter measures the presence of organic vapors in parts per million (ppm). The majority of the HNU instrument readings taken from the soil samples were equivalent to ambient or to background (bkgd) levels on Gowen Field.

ADDITIONAL SYMBOLS ON MONITORING WELL BOREHOLE LOGS

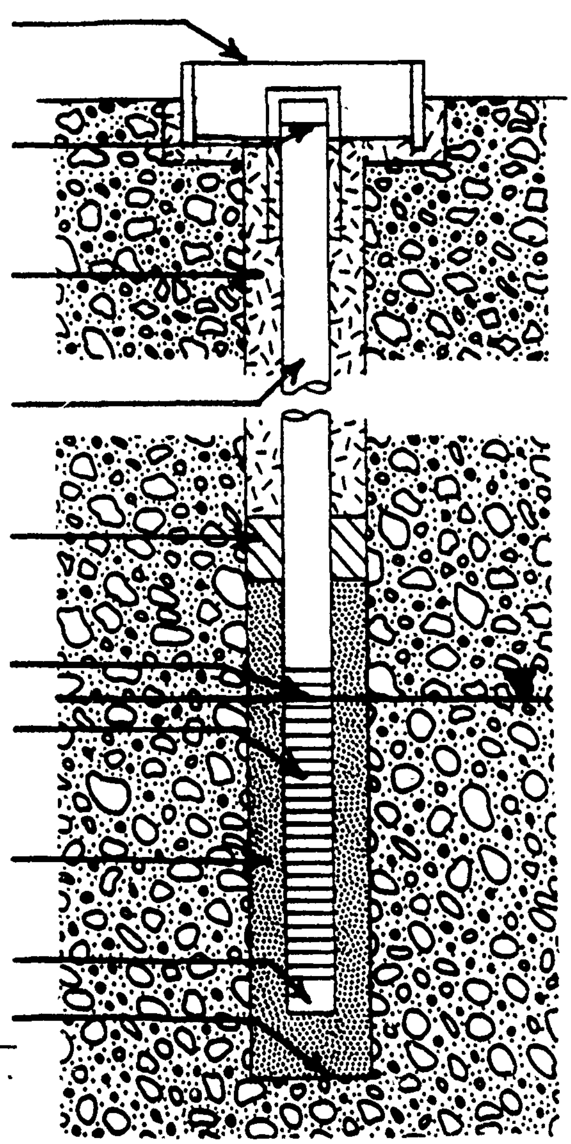
- ☰ Indicates the screen interval of the monitoring well
- ▼ Indicates the static groundwater level within the well on the date noted.

MONITORING WELL CONSTRUCTION SUMMARY

Well No.	: 1-1*	Development	
Location (Idaho Coord.)		Date	: 5-22-87
Northings	:689,917.03	Type	: BAILING/PUMPING
Eastings	:376,463.43	Volume Purged	: 5400 GALLONS
Reference Point	:TOP OF PVC CASING		
Reference Point Elev.	: 2841.40 MSL	Water Level/Date:	2670.28 MSL/6-2-87
Type of Security	:VAULT		2669.76 MSL/8-15-87
			2666.66 MSL/2-7-89
Supervisory Geologist	:C. NOTHWANGER	Hydraulic Conductivity:	
Log Book/Page No.	:2/1-26,77-88		3.93E-05 FT/SEC
Drilling Company	:LAYNE ENVIRONMENTAL		1.20E-03 CM/SEC
Rig Type	:DUAL-WALL REVERSE AIR ROTARY		
Driller	:B. DALTON		
Drilling Started	:5-10-87 0700	REPLACEMENT	5-15-87 1500
Drilling Completed	:5-12-87 1010		5-16-87 1735

MONITORING WELL AS-BUILT

		BLS	MSL
Vault w/Locking Protective Casing			
Land Surface		0.0	2841.70
Top of PVC Flush Joint Riser w/Vented PVC Cap and Eyebolt		0.3	2841.40
Cement/Bentonite Grout	Top	1.2	2840.50
	Bottom	163.0	2678.70
4" I.D. Schedule 40 PVC Flush Joint Riser	Top	0.3	2841.40
	Bottom	170.4	2671.30
Bentonite 1/4" Pellet Seal	Top	163.0	2678.70
	Bottom	165.5	2676.20
Static Water Level (6/2/87)		171.4	2670.28
4" I.D. Schedule 40 PVC Flush Joint Screen 0.02" Slot 4 Slots/Inch	Top	170.4	2671.30
	Bottom	190.5	2651.20
No.3 Sand Pack	Top	165.5	2676.20
	Bottom	191.6	2650.10
Bottom Plug			
9" Borehole Total Depth		191.6	2650.10



All measurements in feet unless otherwise noted
BLS - Below Land Surface
MSL - Mean Sea Level Datum
* - Well was replaced after development pump broke screen

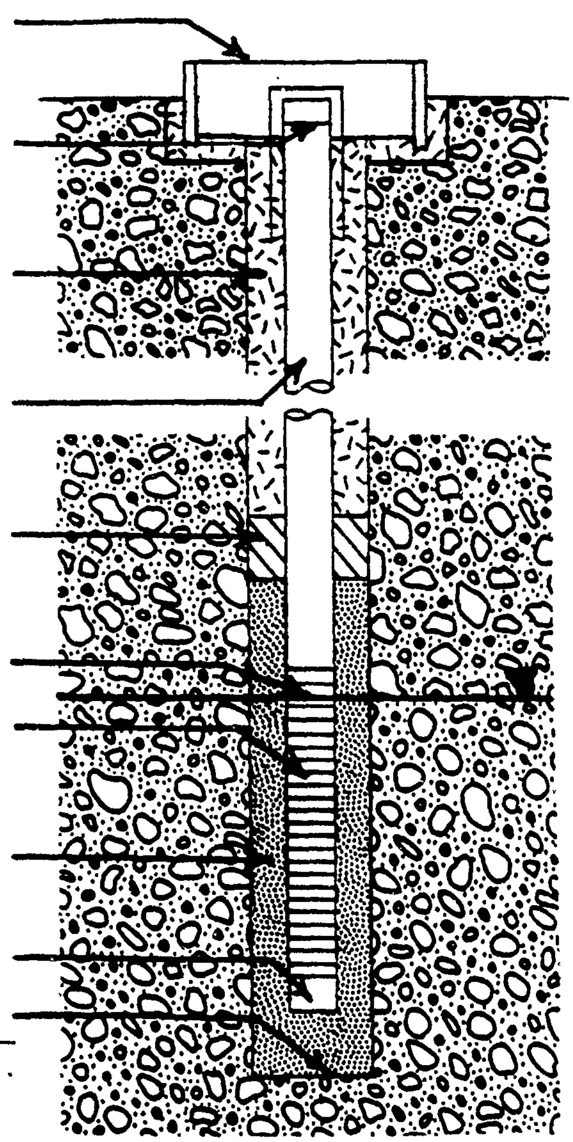
NOT TO SCALE

MONITORING WELL CONSTRUCTION SUMMARY

Well No.	: 1-2*	Development		
Location (Idaho Coord.)		Date	:	6-2-87
Northings	:689,826.90	Type	:	BAILING/PUMPING
Eastings	:377,009.86	Volume Purged	:	1200 GALLONS
Reference Point	:TOP OF PVC CASING			
Reference Point Elev.	: 2850.06 MSL	Water Level/Date:		2668.62 MSL/6-2-87
Type of Security	:VAULT			2668.10 MSL/8-15-87
				2665.52 MSL/2-7-89
Supervisory Geologist	:C. NOTHWANGER	Hydraulic Conductivity:		
Log Book/Page No.	:2/89-110,113-125			3.13E-05 FT/SEC
Drilling Company	:LAYNE ENVIRONMENTAL			9.55E-04 CM/SEC
Rig Type	:DUAL-WALL REVERSE AIR ROTARY			
Driller	:B. DALTON			
Drilling Started	:5-17-87 0710	REPLACEMENT		5-31-87 0700
Drilling Completed	:5-23-87 0810			6-1-87 1230

MONITORING WELL AS-BUILT

		BLS	MSL
Vault w/Locking Protective Casing			
Land Surface		0.0	2850.20
Top of PVC Flush Joint Riser w/Vented PVC Cap and Eyebolt		0.1	2850.06
Cement/Bentonite Grout	Top	0.9	2849.30
	Bottom	158.5	2691.70
4" I.D. Schedule 40 PVC Flush Joint Riser	Top	0.1	2850.06
	Bottom	175.0	2675.20
Bentonite 1/4" Pellet Seal	Top	158.5	2691.70
	Bottom	162.1	2688.10
Static Water Level		181.6	2668.62
4" I.D. Schedule 40 PVC Flush Joint Screen 0.02" Slot 4 Slots/Inch	Top	175.0	2675.20
	Bottom	205.0	2645.20
No.3 Sand Pack	Top	162.1	2688.10
	Bottom	208.0	2642.20
Bottom Plug			
9" Borehole Total Depth		208.0	2642.20

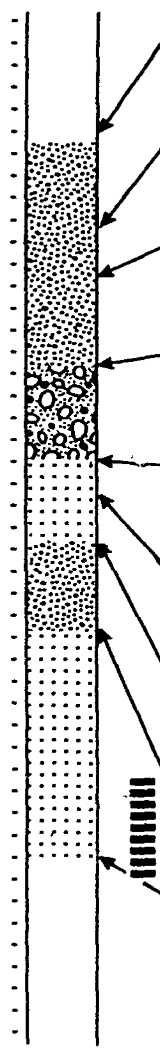


All measurements in feet unless otherwise noted
BLS - Below Land Surface
MSL - Mean Sea Level Datum
* - Well was replaced after grout was found in screen

NOT TO SCALE

MONITORING WELL BORING LOG

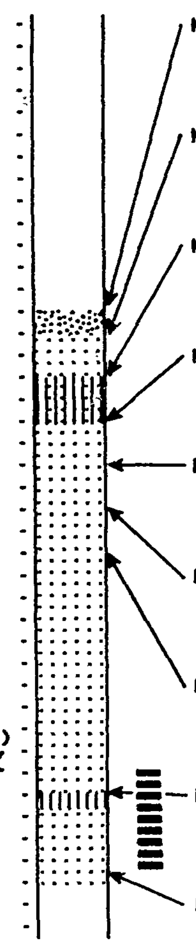
MW 1-1



DEPTH (BLS)	LITHOLOGIC SYMBOLS	SAMPLE NUMBER	BLOW COUNT	TOP OF SAMPLE	BOTTOM OF SAMPLE	RECOVERY	SOIL TYPE (USCS)	LITHOLOGIC DESCRIPTION	HNU RESULT (ppm)
0.0		MW-1-1-1	11,45,28	28.5	30.0	0.6'	SW	FINE SAND (60%) COARSE GRAVEL (40%); subp; ang; loose; non-plastic; dry; v. pale brown (10YR7/3).	0.1
25.0		MW-1-1-2	6,26,17	48.5	50.0	1.3'	SW	V. FINE TO MEDIUM SAND (70%) coarse gravel (30%), trace silt, subp; subr; loose; non-plastic; dry; pale brown (10YR6/3).	bkgd
50.0		MW-1-1-3	6,9,40	58.5	60.0	1.5'	SW	V. FINE TO COARSE SAND (70%), medium to coarse gravel (30%); subp; subr; loose; non-plastic; dry; light yellowish brown (10YR6/4).	bkgd
75.0		MW-1-1-4	5,7,41	78.0	79.5	1.4'	GW	FINE TO COARSE GRAVEL (60%) MEDIUM SAND (40%); pris; v.ang; loose; non-plastic; dry.	bkgd
100.0		MW-1-1-5	9,13,19	98.5	100.0	1.1'	GW SP	0.9' GRAVEL (50%) MEDIUM SAND (40%); subp; suba; loose; dry. 0.2' V. FINE SAND, trace silt; firm; dry; brownish yellow (10YR6/6).	bkgd
125.0		MW-1-1-6	8,24,51	108.5	110.0	1.4'	SP	V. FINE SAND (80%), coarse gravel (20%), trace silt; subp; subr; firm to stiff; non-plastic; dry v.pale brown (10YR7/4) to brownish yellow (10YR6/6).	bkgd
150.0		MW-1-1-7	12,31, 107/5"	118.5	120.0	1.6'	SW	V. FINE SAND (75%), coarse gravel and medium pebbles (25%), sph; subr; stiff; non-plastic; dry; brownish yellow (10YR6/6).	bkgd
(6-2-87) *175.0		MW-1-1-8	24,55,89	138.5	140.0	1.6'	SP	V. FINE SAND (95%), coarse gravel (5%); sph; suba; loose; non-plastic; dry to moist; yellow (10YR7/6)	bkgd
200.0		MW-1-1-9	None	189.0	190.5	1.0'	SP	V. FINE SAND; stiff; non-plastic; wet; yellowish brown (10YR5/6).	bkgd
225.0		MW-1-1-10	3,3,5			None			

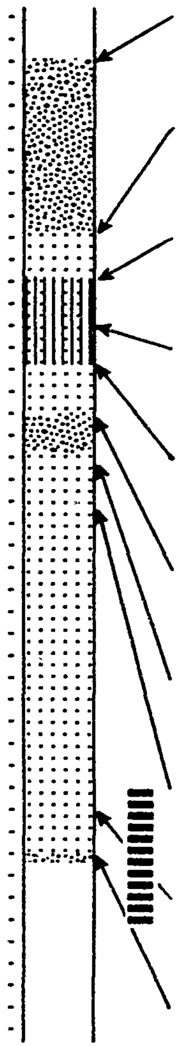
MONITORING WELL BORING LOG

MW 5-1

DEPTH (BLS)	LITHOLOGIC SYMBOLS	SAMPLE NUMBER	BLOW COUNT	TOP OF SAMPLE ('BLS)	BOTTOM OF SAMPLE ('BLS)	RECOVERY	SOIL TYPE (USCS)	LITHOLOGIC DESCRIPTION	HNU RESULT (ppm)
0.0		MW-5-1-1	6,16,20	65.0	66.5	0.4'	SW	MEDIUM TO COARSE SAND (50%) AND COARSE GRAVEL (50%); subp; suba; loose; non-plastic; dry; yellowish brown (10YR5/6) and white (10YR8/2).	bkgd
25.0		MW-5-1-2	16,54, 31/3"	70.0	71.5	1.5'	SP	FINE TO MEDIUM SAND, trace coarse gravel (3%); sph; ang; loose; non-plastic; dry to moist; yellow (10YR8/6).	bkgd
50.0		MW-5-1-3	12,32,39	80.0	81.5	1.7'	SC	V. FINE SAND AND CLAY (50%), MEDIUM SAND (40%), trace gravel(<3%); subp; suba; firm to stiff; non-plastic; moist; light yellowish brown (2.5Y6/4) and yellowish brown (10YR5/6).	bkgd
75.0		MW-5-1-4	19,47, 43/4"	90.0	91.5	1.6'	SP	FINE TO MEDIUM SAND (95%), coarse gravel (5%); subp; suba; loose; non-plastic; moist; light gray (2.5Y7/2) and light olive brown (2.5Y5/6).	bkgd
100.0		MW-5-1-5	2,4,8	100.0	101.5	1.6'	SP	FINE SAND, trace gravel (7%); subpr; suba to subr; loose; non-plastic; moist; light yellowish brown (2.5Y6/4).	bkgd
125.0		MW-5-1-6	16,93	110.0	111.5	1.2'	SP	MEDIUM TO COARSE SAND, some v.fine pebbles, trace coarse gravel (2%); subp to sph ang; loose; non-plastic; moist; light yellowish brown (2.5Y6/4).	bkgd
*150.0 (6-2-87)		MW-5-1-7	10,37, 49/4.5"	120.0	121.5	1.3'	SP	FINE TO MEDIUM SAND, some v.fine pebbles, trace coarse gravel (2%); subp to sph; ang; loose; non-plastic; moist; light yellowish brown (2.5Y6/4).	bkgd
175.0		MW-5-1-8	7,46/4.5"	175.0	176.5	1.6'	SC CL SP	1.3' MEDIUM SAND, trace clay (5%); firm; non-plastic to slightly plastic; wet; light olive brown (2.5Y5/6). 0.2' CLAY; stiff to dense; plastic; dry; v.dark grayish brown (2.5Y3/2). 0.1' FINE SAND; firm; moist; light brownish gray (2.5Y6/2).	bkgd
200.0		MW-5-1-9	29,61/4"	193.0	194.5	1.7'	SP	FINE TO MEDIUM SAND; sph; suba; loose; wet; light yellowish brown (2.5Y6/4).	bkgd

MONITORING WELL BORING LOG

MW 1-2



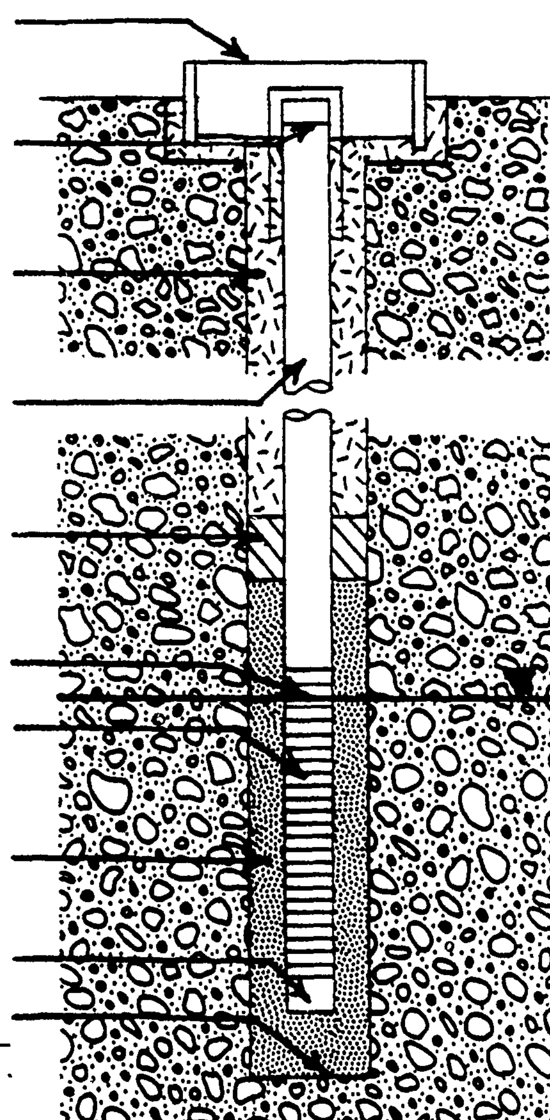
DEPTH (BLS)	SAMPLE NUMBER	BLOW COUNT	TOP OF SAMPLE	BOTTOM OF SAMPLE	RECOVERY	SOIL TYPE (USCS)	LITHOLOGIC DESCRIPTION	HNU RESULT (ppm)
0.0	MW-1-2-1	16,16,28	9.0	10.5	1.7	SW	V.FINE SAND (25%), some silt, trace coarse pebbles(3%); subp; suba; stiff to dense; non-plastic; moist;	bkgd
25.0	MW-1-2-2	13,25,40	49.0	50.5	1.6	SP	FINE TO MEDIUM SAND; sph; ang; loose; non-plastic; dry; pale yellow (2.5Y7/4).	bkgd
50.0	MW-1-2-3	13,26, 20/2"	59.0	60.5	1.5	SP SC	0.2' FINE TO MEDIUM SAND; sph; ang; loose; non-plastic; dry; pale yellow (2.5Y7/4). 1.3' V. FINE SAND, trace clay (10%); stiff; light yellowish brown (2.5Y6/4) and brownish yellow (10YR6/8).	bkgd
75.0	MW-1-2-4	16,50/ 5.5"	69.0	70.5	1.6	SC	1.6' V. FINE SAND, CLAY (40%); stiff; light yellowish brown (2.5Y6/4) and brownish yellow (10YR6/8).	bkgd
100.0	MW-1-2-5	25,37/3"	79.0	80.5	1.2	SP	FINE TO MEDIUM SAND, trace coarse gravel (3%); subd; rounded; loose; non-plastic; dry; v. pale brown (10YR7/4).	bkgd
125.0	MW-1-2-6	4,6,10,13	89.0	90.5	1.1	SW	COARSE TO V. COARSE SAND (60%) COARSE GRAVEL (40%); subd; subr-suba; loose; non-plastic; dry; brown to dark brown (10YR4/3).	bkgd
150.0	MW-1-2-7	7,38, 47/5"	99.0	100.5	1.2	SP	V. FINE SAND, trace coarse gravel (3%); subd; rounded; loose; non-plastic; dry; yellowish brown (10YR5/4).	bkgd
175.0 ▼ (6-2-87)	MW-1-2-8	12,39, 38/4"	109.0	110.5	1.2	SP	V. FINE SAND, trace coarse gravel (3%), trace silt; subd; rounded; loose; non-plastic; dry; yellowish brown (10YR5/4).	bkgd
200.0	MW-1-2-9	44,23/2"	179.0	180.5	0.7	SP	V. FINE SAND, trace coarse gravel (3%), trace silt; subd; rounded; loose; non-plastic; wet; yellowish brown (10YR5/4).	bkgd
225.0	MW-1-2-10	40,36/2"	189.0	190.5	1.0	SW	V. FINE TO MEDIUM SAND, trace clay (<5%); subr; suba; firm; non-plastic; wet; yellowish brown (10YR5/4).	bkgd

MONITORING WELL CONSTRUCTION SUMMARY

Well No.	: 5-1	Development		
Location (Idaho Coord.)		Date	:	5-13-87
Northings	:689,040.71	Type	:	BAILING/PUMPING
Eastings	:376,220.42	Volume Purged	:	900 GALLONS
Reference Point	:TOP OF PVC CASING			
Reference Point Elev.	: 2843.36 MSL	Water Level/Date:		2673.3 MSL/6-2-87
Type of Security	:VAULT			2672.69 MSL/8-15-87
		Hydraulic Conductivity:		
Supervisory Geologist	:C. NOTHWANGER			3.80E-05 FT/SEC
Log Book/Page No.	: 2/49-71			1.16E-03 CM/SEC
Drilling Company	:LAYNE ENVIRONMENTAL			
Rig Type	:DUAL-WALL REVERSE AIR ROTARY			
Driller	:B. DALTON			
Drilling Started	:5-10-87 0700			
Drilling Completed	:5-12-87 1010			

MONITORING WELL AS-BUILT

		BLS	MSL
Vault w/Locking Protective Casing			
Land Surface		0.0	2843.80
Top of PVC Flush Joint Riser w/Vented PVC Cap and Eyebolt		0.4	2843.36
Cement/Bentonite Grout	Top	1.2	2842.60
	Bottom	163.0	2680.80
4" I.D. Schedule 40 PVC Flush Joint Riser	Top	0.4	2843.36
	Bottom	170.4	2673.40
Bentonite 1/4" Pellet Seal	Top	163.0	2680.80
	Bottom	165.5	2678.30
Static Water Level		170.5	2673.30
4" I.D. Schedule 40 PVC Flush Joint Screen 0.02" Slot 4 Slots/Inch	Top	170.4	2673.40
	Bottom	190.5	2653.30
No.3 Sand Pack	Top	165.5	2678.30
	Bottom	191.6	2652.20
Bottom Plug			
9" Borehole Total Depth		191.6	2652.20



All measurements in feet unless otherwise noted
BLS - Below Land Surface
MSL - Mean Sea Level Datum

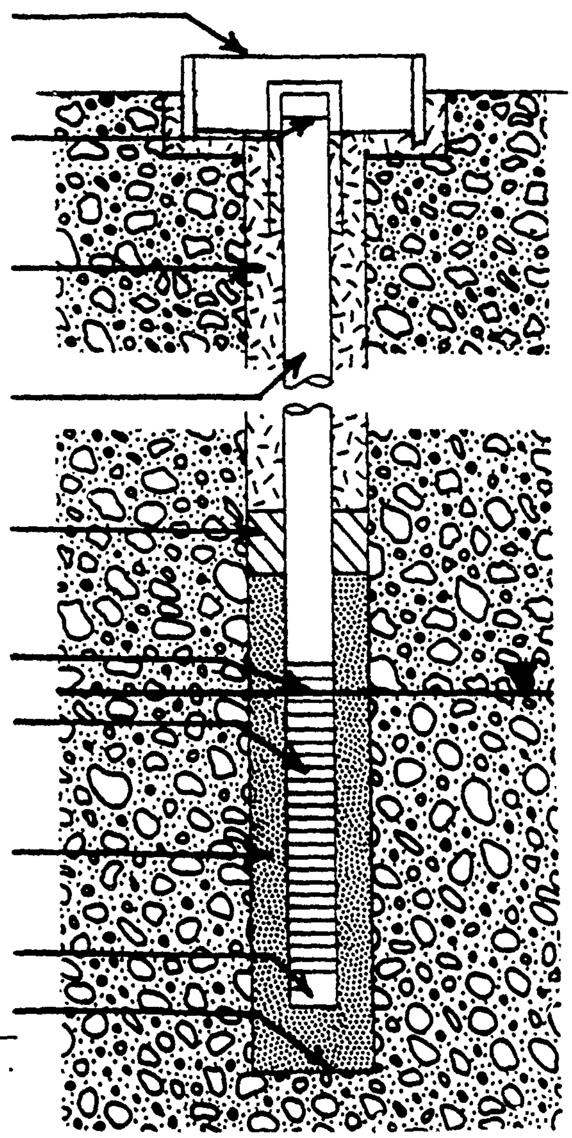
NOT TO SCALE

MONITORING WELL CONSTRUCTION SUMMARY

Well No.	: 6-1	Development	
Location (Idaho Coord.)		Date	: 5-11-87
Northings	:688,521.17	Type	: BAILING/PUMPING
Eastings	:376,205.61	Volume Purged	: 1800 GALLONS
Reference Point	:TOP OF PVC CASING		
Reference Point Elev.	: 2836.32 MSL	Water Level/Date:	2679.54 MSL/6-2-87
Type of Security	:VAULT		2679.11 MSL/8-15-87
			2677.03 MSL/2-6-89
Supervisory Geologist	:C. NOTHWANGER	Hydraulic Conductivity:	
Log Book/Page No.	: 2/27-47		3.88E-05 FT/SEC
Drilling Company	:LAYNE ENVIRONMENTAL		1.18E-03 CM/SEC
Rig Type	:DUAL-WALL REVERSE AIR ROTARY		
Driller	:B. DALTON		
Drilling Started	:5-8-87 0615		
Drilling Completed	:5-9-87 1700		

MONITORING WELL AS-BUILT

		BLS	MSL
Vault w/Locking Protective Casing			
Land Surface		0.0	2836.80
Top of PVC Flush Joint Riser w/Vented PVC Cap and Eyebolt		0.5	2836.32
Cement/Bentonite Grout	Top	1.3	2835.50
	Bottom	148.0	2688.80
4" I.D. Schedule 40 PVC Flush Joint Riser	Top	0.5	2836.32
	Bottom	157.5	2679.30
Bentonite 1/4" Pellet Seal	Top	148.0	2688.80
	Bottom	152.3	2684.50
Static Water Level		157.3	2679.54
4" I.D. Schedule 40 PVC Flush Joint Screen 0.02" Slot 4 Slots/Inch	Top	157.5	2679.30
	Bottom	177.5	2659.30
No.3 Sand Pack	Top	152.3	2684.50
	Bottom	182.0	2654.80
Bottom Plug			
9" Borehole Total Depth		182.0	2654.80

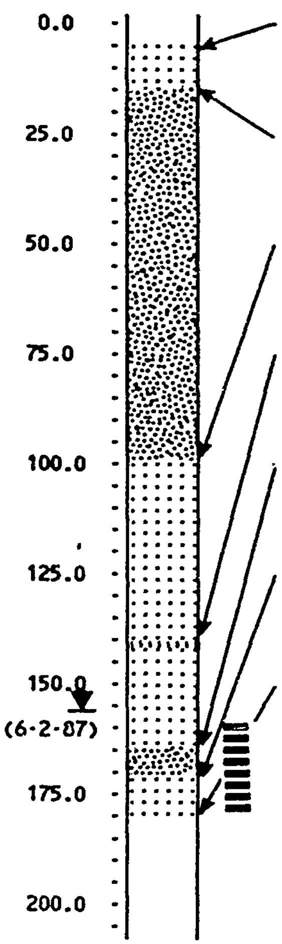


All measurements in feet unless otherwise noted
BLS - Below Land Surface
MSL - Mean Sea Level Datum

NOT TO SCALE

MONITORING WELL BORING LOG

MW 6-1



SAMPLE NUMBER	BLOW COUNT	TOP OF SAMPLE ('BLS)	BOTTOM OF SAMPLE ('BLS)	RECOVERY	SOIL TYPE (USCS)	LITHOLOGIC DESCRIPTION	HNU RESULT (ppm)
MW-6-1-1	19,30, 50/3"	5.0	6.5	1.6'	SP	MEDIUM SAND (90%), coarse gravel (10%); subp; suba; loose to stiff; non-plastic; dry.	bkgd
MW-6-1-2	14,39	15.0	16.5	0.8'	SW	MEDIUM TO COARSE SAND (75%), coarse gravel (25%); sph; v.ang; loose; non-plastic; dry; brownish yellow (10YR6/6).	bkgd
MW-6-1-3	5,25,39	99.0	100.5	0.8'	SP	V. FINE TO FINE SAND (80%), coarse gravel (20%), trace silt; subpr; subr to r; loose to firm; non-plastic; moist to dry; pale yellow (2.5Y7/4) and light olive brown (2.5Y5/6).	bkgd
MW-6-1-4	19,43, 38/3"	140.0	141.5	1.7'	SP CL	1.6' MEDIUM TO COARSE SAND; subpr; subr; loose; non-plastic; moist; brownish yellow (10YR6/6). 0.1' CLAY, trace sand; stiff; slightly plastic; moist.	bkgd
MW-6-1-5	7,9,15	165.0	166.5	1.6'	SW	COARSE TO V. COARSE SAND (70%), coarse pebbles (28%), trace silt and clay (2%); subp; subr; loose; non-plastic; saturated; light brown (7.5YR6/4).	bkgd
MW-6-1-6	5,17,73	170.0	171.5	1.3'	SP	COARSE TO V. COARSE SAND; sph; ang; loose; non-plastic; wet; light brown (7.5YR6/4).	bkgd
MW-6-1-7	2,6,20	180.0	181.5	1.4'	SP	COARSE TO V. COARSE SAND; sph; ang; loose; non-plastic; wet; light brown (7.5YR6/4).	bkgd

Seven samples taken at shallow depths did not yield any sample and are not described above.

APPENDIX D

SOIL BORINGS LOGS

SOIL BORING LOG

SOIL BORING NO.	SB-1-1	
SUPERVISORY GEOLOGIST	B. FRIER	
LOG BOOK/PG No.	3/1-7	
DRILLING STARTED	5-6-87	0800
ABANDONMENT COMPLETED	5-7-87	1430

DRILLING COMPANY: SERGENT, HAUSKINS, & BECKWITH
RIG TYPE: HOLLOW-STEM AUGER*

DEPTH (BLS)	LITHOLOGIC SYMBOLS	SAMPLE NUMBER	BLOW COUNT	TOP OF SAMPLE ('BLS)	BOTTOM OF SAMPLE ('BLS)	RECOVERY	SOIL TYPE (USCS)	LITHOLOGIC DESCRIPTION	HNU RESULTS (ppm)
0.0		SB-1-1-1	4,7,11					NO RECOVERY	
5.0		SB-1-1-2	50/5"	5.0	6.5	0.6'	SP	FINE SAND (80%), some silt, trace coarse pebbles; suba; loose; non-plastic; dry; yellow (10YR7/8).	bkgd
10.0		SB-1-1-3	50/7"					NO RECOVERY	
15.0		SB-1-1-4	50/3"	15.0	16.5	0.25'	SP	COARSE TO MEDIUM SAND (90%), some fine to medium pebble; sph; subr; loose; non-plastic; dry; brownish yellow (10YR6/8).	bkgd
20.0		SB-1-1-5	50/4"					NO RECOVERY	
25.0		SB-1-1-6	50/1"	25.0	26.5	0.3'	SW	MEDIUM TO COARSE SAND (60%), some fine to medium pebbles (40%); sph; subr; loose; non-plastic; dry; pale brown (10YR6/3).	bkgd
30.0		SB-1-1-7	50/2"	30.0	31.5	0.3'	SW	MEDIUM TO COARSE SAND (60%), some fine to medium pebbles; sph; subr; non-plastic; dry; light yellowish brown (10YR6/4).	bkgd
35.0		SB-1-1-8	50/4"	35.0	36.5	0.7'	SP	MEDIUM TO V.COARSE SAND (90%), trace fine to medium pebbles; subd; subr; non-plastic; dry; very pale brown (10YR7/3).	bkgd
40.0		SB-1-1-9	44,50/6"	40.0	41.5	1.3'	SP	MEDIUM TO COARSE SAND (90%), trace fine to medium pebbles; sph; subr; non-plastic; moist; very pale brown (10YR8/4).	bkgd
45.0		SB-1-1-10	40,50/9"					NOT RECORDED	

* This was the only borehole to be completed using hollow-stem augering methods

SOIL BORING LOG

SOIL BORING NO.	SB-1-2		
SUPERVISORY GEOLOGIST	B. FRIER		
LOG BOOK/PG No.	3/13-15	DRILLING COMPANY	LAYNE ENVIRONMENTAL SERVICES
DRILLING STARTED	5-13-87 0810	RIG TYPE	Dual-Walled Reverse Air Rotary
ABANDONMENT COMPLETED	5-13-87 1220	DRILLER	B. Dalton

DEPTH (BLS)	LITHOLOGIC SYMBOLS	SAMPLE NUMBER	SOIL TYPE (USCS)	LITHOLOGIC DESCRIPTION	HNU RESULTS (ppm)
0.0					
5.0		SB-1-2-1	SM	MEDIUM TO COARSE SAND AND SILT; plastic; moist; v. oil stained; dark yellowish brown (10YR3/4).	bkgd
10.0		SB-1-2-2	SP	FINE SAND (80%); some medium to coarse pebbles; non-plastic; dry; yellowish brown (10YR5/6).	bkgd
15.0		SB-1-2-3	SP	MEDIUM TO COARSE SAND (80%); some medium to coarse pebbles; non-plastic; dry; brownish yellow (10YR6/8).	bkgd
20.0		SB-1-2-4	SP	MEDIUM TO COARSE SAND (80%); some medium to coarse pebbles; non-plastic; dry; brownish yellow (10YR6/8).	bkgd
25.0		SB-1-2-5	SP	MEDIUM TO COARSE SAND (80%), some coarse to very coarse pebbles, small boulders; non-plastic; dry; yellowish brown (10YR5/8).	bkgd
30.0		SB-1-2-6	SP	COARSE SAND (80%), medium to coarse pebbles, trace v. coarse pebbles; non-plastic; dry; brownish yellow (10YR6/8).	bkgd
35.0		SB-1-2-7	SP	MEDIUM TO COARSE SAND (80%), coarse pebbles; non-plastic; dry; brownish yellow (10YR6/8).	bkgd
40.0		SB-1-2-8	SP	FINE TO MEDIUM SAND, some coarse pebbles; non-plastic; dry; light brownish gray (10YR6/2).	bkgd
45.0		NO SAMPLE TAKEN AT THIS DEPTH			
50.0		SB-1-2-9	SP	MEDIUM TO COARSE SAND (>95%), trace medium pebbles; non-plastic; moist; light yellowish brown (10YR6/4).	bkgd
55.0		SB-1-2-10	SP	MEDIUM TO COARSE SAND (>95%), trace medium pebbles; non-plastic; moist; light yellowish brown (10YR6/4).	bkgd

SOIL BORING LOG

SOIL BORING NO.	SB-1-3	DRILLING COMPANY	LAYNE ENVIRONMENTAL SERVICES
SUPERVISORY GEOLOGIST	B. FRIER	RIG TYPE	Dual-Walled Reverse Air Rotary
LOG BOOK/PG No.	3/16-18	DRILLER	B. Dalton
DRILLING STARTED	5-13-87 1340		
ABANDONMENT COMPLETED	5-13-87 1620		

DEPTH (BLS)	SAMPLE NUMBER	SOIL TYPE (USCS)	LITHOLOGIC DESCRIPTION	HNU RESULTS (ppm)
0.0				
5.0	SB-1-3-1	SM	FINE TO MEDIUM SAND AND SILT, some v. coarse pebbles; non-plastic; dry; oil stained; v. dark grayish brown (10YR3/2).	bkgd
10.0	SB-1-3-2	SP	MEDIUM TO V. COARSE SAND (80%), some medium pebbles; subd; suba; non-plastic; dry; yellowish brown (10YR5/8).	bkgd
15.0	SB-1-3-3	SP	MEDIUM TO V. COARSE SAND (80%), some medium pebbles; subd; suba; non-plastic; dry; yellowish brown (10YR5/8).	bkgd
20.0	SB-1-3-4	SP	MEDIUM SAND (85%), some fine to medium pebbles; sph; subr; non-plastic; dry; brownish yellow (10YR6/8).	bkgd
25.0	SB-1-3-5	SP	FINE TO MEDIUM SAND (85%), some medium pebbles; subd; suba; non-plastic; dry; v. pale brown (10YR7/3).	bkgd
30.0	SB-1-3-6	SP	FINE TO V. COARSE SAND (85%), some medium to coarse pebbles; subd; suba; non-plastic; dry; light yellowish brown (10YR6/4).	bkgd
35.0	SB-1-3-7	SP	FINE TO V. COARSE SAND (80%), some medium to coarse pebbles, small boulders; subd; suba; non-plastic; dry	bkgd
40.0	SB-1-3-8	SP	FINE TO V. COARSE SAND, some medium to coarse pebbles; subd; suba; non-plastic; dry; light yellowish brown (10YR6/4).	bkgd
45.0	SB-1-3-9	SP	MEDIUM SAND; sph; subr; non-plastic; moist; light yellowish brown (10YR6/4).	bkgd

SOIL BORING LOG

SOIL BORING NO.	SB-2-1			
SUPERVISORY GEOLOGIST	B. FRIER			
LOG BOOK/PG No.	3/24-26		DRILLING COMPANY	LAYNE ENVIRONMENTAL SERVICES
DRILLING STARTED	5-14-87	1555	RIG TYPE	Dual-Walled Reverse Air Rotary
ABANDONMENT COMPLETED	5-15-87	0735	DRILLER	B. Dalton

DEPTH (BLS)	LITHOLOGIC SYMBOLS	SAMPLE NUMBER	SOIL TYPE (USCS)	LITHOLOGIC DESCRIPTION	HNU RESULTS (ppm)
0.0					
5.0		SB-2-1-1	SP	FINE TO MEDIUM SAND (95%), some medium to coarse pebbles, trace small cobbles; subd; suba; non-plastic; moist; yellowish brown (10YR5/6).	bkgd
10.0		SB-2-1-2	SP	FINE TO MEDIUM SAND (95%), some medium to coarse pebbles, trace small cobbles; subd; suba; non-plastic; moist; yellowish brown (10YR5/6).	bkgd
15.0		SB-2-1-3	SP	MEDIUM SAND (95%), some medium to coarse pebbles, some small cobbles; subd; subr; non-plastic; moist; brownish yellow (10YR6/8).	bkgd
20.0		SB-2-1-4	SP	MEDIUM SAND (95%), some medium to coarse pebbles, some small cobbles; subd; subr; non-plastic; moist; brownish yellow (10YR6/8).	bkgd
25.0		SB-2-1-5	SP	MEDIUM SAND (95%), some medium to coarse pebbles, some small cobbles; subd; subr; non-plastic; moist; brownish yellow (10YR6/8).	bkgd

SOIL BORING LOG

SOIL BORING NO.	SB-1-5		DRILLING COMPANY: LAYNE ENVIRONMENTAL SERVICES
SUPERVISORY GEOLOGIST	B. FRIER		RIG TYPE: Dual-Walled Reverse Air Rotary
LOG BOOK/PG No.	3/19-21		DRILLER: B. Dalton
DRILLING STARTED	5-14-87	0745	
ABANDONMENT COMPLETED	5-14-87	1020	

DEPTH (BLS)	LITHOLOGIC SYMBOLS	SAMPLE NUMBER	SOIL TYPE (USCS)	LITHOLOGIC DESCRIPTION	HNU RESULTS (ppm)
0.0					
5.0		SB-1-5-1	*CL/CH	CLAY, some coarse sand, some v. coarse pebbles; plastic; moist; v. dark gray (10YR3/1).	bkgd
10.0		SB-1-5-2	SP	MEDIUM SAND (80%), some fine to medium pebbles; subd; suba, non-plastic; moist; yellowish brown (10YR5/6).	bkgd
15.0		SB-1-5-3	SP	MEDIUM SAND (80%), some fine to medium pebbles; subd; suba, non-plastic; moist; yellowish brown (10YR5/6).	bkgd
20.0		SB-1-5-4	SP	FINE TO MEDIUM SAND (90%), some fine to medium pebbles, trace small cobbles; subd; suba; non-plastic; moist; brownish yellow (10YR6/6).	bkgd
25.0		SB-1-5-5	SP	FINE TO MEDIUM SAND (85%), some medium to v. coarse pebbles, trace small cobbles; subd; suba; non-plastic; moist; yellow (10YR7/6).	bkgd
30.0		SB-1-5-6	SP	FINE TO MEDIUM SAND (85%), some medium to v. coarse pebbles, trace cobbles; subd; suba; non-plastic; moist; yellow (10YR7/6).	bkgd
35.0		SB-1-5-7	SP	FINE SAND (80%), some medium to coarse sand, some medium pebbles; non-plastic; dry; v. pale brown (10YR7/3).	bkgd
40.0		SB-1-5-8	SP	FINE SAND (80%), some medium to coarse sand, some medium pebbles; non-plastic; dry; v. pale brown (10YR7/3).	bkgd
45.0		SB-1-5-9	SP	MEDIUM SAND; sph; subr; non-plastic; moist.	bkgd

* Distinction can not be made without determining Plasticity Index derived from the Atterberg Limits test.

SOIL BORING LOG

SOIL BORING NO.	SB-2-2		
SUPERVISORY GEOLOGIST	B. FRIER		
LOG BOOK/PG No.	3/28-29		
DRILLING STARTED	5-15-87	0945	
ABANDONMENT COMPLETED	5-15-87	1030	

DRILLING COMPANY	LAYNE ENVIRONMENTAL SERVICES
RIG TYPE	Dual-Walled Reverse Air Rotary
DRILLER	B. Dalton

DEPTH (BLS)	LITHOLOGIC SYMBOLS	SAMPLE NUMBER	SOIL TYPE (USCS)	LITHOLOGIC DESCRIPTION	HNU RESULTS (ppm)
0.0					
5.0		SB2-2-1	SP	MEDIUM TO COARSE SAND (85%), medium to coarse pebbles; disc; ang to suba; non-plastic; moist; brownish yellow (10YR6/8).	bkgd
10.0		SB2-2-2	SP	MEDIUM SAND (85%), medium to v. coarse pebbles; subd; suba to ang; non-plastic; dry; brownish yellow (10YR6/8).	bkgd
15.0		SB2-2-3	SP	MEDIUM SAND (80%), medium to v. coarse pebbles; subd; suba; non-plastic; moist; brownish yellow (10YR6/8).	bkgd
20.0		SB2-2-4	SP	MEDIUM SAND (80%), medium to v. coarse pebbles; subd; suba; non-plastic; moist; brownish yellow (10YR6/8).	bkgd

SOIL BORING LOG

SOIL BORING NO.	SB-1-4		
SUPERVISORY GEOLOGIST	B. FRIER		
LOG BOOK/PG No.	3/21-24	DRILLING COMPANY	LAYNE ENVIRONMENTAL SERVICES
DRILLING STARTED	5-14-87 1125	RIG TYPE	Dual-Walled Reverse Air Rotary
ABANDONMENT COMPLETED	5-14-87 1425	DRILLER	B. Dalton

DEPTH (BLS)	LITHOLOGIC SYMBOLS	SAMPLE NUMBER	SOIL TYPE (USCS)	LITHOLOGIC DESCRIPTION	HNU RESULTS (ppm)
0.0					
5.0		SB-1-4-1	SP	MEDIUM TO COARSE SAND, some medium to coarse pebbles; oil stained; moist	bkgd
10.0		SB-1-4-2	SP	MEDIUM TO COARSE SAND (80%), medium to v. coarse pebbles; subd; subr to suba; non-plastic; dry; yellow (10YR7/6).	bkgd
15.0		SB-1-4-3	SP	MEDIUM TO COARSE SAND (80%), medium to v. coarse pebbles, trace small cobbles; subd; subr to suba; non-plastic; dry; yellow (10YR7/6).	bkgd
20.0		SB-1-4-4	SP	FINE TO MEDIUM SAND (85%), some medium to coarse pebbles; subd; suba; non-plastic; dry; v. pale brown (10YR8/3).	bkgd
25.0		SB-1-4-5	SP	FINE TO MEDIUM SAND (85%), some coarse pebbles, some small boulders; non-plastic; dry; v. pale brown (10YR7/3).	bkgd
30.0		SB-1-4-6	SP	MEDIUM TO COARSE SAND (90%), some medium to v. coarse pebbles; subd; suba; non-plastic; dry; brownish yellow (10YR6/6).	bkgd
35.0		SB-1-4-7	SP	MEDIUM TO COARSE SAND (90%), some medium to v. coarse pebbles, some small boulders; subd; suba; non-plastic; dry; brownish yellow (10YR6/6).	bkgd
40.0		SB-1-4-8	SP	V. FINE TO FINE SAND (85%), some medium to coarse pebbles; non-plastic; dry; v. pale brown (10YR7/3).	bkgd
45.0		SB-1-4-9	SP	MEDIUM SAND; sph; subr; non-plastic; moist; light yellowish brown (10YR6/4).	bkgd

SOIL BORING LOG

SOIL BORING NO.	SB-2-3		
SUPERVISORY GEOLOGIST	B. FRIER		
LOG BOOK/PG No.	3/29-30	DRILLING COMPANY	LAYNE ENVIRONMENTAL SERVICES
DRILLING STARTED	5-15-87 1140	RIG TYPE	Dual-Walled Reverse Air Rotary
ABANDONMENT COMPLETED	5-15-87 1230	DRILLER	B. Dalton

DEPTH (BLS)	LITHOLOGIC SYMBOLS	SAMPLE NUMBER	SOIL TYPE (USCS)	LITHOLOGIC DESCRIPTION	HNU RESULTS (ppm)
0.0					
5.0		SB-2-3-1	SW	MEDIUM TO COARSE SAND, some clay, some medium pebbles; non-plastic; dry; yellowish brown (10YR5/8).	bkgd
10.0		SB-2-3-2	SP	MEDIUM SAND (85%), medium to v. coarse pebbles, small cobbles; non-plastic; moist.	bkgd
15.0		SB-2-3-3	SP	MEDIUM SAND (85%), medium to v. coarse pebbles, small cobbles; non-plastic; moist.	bkgd
20.0		SB-2-3-4	SP	MEDIUM SAND (85%), medium to v. coarse pebbles, small cobbles; non-plastic; moist.	bkgd

- subd - subdiscoidal
- sph - spherical
- subpr - subprismoidal
- pris - prismoidal
- r - rounded
- subr - subrounded
- suba - subangular
- ang - angular.

Density

Descriptions referring to density indicate the condition of the split-spoon soil sample and do not necessarily reflect the conditions of the subsurface materials as indicated by blow counts. The density of the splitspoon samples was described using the following terms:

- For sand and silt samples:
  - loose
  - medium
  - dense

- For clay samples:
  - soft
  - stiff
  - hard

Plasticity

Plasticity of soils refers to the ability of the soil to be deformed without breaking up and to maintain the new shape after the deforming force has been released. Soil samples were classified as being either non-plastic, slightly plastic, or plastic.

SOIL BORING LOG

SOIL BORING NO.	SB-2-4	
SUPERVISORY GEOLOGIST	B. FRIER	
LOG BOOK/PG No.	3/26-28	
DRILLING STARTED	5-15-87	0815
ABANDONMENT COMPLETED	5-15-87	0910

DRILLING COMPANY	LAYNE ENVIRONMENTAL SERVICES
RIG TYPE	Dual-Walled Reverse Air Rotary
DRILLER	B. Dalton

DEPTH (BLS)	LITHOLOGIC SYMBOLS	SAMPLE NUMBER	SOIL TYPE (USCS)	LITHOLOGIC DESCRIPTION	HNU RESULTS (ppm)
0.0					
5.0		SB-2-4-1	SW	MEDIUM TO COARSE SAND, medium pebbles; subd; a to suba; non-plastic; dry; yellowish brown (10YR5/8).	bkgd
10.0		SB-2-4-2	SP	MEDIUM SAND (80%), medium to v. coarse pebbles, trace fine sand, trace coarse sand; subd; suba; non-plastic; moist; brownish yellow (10YR6/8).	bkgd
15.0		SB-2-4-3	SP	MEDIUM SAND (80%), v. coarse pebbles to small cobbles, trace fine sand, trace coarse sand; subd; suba; non-plastic; moist; brownish yellow (10YR6/8).	bkgd
20.0		SB-2-4-4	SP	MEDIUM SAND (80%), v. coarse pebbles to small cobbles, trace fine sand, trace coarse sand; subd; suba; non-plastic; moist; brownish yellow (10YR6/8).	bkgd

SOIL BORING LOG

SOIL BORING NO.	SB-5-1		DRILLING COMPANY	LAYNE ENVIRONMENTAL SERVICES
SUPERVISORY GEOLOGIST	B. FRIER		RIG TYPE	Dual-Walled Reverse Air Rotary
LOG BOOK/PG No.	3/9-12		DRILLER	B. Dalton
DRILLING STARTED	5-12-87	1200		
ABANDONMENT COMPLETED	5-12-87	1635		

DEPTH (BLS)	LITHOLOGIC SYMBOLS	SAMPLE NUMBER	SOIL TYPE (USCS)	LITHOLOGIC DESCRIPTION	HNU RESULTS (ppm)
0.0					
5.0		SB-5-1-1	SW	MEDIUM TO COARSE SAND, some fine to medium pebbles; sph; subr; non-plastic; dry; yellowish brown (10YR5/6).	bkgd
10.0		SB-5-1-2	SW	FINE TO COARSE SAND, v.fine to medium pebbles, trace cobbles; sph; subr; non-plastic; dry; brownish yellow (10YR6/8).	bkgd
15.0		SB-5-1-3	SP	FINE TO MEDIUM SAND (80%), some medium to v.coarse pebbles; sph; subr; non-plastic moist; brownish yellow (10YR6/6).	bkgd
20.0		SB-5-1-4	SP	FINE TO MED SAND (80%), some med. to v.coarse pebbles; subd; subr; dry; non-plastic; v. pale brown (10YR7/4).	bkgd
25.0		SB-5-1-5	SP	FINE TO MED SAND (80%), some coarse pebbles; subd; subr; dry; non-plastic; v. pale brown (10YR7/3).	bkgd
30.0		SB-5-1-6	SP	FINE TO MED SAND (80%), some fine to med. pebbles, trace small cobbles; subd; subr; non-plastic; dry; v. pale brown (10YR7/4).	bkgd
35.0		SB-5-1-7	SW	V.FINE TO MED SAND, some v.coarse pebbles; subd; a to subr; dry; non-plastic; light gray (10YR7/2).	bkgd
40.0		SB-5-1-8	SP	FINE TO MEDIUM SAND (80%), med to coarse pebbles; subd; suba; non-plastic; dry; v. pale brown (10YR7/3).	bkgd
45.0		SB-5-1-9	SP	FINE TO MED. SAND (>85%), some coarse pebbles; subd; subr; non-plastic; dry; v. pale brown (10YR7/3).	bkgd
50.0		SB-5-1-10	SP	MED TO COARSE SAND (80%), some medium to coarse pebbles; subd; rounded; non-plastic; dry; v. pale brown (10YR7/4).	bkgd
55.0		SB-5-1-11	SP	FINE TO MED SAND (95%), trace pebbles; sph; subr; non-plastic; dry; v. pale brown (10YR7/4).	bkgd

APPENDIX E

AQUIFER TEST DATA AND HYDROGEOLOGIC CALCULATIONS

Hvorslev (1951) Well Test Method
(Freeze and Cherry, 1979)

The simplest interpretation of piezometer-recovery data is that of Hvorslev (1951). His initial analysis assumed a homogeneous, isotropic, infinite medium in which both soil and water are incompressible. With reference to the bail test of Figure 8.20(a), Hvorslev reasoned that the rate of inflow, q, at the piezometer tip at any time t is proportional to the hydraulic conductivity, K, of the soil and to the unrecovered head difference, $H - h$, so that

$$q(t) = \pi r^2 \frac{dh}{dt} = FK(H - h) \tag{8.31}$$

where F is a factor that depends on the shape and dimensions of the piezometer intake. If $q = q_0$ at $t = 0$, it is clear that $q(t)$ will decrease asymptotically toward zero as time goes on.

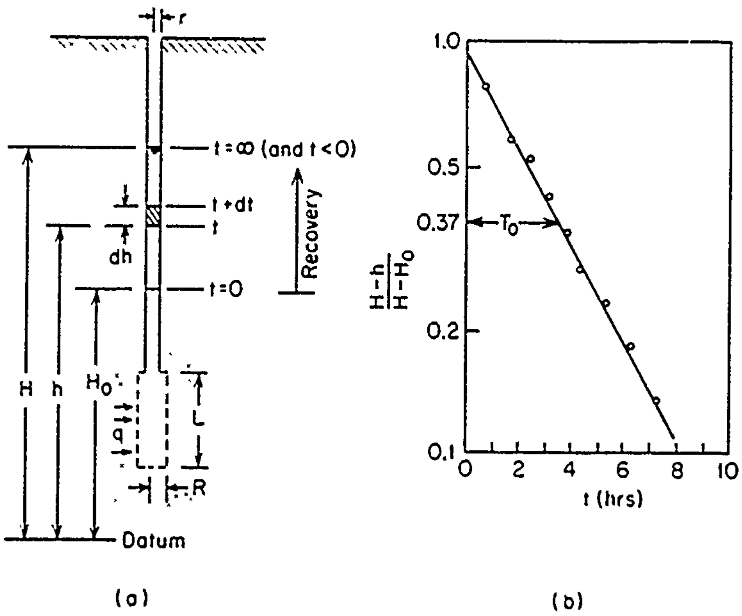


Figure 8.20 Hvorslev piezometer test. (a) Geometry; (b) method of analysis.

Hvorslev defined the *basic time lag*, T_0, as

$$T_0 = \frac{\pi r^2}{FK} \tag{8.32}$$

When this parameter is substituted in Eq. (8.31), the solution to the resulting ordinary differential equation, with the initial condition, $h = H_0$ at $t = 0$, is

$$\frac{H - h}{H - H_0} = e^{-t/T_0} \tag{8.33}$$

A plot of field recovery data, $H - h$ versus t, should therefore show an exponential decline in recovery rate with time. If, as shown on Figure 8.20(b), the recovery is normalized to $H - H_0$ and plotted on a logarithmic scale, a straight-line plot results. Note that for $H - h/H - H_0 = 0.37$, $\ln(H - h/H - H_0) = -1$, and from Eq. (8.33), $T_0 = t$. The basic time lag, T_0, can be defined by this relation; or if a more physical definition is desired, it can be seen, by multiplying both top and bottom of Eq. (8.32) by $H - H_0$, that T_0 is the time that would be required for the complete equalization of the head difference if the original rate of inflow were maintained. That is, $T_0 = V/q_0$, where V is the volume of water removed or added.

To interpret a set of field recovery data, the data are plotted in the form of Figure 8.20(b). The value of T_0 is measured graphically, and K is determined from Eq. (8.32). For a piezometer intake of length L and radius R [Figure 8.20(a)], with $L/R > 8$, Hvorslev (1951) has evaluated the shape factor, F. The resulting expression for K is

$$K = \frac{r^2 \ln (L/R)}{2LT_0} \tag{8.34}$$

HVORSLEV WORKSHEET

		Date of Test:	24 May 1987
		Location:	Gowen Field
		Well ID:	MW 1-1
H-Ho (feet)=	4.84		
r (feet)=	0.17	Slope=	-6.2160
R (feet)=	0.38	Intercept=	0.00
L (feet)=	20.00	Corr. Coeff.=	0.51
To (minutes)=	1.17	K (ft/min)=	0.00236

X Axis Elapsed Time (minutes)	H-h Drawdown (feet)	H-h/H-Ho Corrected Value	Y Axis log[(H-h)/H-Ho)
0.000	4.84	1.00	0.00
0.003	4.24	0.88	-0.06
0.007	2.70	0.56	-0.25
0.010	1.32	0.27	-0.56
0.013	1.20	0.25	-0.61
0.017	1.07	0.22	-0.66
0.020	0.82	-0.17	-0.77
0.023	0.79	0.16	-0.79
0.040	0.74	0.15	-0.82
0.057	0.60	0.12	-0.91
0.073	0.53	0.11	-0.96
0.090	0.45	0.09	-1.03
0.107	0.39	0.08	-1.09
0.123	0.36	0.07	-1.13
0.140	0.31	0.06	-1.19
0.157	0.28	0.06	-1.24
0.173	0.26	0.05	-1.27
0.190	0.23	0.05	-1.32
0.207	0.22	0.05	-1.34
0.223	0.20	0.04	-1.38
0.240	0.18	0.04	-1.43
0.257	0.17	0.04	-1.45
0.273	0.15	0.03	-1.51
0.290	0.15	0.03	-1.51
0.307	0.14	0.03	-1.54
0.323	0.12	0.02	-1.61

HVORSLEV WORKSHEET

Date of Test: 31 May 1987
Location: Gowen Field
Well ID: MW 1-2

H-Ho (feet)=	2.90		
r (feet)=	0.17	Slope=	-13.0570
R (feet)=	0.38	Intercept=	0.00
L (feet)=	30.00	Corr. Coeff.=	1.00
To (minutes)=	1.08	K (ft/min)=	0.00188

X Axis Elapsed Time (minutes)	H-h Drawdown (feet)	H-h/H-Ho Corrected Value	Y Axis log[(H-h)/H-Ho)
0.000	2.90	1.00	0.00
0.003	2.50	0.86	-0.06
0.007	2.10	0.72	-0.14
0.010	1.90	0.66	-0.18
0.013	1.59	0.55	-0.26
0.017	1.41	0.49	-0.31
0.033	0.85	0.29	-0.53
0.050	0.51	0.18	-0.75
0.067	0.35	0.12	-0.92
0.083	0.25	0.09	-1.06
0.100	0.17	0.06	-1.23
0.117	0.11	0.04	-1.42
0.133	0.06	0.02	-1.68
0.150	0.03	0.01	-1.99
0.167	0.02	0.01	-2.16
0.183	0.01	0.00	-2.46

HVORSLEV WORKSHEET

		Date of Test:	24 May 1987
		Location:	Gowen Field
		Well ID:	MW 5-1
H-Ho (feet)=	2.82		
r (feet)=	0.17	Slope=	-5.0970
R (feet)=	0.38	Intercept=	0.00
L (feet)=	20.00	Corr. Coeff.=	0.95
To (minutes)=	1.21	K (ft/min)=	0.00228

X Axis Elapsed Time (minutes)	H-h Drawdown (feet)	H-h/H-Ho Corrected Value	Y Axis log[(H-h)/H-Ho)
0.000	2.82	1.00	0.00
0.003	2.62	0.93	-0.03
0.007	2.19	0.78	-0.11
0.010	1.79	0.63	-0.20
0.013	1.61	0.57	-0.24
0.017	1.58	0.56	-0.25
0.033	1.39	0.49	-0.31
0.050	1.14	0.40	-0.39
0.067	0.89	0.32	-0.50
0.083	0.73	0.26	-0.59
0.100	0.60	0.21	-0.67
0.117	0.51	0.18	-0.74
0.133	0.43	0.15	-0.82
0.150	0.36	0.13	-0.89
0.167	0.32	0.11	-0.95
0.183	0.27	0.10	-1.02
0.200	0.24	0.09	-1.07
0.217	0.20	0.07	-1.15
0.233	0.19	0.07	-1.17
0.250	0.16	0.06	-1.25
0.267	0.16	0.06	-1.25
0.283	0.16	0.06	-1.25
0.300	0.14	0.05	-1.30

HVORSLEV WORKSHEET

		Date of Test:	24 May 1987
		Location:	Gowen Field
		Well ID:	MW 6-1
H-Ho (feet)=	2.90		
r (feet)=	0.17	Slope=	-5.8597
R (feet)=	0.38	Intercept=	0.00
L (feet)=	20.00	Corr. Coeff.=	0.45
To (minutes)=	1.18	K (ft/min)=	0.00233

X Axis Elapsed Time (minutes)	H-h Drawdown (feet)	H-h/H-Ho Corrected Value	Y Axis log[(H-h)/H-Ho)
0.000	2.90	1.00	0.00
0.003	2.73	0.94	-0.03
0.007	2.38	0.82	-0.09
0.010	1.52	0.52	-0.28
0.013	0.90	0.31	-0.51
0.017	0.73	0.25	-0.60
0.020	0.68	0.23	-0.63
0.023	0.65	0.22	-0.65
0.027	0.64	0.22	-0.66
0.030	0.60	0.21	-0.68
0.033	0.59	0.20	-0.69
0.050	0.45	0.16	-0.81
0.067	0.35	0.12	-0.92
0.083	0.30	0.10	-0.99
0.100	0.26	0.09	-1.05
0.117	0.24	0.08	-1.08
0.133	0.22	0.08	-1.12
0.150	0.19	0.07	-1.18
0.167	0.18	0.06	-1.21
0.183	0.16	0.06	-1.26
0.200	0.16	0.06	-1.26
0.217	0.14	0.05	-1.32
0.233	0.14	0.05	-1.32
0.250	0.13	0.04	-1.35
0.267	0.13	0.04	-1.35
0.283	0.13	0.04	-1.35
0.300	0.13	0.04	-1.35
0.317	0.13	0.04	-1.35

The hydraulic gradient (I) is the change in hydraulic head per unit horizontal distance measured along a groundwater flowline, or, in other words, the slope of the water table. This parameter is calculated using the following equation:

$$I = h / l$$

where:

h = difference in hydraulic head between two points located on the same groundwater flowline.

l = horizontal distance between these same two points measured along the same groundwater flowline.

Using the water table surface map, the values of h and l were estimated yielding a value of hydraulic gradient of 0.008 or 42 feet per mile with an associated error of +/- 10%.

Horizontal groundwater flow rate (V) is the macroscopic velocity of groundwater in the horizontal plane, calculated using the following equations:

$$V = KI/n$$

where:

K = Maximum hydraulic conductivity recorded in the study area (3.93×10^{-5} ft/sec) obtained from slug test results which are generally accepted to be accurate within one order of magnitude.

I = Hydraulic gradient through the study area (0.008).

n = Effective porosity, the ratio of volume of hydraulically connected pore space to the total volume of the geologic medium.

The effective porosity was not measured in the shallow aquifer at the Base. However, an effective porosity for the shallow aquifer is estimated to be 0.20 based on values cited in Johnson (1967). This value has an associated error of +/- 50%.

Using these values the maximum horizontal groundwater flow rate in the site area is 49.6 ft/yr. Accounting for error in the data, this value can range from 3.0 to 1100 ft/yr (0.91 to 335 m/yr).

APPENDIX F

SOIL GAS RESULTS

In this Appendix

Site 1 - Current Fire Training Area is referred to as the 1515 Area

Site 2 - Former Fire Training Area is referred to as the 1500 Area

Tracer Research Corporation

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SHALLOW SOIL GAS INVESTIGATION
AT
GOWEN FIELD

BOISE, IDAHO

MAY, 1987

PREPARED FOR:

Science Applications International Corp.
1710 Goodridge Drive
McLean, VA 22102

SUBMITTED BY:

Tracer Research Corporation

TABLE OF CONTENTS

INTRODUCTION

Tracer Research Corporation (TRC) conducted a soil gas survey at Gowen Field in Boise, Idaho. The survey was performed under contract to Science Applications International Corporation (SAIC).

A total of 50 soil gas samples were collected and analyzed from April 30, 1987 to May 3, 1987. The samples were analyzed for the following halocarbon and hydrocarbon compounds:

- 1,1,1-Trichloroethane (TCA)
- Trichloroethene/Bromodichloromethane (TCE/$CHBrCl_2$)
- Tetrachloroethene (PCE)
- Toluene
- Xylenes
- Dibromochloromethane ($CHBr_2Cl$)

The soil gas survey was conducted in two areas identified as the 1515 and 1500 areas. The 1515 investigation area contains an active burn pit as well as underground waste fuel tanks. The 1500 area, located southwest of building 1500, contains a previously used burn pit.

Objectives of the investigation were to determine the magnitude of contamination and define the areal extent of contamination.

Depth to groundwater is approximately 140 feet with a southwest hydraulic gradient. The upper vadose contains approximately 6 feet of loose sandy soil containing cobbles underlain by a "hardpan" layer to a depth of 10 to 14 feet.

At the 1515 investigation site, isoconcentration contour maps of TCA, TCE/$CHBrCl_2$, toluene, and total hydrocarbons were generated. At the 1500 investigation site, isoconcentration contour maps of PCE, TCE/$CHBrCl_2$, and total hydrocarbons were generated. Soil gas values of 0.01 ug/L halocarbons and 0.1 ug/L hydrocarbons were the lowest concentrations contoured for this investigation.

BACKGROUND ON THE METHODOLOGY

The presence of volatile organic chemicals (VOCs) in shallow soil gas indicates the observed compounds may either be in the vadose zone near the probe or in groundwater below the probe. The soil gas technology is most effective in mapping low molecular weight halogenated solvent chemicals and petroleum hydrocarbons possessing high vapor pressures and low aqueous solubilities. These compounds readily partition out of the groundwater and into the soil gas as a result of their high gas/liquid partitioning coefficients. Once in the soil gas, VOCs diffuse vertically and horizontally through the soil to the ground surface where they dissipate into the atmosphere. The contamination acts as a source and the above ground atmosphere acts as a sink, and typically a concentration gradient develops between the two. The concentration gradient in soil gas between the source and ground surface may be locally distorted by hydrologic and geologic anomalies (e.g. clays, perched water); however, soil gas mapping generally remains effective because distribution of the contamination is usually broader in areal extent than the local geologic barriers and is defined using a large data base.

The presence of geologic obstructions on a small scale tends to create anomalies in the soil gas-groundwater correlation, but generally does not obscure the broader areal picture of the contaminant distribution.

SAMPLING AND ANALYTIC PROCEDURES

Tracer Research Corporation (TRC) utilized an analytical field van which was equipped with two gas chromatographs and two Spectra Physics SP4270 computing integrators. In addition, the van has two built-in gasoline powered generators which provide the electrical power (110 volts AC) to operate all of the gas chromatographic instruments and field equipment. A specialized hydraulic mechanism consisting of two cylinders and a set of jaws was used to drive and withdraw the sampling probes. Probes consist of 7-foot lengths of 3/4 inch diameter steel pipe which are fitted with detachable drive points. A hydraulic hammer was used to assist in driving probes past cobbles and through unusually hard soil.

Soil gas samples were collected by driving a hollow steel probe to a depth less than 14 feet into the ground. The above-ground end of the sampling probes was fitted with a steel reducer and a length of polyethylene tubing leading to a vacuum pump. Five to 10 liters of gas was evacuated with a vacuum pump. During the soil gas evacuation, samples were collected by inserting a syringe needle through a silicone rubber segment in the evacuation line and down into the steel probe. Ten milliliters of gas were collected for immediate analysis in the TRC analytical field van. Soil gas was subsampled (duplicate injections) in volumes ranging from 1 ul to 1.5 ml, depending on the VOC concentration at any particular location.

A gas chromatograph equipped with an electron capture detector **was** used for analyses of TCA, PCE, TCE/$CHBrCl_2$ and $CHBr_2Cl$. Nitrogen was used as the carrier gas.

A second gas chromatograph, equipped with a flame ionization detector, was used for analyses of benzene, toluene, xylenes, ethylbenzene and total hydrocarbons.

Detection limits are a function of the injection volume as well as the detector sensitivity for individual compounds. Thus, the detection limit varies with the injection size. Generally, the larger the injection size the greater the sensitivity. However, peaks for compounds of interest must be kept within the linear range of the detector. If any compound has a high concentration, it is necessary to use small injections, and in some cases to dilute the sample to keep it within linear range. This may cause decreased detection limits for other compounds in the analyses. The detection limits range down to 0.00005 ug/L for compounds such as TCA and PCE depending on the conditions of the measurement, in particular, the sample size. If any component being analyzed is not detected, the detection limit for that compound in that analysis is given as a "less than" value (e.g. <0.0001 ug/L). This number is calculated from the current response factor, the sample size, and the estimated minimum peak size (area) that would have been visible under the conditions of the measurement.

QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

Tracer Research Corporation's normal quality assurance procedures were followed in order to prevent any cross-contamination of soil gas samples.

- Steel probes are used only once during the day and then washed with high pressure soap and hot water spray or steam-cleaned to eliminate the possibility of cross-contamination. Enough probes are carried on each van to avoid the need to reuse any during the day.

- Probe adaptors (steel reducer and tubing) are used once during the course of the day and cleaned at the end of each working day by baking in the GC oven. The tubing is replaced periodically as needed during the job to insure cleanliness and good fit.

- Silicone tubing (connecting the adaptor to the vacuum pump) is replaced as needed to insure proper sealing around the syringe needle. This tubing does not directly contact soil gas samples.

- Glass syringes are usually used for only one sample per day and are washed and baked out at night. If they must be used twice, they are purged with carrier gas (nitrogen) and baked out between probe samplings.

- Septa through which soil gas samples are injected into the chromatograph are replaced on a daily basis to prevent possible gas leaks from the chromatographic column.

- Analytical instruments are calibrated each day by the use of chemical standards prepared in water by serial dilution from commercially available pure chemicals. Calibration checks are also run after approximately every five soil gas sampling locations.

- 2 cc subsampling syringes are checked for contamination prior to sampling each day by injecting nitrogen carrier gas into the gas chromatograph.

- Prior to sampling each day, system blanks are run to check the sampling apparatus (probe, adaptor, 10 cc syringe) for contamination by drawing ambient air from above ground through the system and comparing the analysis to a concurrently sampled air analysis.

- All sampling and 2 cc subsampling syringes are decontaminated each day and no such equipment is reused before being decontaminated. Microliter size subsampling syringes are reused only after a nitrogen carrier gas blank is run to insure it is not contaminated by the previous sample.

- Soil gas pumping is monitored by a vacuum gauge to insure that an adequate gas flow from the vadose zone is maintained. A negative pressure (vacuum) of 2 in. Hg less than the maximum capacity of the pump (evacuation rate >0.02 cfm) usually indicates that a reliable gas sample cannot be obtained because the soil has a very low air permeability.

RESULTS

Analytical data is summarized in Appendix A. Figure 1 is a map showing soil gas sampling locations in the 1515 investigation area. Figure 5 is a map of soil gas sampling locations within the 1500 investigation area. Isoconcentration contour maps are identified in the appropriate sections of this report.

TCE and $CHBrCl_2$ could not be separated on the type of gas chromatograph column used for the analyses. Therefore, the concentrations detected were due to the presence of TCE and/or $CHBrCl_2$. The concentrations of TCE/$CHBrCl_2$ were calculated using the $CHBrCl_2$ response factor. It is likely that concentrations detected in the soil gas may be due only to the presence of $CHBrCl_2$ as this is a constituent of fire extinguishing material.

1515 Investigation Area

Soil gas was collected and analyzed at 32 locations within the 1515 investigation area. Soil gas was sampled on a grid spacing of 50' to 100' at a depth ranging from 4' to 6'. Figures 2 to 4 are isoconcentration contour maps for total hydrocarbons, toluene, TCA, and TCE/$CHBrCl_2$, respectively.

Halocarbon Distribution

The greatest amount of halocarbon contamination detected in this investigation area was TCE/$CHBrCl_2$. The highest concentration of TCE/$CHBrCl_2$ was detected northeast of the burn pit at soil gas sampling location SG-21 (1900 ug/L). Low level (approximately 0.01 ug/L) concentrations of TCE/$CHBrCl_2$ extend approximately 200 feet northwest and 200 feet southeast of the center of the burn pit.

A potential source of TCA contamination was detected northeast of building 1515, in the vicinity of SG-10 (200 ug/L), and immediately north of the burn pit in the vicinity of SG-17 (2 ug/L). TCA contamination extends approximately 200 feet southeast of SG-10 and approximately 100 feet east of SG-17 concentration at SG-10 (200 ug/L).

Concentrations of PCE exceeding 0.01 ug/L were detected at only 3 locations: SG-1 (0.05 ug/L), SG-17 (0.06 ug/L), and SG-22 (0.02 ug/L). $CHBr_2Cl$ was not detected at values greater than 0.01 ug/L at this investigation site.

Hydrocarbon Distribution

The distribution of hydrocarbons is best represented by total hydrocarbon measurements. Total hydrocarbon measurements are indicative of C_1 through C_{10} aliphatic and aromatic hydrocarbons.

The approximate size of the soil gas hydrocarbon plume is 470 feet by 150 feet with the long axis of plume oriented northwest-southeast. The data suggests that there are two sources of hydrocarbons within the 1515 area. Total hydrocarbon concentrations were highest northwest of the underground waste fuel tanks. SG-10 contained the most amount of contamination with 400,000 ug/L of total hydrocarbons. Soil gas samples SG-3 and SG-4, collected in the burn pit, contained concentrations of 98,000 and 46,000 ug/L total hydrocarbons, respectively.

The distribution of the petroleum compound, toluene, closely approximates the distribution of total hydrocarbons. The highest concentration of toluene was detected immediately north of the burn pit at SG-17 (61,000 ug/L).

1500 Investigation Area

Soil gas collection and analysis was performed at 18 locations in the 1500 investigation area. Soil gas samples were collected in and around an inactive fire pit to identify and quantify halocarbon and hydrocarbon contamination. Soil gas was sampled outside the fire pit area to determine the horizontal migration of contamination.

Halocarbon Distribution

TCE/$CHBrCl_2$ is the most widespread halocarbon contaminant at the 1500 investigation area. The highest concentration was detected at SG-M (2 ug/L). The long axis of the TCE/$CHBrCl_2$ plume, as defined by soil gas concentrations of 0.01 ug/L or greater, extends approximately 250 feet southeast of this sampling location.

PCE contamination greater than 0.03 ug/L was not detected at the site. Values of 0.02 to 0.03 ug/L extend from SG-N to SG-C. SG-P also contained 0.03 ug/L of PCE.

Hydrocarbon Contamination

The distribution of hydrocarbons is defined by total hydrocarbon measurements. SG-A contained the highest amount of total hydrocarbons (470 ug/L). Hydrocarbon contamination in the soil gas extends approximately 200 feet northwest of this location.

CONCLUSION

A total of 50 soil gas samples were collected and analyzed at Gowen Field in Boise, Idaho. The soil gas survey was conducted in the areas identified as the 1515 and 1500 investigation area.

The 1515 investigation area contains a soil gas TCE/$CHBrCl_2$ plume with a possible source in the vicinity of SG-21. Low level TCE/$CHBrCl_2$ contamination (approximately 0.01 ug/L) extends northwest and southeast of the burn pit. Two potential sources of TCA may be located in the vicinity of SG-10 and SG-17. The sources of hydrocarbon contamination appear to be the burn pit and the underground waste fuel tanks.

The highest concentration of TCE/$CHBrCl_2$ in the 1500 investigation area was detected at SG-M (2ug/L). Contamination extends approximately 250 feet southeast of SG-M. The source of hydrocarbon contamination in the 1500 area appears to be in the vicinity of SG-A.

APPENDIX A: CONDENSED DATA

Tracer Research Corporation

SAIC/GOWEN FIELD-BOISE, IDAHO

Sample	Depth	Date	TCA (ug/l)	PCE (ug/l)	TCE CHBrCl2 (ug/l)	CHBr2Cl (ug/l)	Toluene (ug/l)	Xylene (ug/l)	Total Hydroc (mg/l)
SGA	5'	05/02	0.02	0.004	0.007	<0.0002	0.1	22	400
SGB	5'	05/02	0.0009	0.009	0.02	<0.0002	0.04	0.04	0.03
SGC	5'	05/02	0.002	0.02	0.7	<0.0003	0.04	0.04	0.6
SGD	5.5'	05/02	0.002	<0.0004	0.03	<0.0003	<0.04	<0.04	<0.03
SGE	5'	05/02	0.002	0.002	0.001	0.008	<0.04	<0.04	<0.03
SGF	5'	05/02	0.001	<0.0002	0.001	0.001	<0.04	<0.04	0.03
SGG	5'	05/02	0.001	0.0002	<0.0002	<0.0002	0.04	<0.04	<0.03
SGH	5'	05/02	<0.0003	0.004	0.2	<0.0002	<0.04	0.04	0.6
SGI	4.5'	05/02	0.002	0.002	0.002	<0.0002	0.04	0.04	0.03
SGJ	5.5'	05/03	<0.0003	<0.0002	0.002	<0.0002	<0.04	0.04	<0.03
SGK	5.5'	05/03	<0.0007	0.06	0.5	<0.0004	<0.04	<0.04	0.4
SGL	5'	05/03	<0.0003	<0.0002	0.002	<0.0002	0.02	<0.04	<0.03
SGM	5'	05/03	0.0007	0.03	2	<0.0004	<0.04	0.04	2
SGN	5.5'	05/03	0.01	0.02	0.0005	<0.0002	0.04	<0.04	0.03
SGO	2'	05/03	<0.0007	<0.0005	0.2	<0.0004	<0.04	<0.04	0.3
SGP	3.5'	05/03	<0.0007	0.03	0.005	<0.0004	<0.04	0.04	<0.03
SGQ	3.5'	05/03	<0.0007	0.03	0.008	<0.0004	0.04	0.04	<0.03
SG[illegible]	5'	05/03	<0.0003	0.004	0.003	<0.0002	0.04	<0.04	<0.03

Notations:
- i interference with adjacent peaks
- NA not analyzed

Analyzed by T. Bode

Checked by J. Olexa

SAIC/GOWEN FIELD-Boise, Idaho

Sample	Depth	Date	TCA (ug/l)	PCE (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethyl Benzene (ug/l)	Xylenes (ug/l)	Total Hydro. (ug/l)	
SG01	5'	04/30	0.5	0.05	<21	11,000	<27	33	160,000	
SG02	5'	04/30	<0.06	0.04	<10	<11	<14	<13	2,600	
SG03	5.5'	04/30	<0.002	<0.001	<21	1,900	<27	<25	46,000	
SG04	5.5'	04/30	<0.002	<0.001	<100	<110	<140	<130	77,000	<0.0003
SG05	5.5'	04/30	0.001	<0.0002	<0.04	0.3	<0.05	<0.05	12	<0.00006
SG06	5.5'	04/30	<0.0002	<0.0001	<0.01	<0.01	<0.01	<0.01	0.01	<0.00003
SG07	6'	04/30	0.03	<0.0002	<0.01	<0.01	<0.01	<0.01	19	<0.00006
SG08	6'	04/30	0.003	<0.0002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.00006
SG09	4.5'	04/30	38	<0.02	<100	15,000	<140	<130	280,000	<0.006
SG10	3.5'	05/01	200	<0.005	N/A	32,000	N/A	<190	400,000	N/A
SG11	3'	05/01	0.003	<0.0005	N/A	312	N/A	<7	2,000	N/A
SG12	3.5'	05/01	0.006	<0.0002	N/A	7	N/A	<0.7	30'	N/A
SG13	3'	05/01	0.006	<0.0001	N/A	0.1	N/A	<0.02	0.08	N/A
SG14	4.5'	05/01	0.02	<0.0002	N/A	<0.03	N/A	<0.04	0.1	N/A
SG15	4'	05/01	0.001	<0.0002	N/A	<0.03	N/A	<0.04	<0.03	N/A
SG16	5'	05/01	0.001	<0.0002	N/A	<0.02	N/A	<0.07	<0.06	N/A
SG17	3'	05/01	2	0.06	N/A	6,100	N/A	<190	98,000	N/A
SG18	4'	05/01	0.002	<0.0002	N/A	13	N/A	<0.7	610	N/A
SG19	5.5'	05/01	0.002	<0.0002	N/A	33	N/A	<0.7	1,400	N/A
SG20	6'	05/01	<0.0003	<0.0002	N/A	<0.03	N/A	<0.04	<0.03	N/A
SG21	4.5'	05/01	0.3	0.2	N/A	<0.07	N/A	<0.07	220	N/A
SG22	4.5'	05/01	0.02	0.02	N/A	<0.04	N/A	<0.04	<0.03	N/A
SG23	5.5'	05/01	0.0008	<0.0002	N/A	<0.03	N/A	<0.04	<0.03	N/A
SG24	5'	05/01	<0.002	<0.001	N/A	<0.03	N/A	<0.04	1	N/A
SG25	3'	05/01	0.2	<0.0005	N/A	<0.03	N/A	<0.04	0.4	N/A
SG26	6'	05/01	0.4	<0.0005	N/A	<0.03	N/A	<0.04	<0.03	N/A
SG27	4'	05/02	<0.003	0.008	N/A	<0.03	N/A	<0.05	<0.07	N/A
SG28	5'	05/02	0.001	<0.0004	N/A	<0.04	N/A	<0.04	0.05	N/A
SG29	5'	05/02	0.008	<0.0002	N/A	0.02	N/A	<0.02	2	N/A
SG30	4'	05/02	0.0009	<0.0002	N/A	0.02	N/A	<0.02	<0.02	N/A
SG31	4'	05/02	0.004	<0.0002	N/A	0.02	N/A	<0.02	<0.0[illegible]	N/A
SG32	4'	05/02	0.006	<0.0002	N/A	0.02	N/A	<0.02	<0.02	N/A

Notations:
! interference with adjacent peaks
NA not analyzed

Analyzed by T. Bode

Checked by J. Olexa

Tracer Research Corporation

SAIC/GOWEN FIELD-Boise, Idaho

Sample	Depth	Date	TCE/CHBrCl2 (ug/l)	CHBr2Cl (ug/l)
SG01	5'	04/30	0.06	<0.002
SG02	5'	04/30	<0.03	<0.005
SG03	5.5'	04/30	0.01	<0.01
SG04	5.5'	04/30	0.02	<0.001
SG05	5.5'	04/30	0.001	<0.0002
SG06	5.5'	04/30	0.02	0.003
SG07	6'	04/30	0.02	0.002
SG08	6'	04/30	0.004	<0.0002
SG09	4.5'	04/30	<0.02	<0.02
SG10	3.5'	05/01	<0.003	<0.004
SG11	3'	05/01	0.002	0.007
SG12	3.5'	05/01	0.001	0.003
SG13	3'	05/01	0.003	0.001
SG14	4.5'	05/01	0.002	0.0006
SG15	4'	05/01	0.0007	<0.0002
SG16	5'	05/01	0.0005	<0.0002
SG17	3'	05/01	0.01	0.002
SG18	4'	05/01	0.003	0.001
SG19	5.5'	05/01	0.002	0.0007
SG20	6'	05/01	0.0009	<0.0002
SG21	4.5'	05/01	1.300	<0.2
SG22	4.5'	05/01	0.02	<0.0004
SG23	5.5'	05/01	0.02	<0.0002
SG24	5'	05/01	0.3	<0.001
SG25	3'	05/01	0.01	<0.0004
SG26	6'	05/01	0.01	0.004
SG27	4'	05/02	0.02	<0.002
SG28	5'	05/02	0.002	<0.0005
SG29	5'	05/02	0.009	0.002
SG30	4'	05/02	0.002	0.0001
SG31	4'	05/02	0.002	0.0002
SG32	4'	05/02	0.006	0.001

Notations:
I interference with adjacent peaks
NA not analyzed

Analyzed by T. Bode

Checked by J. Olexa

APPENDIX B: FIGURES

FIGURE 1
BOISE AIR TERMINAL
1515 AREA
BOISE, IDAHO

SAMPLING LOCATIONS

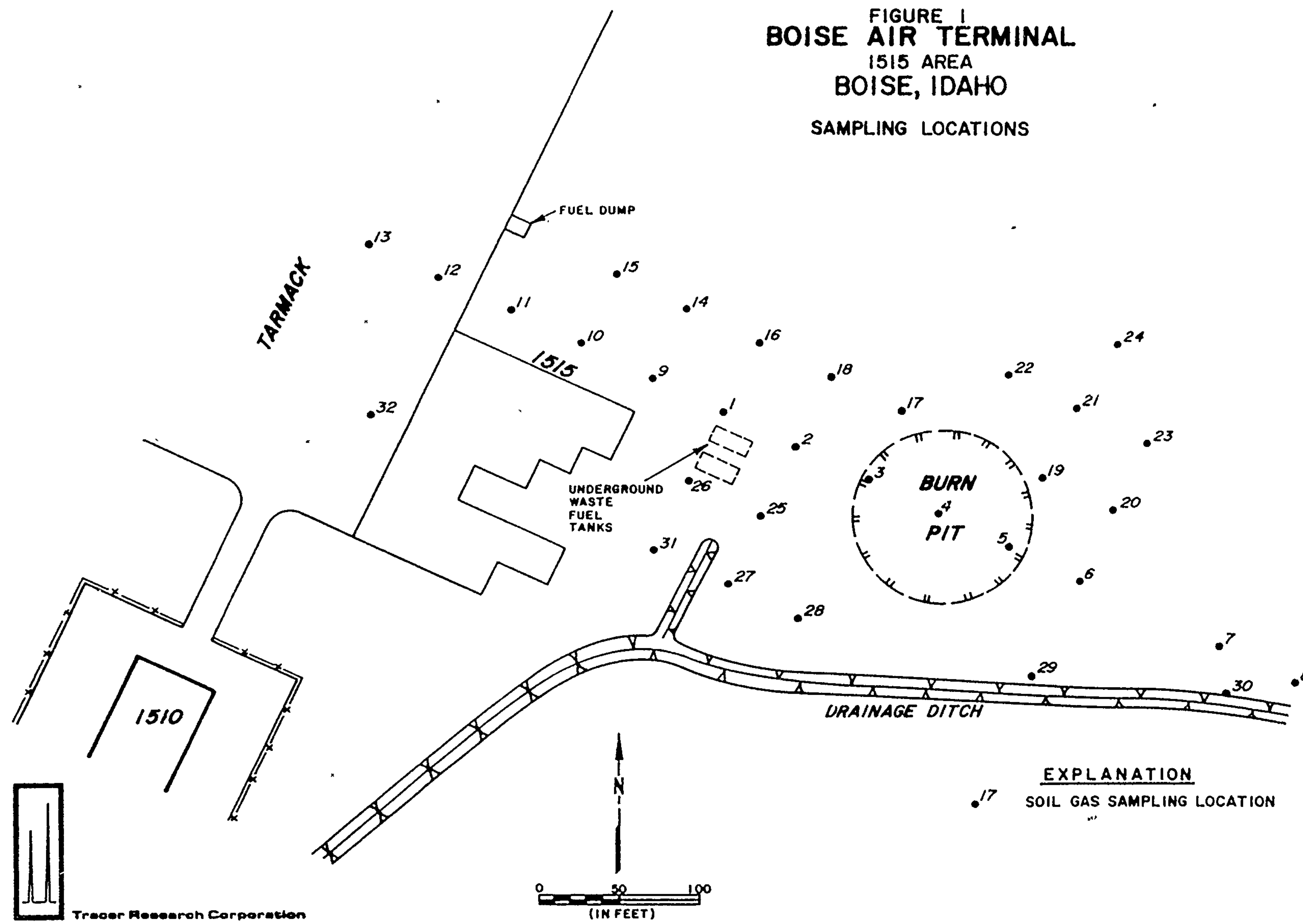


FIGURE 2
BOISE AIR TERMINAL
1515 AREA
BOISE, IDAHO

TOTAL HYDROCARBONS

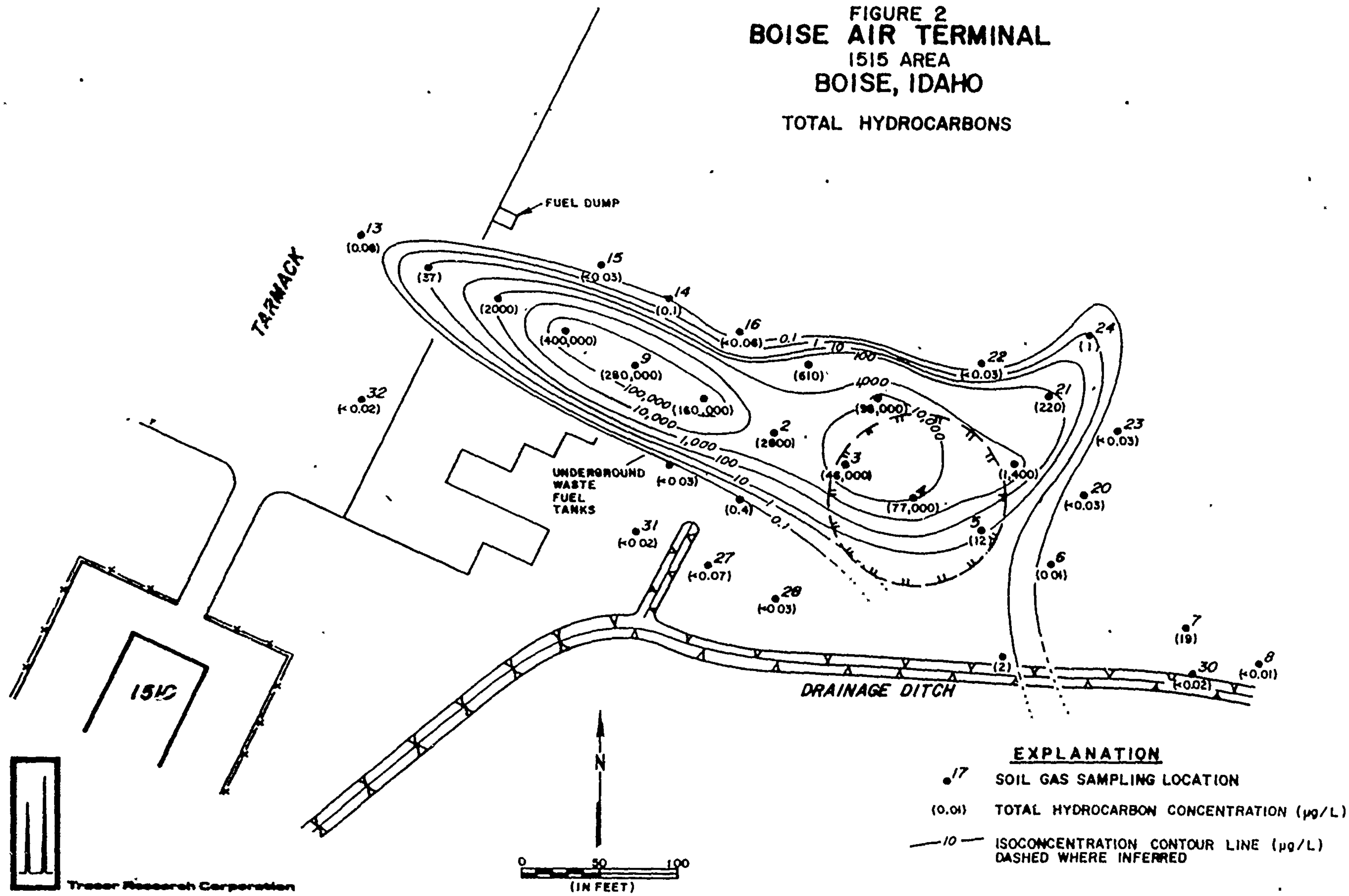


FIGURE 2.B

BOISE AIR TERMINAL

1515 AREA

BOISE, IDAHO

TOLUENE

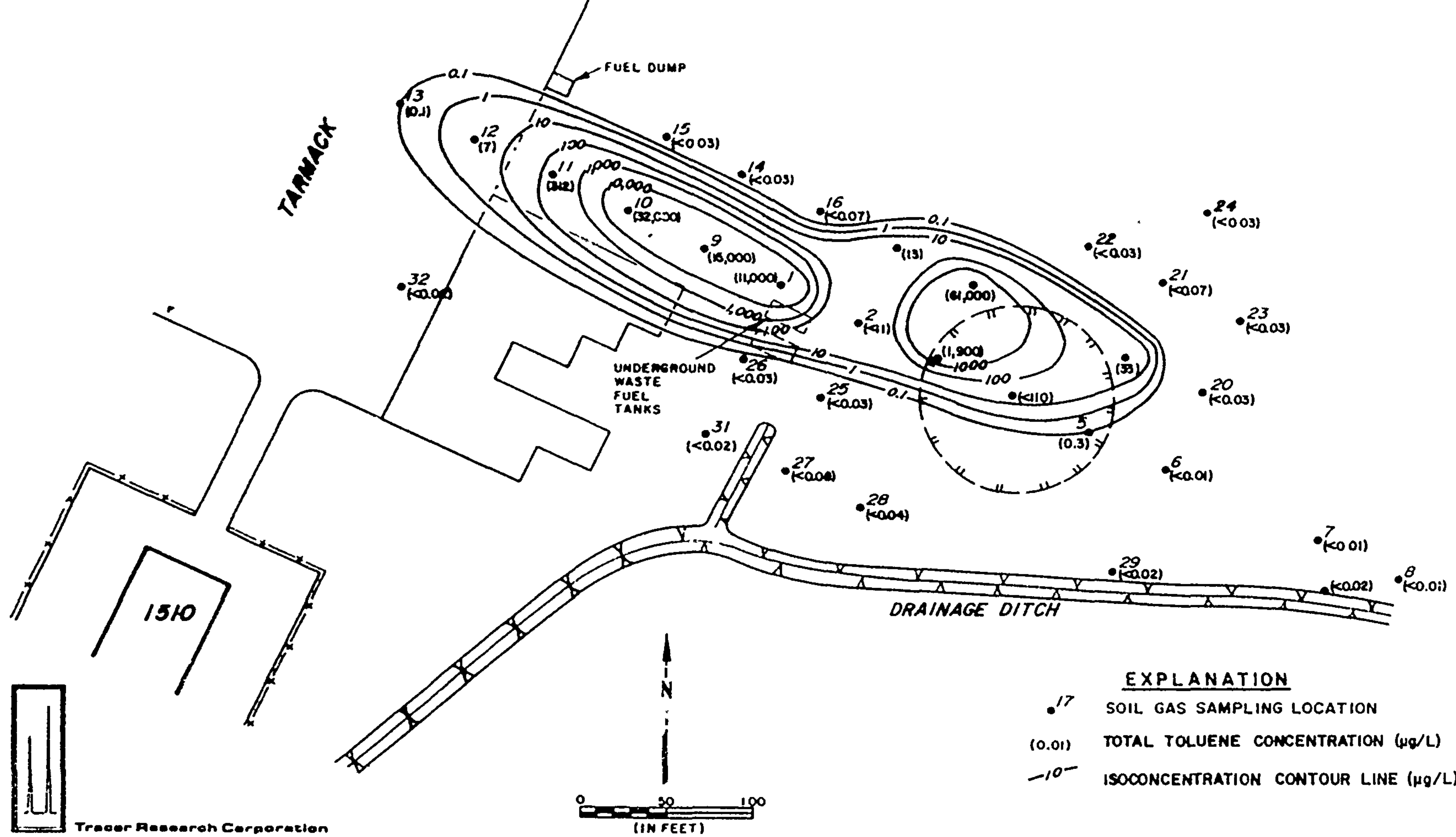
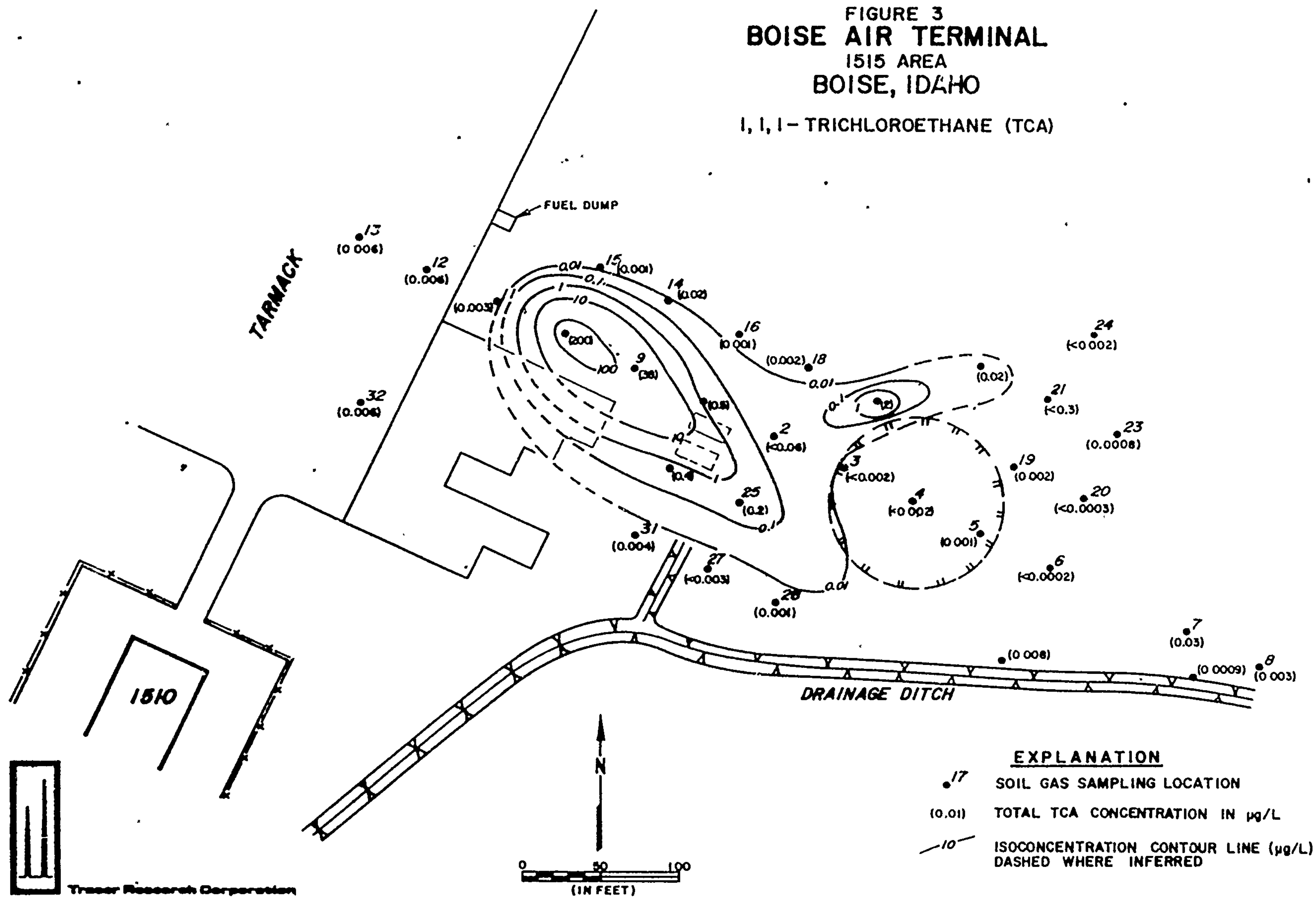


FIGURE 3
BOISE AIR TERMINAL
1515 AREA
BOISE, IDAHO

1, 1, 1 – TRICHLOROETHANE (TCA)



EXPLANATION

17 SOIL GAS SAMPLING LOCATION

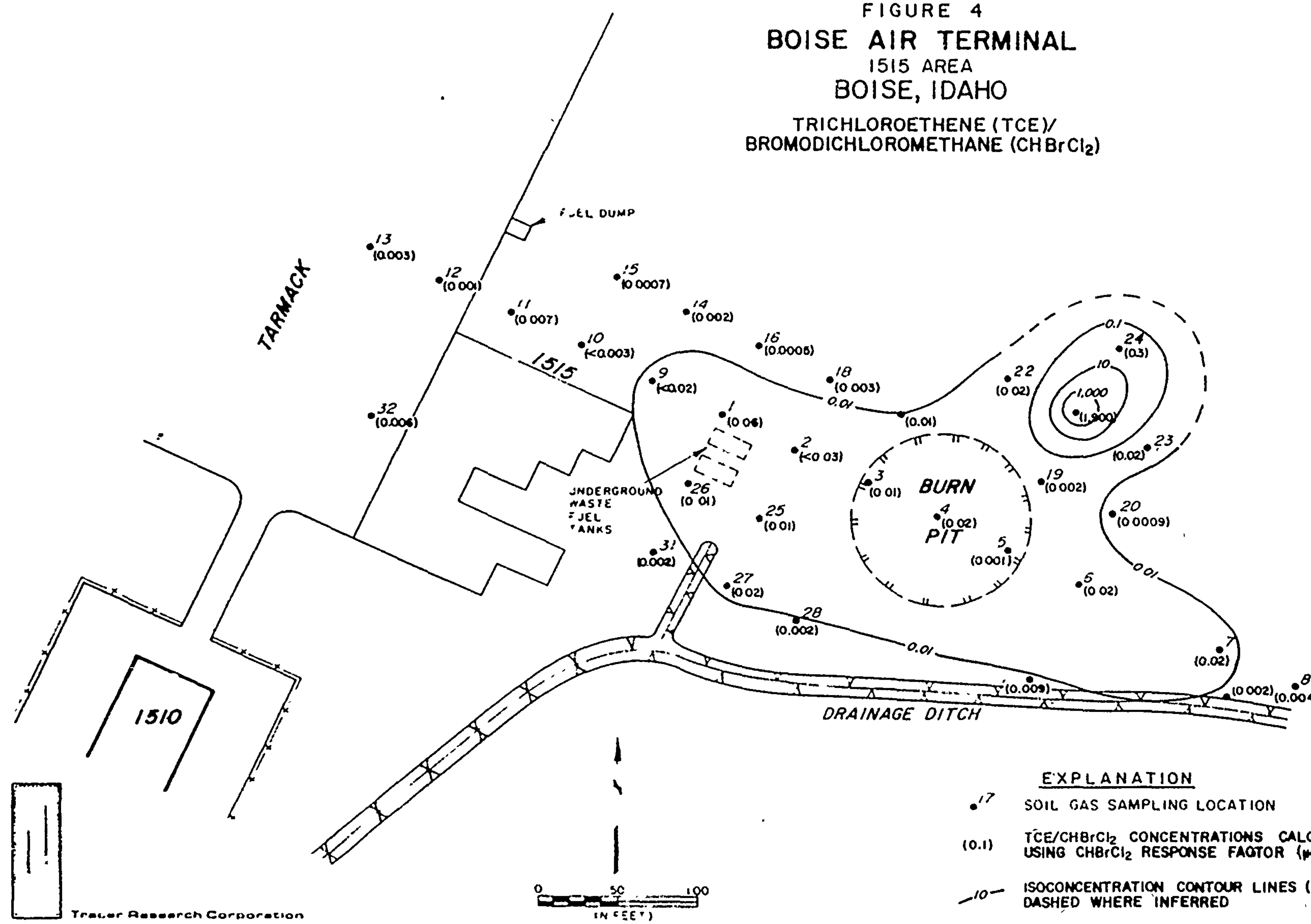
(0.01) TOTAL TCA CONCENTRATION IN µg/L

10 ISOCONCENTRATION CONTOUR LINE (µg/L) DASHED WHERE INFERRED

FIGURE 4

BOISE AIR TERMINAL
1515 AREA
BOISE, IDAHO

TRICHLOROETHENE (TCE)/
BROMODICHLOROMETHANE ($CHBrCl_2$)



EXPLANATION

- •17 SOIL GAS SAMPLING LOCATION
- (0.1) TCE/$CHBrCl_2$ CONCENTRATIONS CALCULATED USING $CHBrCl_2$ RESPONSE FACTOR (µg/L)
- —10— ISOCONCENTRATION CONTOUR LINES (µg/L) DASHED WHERE INFERRED

FIGURE 5
BOISE AIR TERMINAL
1500 AREA
BOISE, IDAHO

SAMPLING LOCATIONS

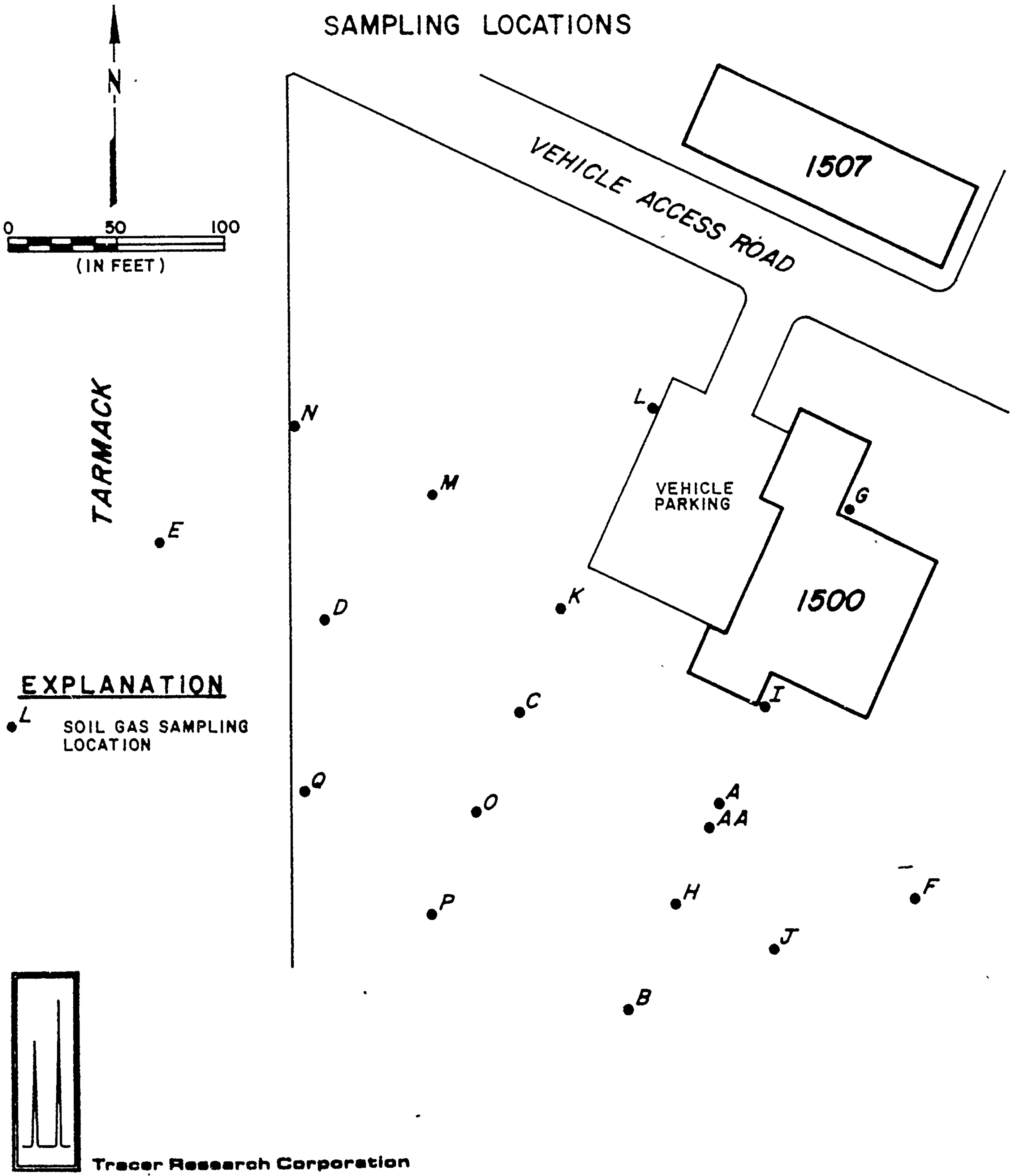


FIGURE 6

BOISE AIR TERMINAL

1500 AREA

BOISE, IDAHO

TOTAL HYDROCARBONS

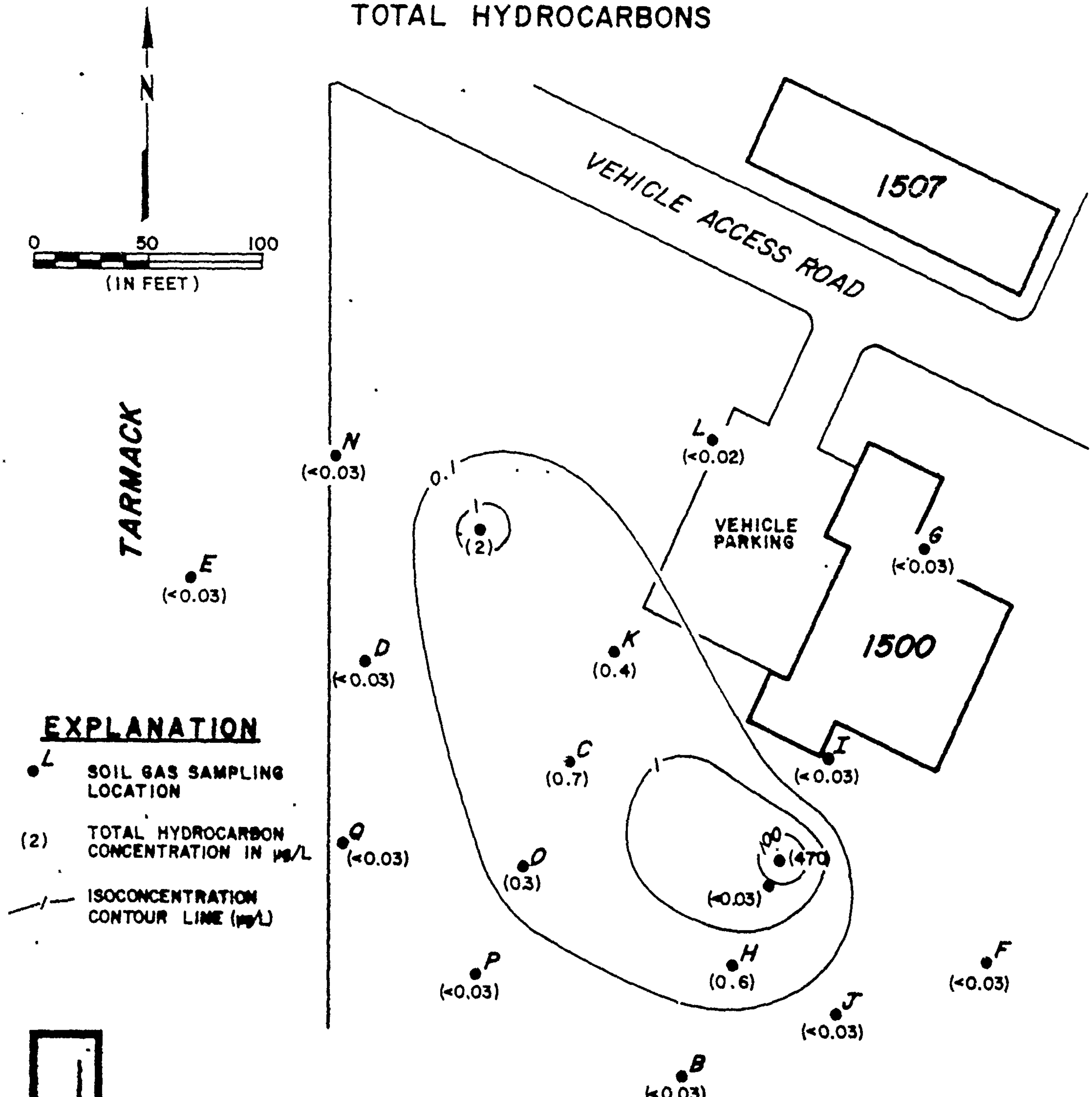


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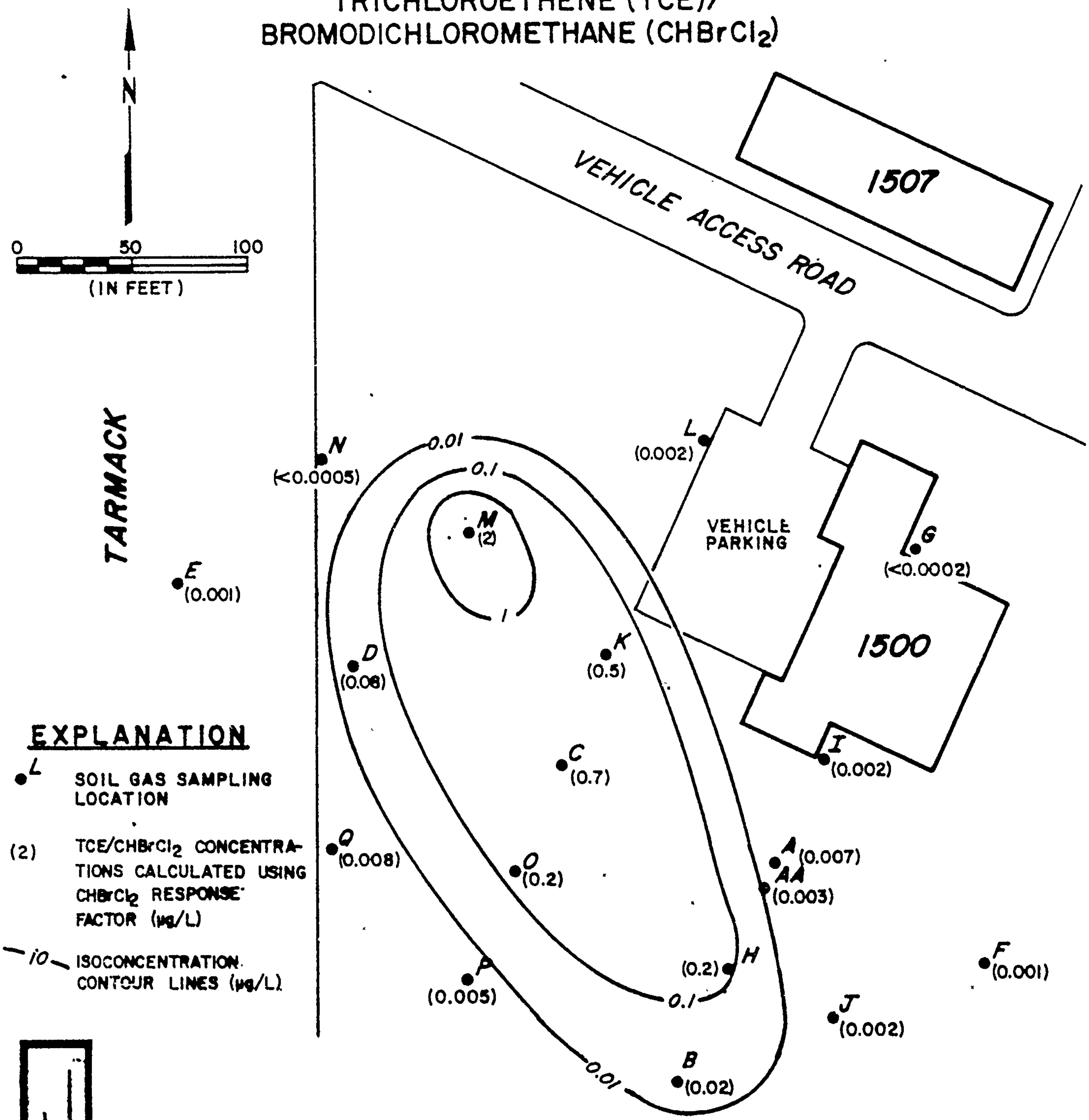
FIGURE 7

BOISE AIR TERMINAL

1500 AREA

BOISE, IDAHO

TRICHLOROETHENE (TCE)/
BROMODICHLOROMETHANE ($CHBrCl_2$)



EXPLANATION

- SOIL GAS SAMPLING LOCATION
- (2) TCE/$CHBrCl_2$ CONCENTRATIONS CALCULATED USING $CHBrCl_2$ RESPONSE FACTOR (µg/L)
- 10 ISOCONCENTRATION CONTOUR LINES (µg/L)

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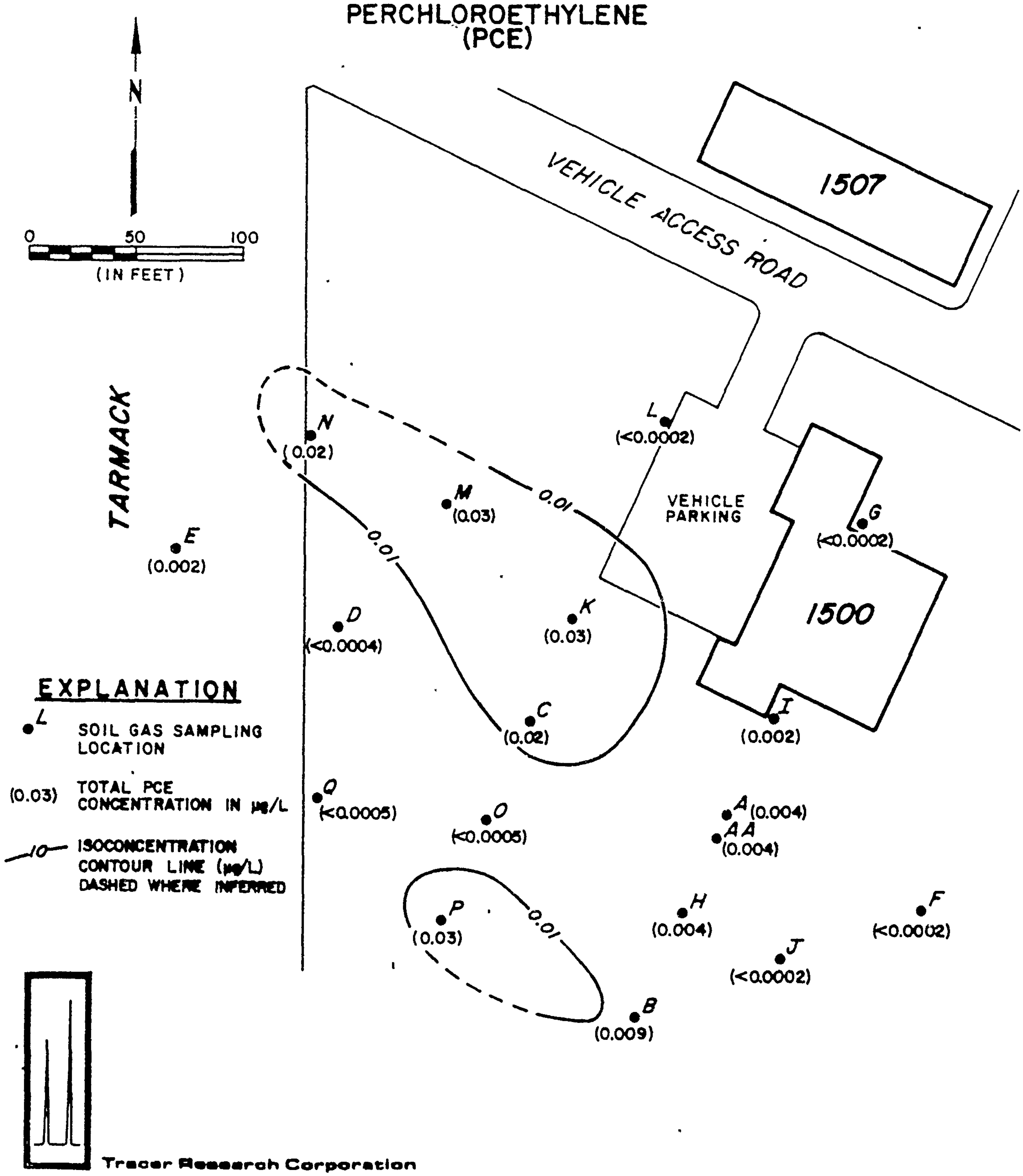
FIGURE 8

BOISE AIR TERMINAL

1500 AREA

BOISE, IDAHO

PERCHLOROETHYLENE
(PCE)



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APPENDIX G

ON-SITE GAS CHROMATOGRAPHY RESULTS

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SAIC-GOWEN FIELD-BOISE, IDAHO

Sample	Date	TCA (ug/kg)	TCE (ug/kg)	PCE (ug/kg)	CCl4 (ug/kg)	CHBrCl2 (ug/kg)	CHBr2Cl (ug/kg)	Benzene (ug/kg)	Toluene (ug/kg)	Ethyl Benzene (ug/kg)	Xylene (ug/kg)	Total Hydrocarbons w/o CH4 (ug/kg)
MW1-1-1	05/05	0.03	I	0.1	<0.001	3	0.09	<0.7	<0.4	<0.5	<1	<0.7
MW1-1-2	05/05	0.5	I	0.1	<0.001	2	0.1	<0.8	<0.5	<0.7	1	<1.0
MW1-1-3	05/05	0.05	<0.03	<0.1	<0.002	<0.05	<0.05	<1	<0.9	<1	<2	<1
MW1-1-4	05/05	0.02	<0.03	<0.1	<0.002	<0.04	<0.04	<1	<0.7	<0.9	<2	<1
MW1-1-5	05/06	0.01	<0.01	0.02	<0.0007	<0.07	<0.06	<0.7	<1	N/A	<1	<0.7
MW1-1-6	05/06	0.01	<0.01	0.02	<0.0007	<0.07	<0.06	<0.7	<1	N/A	1	<0.7
MW1-1-7	05/06	0.02	<0.01	0.02	<0.0007	<0.07	<0.06	<0.7	<1	N/A	<1	<0.7
MW1-1-8	05/06	0.02	<0.01	0.02	<0.0007	<0.07	<0.06	<0.7	<1	N/A	<1	<0.7
MW1-1-9	05/06	0.01	<0.01	0.02	<0.0007	<0.07	<0.06	<0.7	<1	N/A	<1	<0.7
MW1-2-1	05/17	0.2	<0.04	0.007	<0.001	<0.05	0.05	<0.6	<0.5	N/A	<0.8	<0.6
MW1-2-2	05/17	0.01	<0.04	0.01	<0.001	<0.05	<0.05	<0.6	<0.5	N/A	<0.8	<0.6
MW1-2-3	05/17	0.01	<0.04	<0.007	<0.001	<0.05	<0.05	0.6	<0.5	N/A	<0.8	<0.6
MW1-2-4	05/17	<0.01	<0.04	<0.007	<0.001	<0.05	<0.05	<0.6	<0.5	N/A	<0.8	<0.6
MW1-2-5	05/17	0.07	<0.04	<0.007	<0.001	<0.05	<0.05	<0.6	<0.5	N/A	<0.8	<0.6
MW1-2-6	05/17	0.04	<0.04	0.007	<0.001	<0.05	<0.05	<0.6	<0.5	N/A	<0.8	<0.6
MW1-2-7	05/17	0.2	<0.04	<0.007	<0.001	<0.05	<0.05	<0.6	<0.5	N/A	<0.8	<0.6
MW1-2-8	05/17	0.3	0.04	<0.007	<0.001	<0.05	<0.05	<0.6	<0.5	N/A	<0.8	<0.6
MW1-2-9	05/23	0.08	0.2	0.02	0.002	0.4	0.2	<0.4	<0.6	N/A	0.8	<0.4
MW1-2-10	05/23	0.1	0.2	<0.0008	<0.0002	0.4	0.4	<0.4	<0.6	N/A	<0.8	<0.4
MW5-1	05/14	<1	2	<0.7	<0.2	<0.7	<1	<14	<15	N/A	<16	14
MW5-1-1	05/11	0.02	<0.04	0.03	<0.001	<0.1	<0.05	<0.6	<0.5	N/A	1	<0.6
MW5-1-2	05/11	0.01	<0.04	0.03	<0.001	<0.1	<0.05	<0.6	<0.5	N/A	<1	<0.6
MW5-1-3	05/11	0.03	<0.04	0.03	<0.001	<0.1	<0.05	<0.6	<0.5	N/A	1	<0.6
MW5-1-4	05/11	0.03	<0.04	0.03	<0.001	<0.1	<0.05	<0.6	<0.5	N/A	<1	<0.6
MW5-1-5	05/11	0.02	<0.04	0.07	<0.001	<0.1	<0.05	<0.6	<0.5	N/A	1	<0.6
MW5-1-6	05/11	0.01	<0.04	0.1	<0.001	<0.1	<0.05	<0.6	0.5	N/A	1	<0.6
MW5-1-7	05/11	0.02	0.04	0.03	<0.001	<0.1	<0.05	<0.6	0.5	N/A	1	<0.6
MW5-1-8	05/12	0.01	0.03	0.003	<0.0008	<0.05	<0.05	0.8	0.9	N/A	I	0.9
MW5-1-9	05/12	0.01	0.04	0.003	<0.0008	<0.05	0.05	0.8	0.9	N/A	I	<0.9
MW6-1-1	05/08	0.01	0.3	0.02	<0.002	I	<0.2	0.9	0.7	N/A	0.8	0.9
MW6-1-2	05/08	0.01	0.05	0.02	<0.002	<0.1	0.2	<0.9	0.7	N/A	0.8	0.9
MW6-1-3	05/08	0.2	0.05	0.07	<0.002	<0.1	<0.2	<0.9	0.7	N/A	<0.8	0.9
MW6-1-4	05/08	0.03	0.05	0.02	<0.002	<0.1	<0.2	<0.9	<0.7	N/A	<0.8	<0.9

Notations:
I interference with adjacent peaks
NA not analyzed

Analyzed by M. Favero

Checked by M. Favero

Approved by L. Lanlander

Tracer Research Corporation

SAIC-GOWEN FIELD-BOISE, IDAHO

Sample	Date	TCA (ug/kg)	TCE (ug/kg)	PCE (ug/kg)	CCl4 (ug/kg)	CHBrCl2 (ug/kg)	CHBr2Cl (ug/kg)	Benzene (ug/kg)	Toluene (ug/kg)	Ethyl Benzene (ug/kg)	Xylene (ug/kg)	Total Hydrocarbons w/oCH4 (ug/kg)
MW6 1-5	05/08	0.03	<0.05	0.02	<0.002	<0.1	<0.2	<0.9	<0.7	N/A	<0.8	<0.9
MW6 1-6	05/09	0.07	<0.08	0.03	<0.002	<0.05	0.08	<0.9	<0.9	N/A	<0.9	<0.9
MW6-1-7	05/09	0.07	<0.08	0.03	0.002	<0.05	<0.08	<0.9	<0.9	N/A	<0.9	<0.9
GA1-1-3	05/06	0.02	<0.01	0.03	<0.0007	<0.07	<0.06	<0.7	<1	N/A	<1	<0.7
GA1-1-8	05/17	<1	<2	<0.6	<0.2	<0.6	<0.2	<13	<13	N/A	<14	<13
GA1 1-1	05/15	<0.01	<0.03	0.07	<0.001	<0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
SA1 1-2	05/06	0.03	<0.01	0.03	<0.0007	<0.07	<0.06	<0.7	<1	N/A	440	2,400
SA1-1-4	05/06	0.03	<0.01	0.03	<0.0007	<0.07	<0.06	<0.7	<1	N/A	280	890
SA1-1-6	05/06	0.3	<0.01	0.03	<0.0007	<0.07	<0.06	<4	530	N/A	7,300	43,000
SA1 1-7	05/06	0.02	<0.01	0.03	<0.0007	<0.07	<0.06	0.7	<1	N/A	93	550
SA1-1-8	05/07	0.2	<0.02	<0.01	<0.0007	<0.05	<0.05	<4	<4	N/A	140	310
SA1-1-9	05/07	0.1	0.03	0.02	<0.0007	0.1	<0.05	<0.8	<0.8	N/A	0.9	0.8
SA1-1-10	05/07	0.[illegible]	0.03	0.02	<0.0007	0.1	<0.05	<0.8	0.8	N/A	<0.9	0.8
SA1 2-1	05/07	0.2	<0.02	0.08	<0.0007	<0.05	0.5	<129	<360	N/A	10,000	870,000
SA1-2-1	05/13	0.07	0.03	0.07	<0.001	<0.1	<0.05	47,000	29,000	N/A	18,000	280,000
SA1 2-2	05/13	0.01	0.03	0.01	<0.001	<0.1	<0.05	<0.7	4	N/A	8	200
SA1-2-3	05/13	0.02	<0.03	0.01	<0.001	<0.1	<0.05	<0.7	<0.6	N/A	<0.8	15
SA1 2-4	05/13	0.02	<0.03	0.007	<0.001	<0.1	<0.05	<0.7	<0.6	N/A	<0.8	10
SA1 2-5	05/13	0.02	<0.03	0.01	<0.001	<0.1	<0.05	<0.7	<0.6	N/A	8	<0.7
SA1-2-6	05/13	0.01	<0.03	0.01	<0.001	<0.1	<0.05	<0.7	<0.6	N/A	<0.8	4
SA1 2-7	05/13	0.01	0.03	<0.003	<0.001	<0.1	0.05	<0.7	<0.6	N/A	0.8	14
SA1 2-8	05/13	<0.01	0.03	0.02	<0.001	<0.1	<0.05	<0.7	<0.6	N/A	0.8	0.7
SA1 2-9	05/13	<0.01	<0.03	0.01	<0.001	<0.1	<0.05	<0.7	<0.6	N/A	0.8	0.7
SA1 2-10	05/13	0.01	<0.03	<0.003	<0.001	<0.1	<0.05	0.7	<0.6	N/A	<0.8	0.7
SA1-3-1	05/13	0.02	2	0.02	<0.001	4	<0.05	<0.7	<0.6	N/A	<0.8	0.7
SA1-3-2	05/13	<0.01	0.03	<0.003	<0.001	<0.1	<0.05	<0.7	<0.6	N/A	<0.8	0.7
SA1-3-3	05/13	0.02	<0.03	0.02	<0.001	<0.1	<0.05	<0.7	<0.6	N/A	0.8	<0.7
SA1 3-4	05/13	0.01	0.03	<0.003	<0.01	<0.1	<0.05	<0.7	<0.6	N/A	0.8	0.7
SA1-3-5	05/13	0.01	<0.03	<0.003	<0.001	<0.1	<0.05	<0.7	<0.6	N/A	<0.8	0.7
SA1-3-6	05/13	0.01	0.03	0.007	<0.001	<0.1	<0.05	0.7	<0.6	N/A	0.8	0.7
SA1 3-7	05/13	0.02	0.03	0.01	<0.001	<0.1	0.05	<0.7	<0.6	N/A	0.8	<0.7
SA1 3-8	05/13	0.02	0.03	<0.003	<0.001	<0.1	<0.05	<0.7	<0.6	N/A	<0.8	0.7
SA1 3-9	05/13	0.02	0.03	<0.003	<0.001	<0.1	<0.05	<0.7	<0.6	N/A	0.9	0.7

Notations:
I interference with adjacent peaks
NA not analyzed

Analyzed by M. Favero

Checked by M. Favero

Proofed by L. Laplander

SAIC-GOWEN FIELD-BOISE, IDAHO

Sample	Date	TCA (ug/kg)	TCE (ug/kg)	PCE (ug/kg)	CCl4 (ug/kg)	CHBrCl2 (ug/kg)	CHBr2Cl (ug/kg)	Benzene (ug/kg)	Toluene (ug/kg)	Ethyl Benzene (ug/kg)	Xylene (ug/kg)	Total Hydrocarbons w/oCH4 (ug/kg)
SB1-4-1	05/14	11	<0.1	0.2	<0.002	<0.2	<0.08	80,000	360,000	N/A	14,000	500,000
SB1-4-2	05/14	0.02	<0.04	<0.007	<0.001	<0.1	<0.08	4	4	N/A	47	95
SB1-4-3	05/14	0.02	<0.04	<0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB1-4-4	05/14	0.02	<0.04	<0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB1-4-5	05/14	0.02	<0.04	<0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB1-4-6	05/14	<0.01	<0.04	<0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB1-4-7	05/14	0.02	<0.04	<0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB1-4-8	05/14	0.02	0.06	0.01	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB1-4-9	05/14	0.02	<0.04	<0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB1-5-1	05/14	0.02	<0.04	<0.007	<0.001	<0.1	<0.08	190	36	N/A	<9	1,000
SB1-5-2	05/14	<0.01	<0.04	<0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	1
SB1-5-3	05/14	0.02	<0.04	<0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB1-5-4	05/14	0.02	<0.04	<0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	2
SB1-5-5	05/14	0.02	<0.04	0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB1-5-6	05/14	<0.01	<0.04	0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB1-5-7	05/14	0.02	<0.04	0.02	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB1-5-8	05/14	<0.01	<0.04	<0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB1-5-9	05/14	0.02	<0.04	0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB2-1-1	05/14	0.02	<0.04	0.02	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB2-1-2	05/14	0.01	<0.04	<0.007	<0.001	<0.1	<0.008	<0.7	<0.7	N/A	<0.9	<0.7
SB2-1-3	05/14	0.02	<0.04	<0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB2-1-4	05/14	<0.01	<0.04	<0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB2-1-5	05/14	0.02	<0.04	<0.007	<0.001	<0.1	<0.08	<0.7	<0.7	N/A	<0.9	<0.7
SB2-2-1	05/15	0.02	<0.03	0.03	<0.001	<0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
SB2-2-2	05/15	<0.01	<0.03	0.03	<0.001	0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
SB2-2-3	05/15	0.01	<0.03	0.03	<0.001	<0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
SB2-2-4	05/15	0.02	<0.03	0.07	<0.001	<0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
SB2-3-1	05/15	0.01	0.07	0.02	<0.001	<0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
SB2-3-2	05/15	<0.01	<0.03	0.02	<0.001	<0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
SB2-3-3	05/15	<0.01	<0.03	0.02	<0.001	<0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
SB2-3-4	05/15	<0.01	<0.03	0.03	<0.001	0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
SB2-4-1	05/15	0.01	<0.03	0.07	<0.001	0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
SB2-4-2	05/15	0.01	<0.03	0.02	<0.001	0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7

Notations:
I interference with adjacent peak;
NA not analyzed

Analyzed by M. Favero

Checked by M. Favero

Recorded by L. Laplander

SAIC-GOWEN FIELD-BOISE, IDAHO

Sample	Date	TCA (ug/kg)	TCE (ug/kg)	PCE (ug/kg)	CCl4 (ug/kg)	CHBrCl2 (ug/kg)	CHBr2Cl (ug/kg)	Benzene (ug/kg)	Toluene (ug/kg)	Ethyl Benzene (ug/kg)	Xylene (ug/kg)	Total Hydrocarbon w/oCH4 (ug/kg)
[illegible]-4-3	05/15	<0.01	<0.03	0.07	<0.001	<0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
SB[illegible]-4-1	05/15	0.01	<0.03	0.03	<0.001	<0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
SB5 1-1	05/12	0.02	<0.03	<0.003	<0.0008	<0.05	<0.05	0.8	<0.9	N/A	<1	180
SB5 1-2	05/12	0.01	<0.03	0.01	<0.0008	<0.05	<0.05	<0.8	<0.9	N/A	<1	<0.8
SB5 1-3	05/12	<0.01	<0.03	0.01	<0.0008	<0.05	<0.05	<0.8	<0.9	N/A	<1	<0.8
SB5-1-4	05/12	0.01	<0.03	0.01	<0.0008	<0.05	<0.05	<0.8	0.9	N/A	<1	<0.8
SB5-1-5	05/12	0.01	<0.03	0.01	<0.0008	<0.05	<0.05	<0.8	<0.9	N/A	<1	<0.8
SB5 1-6	05/12	0.02	<0.03	0.007	<0.0008	<0.05	<0.05	<0.8	<0.9	N/A	<1	<0.8
SB5-1-7	05/12	0.01	<0.03	0.01	<0.0008	<0.05	<0.05	<0.8	<0.9	N/A	<1	<0.8
SB5-1-8	05/12	0.01	<0.03	0.007	<0.0008	<0.05	<0.05	<0.8	<0.9	N/A	<1	<0.8
SB5-1-9	05/12	<0.01	<0.03	0.007	<0.0008	<0.05	<0.05	<0.8	<0.9	N/A	<1	<0.8
SB5 1 10	05/12	0.01	0.03	0.01	<0.0008	<0.05	<0.05	<0.8	<0.9	N/A	<1	<0.8
SB5-1-11	05/12	0.01	0.03	0.01	<0.0008	<0.05	<0.05	<0.8	<0.9	N/A	<1	<0.8
SB1 1-1	05/15	<0.01	<0.03	0.07	<0.001	<0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
SB1-1-2	05/15	0.01	<0.03	0.07	<0.001	<0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
SB1-1-3	05/15	0.01	0.03	0.07	<0.001	<0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
SB1-1-1	05/15	<0.01	<0.03	0.02	<0.002	<0.1	<0.08	<0.7	<0.8	N/A	<0.9	<0.7
Sand Pk.	05/07	0.2	0.02	<0.01	<0.0007	<0.05	<0.05	<0.8	<0.8	N/A	<0.9	<0.9

Notations:
I interference with adjacent peak?
NA not analyzed

Analyzed by M. Favero
Checked by M. Favero
[illegible] L Lanlander

SAIC-GOWEN FIELD-BOISE, IDAHO

Sample	Date	TCA (ug/l)	TCE (ug/l)	PCE (ug/l)	CCl4 (ug/l)	CHBrCl2 (ug/l)	CHBr2Cl (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethyl Benzene (ug/l)	Xylene (ug/l)	Total Hydrocarbon w/oCH4 (ug/l)
MW-1-1	06/05	0.05	<0.03	<0.008	<0.002	<0.007	<0.01	<8	<9	<10	<10	<8
MW1-1-2	06/05	<0.01	<0.03	<0.008	<0.002	<0.007	<0.01	<8	<9	<10	<10	<8
QA2-1-4	05/12	<1	<2	<0.5	<0.2	<0.6	<1	<18	<19	N/A	<17	<18
QA2-1-6	05/13	<1	<2	<0.6	<0.2	<0.6	<0.9	<14	<15	N/A	<15	<14
QA2-1-8	05/14	<1	<2	<0.7	<0.2	<0.7	<1	<14	<15	N/A	<16	<14
QA2-1-10	05/15	<1	<2	<0.7	<0.2	<0.6	<1	<14	<15	N/A	<16	<14
H2O Samp.	05/06	<0.3	0.7	<0.2	<0.08	0.4	2	<17	<17	<N/A	<16	<17

Notations:
I interference with adjacent peaks
NA not analyzed

Analyzed by M. Favero

Checked by M. Favero

Proofed by L. Laplander

APPENDIX H

LABORATORY ANALYTICAL DATA

Explanation of Analysis Reporting Format

Type -
Environmental Samples
- MW - Monitoring Well Borehole Sample
- SB - Soil Boring Borehole Sample
- SD - Stream-Sediment Sample
- SL - Surface Soil Sample
- TS - Tar Sample
- GW - Groundwater Sample

QA/QC Samples
- FB - Field Blank
- DUP - Field Duplicate
- BW - Bailer Wash

Sample No.
Type
Matrix
Assoc. Samples

Matrix - Indicates sample media (i.e. soil, water, tar).

Associated Sample(s)
For environmental samples this indicates associated QA/QC samples. For QA/QC samples this indicates associated environmental samples.

Test
Result Flag Unit LLD

LLD - Lower Limit of Detection.

Flag - Gives additional sample information as follows:

No Flag	- Analyte detected and value reported is the measured concentration
U	- The analyte was not detected. The value reported is the greater of the Sample Detection Limit (SDL) or the Contract Recommended Detection Limit (CRDL).
J	- The analyte was detected at a concentration greater than the Method Detection Limit (MDL) but less than the SDL. The value reported should be considered an estimate.
B	- Indicates the analyte of interest was detected in the method blank associated with this sample, as well as the sample itself.
D	- The value reported is based on analysis of a diluted sample extract or digest.
X	- The value reported has been blank subtracted.

	Sample No. : GW-1-1 Type : GW Matrix : WATER Assoc Sample(ss) : QA-1-1-11(FB) QA-1-1-12(DUP) QA-1-1-10(BW)				Sample No. : GW-1-2 Type : GW Matrix : WATER Assoc Sample(s) : QA-1-1-11(FB)				Sample No. : GW-5-1 Type : GW Matrix : WATER Assoc Sample(s) : QA-1-1-11(FB)				Sample No. : GW-6-1 Type : GW Matrix : WATER Assoc Sample(s) : QA-1-1-11(FB)			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	0.9		mg/L	0.1	0.7		mg/L	0.1	0.3		mg/L	0.1	0.5		mg/L	0.1
Antimony	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Arsenic	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Beryllium	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1
Cadmium	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1
Chromium	22		ug/L	1	18		ug/L	1	3		ug/L	1	12		ug/L	1
Copper	31	B	ug/L	1	4	B	ug/L	1	2	B	ug/L	1	12	B	ug/L	1
Lead	24		ug/L	10	10	U	ug/L	10	10	U	ug/L	10	13		ug/L	10
Mercury	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1
Nickel	63		ug/L	2	21		ug/L	2	3		ug/L	2	24		ug/L	2
Selenium	50		ug/L	5	18		ug/L	5	9		ug/L	5	4	J	ug/L	5
Silver	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1
Thallium	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Zinc	770	B	ug/L	1	97	B	ug/L	1	40	B	ug/L	1	350	B	ug/L	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
Bromomethane	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
Vinyl Chloride	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
Chloroethane	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
Methylene Chloride	1	J	ug/L	5	1	J	ug/L	5	2	J	ug/L	5	5	U	ug/L	5
Acrolein	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
*Acetone	10	U	ug/L	10	9	J	ug/L	10	10		ug/L	10	260		ug/L	10
Acrylonitrile	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
*Carbon Disulfide	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
1,1-Dichloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
1,1-Dichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Trans-1,2-Dichloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Chloroform	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
*2-Butanone	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
1,2-Dichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
1,1,1-Trichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Carbon Tetrachloride	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
*Vinyl Acetate	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
Bromodichloromethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
1,2-Dichloropropane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Trichloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Benzene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Chlorodibromomethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
1,1,2-Trichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
2-Choroethyl Vinyl Ether	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Bromoform	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
*4-Methyl-2-Pentanone	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
*2-Hexanone	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
1,1,2,2-Tetrachloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Tetrachloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Toluene	20		ug/L	5	5	U	ug/L	5	2	J	ug/L	5	74		ug/L	5
Chlorobenzene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
trans-1,3-Dichloropropene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Ethylbenzene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
cis-1,3-Dichloropropene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
*Styrene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
*Total Xylenes	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : GW-1-1 Type : GW Matrix : WATER Assoc Sample(ss) : QA-1-1-11(FB) QA-1-1-12(DUP) QA-1-1-10(BW)				Sample No. : GW-1-2 Type : GW Matrix : WATER Assoc Sample(s) : QA-1-1-11(FB)				Sample No. : GW-5-1 Type : GW Matrix : WATER Assoc Sample(s) : QA-1-1-11(FB)				Sample No. : GW-6-1 Type : GW Matrix : WATER Assoc Sample(s) : QA-1-1-11(FB)			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)																
N-nitrosodimethylamine									1	U	ug/L	1	1	U	ug/L	1
Bis(2-chloroethyl)ether									1	U	ug/L	1	1	U	ug/L	1
2-Chlorophenol									1	U	ug/L	1	1	U	ug/L	1
Phenol									1	U	ug/L	1	1	U	ug/L	1
1,3-Dichlorobenzene									1	U	ug/L	1	1	U	ug/L	1
1,4-Dichlorobenzene									1	U	ug/L	1	1	U	ug/L	1
1,2-Dichlorobenzene									1	U	ug/L	1	1	U	ug/L	1
Bis(2-chloroisopropyl)ether									1	U	ug/L	1	1	U	ug/L	1
Hexachloroethane									1	U	ug/L	1	1	U	ug/L	1
N-nitroso-di-n-propylamine									1	U	ug/L	1	1	U	ug/L	1
Nitrobenzene									1	U	ug/L	1	1	U	ug/L	1
Isophorone									1	U	ug/L	1	1	U	ug/L	1
2-Nitrophenol									1	U	ug/L	1	1	U	ug/L	1
2,4-Dimethylphenol									1	U	ug/L	1	1	U	ug/L	1
Bis(2-chloroethoxy)methane									1	U	ug/L	1	1	U	ug/L	1
2,4-Dichorophenol									1	U	ug/L	1	1	U	ug/L	1
1,2,4-Trichlorobenzene									1	U	ug/L	1	1	U	ug/L	1
Napthalene									1	U	ug/L	1	1	U	ug/L	1
Hexachlorobutadiene									1	U	ug/L	1	1	U	ug/L	1
4-Chloro-M-cresol									1	U	ug/L	1	1	U	ug/L	1
Hexachlorocyclopentadiene									1	U	ug/L	1	1	U	ug/L	1
2,4,6-Trichlorophenol									1	U	ug/L	1	1	U	ug/L	1
2-Chloronapthalene									1	U	ug/L	1	1	U	ug/L	1
Acenaphthalene									1	U	ug/L	1	1	U	ug/L	1
Dimethylphthalate									1	U	ug/L	1	1	U	ug/L	1
2,6-Dinitrotoluene									1	U	ug/L	1	1	U	ug/L	1
Acenaphthene									1	U	ug/L	1	1	U	ug/L	1
2,4-Dinitrophenol									1	U	ug/L	1	1	U	ug/L	1
2,4-Dinitrotoluene									1	U	ug/L	1	1	U	ug/L	1
4-Nitrophenol									1	U	ug/L	1	1	U	ug/L	1
Flourene									1	U	ug/L	1	1	U	ug/L	1
4-Chlorophenol phenyl ether									1	U	ug/L	1	1	U	ug/L	1
Diethylphthalate									1	U	ug/L	1	1	U	ug/L	1
4,6-Dinitro-o-cresol									1	U	ug/L	1	1	U	ug/L	1
1,2-Diphenylhydrazine									1	U	ug/L	1	1	U	ug/L	1
4-Bromophenyl phenyl ether									1	U	ug/L	1	1	U	ug/L	1
Hexachlorobenzene									1	U	ug/L	1	1	U	ug/L	1
Pentachlorophenol									1	U	ug/L	1	1	U	ug/L	1
Phenanthrene									1	U	ug/L	1	1	U	ug/L	1
Anthracene									1	U	ug/L	1	1	U	ug/L	1
Dibutylphthalate									1	U	ug/L	1	1	U	ug/L	1
Flouranthene									1	U	ug/L	1	1	U	ug/L	1
Pyrene									1	U	ug/L	1	1	U	ug/L	1
Benzidine									1	U	ug/L	1	1	U	ug/L	1
Butyl benzyl phthalate									1	U	ug/L	1	1	U	ug/L	1
Benzo(a)anthracene									1	U	ug/L	1	1	U	ug/L	1
Chrysene									1	U	ug/L	1	1	U	ug/L	1
3,3-Dichlorobenzidine									1	U	ug/L	1	1	U	ug/L	1
Bis(2-ethylhexyl)phthalate									2		ug/L	1	14		ug/L	1
N-nitrosodiphenylamine									1	U	ug/L	1	1	U	ug/L	1
Di-n-octyl phthalate									1	U	ug/L	1	1	U	ug/L	1
Benzo(b)flouranthene									1	U	ug/L	1	1	U	ug/L	1
Benzo(k)flouranthene									1	U	ug/L	1	1	U	ug/L	1
Benzo(a)pyrene									1	U	ug/L	1	1	U	ug/L	1
Indeno(1,2,3-cd)pyrene									1	U	ug/L	1	1	U	ug/L	1
Dibenzo(ah)anthracene									1	U	ug/L	1	1	U	ug/L	1

	Sample No. : GW-1-1 Type : GW Matrix : WATER Assoc Sample(ss) : QA-1-1-11(FB) QA-1-1-12(DUP) QA-1-1-10(BW)				Sample No. : GW-1-2 Type : GW Matrix : WATER Assoc Sample(s) : QA-1-1-11(FB)				Sample No. : GW-5-1 Type : GW Matrix : WATER Assoc Sample(s) : QA-1-1-11(FB)				Sample No. : GW-6-1 Type : GW Matrix : WATER Assoc Sample(s) : QA-1-1-11(FB)			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)																
Benzo(ghi)perylene									1	U	ug/L	1	1	U	ug/L	1
*Aniline									1	U	ug/L	1	1	U	ug/L	1
*Benzoic Acid									1	U	ug/L	1	1	U	ug/L	1
*Benzl Alcohol									1	U	ug/L	1	1	U	ug/L	1
*4-Chloroaniline									1	U	ug/L	1	1	U	ug/L	1
*Dibenzofuran									1	U	ug/L	1	1	U	ug/L	1
*2-Methylnaphthalene									1	U	ug/L	1	1	U	ug/L	1
*2-Methylphenol									1	U	ug/L	1	1	U	ug/L	1
*4-Methylphenol									1	U	ug/L	1	1	U	ug/L	1
*2-Nitroaniline									1	U	ug/L	1	1	U	ug/L	1
*3-Nitroaniline									1	U	ug/L	1	1	U	ug/L	1
*4-Nitroaniline									1	U	ug/L	1	1	U	ug/L	1
*2,4,5-Trichlorophenol									1	U	ug/L	1	1	U	ug/L	1

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : MW-1-1-3				Sample No. : MW-1-1-8				Sample No. : MW-1-1-9			
	Type : MW				Type : MW				Type : MW			
	Matrix : SOIL				Matrix : SOIL				Matrix : SOIL			
	Assoc Sample(ss) : QA-1-1-1(FB)				Assoc Sample(ss) : QA-1-1-2(FB) QA-1-1-3(DUP)				Assoc Sample(s) : QA-1-1-2(FB)			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S												
Petroleum Hydrocarbons Oil and Grease	120	X	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20
Antimony	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	3.9		mg/kg	0.5	11		mg/kg	0.5	8.2		mg/kg	0.5
Beryllium	0.4		mg/kg	0.1	0.2		mg/kg	0.1	0.3		mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	22		mg/kg	1	6		mg/kg	1	10		mg/kg	1
Copper	45		mg/kg	1	7		mg/kg	1	19		mg/kg	1
Lead	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	5		mg/kg	2	2	U	mg/kg	2	2		mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	70	B	mg/kg	1	28	B	mg/kg	1	43	B	mg/kg	1
VOLATILE ORGANICS (BY GC/MS)												
Chloromethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	3	J	ug/kg	5	1	J	ug/kg	5	3	J	ug/kg	5
Acrolein	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	31		ug/kg	10	48		ug/kg	10	44		ug/kg	10
Acrylonitrile	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Benzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	2	J	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Toluene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorobenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substancce List.

	Sample No. : MW-1-2-1 Type : MW Matrix : SOIL Assoc Sample(ss) : QA-1-1-8(FB)				Sample No. : MW-1-2-4 Type : MW Matrix : SOIL Assoc Sample(s) : QA-1-1-8(FB)				Sample No. : MW-1-2-8 Type : MW Matrix : SOIL Assoc Sample(ss) : QA-1-1-8(FB)			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S												
Petroleum Hydrocarbons												
Oil and Grease	20	UX	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20
Antimony	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	4.9		mg/kg	0.5	15		mg/kg	0.5	3.6		mg/kg	0.5
Beryllium	0.7		mg/kg	0.1	0.7		mg/kg	0.1	0.6		mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	16		mg/kg	1	13		mg/kg	1	13		mg/kg	1
Copper	20		mg/kg	1	8		mg/kg	1	9		mg/kg	1
Lead	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	14		mg/kg	2	8		mg/kg	2	6		mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	51		mg/kg	1	56		mg/kg	1	53		mg/kg	1
VOLATILE ORGANICS (BY GC/MS)												
Chloromethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	4	J	ug/kg	5	3	J	ug/kg	5	5	U	ug/kg	5
Acrolein	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	100	B	ug/kg	10	87	B	ug/kg	10	190	B	ug/kg	10
Acrylonitrile	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Benzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	1	J	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Toluene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorobenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : MW-5-1-7 Type : MW Matrix : SOIL Assoc Sample(s) : QA-1-1-6(FB) QA-1-1-7(DUP)				Sample No. : MW-5-1-8 Type : MW Matrix : SOIL Assoc Sample(s) : QA-1-1-6(FB)				Sample No. : MW-5-1-9 Type : MW Matrix : SOIL Assoc Sample(s) : QA-1-1-6(FB)			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S												
Petroleum Hydrocarbons Oil and Grease	20	UX	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20
Antimony	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	3.6		mg/kg	0.5	7.1		mg/kg	0.5	6.4		mg/kg	0.5
Beryllium	0.5		mg/kg	0.1	0.5		mg/kg	0.1	0.2		mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	15		mg/kg	1	10		mg/kg	1	8		mg/kg	1
Copper	10		mg/kg	1	14		mg/kg	1	8		mg/kg	1
Lead	10	U	mg/kg	10	11		mg/kg	10	10	U	mg/kg	10
Mercury	0.5		mg/kg	0.1	0.07	J	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	6		mg/kg	2	5		mg/kg	2	2	U	mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	55	B	mg/kg	1	57	B	mg/kg	1	28	B	mg/kg	1
VOLATILE ORGANICS (BY GC/MS)												
Chloromethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	5	U	ug/kg	5	5		ug/kg	5	4	J	ug/kg	5
Acrolein	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	10	U	ug/kg	10	10	U	ug/kg	10	280	B	ug/kg	10
Acrylonitrile	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	5	J	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Benzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	5	U	ug/kg	5	1	J	ug/kg	5	5	U	ug/kg	5
Toluene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorobenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

Sample No. : MW-5-1-7	Sample No. : MW-5-1-8	Sample No. : MW-5-1-9
Type : MW	Type : MW	Type : MW
Matrix : SOIL	Matrix : SOIL	Matrix : SOIL
Assoc Sample(s) : QA-1-1-6(FB) QA-1-1-7(DUP)	Assoc Sample(s) : QA-1-1-6(FB)	Assoc Sample(s) : QA-1-1-6(FB)

SEMI-VOLATILES (BY GC/MS)	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
N-nitrosodimethylamine	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Bis(2-chloroethyl)ether	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2-Chlorophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Phenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
1,3-Dichlorobenzene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
1,4-Dichlorobenzene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
1,2-Dichlorobenzene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Bis(2-chloroisopropyl)ether	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Hexachloroethane	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
N-nitroso-di-n-propylamine	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Nitrobenzene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Isophorone	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2-Nitrophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,4-Dimethylphenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Bis(2-chloroethoxy)methane	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,4-Dichorophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
1,2,4-Trichlorobenzene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Napthalene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Hexachlorobutadiene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
4-Chloro-M-cresol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Hexachlorocyclopentadiene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,4,6-Trichlorophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2-Chloronapthalene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Acenaphthalene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Dimethylphthalate	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,6-Dinitrotoluene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Acenaphthene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,4-Dinitrophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,4-Dinitrotoluene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
4-Nitrophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Flourene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
4-Chlorophenol phenyl ether	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Diethylphthalate	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
4,6-Dinitro-o-cresol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
1,2-Diphenylhydrazine	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
4-Bromophenyl phenyl ether	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Hexachlorobenzene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Pentachlorophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Phenanthrene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Anthracene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Dibutylphthalate	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Flouranthene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Pyrene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Benzidine	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Butyl benzyl phthalate	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Benzo(a)anthracene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Chrysene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
3,3-Dichlorobenzidine	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Bis(2-ethylhexyl)phthalate	180		ug/kg	50	220		ug/kg	50	350		ug/kg	50
N-nitrosodiphenylamine	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Di-n-octyl phthalate	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Benzo(b)flouranthene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Benzo(k)flouranthene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Benzo(a)pyrene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Indeno(1,2,3-cd)pyrene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Dibenzo(ah)anthracene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50

	Sample No. : MW-5-1-7 Type : MW Matrix : SOIL Assoc Sample(s) : QA-1-1-6(FB) QA-1-1-7(DUP)				Sample No. : MW-5-1-8 Type : MW Matrix : SOIL Assoc Sample(s) : QA-1-1-6(FB)				Sample No. : MW-5-1-9 Type : MW Matrix : SOIL Assoc Sample(s) : QA-1-1-6(FB)			
SEMI-VOLATILES (BY GC/MS)	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
Benzo(ghi)perylene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*Aniline	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*Benzoic Acid	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*Benzl Alcohol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*4-Chloroaniline	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*Dibenzofuran	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*2-Methylnaphthalene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*2-Methylphenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*4-Methylphenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*2-Nitroaniline	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*3-Nitroaniline	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*4-Nitroaniline	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*2,4,5-Trichlorophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : MW-6-1-1 Type : MW Matrix : SOIL Assoc Sample(s) : QA-1-1-4(FB)				Sample No. : MW-6-1-5 Type : MW Matrix : SOIL Assoc Sample(s) : QA-1-1-4(FB)				Sample No. : MW-6-1-6 Type : MW Matrix : SOIL Assoc Sample(s) : QA-1-1-5(FB)			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S												
Petroleum Hydrocarbons												
Oil and Grease	26	X	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20
Antimony	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	5.5		mg/kg	0.5	2.4		mg/kg	0.5	0.6		mg/kg	0.5
Beryllium	0.8		mg/kg	0.1	0.2		mg/kg	0.1	0.1		mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	22		mg/kg	1	6		mg/kg	1	2		mg/kg	1
Copper	19		mg/kg	1	14		mg/kg	1	12		mg/kg	1
Lead	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	19		mg/kg	2	2		mg/kg	2	2	U	mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	58	B	mg/kg	1	26	B	mg/kg	1	18	B	mg/kg	1
VOLATILE ORGANICS (BY GC/MS)												
Chloromethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	4	J	ug/kg	5	1	J	ug/kg	5	1	J	ug/kg	5
Acrolein	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	10	U	ug/kg	10	10		ug/kg	10	210		ug/kg	10
Acrylonitrile	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/kg	10	10	U	ug/kg	10	1	J	ug/kg	10
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Benzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Toluene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorobenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	5	U	ug/kg	5	1	J	ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : MW-6-1-1				Sample No. : MW-6-1-5				Sample No. : MW-6-1-6			
	Type : MW				Type : MW				Type : MW			
	Matrix : SOIL				Matrix : SOIL				Matrix : SOIL			
	Assoc Sample(s) : QA-1-1-4(FB)				Assoc Sample(s) : QA-1-1-4(FB)				Assoc Sample(s) : QA-1-1-5(FB)			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)												
N-nitrosodimethylamine	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Bis(2-chloroethyl)ether	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2-Chlorophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Phenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
1,3-Dichlorobenzene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
1,4-Dichlorobenzene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
1,2-Dichlorobenzene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Bis(2-chloroisopropyl)ether	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Hexachloroethane	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
N-nitroso-di-n-propylamine	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Nitrobenzene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Isophorone	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2-Nitrophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,4-Dimethylphenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Bis(2-chloroethoxy)methane	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,4-Dichorophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
1,2,4-Trichlorobenzene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Napthalene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Hexachlorobutadiene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
4-Chloro-M-cresol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Hexachlorocyclopentadiene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,4,6-Trichlorophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2-Chloronapthalene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Acenaphthalene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Dimethylphthalate	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,6-Dinitrotoluene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Acenaphthene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,4-Dinitrophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,4-Dinitrotoluene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
4-Nitrophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Flourene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
4-Chlorophenol phenyl ether	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Diethylphthalate	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
4,6-Dinitro-o-cresol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
1,2-Diphenylhydrazine	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
4-Bromophenyl phenyl ether	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Hexachlorobenzene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Pentachlorophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Phenanthrene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Anthracene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Dibutylphthalate	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Flouranthene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Pyrene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Benzidine	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Butyl benzyl phthalate	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Benzo(a)anthracene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Chrysene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
3,3-Dichlorobenzidine	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Bis(2-ethylhexyl)phthalate	290		ug/kg	50	340		ug/kg	50	240		ug/kg	50
N-nitrosodiphenylamine	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Di-n-octyl phthalate	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Benzo(b)flouranthene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Benzo(k)flouranthene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Benzo(a)pyrene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Indeno(1,2,3-cd)pyrene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Dibenzo(ah)anthracene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50

	Sample No. : MW-6-1-1 Type : MW Matrix : SOIL Assoc Sample(s) : QA-1-1-4(FB)				Sample No. : MW-6-1-5 Type : MW Matrix : SOIL Assoc Sample(s) : QA-1-1-4(FB)				Sample No. : MW-6-1-6 Type : MW Matrix : SOIL Assoc Sample(s) : QA-1-1-5(FB)			
SEMI-VOLATILES (BY GC/MS)	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
Benzo(ghi)perylene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*Aniline	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*Benzoic Acid	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*Benzl Alcohol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*4-Chloroaniline	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*Dibenzofuran	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*2-Methylnaphthalene	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*2-Methylphenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*4-Methylphenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*2-Nitroaniline	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*3-Nitroaniline	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*4-Nitroaniline	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*2,4,5-Trichlorophenol	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : SB-1-1-2				Sample No. : SB-1-1-4				Sample No. : SB-1-1-6				Sample No. : SB-1-1-7			
	Type : SB				Type : SB				Type : SB				Type : SB			
	Matrix : SOIL				Matrix : SOIL				Matrix : SOIL				Matrix : SOIL			
	Assoc Sample(ss) : QA-2-1-2				Assoc Sample(ss) : QA-2-1-2				Assoc Sample(s) : QA-2-1-2				Assoc Sample(ss) : QA-2-1-2			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	110	X	mg/kg	20	110	X	mg/kg	20	180	X	mg/kg	20	55	X	mg/kg	20
Antimony	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	3.6		mg/kg	0.5	4		mg/kg	0.5	4.8		mg/kg	0.5	4.9		mg/kg	0.5
Beryllium	0.6		mg/kg	0.1	0.3		mg/kg	0.1	0.3		mg/kg	0.1	0.3		mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	37		mg/kg	1	24		mg/kg	1	140		mg/kg	1	83		mg/kg	1
Copper	37		mg/kg	1	19		mg/kg	1	11		mg/kg	1	15		mg/kg	1
Lead	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.07	J	mg/kg	0.1
Nickel	28		mg/kg	2	21		mg/kg	2	9		mg/kg	2	18		mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	66	B	mg/kg	1	37	B	mg/kg	1	34	B	mg/kg	1	44	B	mg/kg	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Acrolein	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	2000	U	ug/kg	2000	33		ug/kg	10	76		ug/kg	10	35		ug/kg	10
Acrylonitrile	2000	U	ug/kg	2000	10		ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Benzene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	1030	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	1000	U	ug/kg	1000	10		ug/kg	5	15		ug/kg	5	5		ug/kg	5
Toluene	1300		ug/kg	1000	5	U	ug/kg	5	23		ug/kg	5	5	U	ug/kg	5
Chlorobenzene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	910	J	ug/kg	1000	5	U	ug/kg	5	80		ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	10000		ug/kg	10000	7		ug/kg	5	340		ug/kg	5	6		ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List

	Sample No. : SB-1-1-8 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-3				Sample No. : SB-1-1-9 Type : SB Matrix : SOIL Assoc Sample() : QA-2-1-3				Sample No. : SB-1-1-10 Type : SB Matrix : SOIL Assoc Sample() : QA-2-1-3				Sample No. : SB-1-2-1(5/7/87) Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-3			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	110	X	mg/kg	20	20	UX	mg/kg	20	70	UX	mg/kg	20	3800	X	mg/kg	20
Antimony	3	U	mg/kg	[illegible]	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	4.4		mg/kg	[illegible]	1.1		mg/kg	0.5	4.4		mg/kg	0.5	4.9		mg/kg	0.5
Beryllium	0.4		mg/kg	0.1	0.2		mg/kg	0.1	0.3		mg/kg	0.1	0.4		mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	100		mg/kg	1	14		mg/kg	1	7		mg/kg	1	20		mg/kg	1
Copper	11		mg/kg	1	4		mg/kg	1	3		mg/kg	1	16		mg/kg	1
Lead	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10	28		mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.2		mg/kg	0.1
Nickel	10		mg/kg	2	2	U	mg/kg	2	2	U	mg/kg	2	9		mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	41	B	mg/kg	1	22	B	mg/kg	1	26	B	mg/kg	1	46	B	mg/kg	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	4000	U	ug/kg	4000
Bromomethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	4000	U	ug/kg	4000
Vinyl Chloride	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	4000	U	ug/kg	4000
Chloroethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	4000	U	ug/kg	4000
Methylene Chloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
Acrolein	58		ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	4000	U	ug/kg	4000
*Acetone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	4000	U	ug/kg	4000
Acrylonitrile	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	4000	U	ug/kg	4000
*Carbon Disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
1,1-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
Trans-1,2-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
*2-Butanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	4000	U	ug/kg	4000
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
Carbon Tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
*Vinyl Acetate	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	4000	U	ug/kg	4000
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
1,2-Dichloropropane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
Trichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
Benzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
Chlorodibromomethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
2-Choroethyl Vinyl Ether	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
*4-Methyl-2-Pentanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	4000	U	ug/kg	4000
*2-Hexanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	4000	U	ug/kg	4000
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
Tetrachloroethylene	36		ug/kg	5	1	J	ug/kg	5	2	J	ug/kg	5	2000	U	ug/kg	2000
Toluene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	34000		ug/kg	2000
Chlorobenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
Ethylbenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	15000		ug/kg	2000
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
*Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	2000	U	ug/kg	2000
*Total Xylenes	16		ug/kg	5	3	J	ug/kg	5	1	J	ug/kg	5	240000		ug/kg	2000

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : SB-1-2-1(5/13/87) Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-6				Sample No. : SB-1-2-2 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-6 QA-2-1-7				Sample No. : SB-1-2-3 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-6				Sample No. : SB-1-2-4 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-6			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	8000	X	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20
Antimony	3	U	mg/kg	3	5	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	3.5		mg/kg	0.5	1.6		mg/kg	0.5	3.4		mg/kg	0.5	4.6		mg/kg	0.5
Beryllium	0.2		mg/kg	0.1	0.3		mg/kg	0.1	0.4		mg/kg	0.1	0.3		mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	8		mg/kg	1	14		mg/kg	1	12		mg/kg	1	8		mg/kg	1
Copper	9		mg/kg	1	11		mg/kg	1	10		mg/kg	1	6		mg/kg	1
Lead	13		mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	8		mg/kg	2	10		mg/kg	2	7		mg/kg	2	3		mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	94	B	mg/kg	1	83	B	mg/kg	1	40	B	mg/kg	1	36	B	mg/kg	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	310	J	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	1	J	ug/kg	5
Acrolein	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	4000	B	ug/kg	2000	100		ug/kg	10	120		ug/kg	10	62		ug/kg	10
Acrylonitrile	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	1000	U	ug/kg	1000	5	U	ug/kg	5	10	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	1000	U	ug/kg	1000	5	U	ug/kg	5	2	J	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Benzene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Toluene	15000		ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorobenzene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	11000		ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	130000		ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : SB-1-2-5				Sample No. : SB-1-2-6				Sample No. : SB-1-2-7				Sample No. : SB-1-2-10			
	Type : SB				Type : SB				Type : SB				Type : SB			
	Matrix : SOIL				Matrix : SOIL				Matrix : SOIL				Matrix : SOIL			
	Assoc Sample(s) : QA-2-1-6				Assoc Sample(s) : QA-2-1-6				Assoc Sample(s) : QA-2-1-6				Assoc Sample(s) : QA-2-1-6			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	20	UX	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20
Antimony	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	4.7		mg/kg	0.5	3.7		mg/kg	0.5	4.7		mg/kg	0.5	0.4	J	mg/kg	0.5
Beryllium	0.4		mg/kg	0.1	0.2		mg/kg	0.1	0.3		mg/kg	0.1	0.1	U	mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	17		mg/kg	1	4		mg/kg	1	9		mg/kg	1	4		mg/kg	1
Copper	6		mg/kg	1	4		mg/kg	1	5		mg/kg	1	29		mg/kg	1
Lead	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	8		mg/kg	2	2		mg/kg	2	4		mg/kg	2	2	U	mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.2	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	49	B	mg/kg	1	25	B	mg/kg	1	32	B	mg/kg	1	26	B	mg/kg	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Acrolein	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	120		ug/kg	10	55		ug/kg	10	170		ug/kg	10	67		ug/kg	10
Acrylonitrile	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Benzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Toluene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorobenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : SB-1-3-1 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-6				Sample No. : SB-1-3-2 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-6				Sample No. : SB-1-3-6 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-6				Sample No. : SB-1-3-9 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-6			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	4800	X	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20
Antimony	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	4.4		mg/kg	0.5	3		mg/kg	0.5	4.7		mg/kg	0.5	0.4	J	mg/kg	0.5
Beryllium	0.3		mg/kg	0.1	0.2		mg/kg	0.1	0.3		mg/kg	0.1	0.1	U	mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	15		mg/kg	1	5		mg/kg	1	7		mg/kg	1	3		mg/kg	1
Copper	10		mg/kg	1	5		mg/kg	1	5		mg/kg	1	5		mg/kg	1
Lead	28		mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	9		mg/kg	2	3		mg/kg	2	2		mg/kg	2	2	U	mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	62	B	mg/kg	1	28	B	mg/kg	1	30	B	mg/kg	1	15	B	mg/kg	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	1	J	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Acrolein	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	10	U	ug/kg	10	140		ug/kg	10	56		ug/kg	10	11		ug/kg	10
Acrylonitrile	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	1	J	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Benzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	99		ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Toluene	21		ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorobenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	34		ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	210		ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : SB-1-4-1 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-8				Sample No. : SB-1-4-2 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-8				Sample No. : SB-1-4-5 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-8				Sample No. : SB-1-4-9 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-8			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	6500	X	mg/kg	20	86	X	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20
Antimony	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	3.8		mg/kg	0.5	3.5		mg/kg	0.5	3.4		mg/kg	0.5	0.6		mg/kg	0.5
Beryllium	0.3		mg/kg	0.1	0.5		mg/kg	0.1	0.3		mg/kg	0.1	0.1	U	mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	14		mg/kg	1	15		mg/kg	1	15		mg/kg	1	7		mg/kg	1
Copper	11		mg/kg	1	12		mg/kg	1	7		mg/kg	1	10		mg/kg	1
Lead	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	10		mg/kg	2	12		mg/kg	2	11		mg/kg	2	2	U	mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	35	B	mg/kg	1	47	B	mg/kg	1	39	B	mg/kg	1	23	B	mg/kg	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Acrolein	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	2000	U	ug/kg	2000	140		ug/kg	10	10	U	ug/kg	10	89		ug/kg	10
Acrylonitrile	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Benzene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	2000	U	ug/kg	2000	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Toluene	16000		ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorobenzene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	10000		ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	1000	U	ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	96000		ug/kg	1000	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : SB-1-5-1 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-8				Sample No. : SB-1-5-2 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-8				Sample No. : SB-1-5-4 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-8 QA-2-1-9				Sample No. : SB-1-5-9 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-8			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	57	X	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20
Antimony	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	4.1		mg/kg	0.5	5.4		mg/kg	0.5	3.5		mg/kg	0.5	0.6		mg/kg	0.5
Beryllium	0.3		mg/kg	0.1	0.6		mg/kg	0.1	0.3		mg/kg	0.1	0.1	U	mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	11		mg/kg	1	16		mg/kg	1	9		mg/kg	1	3		mg/kg	1
Copper	10		mg/kg	1	12		mg/kg	1	6		mg/kg	1	8		mg/kg	1
Lead	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	7		mg/kg	2	10		mg/kg	2	6		mg/kg	2	2	U	mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	32	B	mg/kg	1	46	B	mg/kg	1	37	B	mg/kg	1	17	B	mg/kg	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Acrolein	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	10	U	ug/kg	10	99		ug/kg	10	160		ug/kg	10	79		ug/kg	10
Acrylonitrile	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Benzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	3	J	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Toluene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorobenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

Sample No.	SB-2-1-1				SB-2-1-2				SB-2-1-3				SB-2-1-5			
Type	SB				SB				SB				SB			
Matrix	SOIL				SOIL				SOIL				SOIL			
Assoc Sample(s)	QA-2-1-8				QA-2-1-8				QA-2-1-8				QA-2-1-8			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	20	UX	mg/kg	20	23	X	mg/kg	20	20	UX	mg/kg	20	20	X	mg/kg	20
Antimony	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	18		mg/kg	0.5	5.8		mg/kg	0.5	5.4		mg/kg	0.5	5.7		mg/kg	0.5
Beryllium	0.8		mg/kg	0.1	0.5		mg/kg	0.1	0.4		mg/kg	0.1	0.3		mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	18		mg/kg	1	13		mg/kg	1	6		mg/kg	1	10		mg/kg	1
Copper	14		mg/kg	1	9		mg/kg	1	6		mg/kg	1	6		mg/kg	1
Lead	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	13		mg/kg	2	9		mg/kg	2	3		mg/kg	2	3		mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	48	B	mg/kg	1	38	B	mg/kg	1	27	B	mg/kg	1	32	B	mg/kg	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	2	J	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Acrolein	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	10	U	ug/kg	10	69		ug/kg	10	79		ug/kg	10	10	U	ug/kg	10
Acrylonitrile	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Benzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	3	J	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Toluene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorobenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	1	J	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : SB-2-2-1				Sample No. : SB-2-2-2				Sample No. : SB-2-2-3				Sample No. : SB-2-2-4			
	Type : SB				Type : SB				Type : SB				Type : SB			
	Matrix : SOIL				Matrix : SOIL				Matrix : SOIL				Matrix : SOIL			
	Assoc Sample(s) : QA-2-1-10				Assoc Sample(s) : QA-2-1-10 QA-2-1-11				Assoc Sample(s) : QA-2-1-10				Assoc Sample(s) : QA-2-1-10			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	20	UX	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20
Antimony	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	12		mg/kg	0.5	6.7		mg/kg	0.5	7.3		mg/kg	0.5	5.7		mg/kg	0.5
Beryllium	0.7		mg/kg	0.1	0.7		mg/kg	0.1	0.7		mg/kg	0.1	0.4		mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	14		mg/kg	1	10		mg/kg	1	11		mg/kg	1	7		mg/kg	1
Copper	18		mg/kg	1	8		mg/kg	1	10		mg/kg	1	5		mg/kg	1
Lead	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	11		mg/kg	2	6		mg/kg	2	8		mg/kg	2	3		mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	54		mg/kg	1	41		mg/kg	1	43		mg/kg	1	26		mg/kg	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Acrolein	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	180	B	ug/kg	10	290		ug/kg	10	120	B	ug/kg	10	41	B	ug/kg	10
Acrylonitrile	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Benzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Toluene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorobenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : SB-2-3-1 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-10				Sample No. : SB-2-3-2 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-10				Sample No. : SB-2-3-3 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-10				Sample No. : SB-2-3-4 Type : SB Matrix : SOIL Assoc Sample(s) : QA-2-1-10			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	20	UX	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20
Antimony	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	15		mg/kg	0.5	12		mg/kg	0.5	9.4		mg/kg	0.5	6.5		mg/kg	0.5
Beryllium	0.8		mg/kg	0.1	0.8		mg/kg	0.1	0.7		mg/kg	0.1	0.4		mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	11		mg/kg	1	16		mg/kg	1	13		mg/kg	1	14		mg/kg	1
Copper	12		mg/kg	1	11		mg/kg	1	13		mg/kg	1	11		mg/kg	1
Lead	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	10		mg/kg	2	7		mg/kg	2	10		mg/kg	2	8		mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	30		mg/kg	1	46		mg/kg	1	56		mg/kg	1	45		mg/kg	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Acrolein	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	190	B	ug/kg	10	16	B	ug/kg	10	280	B	ug/kg	10	10	U	ug/kg	10
Acrylonitrile	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	5	U	ug/kg	5	1	J	ug/kg	5	1	J	ug/kg	5	5	U	ug/kg	5
Benzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Toluene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorobenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : SB-2-4-1				Sample No. : SB-2-4-2				Sample No. : SB-2-4-3				Sample No. : SB-2-4-4			
	Type : SB				Type : SB				Type : SB				Type : SB			
	Matrix : SOIL				Matrix : SOIL				Matrix : SOIL				Matrix : SOIL			
	Assoc Sample(s) : QA-2-1-10				Assoc Sample(s) : QA-2-1-10				Assoc Sample(s) : QA-2-1-10				Assoc Sample(s) : QA-2-1-10			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	20	UX	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20
Antimony	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	9.4		mg/kg	0.5	2.3		mg/kg	0.5	3.9		mg/kg	0.5	2.6		mg/kg	0.5
Beryllium	0.5		mg/kg	0.1	0.4		mg/kg	0.1	0.6		mg/kg	0.1	0.3		mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	10		mg/kg	1	7		mg/kg	1	14		mg/kg	1	6		mg/kg	1
Copper	34		mg/kg	1	5		mg/kg	1	10		mg/kg	1	4		mg/kg	1
Lead	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	9		mg/kg	2	5		mg/kg	2	8		mg/kg	2	3		mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	43		mg/kg	1	33		mg/kg	1	51		mg/kg	1	17		mg/kg	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Acrolein	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	150		ug/kg	10	71		ug/kg	10	120		ug/kg	10	59	B	ug/kg	10
Acrylonitrile	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Benzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	2	J	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Toluene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorobenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5

*Additional compounds from the EPA's

	Sample No. : SB-5-1-1				Sample No. : SB-5-1-5				Sample No. : SB-5-1-7				Sample No. : SB-5-1-11			
	Type : SB				Type : SB				Type : SB				Type : SB			
	Matrix : SOIL				Matrix : SOIL				Matrix : SOIL				Matrix : SOIL			
	Assoc Sample(s) : QA-2-1-10				Assoc Sample(s) : QA-2-1-10				Assoc Sample(s) : QA-2-1-10				Assoc Sample(s) : QA-2-1-10			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	2100	X	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20	20	UX	mg/kg	20
Antimony	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	5.9		mg/kg	0.5	3		mg/kg	0.5	1.4		mg/kg	0.5	1.4		mg/kg	0.5
Beryllium	0.4		mg/kg	0.1	0.2		mg/kg	0.1	0.5		mg/kg	0.1	0.1	U	mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	14		mg/kg	1	9		mg/kg	1	15		mg/kg	1	4		mg/kg	1
Copper	13		mg/kg	1	7		mg/kg	1	3		mg/kg	1	12		mg/kg	1
Lead	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10	10	U	mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	10		mg/kg	2	3		mg/kg	2	3		mg/kg	2	2	U	mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	53	B	mg/kg	1	27	B	mg/kg	1	230	B	mg/kg	1	23	B	mg/kg	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	6		ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Acrolein	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	270		ug/kg	10	10	U	ug/kg	10	90		ug/kg	10	100		ug/kg	10
Acrylonitrile	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Benzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	120		ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Toluene	15		ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorobenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	5	J	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	38		ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : SB-5-1-1				Sample No. : SB-5-1-5				Sample No. : SB-5-1-7				Sample No. : SB-5-1-11			
	Type : SB				Type : SB				Type : SB				Type : SB			
	Matrix : SOIL				Matrix : SOIL				Matrix : SOIL				Matrix : SOIL			
	Assoc Sample(s) : QA-2-1-10				Assoc Sample(s) : QA-2-1-10				Assoc Sample(s) : QA-2-1-10				Assoc Sample(s) : QA-2-1-10			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)																
N-nitrosodimethylamine	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Bis(2-chloroethyl)ether	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2-Chlorophenol	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Phenol	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
1,3-Dichlorobenzene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
1,4-Dichlorobenzene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
1,2-Dichlorobenzene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Bis(2-chloroisopropyl)ether	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Hexachloroethane	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
N-nitroso-di-n-propylamine	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Nitrobenzene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Isophorone	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2-Nitrophenol	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,4-Dimethylphenol	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Bis(2-chloroethoxy)methane	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,4-Dichorophenol	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
1,2,4-Trichlorobenzene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Napthalene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Hexachlorobutadiene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
4-Chloro-M-cresol	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Hexachlorocyclopentadiene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,4,6-Trichlorophenol	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2-Chloronapthalene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Acenaphthalene	3000		ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Dimethylphthalate	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,6-Dinitrotoluene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Acenaphthene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,4-Dinitrophenol	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
2,4-Dinitrotoluene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
4-Nitrophenol	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Flourene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
4-Chlorophenol phenyl ether	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Diethylphthalate	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
4,6-Dinitro-o-cresol	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
1,2-Diphenylhydrazine	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
4-Bromophenyl phenyl ether	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Hexachlorobenzene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Pentachlorophenol	150000		ug/kg	2400	560		ug/kg	50	140		ug/kg	50	50	U	ug/kg	50
Phenanthrene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Anthracene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Dibutylphthalate	2400	U	ug/kg	2400	65		ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Flouranthene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Pyrene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Benzidine	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Butyl benzyl phthalate	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Benzo(a)anthracene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Chrysene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
3,3-Dichlorobenzidine	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Bis(2-ethylhexyl)phthalate	2400	U	ug/kg	2400	67		ug/kg	50	92		ug/kg	50	51		ug/kg	50
N-nitrosodiphenylamine	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Di-n-octyl phthalate	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Benzo(b)flouranthene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Benzo(k)flouranthene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Benzo(a)pyrene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Indeno(1,2,3-cd)pyrene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
Dibenzo(ah)anthracene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50

	Sample No. : SL-1-1-1 Type : SL Matrix : SOIL Assoc Sample(ss) : QA-2-1-10 QA-3-1-4				Sample No. : TS-6-1 Type : TS Matrix : TAR Assoc Sample(s) : QA-2-1-10 QA-3-1-3				Sample No. : TS-6-2 Type : TS Matrix : TAR Assoc Sample(s) : QA-2-1-10			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
IGNITABILITY	Will not flash at or below 200 F				Will not flash at or below 200 F				Will not flash at or below			
INORGANICS - E.P. TOXICITY												
Arsenic	0.2	U	mg/L	0.2	0.2	U	mg/L	0.2	0.2	U	mg/L	0.2
Barium	0.9		mg/L	0.1	0.1	U	mg/L	0.1	0.1	U	mg/L	0.1
Cadmium	0.01	U	mg/L	0.01	0.01	U	mg/L	0.01	0.01	U	mg/L	0.01
Chromium	0.1	U	mg/L	0.1	0.1	U	mg/L	0.1	0.1	U	mg/L	0.1
Lead	0.1	U	mg/L	0.1	0.1	U	mg/L	0.1	0.1	U	mg/L	0.1
Mercury	0.005	U	mg/L	0.005	0.005	U	mg/L	0.005	0.005	U	mg/L	0.005
Selenium	0.2	U	mg/L	0.2	0.2	U	mg/L	0.2	0.2	U	mg/L	0.2
Silver	0.1	U	mg/L	0.1	0.1	U	mg/L	0.1	0.1	U	mg/L	0.1
ORGANICS - E.P. TOXICITY												
Endrin	0.0001	U	mg/L	0.0001	0.0001	U	mg/L	0.0001	0.0001	U	mg/L	0.0001
Methoxychlor	0.0005	U	mg/L	0.0005	0.0005	U	mg/L	0.0005	0.0005	U	mg/L	0.0005
Toxaphene	0.01	U	mg/L	0.01	0.01	U	mg/L	. 0.01	0.01	U	mg/L	0.01
2,4-D	0.0005	U	mg/L	0.0005	0.0005	U	mg/L	0.0005	0.0005	U	mg/L	0.0005
2,4,5-TP (silvex)	0.0002	J	mg/L	0.0005	0.0002	J	mg/L	0.0005	0.0001	J	mg/L	0.0005
Lindane	0.00005	U	mg/L	0.00005	0.00005	U	mg/L	0.00005	0.00005	U	mg/L	0.00005

	Sample No. : SD-1-1 Type : SD Matrix : SEDIMENT Assoc Sample(s) : QA-2-1-10				Sample No. : SD-1-2 Type : SD Matrix : SEDIMENT Assoc Sample(s) : QA-2-1-10				Sample No. : SD-1-3 Type : SD Matrix : SEDIMENT Assoc Sample(s) : QA-2-1-10 QA-3-1-5			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PERTROLEUM HC'S												
Petroleum Hydrocarbons Oil and Grease	37	X	mg/kg	20	52	X	mg/kg	20	74	X	mg/kg	20
Antimony	3	U	mg/kg	3	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	3.8		mg/kg	0.5	3.9		mg/kg	0.5	3.6		mg/kg	0.5
Beryllium	0.5		mg/kg	0.1	0.5		mg/kg	0.1	0.5		mg/kg	0.1
Cadmium	0.5		mg/kg	0.5	1		mg/kg	0.5	0.8		mg/kg	0.5
Chromium	40		mg/kg	1	42		mg/kg	1	41		mg/kg	1
Copper	11		mg/kg	1	14		mg/kg	1	15		mg/kg	1
Lead	12		mg/kg	10	28		mg/kg	10	31		mg/kg	10
Mercury	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	8		mg/kg	2	11		mg/kg	2	15		mg/kg	2
Selenium	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	58		mg/kg	1	97		mg/kg	1	100		mg/kg	1
VOLATILE ORGANICS (BY GC/MS)												
Chloromethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	1	J	ug/kg	5	5	U	ug/kg	5	3	J	ug/kg	5
Acrolein	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	10	U	ug/kg	10	440	B	ug/kg	10	12	B	ug/kg	10
Acrylonitrile	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Benzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/kg	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	6		ug/kg	5	3	J	ug/kg	5	11		ug/kg	5
Toluene	2	J	ug/kg	5	1	J	ug/kg	5	5	U	ug/kg	5
Chlorobenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	1	J	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	11		ug/kg	5	6		ug/kg	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : QA-1-1-1 Type : FB Matrix : WATER Assoc Sample(ss) : MW-1-1-3				Sample No. : QA-1-1-2 Type : FB Matrix : WATER Assoc Sample(s) : MW-1-1-(8,9)				Sample No. : QA-1-1-3 Type : DUP Matrix : SOIL Assoc Sample(s) : MW-1-1-8				Sample No. : QA-1-1-4 Type : FB Matrix : WATER Assoc Sample(s) : MW-6-1-(1,5)			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	1.4		mg/L	0.1	0.8		mg/L	0.1	20	UX	mg/kg	20	0.7		mg/L	0.1
Antimony	5	U	ug/L	5	18		ug/L	5	3	U	mg/kg	3	200		ug/L	5
Arsenic	5	U	ug/L	5	5	U	ug/L	5	9.7		mg/kg	0.5	5	U	ug/L	5
Beryllium	1	U	ug/L	1	1	U	ug/L	1	0.2		mg/kg	0.1	1	U	ug/L	1
Cadmium	1	U	ug/L	1	1	U	ug/L	1	0.5	U	mg/kg	0.5	1	U	ug/L	1
Chromium	1	U	ug/L	1	1	U	ug/L	1	6		mg/kg	1	1	U	ug/L	1
Copper	8	B	ug/L	1	7	B	ug/L	1	6		mg/kg	1	9	B	ug/L	1
Lead	10	U	ug/L	10	10	U	ug/L	10	10	U	mg/kg	10	10	U	ug/L	10
Mercury	1	U	ug/L	1	1	U	ug/L	1	0.1	U	mg/kg	0.1	1	U	ug/L	1
Nickel	2	U	ug/L	2	2	U	ug/L	2	2	U	mg/kg	2	2	U	ug/L	2
Selenium	5	U	ug/L	5	5	U	ug/L	5	0.5	UX	mg/kg	0.5	5	U	ug/L	5
Silver	1	U	ug/L	1	1	U	ug/L	1	0.5	U	mg/kg	0.5	1	U	ug/L	1
Thallium	5	U	ug/L	5	5	U	ug/L	5	0.5	U	mg/kg	0.5	5	U	ug/L	5
Zinc	2	B	ug/L	1	2	B	ug/L	1	26	B	mg/kg	1	3	B	ug/L	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
Bromomethane	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
Vinyl Chloride	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
Chloroethane	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
Methylene Chloride	1	J	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	1	JB	ug/L	5
Acrolein	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
*Acetone	10	U	ug/L	10	10	U	ug/L	10	40		ug/kg	10	10	U	ug/L	10
Acrylonitrile	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
*Carbon Disulfide	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
1,1-Dichloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
1,1-Dichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Trans-1,2-Dichloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Chloroform	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
*2-Butanone	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
1,2-Dichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
1,1,1-Trichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Carbon Tetrachloride	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
*Vinyl Acetate	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
Bromodichloromethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
1,2-Dichloropropane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Trichloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Benzene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Chlorodibromomethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
1,1,2-Trichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
2-Choroethyl Vinyl Ether	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Bromoform	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
*4-Methyl-2-Pentanone	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
*2-Hexanone	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
1,1,2,2-Tetrachloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Tetrachloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Toluene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Chlorobenzene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
trans-1,3-Dichloropropene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Ethylbenzene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
cis-1,3-Dichloropropene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
*Styrene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
*Total Xylenes	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : QA-1-1-1 Type : FB Matrix : WATER Assoc Sample(ss) : MW-1-1-3				Sample No. : QA-1-1-2 Type : FB Matrix : WATER Assoc Sample(s) : MW-1-1-(8,9)				Sample No. : QA-1-1-3 Type : DUP Matrix : SOIL Assoc Sample(s) : MW-1-1-8				Sample No. : QA-1-1-4 Type : FB Matrix : WATER Assoc Sample(s) : MW-6-1-(1,5)			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)																
N-nitrosodimethylamine													1	U	ug/L	1
Bis(2-chloroethyl)ether													1	U	ug/L	1
2-Chlorophenol													1	U	ug/L	1
Phenol													1	U	ug/L	1
1,3-Dichlorobenzene													1	U	ug/L	1
1,4-Dichlorobenzene													1	U	ug/L	1
1,2-Dichlorobenzene													1	U	ug/L	1
Bis(2-chloroisopropyl)ether													1	U	ug/L	1
Hexachloroethane													1	U	ug/L	1
N-nitroso-di-n-propylamine													1	U	ug/L	1
Nitrobenzene													1	U	ug/L	1
Isophorone													1	U	ug/L	1
2-Nitrophenol													1	U	ug/L	1
2,4-Dimethylphenol													1	U	ug/L	1
Bis(2-chloroethoxy)methane													1	U	ug/L	1
2,4-Dichorophenol													1	U	ug/L	1
1,2,4-Trichlorobenzene													1	U	ug/L	1
Napthalene													1	U	ug/L	1
Hexachlorobutadiene													1	U	ug/L	1
4-Chloro-M-cresol													1	U	ug/L	1
Hexachlorocyclopentadiene													1	U	ug/L	1
2,4,6-Trichlorophenol													1	U	ug/L	1
2-Chloronapthalene													1	U	ug/L	1
Acenaphthalene													1	U	ug/L	1
Dimethylphthalate													1	U	ug/L	1
2,6-Dinitrotoluene													1	U	ug/L	1
Acenaphthene													1	U	ug/L	1
2,4-Dinitrophenol													1	U	ug/L	1
2,4-Dinitrotoluene													1	U	ug/L	1
4-Nitrophenol													1	U	ug/L	1
Flourene													1	U	ug/L	1
4-Chlorophenol phenyl ether													1	U	ug/L	1
Diethylphthalate													1	U	ug/L	1
4,6-Dinitro-o-cresol													1	U	ug/L	1
1,2-Diphenylhydrazine													1	U	ug/L	1
4-Bromophenyl phenyl ether													1	U	ug/L	1
Hexachlorobenzene													1	U	ug/L	1
Pentachlorophenol													1	U	ug/L	1
Phenanthrene													1	U	ug/L	1
Anthracene													1	U	ug/L	1
Dibutylphthalate													1	U	ug/L	1
Flouranthene													1	U	ug/L	1
Pyrene													1	U	ug/L	1
Benzidine													1	U	ug/L	1
Butyl benzyl phthalate													1	U	ug/L	1
Benzo(a)anthracene													1	U	ug/L	1
Chrysene													1	U	ug/L	1
3,3-Dichlorobenzidine													1	U	ug/L	1
Bis(2-ethylhexyl)phthalate													1	U	ug/L	1
N-nitrosodiphenylamine													1	U	ug/L	1
Di-n-octyl phthalate													1	U	ug/L	1
Benzo(b)flouranthene													1	U	ug/L	1
Benzo(k)flouranthene													1	U	ug/L	1
Benzo(a)pyrene													1	U	ug/L	1
Indeno(1,2,3-cd)pyrene													1	U	ug/L	1
Dibenzo(ah)anthracene													1	U	ug/L	1

	Sample No. : QA-1-1-1 Type : FB Matrix : WATER Assoc Sample(ss) : MW-1-1-3				Sample No. : QA-1-1-2 Type : FB Matrix : WATER Assoc Sample(s) : MW-1-1-(8,9)				Sample No. : QA-1-1-3 Type : DUP Matrix : SOIL Assoc Sample(s) : MW-1-1-8				Sample No. : QA-1-1-4 Type : FB Matrix : WATER Assoc Sample(s) : MW-6-1-(1,5)			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)																
Benzo(ghi)perylene													1	U	ug/L	1
*Aniline													1	U	ug/L	1
*Benzoic Acid													1	U	ug/L	1
*Benzl Alcohol													1	U	ug/L	1
*4-Chloroaniline													1	U	ug/L	1
*Dibenzofuran													1	U	ug/L	1
*2-Methylnaphthalene													1	U	ug/L	1
*2-Methylphenol													1	U	ug/L	1
*4-Methylphenol													1	U	ug/L	1
*2-Nitroaniline													1	U	ug/L	1
*3-Nitroaniline													1	U	ug/L	1
*4-Nitroaniline													1	U	ug/L	1
*2,4,5-Trichlorophenol													1	U	ug/L	1

*Additional compounds from the EPA's Hazardous Substance List.

Sample No.	QA-1-1-5				QA-1-1-6				QA-1-1-7				QA-1-1-8			
Type	FB				FB				DUP				FB			
Matrix	WATER				WATER				SOIL				WATER			
Assoc Sample(s)	MW-6-1-6				MW-5-1-(7,8,9)				MW-5-1-7				MW-1-2-(1,4,8)			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	No Data				0.5		mg/L	0.1	2500	X	mg/kg	20	0.9		mg/L	0.1
Antimony	6		ug/L	5	5	U	ug/L	5	3	U	mg/kg	3	5	U	ug/L	5
Arsenic	5	U	ug/L	5	5	U	ug/L	5	2.9		mg/kg	0.5	5	U	ug/L	5
Beryllium	1	U	ug/L	1	1	U	ug/L	1	0.5		mg/kg	0.1	1	U	ug/L	1
Cadmium	1	U	ug/L	1	1	U	ug/L	1	0.5	U	mg/kg	0.5	1	U	ug/L	1
Chromium	1	U	ug/L	1	1	B	ug/L	1	12		mg/kg	1	1	U	ug/L	1
Copper	8	B	ug/L	1	8	B	ug/L	1	11		mg/kg	1	7		ug/L	1
Lead	10	U	ug/L	10	10	U	ug/L	10	10	U	mg/kg	10	10	U	ug/L	10
Mercury	1	U	ug/L	1	1	U	ug/L	1	0.1	U	mg/kg	0.1	1	U	ug/L	1
Nickel	2	U	ug/L	2	2	U	ug/L	2	5	U	mg/kg	2	2	U	ug/L	2
Selenium	5	U	ug/L	5	5	U	ug/L	5	0.5	UX	mg/kg	0.5	5	U	ug/L	5
Silver	1	U	ug/L	1	1	U	ug/L	1	0.5	U	mg/kg	0.5	1	U	ug/L	1
Thallium	5	U	ug/L	5	5	U	ug/L	5	0.5	U	mg/kg	0.5	5	U	ug/L	5
Zinc	3	B	ug/L	1	2	B	ug/L	1	54	B	mg/kg	1	3	B	ug/L	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
Bromomethane	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
Vinyl Chloride	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
Chloroethane	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
Methylene Chloride	9	B	ug/L	5	6	B	ug/L	5	3	J	ug/kg	5	5	U	ug/L	5
Acrolein	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
*Acetone	19	B	ug/L	10	5	JB	ug/L	10	180	B	ug/kg	10	10	U	ug/L	10
Acrylonitrile	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
*Carbon Disulfide	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
1,1-Dichloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
1,1-Dichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Trans-1,2-Dichloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Chloroform	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
*2-Butanone	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
1,2-Dichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
1,1,1-Trichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Carbon Tetrachloride	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
*Vinyl Acetate	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
Bromodichloromethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
1,2-Dichloropropane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Trichloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Benzene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Chlorodibromomethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
1,1,2-Trichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
2-Choroethyl Vinyl Ether	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Bromoform	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
*4-Methyl-2-Pentanone	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
*2-Hexanone	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10
1,1,2,2-Tetrachloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Tetrachloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Toluene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Chlorobenzene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
trans-1,3-Dichloropropene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
Ethylbenzene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
cis-1,3-Dichloropropene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
*Styrene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5
*Total Xylenes	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : QA-1-1-5 Type : FB Matrix : WATER Assoc Sample(s) : MW-6-1-6				Sample No. : QA-1-1-6 Type : FB Matrix : WATER Assoc Sample(s) : MW-5-1-(7,8,9)				Sample No. : QA-1-1-7 Type : DUP Matrix : SOIL Assoc Sample(s) : MW-5-1-7				Sample No. : QA-1-1-8 Type : FB Matrix : WATER Assoc Sample(s) : MW-1-2-(1,4,8)			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)																
N-nitrosodimethylamine	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Bis(2-chloroethyl)ether	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
2-Chlorophenol	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Phenol	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
1,3-Dichlorobenzene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
1,4-Dichlorobenzene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
1,2-Dichlorobenzene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Bis(2-chloroisopropyl)ether	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Hexachloroethane	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
N-nitroso-di-n-propylamine	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Nitrobenzene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Isophorone	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
2-Nitrophenol	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
2,4-Dimethylphenol	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Bis(2-chloroethoxy)methane	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
2,4-Dichorophenol	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
1,2,4-Trichlorobenzene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Napthalene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Hexachlorobutadiene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
4-Chloro-M-cresol	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Hexachlorocyclopentadiene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
2,4,6-Trichlorophenol	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
2-Chloronapthalene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Acenaphthalene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Dimethylphthalate	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
2,6-Dinitrotoluene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Acenaphthene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
2,4-Dinitrophenol	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
2,4-Dinitrotoluene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
4-Nitrophenol	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Flourene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
4-Chlorophenol phenyl ether	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Diethylphthalate	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
4,6-Dinitro-o-cresol	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
1,2-Diphenylhydrazine	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
4-Bromophenyl phenyl ether	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Hexachlorobenzene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Pentachlorophenol	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Phenanthrene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Anthracene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Dibutylphthalate	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Flouranthene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Pyrene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Benzidine	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Butyl benzyl phthalate	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Benzo(a)anthracene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Chrysene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
3,3-Dichlorobenzidine	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Bis(2-ethylhexyl)phthalate	3		ug/L	1	1	U	ug/L	1	86		ug/kg	50				
N-nitrosodiphenylamine	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Di-n-octyl phthalate	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Benzo(b)flouranthene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Benzo(k)flouranthene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Benzo(a)pyrene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Indeno(1,2,3-cd)pyrene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
Dibenzo(ah)anthracene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				

	Sample No. : QA-1-1-5 Type : FB Matrix : WATER Assoc Sample(s) : MW-6-1-6				Sample No. : QA-1-1-6 Type : FB Matrix : WATER Assoc Sample(s) : MW-5-1-(7,8,9)				Sample No. : QA-1-1-7 Type : DUP Matrix : SOIL Assoc Sample(s) : MW-5-1-7				Sample No. : QA-1-1-8 Type : FB Matrix : WATER Assoc Sample(s) : MW-1-2-(1,4,8)			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)																
Benzo(ghi)perylene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
*Aniline	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
*Benzoic Acid	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
*Benzl Alcohol	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
*4-Chloroaniline	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
*Dibenzofuran	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
*2-Methylnaphthalene	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
*2-Methylphenol	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
*4-Methylphenol	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
*2-Nitroaniline	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
*3-Nitroaniline	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
*4-Nitroaniline	1	U	ug/L	1	1	U	ug/L	1	50	U	ug/kg	50				
*2,4,5-Trichlorophenol																

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : QA-1-1-10 Type : BW Matrix : WATER Assoc Sample(s) : MW-1-(1,2) MW-5-1 MW-6-1				Sample No. : QA-1-1-11 Type : FB Matrix : WATER Assoc Sample(s) : MW-1-(1,2) MW-5-1 MW-6-1				Sample No. : QA1-1-12 Type : DUP Matrix : WATER Assoc Sample(s) : MW-1-1			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S												
Petroleum Hydrocarbons												
Oil and Grease	0.6		mg/L	0.1	0.4		mg/L	0.1	0.7		mg/L	0.1
Antimony	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Arsenic	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Beryllium	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1
Cadmium	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1
Chromium	1	U	ug/L	1	1	U	ug/L	1	19		ug/L	1
Copper	7	B	ug/L	1	7	B	ug/L	1	40	B	ug/L	1
Lead	10	U	ug/L	10	10	U	ug/L	10	29		ug/L	10
Mercury	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1
Nickel	2	U	ug/L	2	2	U	ug/L	2	79		ug/L	2
Selenium	5	U	ug/L	5	5	U	ug/L	5	47		ug/L	5
Silver	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1
Thallium	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Zinc	3	B	ug/L	1	3	B	ug/L	1	980	B	ug/L	1
VOLATILE ORGANICS (BY GC/MS)												
Chloromethane	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
Bromomethane	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
Vinyl Chloride	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
Chloroethane	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
Methylene Chloride	5	U	ug/L	5	2	J	ug/L	5	2	J	ug/L	5
Acrolein	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
*Acetone	10	U	ug/L	10	10	U	ug/L	10	12		ug/L	10
Acrylonitrile	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
*Carbon Disulfide	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
1,1-Dichloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
1,1-Dichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Trans-1,2-Dichloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Chloroform	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
*2-Butanone	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
1,2-Dichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
1,1,1-Trichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Carbon Tetrachloride	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
*Vinyl Acetate	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
Bromodichloromethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
1,2-Dichloropropane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Trichloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Benzene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Chlorodibromomethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
1,1,2-Trichloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
2-Choroethyl Vinyl Ether	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Bromoform	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
*4-Methyl-2-Pentanone	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
*2-Hexanone	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10
1,1,2,2-Tetrachloroethane	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Tetrachloroethylene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Toluene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Chlorobenzene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
trans-1,3-Dichloropropene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
Ethylbenzene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
cis-1,3-Dichloropropene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
*Styrene	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5
*Total Xylenes	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : QA-1-1-10 Type : BW Matrix : WATER Assoc Sample(s) : MW-1-(1,2) MW-5-1 MW-6-1				Sample No. : QA-1-1-11 Type : FB Matrix : WATER Assoc Sample(s) : MW-1-(1,2) MW-5-1 MW-6-1				Sample No. : QA1-1-12 Type : DUP Matrix : WATER Assoc Sample(s) : MW-1-1-			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)												
N-nitrosodimethylamine	No Data				1	U	ug/L	1				
Bis(2-chloroethyl)ether	1	U	ug/L	1	1	U	ug/L	1				
2-Chlorophenol	1	U	ug/L	1	1	U	ug/L	1				
Phenol	1	U	ug/L	1	1	U	ug/L	1				
1,3-Dichlorobenzene	1	U	ug/L	1	1	U	ug/L	1				
1,4-Dichlorobenzene	1	U	ug/L	1	1	U	ug/L	1				
1,2-Dichlorobenzene	1	U	ug/L	1	1	U	ug/L	1				
Bis(2-chloroisopropyl)ether	1	U	ug/L	1	1	U	ug/L	1				
Hexachloroethane	1	U	ug/L	1	1	U	ug/L	1				
N-nitroso-di-n-propylamine	1	U	ug/L	1	1	U	ug/L	1				
Nitrobenzene	1	U	ug/L	1	1	U	ug/L	1				
Isophorone	1	U	ug/L	1	1	U	ug/L	1				
2-Nitrophenol	1	U	ug/L	1	1	U	ug/L	1				
2,4-Dimethylphenol	1	U	ug/L	1	1	U	ug/L	1				
Bis(2-chloroethoxy)methane	1	U	ug/L	1	1	U	ug/L	1				
2,4-Dichorophenol	1	U	ug/L	1	1	U	ug/L	1				
1,2,4-Trichlorobenzene	1	U	ug/L	1	1	U	ug/L	1				
Napthalene	1	U	ug/L	1	1	U	ug/L	1				
Hexachlorobutadiene	1	U	ug/L	1	1	U	ug/L	1				
4-Chloro-M-cresol	1	U	ug/L	1	1	U	ug/L	1				
Hexachlorocyclopentadiene	1	U	ug/L	1	1	U	ug/L	1				
2,4,6-Trichlorophenol	1	U	ug/L	1	1	U	ug/L	1				
2-Chloronapthalene	1	U	ug/L	1	1	U	ug/L	1				
Acenaphthalene	1	U	ug/L	1	1	U	ug/L	1				
Dimethylphthalate	1	U	ug/L	1	1	U	ug/L	1				
2,6-Dinitrotoluene	1	U	ug/L	1	1	U	ug/L	1				
Acenaphthene	1	U	ug/L	1	1	U	ug/L	1				
2,4-Dinitrophenol	1	U	ug/L	1	1	U	ug/L	1				
2,4-Dinitrotoluene	1	U	ug/L	1	1	U	ug/L	1				
4-Nitrophenol	1	U	ug/L	1	1	U	ug/L	1				
Flourene	1	U	ug/L	1	1	U	ug/L	1				
4-Chlorophenol phenyl ether	1	U	ug/L	1	1	U	ug/L	1				
Diethylphthalate	1	U	ug/L	1	1	U	ug/L	1				
4,6-Dinitro-o-cresol	1	U	ug/L	1	1	U	ug/L	1				
1,2-Diphenylhydrazine	1	U	ug/L	1	1	U	ug/L	1				
4-Bromophenyl phenyl ether	1	U	ug/L	1	1	U	ug/L	1				
Hexachlorobenzene	1	U	ug/L	1	1	U	ug/L	1				
Pentachlorophenol	1	U	ug/L	1	1	U	ug/L	1				
Phenanthrene	1	U	ug/L	1	1	U	ug/L	1				
Anthracene	1	U	ug/L	1	1	U	ug/L	1				
Dibutylphthalate	1	U	ug/L	1	1	U	ug/L	1				
Flouranthene	1	U	ug/L	1	1	U	ug/L	1				
Pyrene	1	U	ug/L	1	1	U	ug/L	1				
Benzidine	1	U	ug/L	1	1	U	ug/L	1				
Butyl benzyl phthalate	1	U	ug/L	1	1	U	ug/L	1				
Benzo(a)anthracene	1	U	ug/L	1	1	U	ug/L	1				
Chrysene	1	U	ug/L	1	1	U	ug/L	1				
3,3-Dichlorobenzidine	1	U	ug/L	1	1	U	ug/L	1				
Bis(2-ethylhexyl)phthalate	1	U	ug/L	1	3		ug/L	1				
N-nitrosodiphenylamine	1	U	ug/L	1	1	U	ug/L	1				
Di-n-octyl phthalate	1	U	ug/L	1	1	U	ug/L	1				
Benzo(b)flouranthene	1	U	ug/L	1	1	U	ug/L	1				
Benzo(k)flouranthene	1	U	ug/L	1	1	U	ug/L	1				
Benzo(a)pyrene	1	U	ug/L	1	1	U	ug/L	1				
Indeno(1,2,3-cd)pyrene	1	U	ug/L	1	1	U	ug/L	1				
Dibenzo(ah)anthracene	1	U	ug/L	1	1	U	ug/L	1				

	Sample No. : QA-1-1-10 Type : BW Matrix : WATER Assoc Sample(s) : MW-1-(1,2) MW-5-1 MW-6-1				Sample No. : QA-1-1-11 Type : FB Matrix : WATER Assoc Sample(s) : MW-1-(1,2) MW-5-1 MW-6-1				Sample No. : QA1-1-12 Type : DUP Matrix : WATER Assoc Sample(s) : MW-1-1			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)												
Benzo(ghi)perylene	1	U	ug/L	1	1	U	ug/L	1				
*Aniline	1	U	ug/L	1	1	U	ug/L	1				
*Benzoic Acid	1	U	ug/L	1	1	U	ug/L	1				
*Benzl Alcohol	1	U	ug/L	1	1	U	ug/L	1				
*4-Chloroaniline	1	U	ug/L	1	1	U	ug/L	1				
*Dibenzofuran	1	U	ug/L	1	1	U	ug/L	1				
*2-Methylnaphthalene	1	U	ug/L	1	1	U	ug/L	1				
*2-Methylphenol	1	U	ug/L	1	1	U	ug/L	1				
*4-Methylphenol	1	U	ug/L	1	1	U	ug/L	1				
*2-Nitroaniline	1	U	ug/L	1	1	U	ug/L	1				
*3-Nitroaniline	1	U	ug/L	1	1	U	ug/L	1				
*4-Nitroaniline	1	U	ug/L	1	1	U	ug/L	1				
*2,4,5-Trichlorophenol	1	U	ug/L	1	1	U	ug/L	1				

*Additional compounds from the EPA's Hazardous Substance List.

Sample No.	: QA-2-1-2	Sample No.	: QA-2-1-3	Sample No.	: QA-2-1-4	Sample No.	: QA-2-1-5
Type	: FB	Type	: FB	Type	: FB	Type	: DUP
Matrix	: WATER	Matrix	: WATER	Matrix	: WATER	Matrix	: SOIL
Assoc Sample(s)	: SB-1-1-(2,4,6,7)	Assoc Sample(s)	: SB-1-1-(8,9) SB-1-2-1(5/7/87)	Assoc Sample(s)	: SB-5-1-(1,5,7,11)	Assoc Sample(s)	: SB-5-1-5

	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	0.7		mg/L	0.1	0.7		mg/L	0.1	0.5		mg/L	0.1	20	UX	mg/kg	20
Antimony	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	3	U	mg/kg	3
Arsenic	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	4		mg/kg	0.5
Beryllium	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1	0.4		mg/kg	0.1
Cadmium	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1	0.5	U	mg/kg	0.5
Chromium	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1	14		mg/kg	1
Copper	7	B	ug/L	1	4	B	ug/L	1	7		ug/L	1	7		mg/kg	1
Lead	10	U	ug/L	10	10	U	ug/L	10	10	U	ug/L	10	10	U	mg/kg	10
Mercury	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1	0.1	U	mg/kg	0.1
Nickel	2	U	ug/L	2	2	U	ug/L	2	2	U	ug/L	2	6		mg/kg	2
Selenium	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	0.5	UX	mg/kg	0.5
Silver	1	U	ug/L	1	1	U	ug/L	1	1	U	ug/L	1	0.5	U	mg/kg	0.5
Thallium	5	U	ug/L	5	5	U	ug/L	5	5	U	ug/L	5	0.5	U	mg/kg	0.5
Zinc	4	B	ug/L	1	2	B	ug/L	1	2	B	ug/L	1	48	B	mg/kg	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	10	U	ug/L	10	BROKEN BOTTLE				10	U	ug/L	10	10	U	ug/kg	10
Bromomethane	10	U	ug/L	10	BROKEN BOTTLE				10	U	ug/L	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/L	10	BROKEN BOTTLE				10	U	ug/L	10	10	U	ug/kg	10
Chloroethane	10	U	ug/L	10	BROKEN BOTTLE				10	U	ug/L	10	10	U	ug/kg	10
Methylene Chloride	1	J	ug/L	5	BROKEN BOTTLE				3	JB	ug/L	5	5	U	ug/kg	5
Acrolein	10	U	ug/L	10	BROKEN BOTTLE				10	U	ug/L	10	10	U	ug/kg	10
*Acetone	1	J	ug/L	10	BROKEN BOTTLE				10	U	ug/L	10	10	U	ug/kg	10
Acrylonitrile	10	U	ug/L	10	BROKEN BOTTLE				10	U	ug/L	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
Chloroform	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/L	10	BROKEN BOTTLE				10	U	ug/L	10	10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/L	10	BROKEN BOTTLE				10	U	ug/L	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
Trichloroethylene	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
Benzene	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
Bromoform	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/L	10	BROKEN BOTTLE				10	U	ug/L	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/L	10	BROKEN BOTTLE				10	U	ug/L	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
Tetrachloroethylene	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
Toluene	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
Chlorobenzene	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
Ethylbenzene	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
*Styrene	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5
*Total Xylenes	5	U	ug/L	5	BROKEN BOTTLE				5	U	ug/L	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

Sample No. : QA-2-1-2	Sample No. : QA-2-1-3	Sample No. : QA-2-1-4	Sample No. : QA-2-1-5
Type : FB	Type : FB	Type : FB	Type : DUP
Matrix : WATER	Matrix : WATER	Matrix : WATER	Matrix : SOIL
Assoc Sample(s) : SB-1-1-(2,4,6,7)	Assoc Sample(s) : SB-1-1-(8,9) SB-1-2-1(5/7/87)	Assoc Sample(s) : SB-5-1-(1,5,7,11)	Assoc Sample(s) : SB-5-1-5

SEMI-VOLATILES (BY GC/MS)	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
N-nitrosodimethylamine									1	U	ug/L	1	50	U	ug/kg	50
Bis(2-chloroethyl)ether									1	U	ug/L	1	50	U	ug/kg	50
2-Chlorophenol									1	U	ug/L	1	50	U	ug/kg	50
Phenol									1	U	ug/L	1	50	U	ug/kg	50
1,3-Dichlorobenzene									1	U	ug/L	1	50	U	ug/kg	50
1,4-Dichlorobenzene									1	U	ug/L	1	50	U	ug/kg	50
1,2-Dichlorobenzene									1	U	ug/L	1	50	U	ug/kg	50
Bis(2-chloroisopropyl)ether									1	U	ug/L	1	50	U	ug/kg	50
Hexachloroethane									1	U	ug/L	1	50	U	ug/kg	50
N-nitroso-di-n-propylamine									1	U	ug/L	1	50	U	ug/kg	50
Nitrobenzene									1	U	ug/L	1	50	U	ug/kg	50
Isophorone									1	U	ug/L	1	50	U	ug/kg	50
2-Nitrophenol									1	U	ug/L	1	50	U	ug/kg	50
2,4-Dimethylphenol									1	U	ug/L	1	50	U	ug/kg	50
Bis(2-chloroethoxy)methane									1	U	ug/L	1	50	U	ug/kg	50
2,4-Dichorophenol									1	U	ug/L	1	50	U	ug/kg	50
1,2,4-Trichlorobenzene									1	U	ug/L	1	50	U	ug/kg	50
Napthalene									1	U	ug/L	1	50	U	ug/kg	50
Hexachlorobutadiene									1	U	ug/L	1	50	U	ug/kg	50
4-Chloro-M-cresol									1	U	ug/L	1	50	U	ug/kg	50
Hexachlorocyclopentadiene									1	U	ug/L	1	50	U	ug/kg	50
2,4,6-Trichlorophenol									1	U	ug/L	1	50	U	ug/kg	50
2-Chloronapthalene									1	U	ug/L	1	50	U	ug/kg	50
Acenaphthalene									1	U	ug/L	1	50	U	ug/kg	50
Dimethylphthalate									1	U	ug/L	1	50	U	ug/kg	50
2,6-Dinitrotoluene									1	U	ug/L	1	50	U	ug/kg	50
Acenaphthene									1	U	ug/L	1	50	U	ug/kg	50
2,4-Dinitrophenol									1	U	ug/L	1	50	U	ug/kg	50
2,4-Dinitrotoluene									1	U	ug/L	1	50	U	ug/kg	50
4-Nitrophenol									1	U	ug/L	1	50	U	ug/kg	50
Flourene									1	U	ug/L	1	50	U	ug/kg	50
4-Chlorophenol phenyl ether									1	U	ug/L	1	50	U	ug/kg	50
Diethylphthalate									1	U	ug/L	1	50	U	ug/kg	50
4,6-Dinitro-o-cresol									1	U	ug/L	1	50	U	ug/kg	50
1,2-Diphenylhydrazine									1	U	ug/L	1	50	U	ug/kg	50
4-Bromophenyl phenyl ether									1	U	ug/L	1	50	U	ug/kg	50
Hexachlorobenzene									1	U	ug/L	1	50	U	ug/kg	50
Pentachlorophenol									1	U	ug/L	1	490		ug/kg	50
Phenanthrene									1	U	ug/L	1	50	U	ug/kg	50
Anthracene									1	U	ug/L	1	50	U	ug/kg	50
Dibutylphthalate									3		ug/L	1	50	U	ug/kg	50
Flouranthene									1	U	ug/L	1	50	U	ug/kg	50
Pyrene									1	U	ug/L	1	50	U	ug/kg	50
Benzidine									1	U	ug/L	1	50	U	ug/kg	50
Butyl benzyl phthalate									1	U	ug/L	1	50	U	ug/kg	50
Benzo(a)anthracene									1	U	ug/L	1	50	U	ug/kg	50
Chrysene									1	U	ug/L	1	50	U	ug/kg	50
3,3-Dichlorobenzidine									1	U	ug/L	1	50	U	ug/kg	50
Bis(2-ethylhexyl)phthalate									14	B	ug/L	1	120		ug/kg	50
N-nitrosodiphenylamine									1	U	ug/L	1	50	U	ug/kg	50
Di-n-octyl phthalate									1	U	ug/L	1	50	U	ug/kg	50
Benzo(b)flouranthene									1	U	ug/L	1	50	U	ug/kg	50
Benzo(k)flouranthene									1	U	ug/L	1	50	U	ug/kg	50
Benzo(a)pyrene									1	U	ug/L	1	50	U	ug/kg	50
Indeno(1,2,3-cd)pyrene									1	U	ug/L	1	50	U	ug/kg	50
Dibenzo(ah)anthracene									1	U	ug/L	1	50	U	ug/kg	50

	QA-2-1-2	QA-2-1-3	QA-2-1-4	QA-2-1-5
Sample No.	QA-2-1-2	QA-2-1-3	QA-2-1-4	QA-2-1-5
Type	FB	FB	FB	DUP
Matrix	WATER	WATER	WATER	SOIL
Assoc Sample(s)	SB-1-1-(2,4,6,7)	SB-1-1-(8,9) SB-1-2-1(5/7/87)	SB-5-1-(1,5,7,11)	SB-5-1-5

	QA-2-1-2 Test Result	Flag	Unit	LLD	QA-2-1-3 Test Result	Flag	Unit	LLD	QA-2-1-4 Test Result	Flag	Unit	LLD	QA-2-1-5 Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)																
Benzo(ghi)perylene									1	U	ug/L	1	50	U	ug/kg	50
*Aniline									1	U	ug/L	1	50	U	ug/kg	50
*Benzoic Acid									1	U	ug/L	1	50	U	ug/kg	50
*Benzl Alcohol									1	U	ug/L	1	50	U	ug/kg	50
*4-Chloroaniline									1	U	ug/L	1	50	U	ug/kg	50
*Dibenzofuran									1	U	ug/L	1	50	U	ug/kg	50
*2-Methylnaphthalene									1	U	ug/L	1	50	U	ug/kg	50
*2-Methylphenol									1	U	ug/L	1	50	U	ug/kg	50
*4-Methylphenol									1	U	ug/L	1	50	U	ug/kg	50
*2-Nitroaniline									1	U	ug/L	1	50	U	ug/kg	50
*3-Nitroaniline									1	U	ug/L	1	50	U	ug/kg	50
*4-Nitroaniline									1	U	ug/L	1	50	U	ug/kg	50
*2,4,5-Trichlorophenol									1	U	ug/L	1	50	U	ug/kg	50

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : QA-2-1-6 Type : FB Matrix : WATER Assoc Sample(s) : SB-1-2-(1,2,3,4,5,6,7,10) (5/13/87)				Sample No. : QA-2-1-7 Type : DUP Matrix : SOIL Assoc Sample(s) : SB-1-2-2				Sample No. : QA-2-1-8 Type : FB Matrix : WATER Assoc Sample(s) : SB-1-5-(1,2,4,9) SB-1-4-(1,2,5,9) SB-2-1-(1,2,3,5)				Sample No. : QA-2-1-9 Type : DUP Matrix : SOIL Assoc Sample(s) : SB-1-5-4			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	0.4		mg/L	0.1	20	UX	mg/kg	20	0.5		mg/L	0.1	20	UX	mg/kg	20
Antimony	5	U	ug/L	5	3	U	mg/kg	3	5	U	ug/L	5	3	U	mg/kg	3
Arsenic	5	U	ug/L	5	2.1		mg/kg	0.5	5	U	ug/L	5	4		mg/kg	0.5
Beryllium	1	U	ug/L	1	0.4		mg/kg	0.1	1	U	ug/L	1	0.3		mg/kg	0.1
Cadmium	1	U	ug/L	1	0.5	U	mg/kg	0.5	1	U	ug/L	1	0.5	U	mg/kg	0.5
Chromium	1	U	ug/L	1	20		mg/kg	1	1	U	ug/L	1	8		mg/kg	1
Copper	7		ug/L	1	13		mg/kg	1	7		ug/L	1	6		mg/kg	1
Lead	10	U	ug/L	10	10	U	mg/kg	10	10	U	ug/L	10	10	U	mg/kg	10
Mercury	1	U	ug/L	1	0.1	U	mg/kg	0.1	1	U	ug/L	1	0.1	U	mg/kg	0.1
Nickel	2	U	ug/L	2	13		mg/kg	2	2	U	ug/L	2	4		mg/kg	2
Selenium	5	U	ug/L	5	0.5	UX	mg/kg	0.5	5	U	ug/L	5	0.5	UX	mg/kg	0.5
Silver	1	U	ug/L	1	0.5	U	mg/kg	0.5	1	U	ug/L	1	0.5	U	mg/kg	0.5
Thallium	5	U	ug/L	5	0.5	U	mg/kg	0.5	5	U	ug/L	5	0.5	U	mg/kg	0.5
Zinc	1	B	ug/L	1	85	B	mg/kg	1	3	B	ug/L	1	35	B	mg/kg	1
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10	10	U	ug/kg	10
Bromomethane	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10	10	U	ug/kg	10
Chloroethane	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10	10	U	ug/kg	10
Methylene Chloride	1	JB	ug/L	5	5	U	ug/kg	5	3	JB	ug/L	5	5	U	ug/kg	5
Acrolein	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10	10	U	ug/kg	10
*Acetone	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10	69		ug/kg	10
Acrylonitrile	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
Chloroform	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10	10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
Trichloroethylene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
Benzene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
Bromoform	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/L	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
Tetrachloroethylene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
Toluene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
Chlorobenzene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
Ethylbenzene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
*Styrene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5
*Total Xylenes	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/L	5	5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : QA-2-1-10				Sample No. : QA-2-1-11				Sample No. : QA-3-1-1			
	Type : FB				Type : DUP				Type : BKGRD			
	Matrix : WATER				Matrix : SOIL				Matrix : SOIL			
	Assoc Sample(s) : SB-2-4-(1,2,3,4),TS-6-(1,2) SB-2-2-(1,2,3,4),SD-1-(1,2,3) SB-2-3-(1,2,3,4),SL-1-1-1				Assoc Sample(s) : SB-2-2-2				Assoc Sample(s) : BACKGROUND			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)												
N-nitrosodimethylamine	1	U	ug/L	1					50	U	ug/kg	50
Bis(2-chloroethyl)ether	1	U	ug/L	1					50	U	ug/kg	50
2-Chlorophenol	1	U	ug/L	1					50	U	ug/kg	50
Phenol	1	U	ug/L	1					50	U	ug/kg	50
1,3-Dichlorobenzene	1	U	ug/L	1					50	U	ug/kg	50
1,4-Dichlorobenzene	1	U	ug/L	1					50	U	ug/kg	50
1,2-Dichlorobenzene	1	U	ug/L	1					50	U	ug/kg	50
Bis(2-chloroisopropyl)ether	1	U	ug/L	1					50	U	ug/kg	50
Hexachloroethane	1	U	ug/L	1					50	U	ug/kg	50
N-nitroso-di-n-propylamine	1	U	ug/L	1					50	U	ug/kg	50
Nitrobenzene	1	U	ug/L	1					50	U	ug/kg	50
Isophorone	1	U	ug/L	1					50	U	ug/kg	50
2-Nitrophenol	1	U	ug/L	1					50	U	ug/kg	50
2,4-Dimethylphenol	1	U	ug/L	1					50	U	ug/kg	50
Bis(2-chloroethoxy)methane	1	U	ug/L	1					50	U	ug/kg	50
2,4-Dichorophenol	1	U	ug/L	1					50	U	ug/kg	50
1,2,4-Trichlorobenzene	1	U	ug/L	1					50	U	ug/kg	50
Napthalene	1	U	ug/L	1					50	U	ug/kg	50
Hexachlorobutadiene	1	U	ug/L	1					50	U	ug/kg	50
4-Chloro-M-cresol	1	U	ug/L	1					50	U	ug/kg	50
Hexachlorocyclopentadiene	1	U	ug/L	1					50	U	ug/kg	50
2,4,6-Trichlorophenol	1	U	ug/L	1					50	U	ug/kg	50
2-Chloronapthalene	1	U	ug/L	1					50	U	ug/kg	50
Acenaphthalene	1	U	ug/L	1					50	U	ug/kg	50
Dimethylphthalate	1	U	ug/L	1					50	U	ug/kg	50
2,6-Dinitrotoluene	1	U	ug/L	1					50	U	ug/kg	50
Acenaphthene	1	U	ug/L	1					50	U	ug/kg	50
2,4-Dinitrophenol	1	U	ug/L	1					50	U	ug/kg	50
2,4-Dinitrotoluene	1	U	ug/L	1					50	U	ug/kg	50
4-Nitrophenol	1	U	ug/L	1					50	U	ug/kg	50
Flourene	1	U	ug/L	1					50	U	ug/kg	50
4-Chlorophenol phenyl ether	1	U	ug/L	1					50	U	ug/kg	50
Diethylphthalate	1	U	ug/L	1					50	U	ug/kg	50
4,6-Dinitro-o-cresol	1	U	ug/L	1					50	U	ug/kg	50
1,2-Diphenylhydrazine	1	U	ug/L	1					50	U	ug/kg	50
4-Bromophenyl phenyl ether	1	U	ug/L	1					50	U	ug/kg	50
Hexachlorobenzene	1	U	ug/L	1					50	U	ug/kg	50
Pentachlorophenol	1	U	ug/L	1					50	U	ug/kg	50
Phenanthrene	1	U	ug/L	1					50	U	ug/kg	50
Anthracene	1	U	ug/L	1					50	U	ug/kg	50
Dibutylphthalate	1	U	ug/L	1					50	U	ug/kg	50
Flouranthene	1	U	ug/L	1					50	U	ug/kg	50
Pyrene	1	U	ug/L	1					50	U	ug/kg	50
Benzidine	1	U	ug/L	1					50	U	ug/kg	50
Butyl benzyl phthalate	1	U	ug/L	1					50	U	ug/kg	50
Benzo(a)anthracene	1	U	ug/L	1					50	U	ug/kg	50
Chrysene	1	U	ug/L	1					50	U	ug/kg	50
3,3-Dichlorobenzidine	1	U	ug/L	1					50	U	ug/kg	50
Bis(2-ethylhexyl)phthalate	1	U	ug/L	1					78		ug/kg	50
N-nitrosodiphenylamine	1	U	ug/L	1					50	U	ug/kg	50
Di-n-octyl phthalate.	1	U	ug/L	1					50	U	ug/kg	50
Benzo(b)flouranthene	1	U	ug/L	1					50	U	ug/kg	50
Benzo(k)flouranthene	1	U	ug/L	1					50	U	ug/kg	50
Benzo(a)pyrene	1	U	ug/L	1					50	U	ug/kg	50
Indeno(1,2,3-cd)pyrene	1	U	ug/L	1					50	U	ug/kg	50
Dibenzo(ah)anthracene	1	U	ug/L	1					50	U	ug/kg	50

	Sample No. : QA-2-1-10 Type : FB Matrix : WATER Assoc Sample(s) : SB-2-4-(1,2,3,4),TS-6-(1,2) SB-2-2-(1,2,3,4),SD-1-(1,2,3) SB-2-3-(1,2,3,4),SL-1-1-1				Sample No. : QA-2-1-11 Type : DUP Matrix : SOIL Assoc Sample(s) : SB-2-2-2				Sample No. : QA-3-1-1 Type : BKGRD Matrix : SOIL Assoc Sample(s) : BACKGROUND			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)												
Benzo(ghi)perylene	1	U	ug/L	1					50	U	ug/kg	50
*Aniline	1	U	ug/L	1					50	U	ug/kg	50
*Benzoic Acid	1	U	ug/L	1					470		ug/kg	50
*Benzl Alcohol	1	U	ug/L	1					50	U	ug/kg	50
*4-Chloroaniline	1	U	ug/L	1					50	U	ug/kg	50
*Dibenzofuran	1	U	ug/L	1					50	U	ug/kg	50
*2-Methylnaphthalene	1	U	ug/L	1					50	U	ug/kg	50
*2-Methylphenol	1	U	ug/L	1					50	U	ug/kg	50
*4-Methylphenol	1	U	ug/L	1					50	U	ug/kg	50
*2-Nitroaniline	1	U	ug/L	1					50	U	ug/kg	50
*3-Nitroaniline	1	U	ug/L	1					50	U	ug/kg	50
*4-Nitroaniline	1	U	ug/L	1					50	U	ug/kg	50
*2,4,5-Trichlorophenol	1	U	ug/L	1					50	U	ug/kg	50

*Additional compounds from the EPA's Hazardous Substance List.

Sample No.	: QA-3-1-2	Sample No.	: QA-3-1-3	Sample No.	: QA-3-1-4	Sample No.	: QA-3-1-5
Type	: BKGRD	Type	: DUP	Type	: DUP	Type	: DUP
Matrix	: SOIL	Matrix	: TAR	Matrix	: SOIL	Matrix	: SOIL
Assoc Sample(s)	: BACKGROUND	Assoc Sample(s)	: TS-6-1	Assoc Sample(s)	: SL-1-1-1	Assoc Sample(s)	: SD-1-3

	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S																
Petroleum Hydrocarbons																
Oil and Grease	20	UX	mg/kg	20									78	X	mg/kg	20
Antimony	3	U	mg/kg	3									3	U	mg/kg	3
Arsenic	4.6		mg/kg	0.5									4.3		mg/kg	0.5
Beryllium	0.6		mg/kg	0.1									0.5		mg/kg	0.1
Cadmium	0.5	U	mg/kg	0.5									1.1		mg/kg	0.5
Chromium	16		mg/kg	1									39		mg/kg	1
Copper	16		mg/kg	1									18		mg/kg	1
Lead	10	U	mg/kg	10									26		mg/kg	10
Mercury	0.1	U	mg/kg	0.1									0.1	U	mg/kg	0.1
Nickel	13		mg/kg	2									10		mg/kg	2
Selenium	0.5	UX	mg/kg	0.5									0.5	UX	mg/kg	0.5
Silver	0.5	U	mg/kg	0.5									0.5	U	mg/kg	0.5
Thallium	0.5	U	mg/kg	0.5												
Zinc	52		mg/kg	1												
VOLATILE ORGANICS (BY GC/MS)																
Chloromethane	10	U	ug/kg	10									10	U	ug/kg	10
Bromomethane	10	U	ug/kg	10									10	U	ug/kg	10
Vinyl Chloride	10	U	ug/kg	10									10	U	ug/kg	10
Chloroethane	10	U	ug/kg	10									10	U	ug/kg	10
Methylene Chloride	6		ug/kg	5									5	U	ug/kg	5
Acrolein	10	U	ug/kg	10									10	U	ug/kg	10
*Acetone	46	B	ug/kg	10									10	U	ug/kg	10
Acrylonitrile	10	U	ug/kg	10									10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/kg	5									5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/kg	5									5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/kg	5									5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/kg	5									5	U	ug/kg	5
Chloroform	5	U	ug/kg	5									5	U	ug/kg	5
*2-Butanone	10	U	ug/kg	10									10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/kg	5									5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/kg	5									5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/kg	5									5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/kg	10									10	U	ug/kg	10
Bromodichloromethane	5	U	ug/kg	5									5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/kg	5									5	U	ug/kg	5
Trichloroethylene	2	J	ug/kg	5									5	U	ug/kg	5
Benzene	5	U	ug/kg	5									5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/kg	5									5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/kg	5									5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/kg	5									5	U	ug/kg	5
Bromoform	5	U	ug/kg	5									5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/kg	10									10	U	ug/kg	10
*2-Hexanone	10	U	ug/kg	10									10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5									5	U	ug/kg	5
Tetrachloroethylene	55		ug/kg	5									12		ug/kg	5
Toluene	16		ug/kg	5									5	U	ug/kg	5
Chlorobenzene	5	U	ug/kg	5									5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/kg	5									5	U	ug/kg	5
Ethylbenzene	6		ug/kg	5									5	U	ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/kg	5									5	U	ug/kg	5
*Styrene	5	U	ug/kg	5									5	U	ug/kg	5
*Total Xylenes	42		ug/kg	5									5	U	ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : QA-2-1-10 Type : FB Matrix : WATER Assoc Sample(s) : SB-2-4-(1,2,3,4),TS-6-(1,2) SB-2-2-(1,2,3,4),SD-1-(1,2,3) SB-2-3-(1,2,3,4),SL-1-1-1				Sample No. : QA-2-1-11 Type : DUP Matrix : SOIL Assoc Sample(s) : SB-2-2-2				Sample No. : QA-3-1-1 Type : BKGRD Matrix : SOIL Assoc Sample(s) : BACKGROUND			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
IGNITABILITY	Boils at 212 F, will not flash											
INORGANICS - E.P. TOXICITY												
Arsenic	0.2	U	mg/L	0.2								
Barium	0.1	U	mg/L	0.1								
Cadmium	0.01	U	mg/L	0.01								
Chromium	0.1	U	mg/L	0.1								
Lead	0.1	U	mg/L	0.1								
Mercury	0.005	U	mg/L	0.005								
Selenium	0.2	U	mg/L	0.2								
Silver	0.1	U	mg/L	0.1								
ORGANICS - E.P. TOXICITY												
Endrin	0.0002	U	mg/L	0.0002								
Methoxychlor	0.001	U	mg/L	0.001								
Toxaphene	0.01	U	mg/L	0.01								
2,4-D	0.0005	U	mg/L	0.0005								
2,4,5-TP (silvex)	0.0005	U	mg/L	0.0005								
Lindane	0.0002	U	mg/L	0.0002								

	Sample No. : QA-2-1-10 Type : FB Matrix : WATER Assoc Sample(s) : SB-2-4-(1,2,3,4),TS-6-(1,2) SB-2-2-(1,2,3,4),SD-1-(1,2,3) SB-2-3-(1,2,3,4),SL-1-1-1				Sample No. : QA-2-1-11 Type : DUP Matrix : SOIL Assoc Sample(s) : SB-2-2-2				Sample No. : QA-3-1-1 Type : BKGRD Matrix : SOIL Assoc Sample(s) : BACKGROUND			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
INORGANICS AND PETROLEUM HC'S												
Petroleum Hydrocarbons												
Oil and Grease	0.6		mg/L	0.1	20	UX	mg/kg	20	20	UX	mg/kg	20
Antimony	5	U	ug/L	5	3	U	mg/kg	3	3	U	mg/kg	3
Arsenic	5	U	ug/L	5	6.8		mg/kg	0.5	4.2		mg/kg	0.5
Beryllium	1	U	ug/L	1	0.7		mg/kg	0.1	0.6		mg/kg	0.1
Cadmium	1	U	ug/L	1	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Chromium	1	U	ug/L	1	10		mg/kg	1	17		mg/kg	1
Copper	7		ug/L	1	8		mg/kg	1	17		mg/kg	1
Lead	10	U	ug/L	10	10	U	mg/kg	10	10	U	mg/kg	10
Mercury	1	U	ug/L	1	0.1	U	mg/kg	0.1	0.1	U	mg/kg	0.1
Nickel	2	U	ug/L	2	7		mg/kg	2	14		mg/kg	2
Selenium	5	U	ug/L	5	0.5	UX	mg/kg	0.5	0.5	UX	mg/kg	0.5
Silver	1	U	ug/L	1	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Thallium	5	U	ug/L	5	0.5	U	mg/kg	0.5	0.5	U	mg/kg	0.5
Zinc	6	B	ug/L	1	41	B	mg/kg	1	52		mg/kg	1
VOLATILE ORGANICS (BY GC/MS)												
Chloromethane	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromomethane	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/kg	10
Vinyl Chloride	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/kg	10
Chloroethane	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/kg	10
Methylene Chloride	5	U	ug/L	5	5	U	ug/kg	5	6		ug/kg	5
Acrolein	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/kg	10
*Acetone	10	U	ug/L	10	120	B	ug/kg	10	540	B	ug/kg	10
Acrylonitrile	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/kg	10
*Carbon Disulfide	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethylene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1-Dichloroethane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
Trans-1,2-Dichloroethylene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
Chloroform	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
*2-Butanone	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/kg	10
1,2-Dichloroethane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,1-Trichloroethane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
Carbon Tetrachloride	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
*Vinyl Acetate	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/kg	10
Bromodichloromethane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
1,2-Dichloropropane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
Trichloroethylene	5	U	ug/L	5	5	U	ug/kg	5	1	J	ug/kg	5
Benzene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
Chlorodibromomethane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
1,1,2-Trichloroethane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Choroethyl Vinyl Ether	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
Bromoform	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
*4-Methyl-2-Pentanone	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/kg	10
*2-Hexanone	10	U	ug/L	10	10	U	ug/kg	10	10	U	ug/kg	10
1,1,2,2-Tetrachloroethane	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
Tetrachloroethylene	5	U	ug/L	5	5	U	ug/kg	5	32		ug/kg	5
Toluene	5	U	ug/L	5	5	U	ug/kg	5	13		ug/kg	5
Chlorobenzene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
trans-1,3-Dichloropropene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
Ethylbenzene	5	U	ug/L	5	5	U	ug/kg	5	7		ug/kg	5
cis-1,3-Dichloropropene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
*Styrene	5	U	ug/L	5	5	U	ug/kg	5	5	U	ug/kg	5
*Total Xylenes	5	U	ug/L	5	5	U	ug/kg	5	47		ug/kg	5

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : QA-3-1-2 Type : BKGRD Matrix : SOIL Assoc Sample(s) : BACKGROUND				Sample No. : QA-3-1-3 Type : DUP Matrix : TAR Assoc Sample(s) : TS-6-1				Sample No. : QA-3-1-4 Type : DUP Matrix : SOIL Assoc Sample(s) : SL-1-1-1				Sample No. : QA-3-1-5 Type : DUP Matrix : SOIL Assoc Sample(s) : SD-1-3			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)																
N-nitrosodimethylamine	50	U	ug/kg	50												
Bis(2-chloroethyl)ether	50	U	ug/kg	50												
2-Chlorophenol	50	U	ug/kg	50												
Phenol	50	U	ug/kg	50												
1,3-Dichlorobenzene	50	U	ug/kg	50												
1,4-Dichlorobenzene	50	U	ug/kg	50												
1,2-Dichlorobenzene	50	U	ug/kg	50												
Bis(2-chloroisopropyl)ether	50	U	ug/kg	50												
Hexachloroethane	50	U	ug/kg	50												
N-nitroso-di-n-propylamine	50	U	ug/kg	50												
Nitrobenzene	50	U	ug/kg	50												
Isophorone	50	U	ug/kg	50												
2-Nitrophenol	50	U	ug/kg	50												
2,4-Dimethylphenol	50	U	ug/kg	50												
Bis(2-chloroethoxy)methane	50	U	ug/kg	50												
2,4-Dichorophenol	50	U	ug/kg	50												
1,2,4-Trichlcrobenzene	50	U	ug/kg	50												
Napthalene	50	U	ug/kg	50												
Hexachlorobutadiene	50	U	ug/kg	50												
4-Chloro-M-cresol	50	U	ug/kg	50												
Hexachlorocyclopentadiene	50	U	ug/kg	50												
2,4,6-Trichlorophenol	50	U	ug/kg	50												
2-Chloronapthalene	50	U	ug/kg	50												
Acenaphthalene	50	U	ug/kg	50												
Dimethylphthalate	50	U	ug/kg	50												
2,6-Dinitrotoluene	50	U	ug/kg	50												
Acenaphthene	50	U	ug/kg	50												
2,4-Dinitrophenol	50	U	ug/kg	50												
2,4-Dinitrotoluene	50	U	ug/kg	50												
4-Nitrophenol	50	U	ug/kg	50												
Flourene	50	U	ug/kg	50												
4-Chlorophenol phenyl ether	50	U	ug/kg	50												
Diethylphthalate	50	U	ug/kg	50												
4,6-Dinitro-o-cresol	50	U	ug/kg	50												
1,2-Diphenylhydrazine	50	U	ug/kg	50												
4-Bromophenyl phenyl ether	50	U	ug/kg	50												
Hexachlorobenzene	50	U	ug/kg	50												
Pentachlorophenol	50	U	ug/kg	50												
Phenanthrene	50	U	ug/kg	50												
Anthracene	50	U	ug/kg	50												
Dibutylphthalate	50	U	ug/kg	50												
Flouranthene	50	U	ug/kg	50												
Pyrene	50	U	ug/kg	50												
Benzidine	50	U	ug/kg	50												
Butyl benzyl phthalate	50	U	ug/kg	50												
Benzo(a)anthracene	50	U	ug/kg	50												
Chrysene	50	U	ug/kg	50												
3,3-Dichlorobenzidine	50	U	ug/kg	50												
Bis(2-ethylhexyl)phthalate	71		ug/kg	50												
N-nitrosodiphenylamine	50	U	ug/kg	50												
Di-n-octyl phthalate	50	U	ug/kg	50												
Benzo(b)flouranthene	50	U	ug/kg	50												
Benzo(k)flouranthene	50	U	ug/kg	50												
Benzo(a)pyrene	50	U	ug/kg	50												
Indeno(1,2,3-cd)pyrene	50	U	ug/kg	50												
Dibenzo(ah)anthracene	50	U	ug/kg	50												

	Sample No. : QA-3-1-2 Type : BKGRD Matrix : SOIL Assoc Sample(s) : BACKGROUND				Sample No. : QA-3-1-3 Type : DUP Matrix : TAR Assoc Sample(s) : TS-6-1				Sample No. : QA-3-1-4 Type : DUP Matrix : SOIL Assoc Sample(s) : SL-1-1-1				Sample No. : QA-3-1-5 Type : DUP Matrix : SOIL Assoc Sample(s) : SD-1-3			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)																
Benzo(ghi)perylene	50	U	ug/kg	50												
*Aniline	50	U	ug/kg	50												
*Benzoic Acid	50	U	ug/kg	50												
*Benzl Alcohol	50	U	ug/kg	50												
*4-Chloroaniline	50	U	ug/kg	50												
*Dibenzofuran	50	U	ug/kg	50												
*2-Methylnaphthalene	50	U	ug/kg	50												
*2-Methylphenol	50	U	ug/kg	50												
*4-Methylphenol	50	U	ug/kg	50												
*2-Nitroaniline	50	U	ug/kg	50												
*3-Nitroaniline	50	U	ug/kg	50												
*4-Nitroaniline	50	U	ug/kg	50												
*2,4,5-Trichlorophenol	50	U	ug/kg	50												

*Additional compounds from the EPA's Hazardous Substance List.

	Sample No. : QA-3-1-2 Type : BKGRD Matrix : SOIL Assoc Sample(s) : BACKGROUND				Sample No. : QA-3-1-3 Type : DUP Matrix : TAR Assoc Sample(s) : TS-6-1				Sample No. : QA-3-1-4 Type : DUP Matrix : SOIL Assoc Sample(s) : SL-1-1-1				Sample No. : QA-3-1-5 Type : DUP Matrix : SOIL Assoc Sample(s) : SD-1-3			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
IGNITABILITY					Will not flash at or below 200 F				Will not flash at or below 200 F							
INORGANICS - E.P. TOXICITY																
Arsenic					0.2	U	mg/L	0.2	0.2	U	mg/L	0.2				
Barium					0.1	U	mg/L	0.1	0.8		mg/L	0.1				
Cadmium					0.01	U	mg/L	0.01	0.01	U	mg/L	0.01				
Chromium					0.1	U	mg/L	0.1	0.1	U	mg/L	0.1				
Lead					0.1	U	mg/L	0.1	0.1	U	mg/L	0.1				
Mercury					0.005	U	mg/L	0.005	0.005	U	mg/L	0.005				
Selenium					0.2	U	mg/L	0.2	0.2	U	mg/L	0.2				
Silver					0.1	U	mg/L	0.1	0.1	U	mg/L	0.1				
ORGANICS - E.P. TOXICITY																
Endrin					0.0001	U	mg/L	0.0001	0.0001	U	mg/L	0.0001				
Methoxychlor					0.0005	U	mg/L	0.0005	0.0005	U	mg/L	0.0005				
Toxaphene					0.01	U	mg/L	0.01	0.01	U	mg/L	0.01				
2,4-D					0.0005	U	mg/L	0.0005	0.0005	U	mg/L	0.0005				
2,4,5-TP (silvex)					0.0001	J	mg/L	0.0005	0.0002	J	mg/L	0.0005				
Lindane					0.00005	U	mg/L	0.00005	0.00005	U	mg/L	0.00005				

APPENDIX I

LABORATORY QA/QC

APPENDIX I

LABORATORY QA/QC

A program of quality assurance/quality control (QA/QC) procedures was instituted throughout the sampling effort at Gowen Field and the subsequent analysis of samples. The intent of this QA/QC program is to ensure that collected samples are representative of the sites, and that analytical data accurately describes the characteristics and concentrations of constituents in the samples. The QA/QC program consisted of the preparation and analysis of both laboratory and field QA/QC samples, and analysis of samples split between two laboratories. Laboratory QA/QC samples were comprised of spiked samples duplicate samples, and method blanks, intended to verify the accuracy and precision of laboratory procedures. The results of the analyses of the laboratory QA/QC samples are discussed in Section 1.0 of this Appendix. Field QA/QC samples were comprised of field blanks, bailer washes, and field replicates, intended to confirm the adequacy of the field procedures used in collecting samples. The results of the analyses of field QA/QC samples are also discussed in Section 1.0. All samples that were collected were sent to a laboratory (referred to a later in the text as the "primary" lab) for analysis. In addition, ten percent of the samples were collected and replicated and sent to a second laboratory (referred to later in the text as the "secondary" lab). The replicated samples were analyzed by both labs (primary lab and secondary lab) for the same constituents. Split samples are intended as an additional check on the precision and accuracy of the laboratory analyses. The results of the split sample analyses and evaluation of the secondary lab QA/QC are discussed in Section 2.0. In addition to the evaluation of the data from laboratory QA/QC samples, analysis dates for all samples have been evaluated to ensure that appropriate holding times for samples were met. The results of holding time evaluations are discussed in Section 1.0 for the primary lab and Section 2.0 for the secondary lab.

1. PRIMARY LABORATORY RESULTS

1.1 Laboratory QA/QC Results

The results of analyses of laboratory QA/QC samples are presented at the end of this discussion of QA/QC. These samples, consisting of spiked samples, duplicate analyses, and lab method blanks, serve as a check on the precision and accuracy of laboratory samples.

1.1.1 Analyses of Spiked Samples

Two types of spiked samples are used in the laboratory to evaluate the accuracy of the analysis - surrogate spikes and matrix spikes. In both cases, the analytical results are used to calculate percent recoveries. Recoveries equal 100 percent in cases when all of the spike added was identified in analysis. Recoveries less than or greater than 100 percent indicate that a lesser or greater amount of spike was detected during analysis.

Surrogate spike samples are prepared by adding a known amount of one or more "surrogate" compounds to a sample, followed by analysis for those compounds. Surrogate compounds are compounds that are unlikely to be present in the unadulterated sample, yet are chemically similar to analytes of interest. Often isotopically enriched compounds are used as surrogates. After analysis, percent recovery is calculated by dividing the analytical result by the known amount of addition. Surrogate spike analyses yield information on the general accuracy of the analysis within a sample matrix.

Matrix spike samples are evaluated by analyzing a sample before and after the addition ("spike") of a known amount of a compound. Compounds used for matrix spike analyses are expected to be present in the unadulterated sample. Percent recovery is calculated by subtracting the first analytical result from the second and then dividing by the known amount of addition. Matrix spike analyses yield information on the effect of the sample matrix on the analysis of specific analytes of interest.

Complete results of the surrogate spike and matrix spike analyses are presented later in this Appendix and discussed below.

Volatiles

Two hundred and sixty-four recovery analyses were performed using 88 soil samples spiked with surrogate volatile organic compounds. The recovery of these surrogate spikes ranged from 81 percent to 121 percent. All but 7 of these recoveries were within the control limits defined by the 95 percent confidence interval. The 7 recoveries outside of the control limits have been attributed, by the laboratory, to a matrix interference.

Ninety recovery analyses were performed using 3C water samples spiked with surrogate volatile organic compounds. The recovery of these surrogate spikes ranged from 87 percent to 130 percent. All but 4 of these recoveries were within the control limits defined by the 95 percent confidence interval. The laboratory has determined that the 4 recoveries outside of the control limits are outliers, and are being regarded as anomalies.

Forty matrix spike analyses were performed to evaluate the accuracy of the analysis of volatile organic compounds in soil samples. Percent recoveries calculated from these analyses ranged from 64.9 percent to 135 percent. All of these recoveries were within the control limits defined by the 95 percent confidence interval.

Thirty matrix spike analyses were performed to evaluate the accuracy of the analysis of volatile organic compounds in water samples. Percent recoveries calculated from these analyses ranged from 89 percent to 129 percent. All of these recoveries were within the control limits defined by the 95 percent confidence interval.

Semi-Volatiles

One hundred and seventy-six recovery analyses were performed using 22 soil samples spiked with surrogate semi-volatile compounds (base/neutral and acid extractables). The recovery of the surrogate spikes ranged from 25 percent to 122 percent, within the control limits defined by the 95 percent confidence interval.

One hundred and twenty recovery analyses were performed using 15 water samples spiked with surrogate semi-volatile compounds (base/neutral and acid extractables). The recovery of the surrogate spikes ranged from 24 percent to 121 percent, within the control limits defined by the 95 percent confidence interval.

Forty four matrix spike analyses were performed to evaluate the accuracy of the analysis of semi-volatile organic compounds (base/neutral and acid extractables) in soil samples. Percent recoveries calculated from these analyses ranged from 18.3 percent to 91.5 percent. All of these recoveries were within the control limits defined by the 95 percent confidence interval.

Eleven matrix spike analyses were performed to evaluate the accuracy of the analysis of semi-volatile organic compounds (base/neutral and acid extractables) in water samples. Percent recoveries calculated from these analyses ranged from 21.9 percent to 97.1 percent. All of these recoveries were within the control limits defined by the 95 percent confidence interval.

Pesticides and Herbicides

Twenty recovery analyses were performed for EP Toxicity pesticide analysis, using 2 surrogate compounds in each of 10 water samples. The recovery of these surrogate spikes ranged from 26 percent to 144 percent. All of the recoveries for one surrogate compound (dibutylchlorendate) were within the control limits defined by the 95 percent confidence interval. Forty percent of the analyses for the other surrogate compound (isodrin) were outside of the control limits.

Eight recovery analyses were performed using water samples spiked with a surrogate herbicide compound. The recovery of the surrogate spikes ranged from 78 percent to 137 percent. All but 1 of these recoveries were within the control limits defined by the 95 percent confidence interval. The recovery outside of the control limits have been attributed, by the laboratory, to a matrix interference.

Sixteen matrix spike analyses were performed to evaluate the accuracy of the analysis of pesticides and herbicides. Percent recoveries calculated from these analyses ranged from 54 percent to 275 percent. All but 2 of these recoveries were within the control limits defined by the 95 percent confidence interval. Two analyses of lindane yielded recoveries of 130 percent and 275 percent, both of which exceeded the control limits.

Inorganics and Petroleum Hydrocarbons

One hundred and thirty-eight matrix spike analyses were performed to evaluate the accuracy of inorganic analyses and petroleum hydrocarbons on soil samples. One hundred and eight of these analyses were for arsenic, selenium, beryllium, cadmium, chromium, copper, nickel, zinc, mercury and petroleum hydrocarbons, with recoveries ranging from 76 percent to 116 percent. All of these recoveries were within laboratory-established control limits (where established) or EPA CLP control limits (generally 70 percent to 130 percent). The remaining 30 matrix spike analyses were for silver, antimony, and thallium. Recoveries for these elements ranged from 44 percent to 133 percent. Sixteen of these analyses were outside the EPA CLP control limits (70 percent to 130 percent). The poor recoveries of these elements are attributed to analysis difficulties inherent in the analyte and in the matrix.

Sixteen matrix spike analyses were performed on a liquid sample of EP Toxicity extract to calculate the accuracy of the inorganic analyses. Percent recoveries calculated for these analyses ranged from 88 percent to 113 percent. No control limits have been established for these analyses.

Sixty-two matrix spike analyses were performed to evaluate the accuracy of inorganic analyses on water samples. Recoveries calculated from these analyses ranged from 80 percent to 115 percent, and were within laboratory-established control limits (where established) or EPA CLP control limits (generally 70 percent to 130 percent).

1.1.2 Duplicate Analyses

Duplicate samples are used in the laboratory to evaluate the precision of the analysis, by comparing the results of the two samples. This comparison is often expressed as the relative percent difference (RPD), calculated by dividing the difference in concentration between duplicates by the mean of the concentrations. By definition, RPD equals 0 percent when duplicate analyses are equivalent. Although a small RPD indicates good reproducibility, a large RPD does not necessarily indicate a large difference in actual concentration, since the RPD is a difference in concentration relative to the mean concentration. For example, the relative percent difference between 0.0001 and 0.0002 ug/l is the same as that between 1,000 and 2,000 ug/l, and the RPD between 0 and 0.0001 ug/l is the same as that between 0 and 1,000 ug/l. Complete results of the duplicate analyses are presented later in this Appendix and discussed in the following paragraphs.

Volatiles

Twenty duplicate analyses were performed to evaluate the precision of the analyses of volatile organic compounds in soil samples. Relative percent differences calculated from these analyses ranged from 0 to 16. All of these recoveries were within the control limits defined by the 95 percent confidence interval.

Fifteen duplicate analyses were performed to evaluate the precision of the analyses of volatile organic compounds in water samples. Relative percent differences calculated from these analyses ranged from 0 to 13. All of these recoveries were within the control limits defined by the 95 percent confidence interval.

Semi-Volatiles

Twenty-two duplicate analyses were performed to evaluate the precision of the analysis of semi-volatile organic compounds (base/neutral and acid extractables) in soil samples. Relative percent differences calculated from these analyses ranged from 3.4 to 37.4. All but one of these RPDs (acenaphthene RPD = 37.4) were within the control limits defined by the 95 percent confidence interval.

Eleven duplicate analyses were performed to evaluate the precision of the analyses of semi-volatile organic compounds (base/neutral and acid extractables) in water samples. Relative percent differences calculated from these analyses ranged from 0.5 to 19.6. All of these RPDs were within the control limits defined by the 95 percent confidence interval.

Pesticides and Herbicides

Eight duplicate analyses were performed to evaluate the precision of the analyses of EP Toxicity pesticides and herbicides. Relative percent differences calculated from all but one of these analyses ranged from 0 to 8.5, and were within the control limits defined by the 95 percent confidence interval (where control limits have been established). The one remaining RPD was outside of the control limits (lindane RPD = 71.6).

Inorganics and Petroleum Hydrocarbons

Sixty-nine duplicate analyses were performed to evaluate the precision of inorganic analyses and petroleum hydrocarbons on soil samples. Sixty-one of these analyses were for arsenic, selenium, beryllium, cadmium, chromium, copper, nickel, zinc, mercury and petroleum hydrocarbons, with relative percent differences ranging from 0 to 13. All but two of these RPDs were within laboratory-established control limits (where applicable) or EPA CLP control limits (RPD = 20). The two RPDs falling outside of the control limits were attributed to spike concentrations that were low relative to the concentration already present in the sample. The remaining 15 duplicate analyses were for silver, antimony and thallium. RPDs for these elements ranged from 0 to 73. Three of these analyses were outside of the EPA CLP control limits (RPD = 20). The imprecision of these analyses is attributed to analysis difficulties inherent in the analyte and in the matrix.

Eight duplicate analyses were performed on a liquid sample of EP Toxicity extract to evaluate the precision of the inorganic analyses. Relative percent differences calculated for these analyses ranged from 0 to 3. No control limits have been established for these analyses.

1.1.3 Analyses of Method Blanks

Method blanks (laboratory blanks) are generated by treating distilled, deionized water as if it were a sample, and carrying it though all the sample preparation steps of a method. Method blanks are used to assess false positive analyses, either through contamination of samples in the laboratory or instu-mental error. Concentrations of constituents such as methylene chloride, bis (2-ethylhexyl) phthalate, di-n-octylphthalate, acetone, and metals (in par-ticular selenium) are commonly found in laboratory method blanks because the laboratory is not totally free of organic and inorganic compounds. Plastic tubings, rinse solvents, and even laboratory-grade, certified reagents contain concentrations of organic and inorganic compounds. These compounds are often detected in environmental samples because chemical compounds are commonplace in the laboratory environment and come into contact with the environmental samples. Therefore, laboratory method blanks are analyzed in order to account for these concentrations that are present in the laboratory and can also be accounted for in environmental samples. In general, the methods blanks were free of contamination. These method blanks are discussed below, by analyte.

Volatiles

Method blanks analyzed for volatile organic compounds showed occasional occurrences of acetone in both soil and water method blanks, and methylene chloride in a water method blank. These data were considered in the evaluation of the environmental data.

Semi-Volatiles

Method blanks analyzed for semi-volatile organic compounds showed occasional occurrences of bis (2-ethylhexyl) phthalate in both soil and water method blanks, and di-n-octylphthalate in a soil method blank. These data were considered in the evaluation of the environmental data.

Pesticides and Herbicides

Method blanks analyzed for EP Toxicity pesticides and herbicides showed no detectable concentrations for both soil and water.

Inorganics

Method blanks analyzed for inorganic analytes show occassional low concentrations of copper, zinc, and chromium in water method blanks, and copper, zinc, selenium, and antimony in soil method blanks. These data were considered in the evaluation of the environmental data.

1.2 Evaluation of Sample Holding Times

Each analysis method specifies a maximum length of time for which a sample may be held between collection and analysis, or between collection, preparation and analysis. These holding times must be met to ensure the integrity of the sample for the specified analysis. The results of the holding time evaluations are discussed in the following paragraphs, by analysis type.

Volatiles

EPA Method 8240, GC/MS for analysis of volatile compounds, specifies a maximum holding time of 14 days from collection. Of the 84 samples analyzed for volatiles, the holding times for 4 samples (SB-1-1-8, SB-11-9, SB-1-1-10, SB-1-2-1) were exceeded by 10 hours. This is not expected to compromise the integrity of the environmental data.

Semi-Volatiles

EPA Method 8270, GC/MS for analysis of semi-volatile compounds, specifies a maximum holding time of 14 days from collection of sample to preparation of the extract and 40 days from preparation of the extract to analysis of the extract. Of the 19 samples analyzed for semivolatiles, holding times for both extraction and analyses were met.

Inorganics

EPA Methods for the analysis of metals specify a 28 day holding time for the analysis of mercury, and a 6 month holding time for the analysis of other analytes. Of the 81 samples analyzed for metals, all holding times were met.

1.3 Field QA/QC Results

Field QA/QC procedures consisted of collecting and analyzing field blanks, bailer washes, and field replicates. These samples are intended as QA/QC checks on the integrity of sample collection and handling procedure and bailer decontamination procedures. Collection procedures and result of analyses are discussed below.

1.3.1 Field Blank and Bailer Wash Analyses

Field blank and bailer wash analyses are intended as QA/QC checks on the integrity of handling procedures and bailer decontamination procedures. The following discussions summarize the collection procedures for field blanks and bailer wash samples and the results of the analyses of these samples. The results of the field blank and bailer wash analyses are presented in Appendix H (Laboratory Analytical Data).

Field blanks were prepared prior to the collection of environmental samples by pouring ultrapure (HPLC grade, deionized, double distilled) water into laboratory prepared sample bottles. These sample bottles were then handled in the same manner as environmental samples. Because field blanks accompany the environmental sample from the field to the laboratory, they are used to indicate the presence of external contaminants that may have been introduced into samples during collection and shipment.

Bailer wash samples were collected during the sampling day by pouring ultrapure water into a clean bailer and then dispensing it into sample bottles. Analyses of bailer washes are used to evaluate the adequacy of bailer decontamination procedures in preventing cross-contamination of samples between wells.

Volatiles

Methylene chloride and acetone were detected in trace quantities in field blanks and bailer wash samples. In each instance, comparable quantities of these compounds were found in the corresponding method blank. Therefore, the presence of these compounds is attributed to low-level laboratory contamination. No other volatile compounds were detected in the field blanks and bailer wash samples, indicating that handling procedures in the field did not result in contamination of sample with volatile compounds.

Semi-Volatiles

Bis(2-ethylhexyl) phthalate and di-n-butylphthalate were detected in 2 field blanks. Bis(2-ethylhexyl) phthalate was detected in one of the corresponding methods blanks at a comparable concentration. The presence of these compounds, common plasticizers, is attributed to contamination in either the laboratory or in the field.

Inorganics and Petroleum Hydrocarbons

Copper, zinc, chromium, antimony and petroleum hydrocarbons were detected in trace quantities in field blanks and bailer wash samples. In each instance, comparable quantities of one or more of copper, zinc, and chromium were found in the corresponding method blank, and all occurrences in the field QA samples were at comparable levels. Therefore, the presence of these compounds is attributed to low-level laboratory contamination. Concentrations of petroleum hydrocarbons in the field QA samples ranged from 0.4 mg/l to 1.4 mg/l, and were not detected in any of the method blanks. The source of these petroleum hydrocarbons is attributed to ambient air contamination from nearby air traffic. Antimony was detected in 3 field blanks at concentrations of 6 ug/l, 18 ug/l and 200 ug/l, and was not detected in any of the corresponding method blanks. Antimony was not detected in any of the environmental (soil, sediment, or groundwater) samples. The source of the antimony detected in the field blanks is not known.

These evaluations of the analytes detected in field QA samples were used in the evaluation of environmental samples. The concentrations of contaminants detected were low and in most cases may be attributed to a known source. They do not affect the usefulness of the environmental data. The QA/QC of the data has shown that the data accurately represents the environmental samples collected.

1.3.2 Field Replicate Results

Field replicates were obtained by collecting two separate samples from the same monitoring station, attempting to hold all variables constant. Field replicates therefore differ from laboratory duplicates, which are the same sample split in two. Analytical results of field replicates are used to evaluate the precision of field sampling procedure as well as laboratory procedures. As such, these results are not expected to be identical because of the number of independent variables involved. However, results should not vary widely. The results of field replicate analyses are presented in Appendix H (Laboratory Analytical Data), and discussed below.

Volatiles

Ten pairs of field replicate soil samples were analyzed for volatile organics. Replicate analyses are generally in good agreement, however, significant difference in acetone concentration were found in 3 replicate pairs. Acetone concentrations in these samples are being attributed to air-borne contamination, at the collection site, by airborne acetone. This hypothesis is supported by the field notations of a steel finishing plant approximately 0.25 miles from the site, that was blasting and painting steel beams during the period that samples were collected. Also, the wind direction during this time was from the steel plant toward the site. Acetone, as a very volatile component of paint, could easily be transported over this distance and deposited in varying concentrations (depending on the ambient air load) during sampling operation. Poor agreement between replicates for this analyte is also attributed to the difficulty in precisely splitting an inhomogeneous sample.

<u>Semi-Volatiles</u>

Two pairs of field replicate soil samples were analyzed for semi-volatile organic compounds. The differences in concentrations of bis (2-ethylhexyl) phthalate (approximately a factor of 2) are attributed to the inhomogeneity of the samples.

<u>Inorganics and Petroleum Hydrocarbons</u>

Ten pairs of field replicate soil samples were analyzed for concentrations of metals and petroleum hydrocarbons. The replicate analyses agree well, with only insignificant variations found within replicate pairs. These minor variations are attributed to sample inhomogeneity.

Overall, the results of field replicate analyses showed good reproducibility, and indicate good QA/QC procedures associated with field sampling techniques.

2. SECONDARY LABORATORY RESULTS

2.1 Analysis of Replicate Samples Sent to Two Laboratories

Ten percent of the environmental samples collected were replicated and sent to a second laboratory. These samples were analyzed for the same constituents the primary laboratory performed. Analyses of replicate samples that were sent to the two different labs were evaluated by comparing all analytical results between the two labs for each sample. This evaluation serves as an additional check on the precision and accuracy of the analyses. These comparisons are discussed below, by analyte group.

Volatiles

Good agreement was found between the data from the two laboratories on all but three volatile organic compounds (methylene chloride, acetone, and 2-butanone). Analyses of these compounds are discussed in the following paragraphs.

The disagreements in methylene chloride concentrations are attributed to laboratory contamination. This is supported by the fact that in all cases but one, methylene chloride was found by only one of the laboratories, and in each of these instances it was also found in that laboratory's method blank.

The disagreements in concentrations of 2-butanone are also attributed to laboratory contamination. This is supported by the fact that in all cases 2-butanone was found by only one of the laboratories, and in each of these instances it was also found in that laboratory's method blank.

The disagreement in concentrations of acetone are not as well defined. Sufficient data to define the problem is not available, however a likely hypothesis may be put forward regarding the source of the disagreement: random contamination, at the collection site, by airborne acetone. This hypothesis is supported by the field notations of a steel finishing plant approximately 0.25 miles from the site, that was blasting and painting steel beams during the period that samples were collected, and that wind direction during this time was from the steel plant toward the site. Acetone, as a very volatile component of paint, could easily be air transported over this distance and deposited in varying concentrations (depending on the ambient air load) during sampling operation. This hypothesis explains why there is disagreement between the laboratory data on acetone analysis:

Sample	Primary Lab Analysis	Secondary Lab Analysis
SB-1-2-3	120 ug/kg	ND
SB-5-1-5	ND	1330 ug/kg
SB-1-5-4	160 ug/kg	925 ug/kg
SB-2-2-2	290 ug/kg	ND
MW-6-1-1	ND	1060 ug/kg (J)*

Acetone is commonly used in the laboratory for extraction of organics. The presence of acetone in the environmental samples and the variations in concentrations between laboratories can also be attributed to laboratory contamination.

Semi-Volatiles

Good agreement was found between the laboratory analyses for semi-volatiles in all but one sample (SB-5-1-5). In this sample, pentachlorophenol was detected in one laboratory below the detection limit of the other laboratory. Also in this sample, bis (2-ethylhexyl) phthalate was detected at a concentration significantly higher than the other laboratory (920 ug/kg versus 67 ug/kg). However, the laboratory measuring the higher concentration of this compound also detected the compound in its method blank at a similar concentration (980 ug/kg.)

Inorganics and Petroleum Hydrocarbons

In general, good agreement was found between the laboratory analyses for inorganics and petroleum hydrocarbons. Minor differences (differences of approximately a factor of 2) between concentrations of metals and petroleum hydrocarbons in soil samples are attributed to sample inhomogeneity. This sample inhomogeneity is a frequent occurrence in collecting replicate samples of a matrix as typically inhomogeneous as soils.

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* Analyte was detected at a concentration greater than the Method Detection Limit, but less than the Sample Detection Limit.

2.2 Evaluation of Secondary Lab Sample Holding Times

Volatiles

EPA Method 8240, GC/MS for analysis of voltatile compounds, specifies a maximum holding time of 14 days from collection. Of the 9 replicate samples analyzed by the secondary laboratory for volatiles, all holding times were missed by 44 to 69 days. This may compromise the integrity of the environmental data from these analyses. This in no way reflects the quality of the data received from the primary laboratory.

Semi-Volatiles

EPA Method 8270, GC/MS for analysis of semi-volatile compounds, specifies a maximum holding time of 14 days from collection of sample to preparation of the extract and 40 days from preparations of the extract to analysis of the extract. Insufficient data is available to determine if the extractions for the 2 replicate samples analyzed by the secondary laboratory for semi-volatiles were completed within the specified holding time, however the samples missed the maximum total holding time (54 days) by 19 and 23 days. This may compromise the integrity of the environmental data from these analyses. This in now way reflects the quality of the data received from the primary laboratory.

Inorganics

EPA Methods for the analysis of metals specify a 28 day holding time for the analysis of mercury, and a 6 month holding time for the analysis of other analytes. Of the 9 replicate samples analyzed by the secondary laboratory for metals, all holding times were met.

3. QA/QC CONCLUSIONS

The following conclusions were made regarding the analytical data. These conclusions were based on a thorough review of the QA/QC procedures conducted by both laboratory and field personnel.

- Evaluation and review of the laboratory QA/QC samples and field QA/QC samples indicates that the data accurately represents the environmental samples collected. Concentrations of contaminants detected in laboratory and field QA/QC samples were low and can be attributed to a known source. They do not affect the usefulness of the environmental data.

- Results of field replicate analyses showed good reproducibility and indicate good QA/QC procedures associated with field sampling techniques.

- Acetone concentrations detected in both soil and groundwater samples are considered to not be environmentally significant and are not attributed to past or present activities conducted at the Base. Detection of acetone in environmental samples was attributed to laboratory contamination and/or nearby painting activities at the Base. This was considered in the evaluation of the environmental data.

- Bis-(2-ethylhexyl) phthalate, di-n-octylphthalate, di-n-butyl phthalate, methylene chloride, and 2-butanone were also attributed to laboratory or field contamination and are considered to not be environmentally significant. This was considered in the evaluation of the environmental data.

- Small amounts of petroleum hydrocarbons were attributed to nearby air traffic. Concentrations of these compounds, detected in field blanks or bailer washes, were considered in the evaluation of the environmental data.

- Small amounts of metals (copper, zinc, chromium, and antimony) detected in soil and groundwater samples were attributed to laboratory contamination. Concentrations of these inorganic compounds detected in method blanks, field blanks, and/or bailer washes, were considered in the evaluation of the environmental data.

- Replicate samples sent to the secondary laboratory exceeded analysis holding times. Therefore, these results were not included with results of environmental samples from the primary laboratory.

Laboratory QA/QC Results for Groundwater Samples

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APPENDIX

Matrix Spike/Matrix Spike Duplicate Report

parts per billion (ug/L) ug/L

Sample	Analyte	Spike Added	Sample Result	MS Result	% Rec	MSD Result	% Rec	RPD	QC Limits RPD	QC Limits REC
1	Silver	50.	1. U	54.	108.	52.	104.	4.	15	82-116
1	Beryllium	50.	1. U	50.	100.	50.	100.	0.	14	75-111
1	Cadmium	50.	1. U	52.	105.	51.	102.	3.	10	78-117
1	Chromium	50.	1. U	55. B	108.	54. B	107.	1.	24	68-127
1	Copper	50.	8. B	60. B	105.	59. B	102.	3.	14	70-123
1	Lead	100.	10. U	100.	102.	99.	99.	3.	21	59-132
1	Nickel	100.	2. U	100.	104.	100.	101.	3.	14	72-122
1	Zinc	50.	2. B	61. B	117.	53. B	102.	14.	24	67-121
2	Thallium	25.	5. U	25.	100.	25.	100.	0.	NE	NE
3	Mercury	10.	1. U	10.	96.	10.	96.	0.	NE	NE
3	Selenium	20.	5. U	23.	115.	23.	115.	0.	NE	NE
7	Arsenic	20.	5. U	19.	95.	20.	100.	5.	NE	NE
7	Mercury	10.	1. U	9.	92.	9.	92.	0.	NE	NE
9	O & G	0.5	0.4	0.8	91.	0.8	87.	4.	NE	NE
9	O & G	0.5	0.4	0.8	91.	0.7	87.	4.	NE	NE
8	Silver	50.	1. U	53.	105.	54.	109.	4.	15	82-116
8	Beryllium	50.	1. U	50.	100.	50.	100.	0.	14	75-111
8	Cadmium	50.	1. U	52.	104.	54.	109.	5.	10	78-117
8	Chromium	50.	1. U	51.	103.	52.	104.	1.	24	68-127
8	Copper	50.	7.	57.	100.	59.	103.	3.	14	70-123
8	Lead	50.	10. U	53.	106.	53.	106.	0.	21	59-132
8	Nickel	50.	2. U	50.	100.	52.	104.	4.	14	72-122
8	Zinc	50.	2. B	56. B	109.	57. B	111.	3.	24	67-121
10	Arsenic	20.	5. U	16.	80.	16.	80.	0.	NE	NE
10	Selenium	20.	5. U	20.	100.	20.	100.	0.	NE	NE
10	Mercury	10.	1. U	10.	98.	10.	102.	4.	NE	NE
8	Antimony	50.	5. U	51.	99.	52.	100.	1.	NE	NE
9	Thallium	25.	5. U	23.	93.	22.	91.	2.	NE	NE
12	Mercury	10.	1. U	10.	98.	10.	100.	2.0	NE	NE
12	Arsenic	20.	5. U	20.	100.	21.	105.	5.	NE	NE
12	Selenium	20.	5. U	22.	110.	20.	100.	10.	NE	NE

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		parts per billion (ug/L)				ug/L			QC Limits	
Sample	Analyte	Spike Added	Sample Result	MS Result	% Rec	MSD Result	% Rec	RPD	RPD	REC
12	O & G	0.8	0.9	1.7	98.	1.6	93.	5.	NE	NE
13	Selenium	20.	5. U	20.	100.	20.	100.	0.	NE	NE
13	Arsenic	20.	5. U	18.	90.	19.	95.	5.	NE	NE
17	O & G	0.9	0.7	1.9	128.	1.9	137.	7.	NE	NE
13	Thallium	25.	5. U	14.	59.	14.	56.	5.	NE	NE
18	Mercury	10.	1. U	9.	94.	10.	96.	2.1	NE	N.E
19	Silver	50.	1. U	48.	96.	40.	100.	4.	15	82-116
19	Beryllium	50.	1. U	53.	105.	53.	106.	1.	14	75-111
19	Cadmium	50.	1. U	48.	96.	52.	105.	9.	10	78-117
19	Chromium	50.	12.	63.	102.	65.	106.	4.	24.	68-127
19	Copper	50.	12. B	62. B	101.	65.B	106.	5.	14	70-123+
19	Lead	50.	13.	60	94.	63.	101.	7.	21	59-122
19	Nickel	50.	24.	76.	105.	73.	99.	6.	14	72-122
19	Zinc	50.	350.B	400.B	98.	400.B	113.	14.	24.	67-121
19	Antimony	50.	5. U	23.	46.	21.	43.	7.	NE	NE

MS = Matrix Spike
MSD = Matrix Spike Duplicate
NE = None Established

Rec = Recovery
RPD = Relative Percent Difference

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APPENDIX

Matrix Spike/Duplicate Spike Quality Control

Organics

Reported below are the results of additional QC compounds utilized in the analysis of organic compounds. Compounds of interest are spiked into two additional sample aliquots prior to extraction and/or analysis to monitor for matrix effects, sample processing errors, and to calculate percent recoveries of compunds of interest and relative error in the analysis. The control limits represent the 95% confidence interval established in the laboratory through repetitive analysis of these sample types.

Compound	Conc Spike (ug/L)	Conc Samp (ug/L)	Conc MS (ug/L)	% REC	Conc MSD (ug/L)	% REC	RPD	RPD Limit	REC Limit
Sample Number 1									
1,1-Dichloroethene	50.	0.	64.3	129.	56.3	113.	13.	14	61-145
Trichloroethene	50.	0.	57.2	114.	56.2	112.	1.8	14	71-120
Chlorobenzene	50.	0.	51.7	103.	49.8	99.6	3.4	13	75-130
Toluene	50.	0.	51.8	104.	52.3	105.	-1.0	13	76-125
Benzene	50.	0.	54.2	108.	56.0	112.	-3.6	11	76-127
Sample Number 7									
1,1-Dichloroethene	50.	0.	46.6	93.2	48.1	96.2	-3.2	14	61-145
Trichloroethene	50.	0.	55.6	111.	57.6	115.	-3.5	14	71-120
Chlorobenzene	50.	0.	49.7	99.4	51.0	102.	-2.6	13	75-130
Toluene	50.	0.	51.7	103.	51.6	103.	0.	13	76-125
Benzene	50.	0.	54.9	110.	54.7	109.	0.9	11	76-127
Sample Number 10									
1,1-Dichloroethene	50.	0.	45.9	91.8	49.1	98.2	-6.7	14	61-145
Trichloroethene	50.	0.	45.9	91.8	48.7	97.4	-5.9	14	71-120
Chlorobenzene	50.	0.	45.6	91.2	48.0	96.0	-5.1	13	75-130
Toluene	50.	0.	50.6	101.	52.0	104.	-2.9	13	76-125
Benzene	50.	0.	44.5	89.0	45.3	90.6	-1.8	11	76-127

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Key

Conc	= Concentration	MSD	= Matrix Spike Duplicate
Samp	= Sample	REC	= Recovery
MS	= Matrix Spike	RPD	= Relative Percent Difference

MS/MSD REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE REPORT

LABORATORY NO.3873
CLIENT:SAIC
MATRIX:WATER

UNITS REPORTED IN:UG ADDED

S' NO.	ANALYTE	SPIKE ADDED	SAMPLE RESULT	FOR CALC.	MS RESULT	% REC	MSD RESULT	% REC	RPD	QC LIMITS RPD	QC LIMITS % REC
7	1,2,4-TRICHLOROBENZENE	100.0	<1	0	64.7	64.7	70.6	70.6	8.7	0-28	39-98
	ACENAPHTHENE	100.0	<1	0	86.1	86.1	84.4	84.4	1.9	0-31	46-118
	2,4-DINITROTOLUENE	100.0	<1	0	60.0	60.0	59.7	59.7	0.5	0-38	24-96
	PYRENE	100.0	<1	0	97.1	97.1	118.1	118.1	19.6	0-31	26-127
	N-NITROSO-DI-N-PROPYLAMINE	100.0	<1	0	73.4	73.4	85.4	85.4	15.1	0-38	41-116
B/N	1,4-DICHLOROBENZENE	100.0	<1	0	59.8	59.8	68.4	68.4	13.4	0-28	36-97
	PENTACHLOROPHENOL	200.0	<1	0	60.3	30.2	64.6	32.3	6.9	0-50	9-103
	PHENOL	200.0	<1	0	94.7	47.4	80.9	40.5	15.7	0-42	12-89
	2-CHLOROPHENOL	200.0	<1	0	189.5	94.7	181.6	90.8	4.2	0-40	27-123
	4-CHLORO-3-METHYLPHENOL	200.0	<1	0	133.3	66.6	134.1	67.0	0.6	0-42	23-97
CIDS	4-NITROPHENOL	200.0	<1	0	43.7	21.9	36.8	18.4	17.0	0-50	10-80

* = Outside of QC limits

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APPENDIX

Surrogate Recovery Quality Control Report

Attached are surrogate (chemically similar) compounds utilized in the analysis of organic compounds. The surrogates are added to every sample prior to extraction and analysis to monitor for matrix effects, purging efficiency, and sample processing errors. The control limits represent the 95% confidence interval established in our laboratory through repetitive analysis of these sample types.

JOB No. 2893 DATE: 05/23/87

Sample No. 5 Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	41		21 - 100
d5-Phenol	35		10 - 94
2-Bromophenol	67		40 - 107
d5-Nitrobenzene	78		35 - 114
2-Fluorobiphenyl	86		43 - 116
d10-Azobenzene	80		62 - 127
2.4.6-Tribromophenol	67		10 - 123
d14-p-Terphenyl	92		33 - 141

Sample No. 6 Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	56		21 - 100
d5-Phenol	43		10 - 94
2-Bromophenol	76		40 - 107
d5-Nitrobenzene	83		35 - 114
2-Fluorobiphenyl	89		43 - 116
d10-Azobenzene	97		62 - 127
2.4.6-Tribromophenol	72		10 - 123
d14-p-Terphenyl	121		33 - 141

Sample No. 7MSD Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	53		21 - 100
d5-Phenol	39		10 - 94
2-Bromophenol	79		40 - 107
d5-Nitrobenzene	77		35 - 114
2-Fluorobiphenyl	81		43 - 116
d10-Azobenzene	107		62 - 127
2.4.6-Tribromophenol	82		10 - 123
d14-p-Terphenyl	109		33 - 141

Sample No. 7 Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	60		21 - 100
d5-Phenol	41		10 - 94
2-Bromophenol	84		40 - 107
d5-Nitrobenzene	93		35 - 114
2-Fluorobiphenyl	102		43 - 116
d10-Azobenzene	99		62 - 127
2.4.6-Tribromophenol	76		10 - 123
d14-p-Terphenyl	99		33 - 141

Sample No. 7MS Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	59		21 - 100
d5-Phenol	43		10 - 94
2-Bromophenol	79		40 - 107
d5-Nitrobenzene	68		35 - 114
2-Fluorobiphenyl	76		43 - 116
d10-Azobenzene	103		62 - 127
2.4.6-Tribromophenol	81		10 - 123
d14-p-Terphenyl	94		33 - 141

Sample No. 0317SWB1 Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	47		21 - 100
d5-Phenol	30		10 - 94
2-Bromophenol	83		40 - 107
d5-Nitrobenzene	64		35 - 114
2-Fluorobiphenyl	66		43 - 116
d10-Azobenzene	75		62 - 127
2.4.6-Tribromophenol	93		10 - 123
d14-p-Terphenyl	105		33 - 141

JOB No. 3093 DATE: 05/23/87

Sample No. 8 Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	43		21 - 100
d5-Phenol	34		10 - 94
2-Bromophenol	70		40 - 107
d5-Nitrobenzene	84		35 - 114
2-Fluorobiphenyl	91		43 - 116
d10-Azobenzene	90		62 - 127
2.4.6-Tribromophenol	72		10 - 123
d14-p-Terphenyl	83		33 - 141

Sample No. 0519SWB1 Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	41		21 - 100
d5-Phenol	31		10 - 94
2-Bromophenol	71		40 - 107
d5-Nitrobenzene	83		35 - 114
2-Fluorobiphenyl	85		43 - 116
d10-Azobenzene	93		62 - 127
2.4.6-Tribromophenol	74		10 - 123
d14-p-Terphenyl	92		33 - 141

JOB No. 3893 DATE: 06/02/87

Sample No. MB Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	55		21 - 100
d5-Phenol	39		10 - 94
2-Bromophenol	97		40 - 107
d5-Nitrobenzene	72		35 - 114
2-Fluorobiphenyl	67		43 - 116
d10-Azobenzene	81		62 - 127
2,4,6-Tribromophenol	84		10 - 123
d14-p-Terphenyl	89		33 - 141

Sample No. 11 Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	51		21 - 100
d5-Phenol	35		10 - 94
2-Bromophenol	90		40 - 107
d5-Nitrobenzene	70		35 - 114
2-Fluorobiphenyl	72		43 - 116
d10-Azobenzene	68		62 - 127
2,4,6-Tribromophenol	67		10 - 123
d14-p-Terphenyl	83		33 - 141

JOB No. 3893 DATE: 06/19/87

Sample No. 80611MPPWLT Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	49		21 - 100
d5-Phenol	35		10 - 94
2-Bromophenol	106		40 - 107
d5-Nitrobenzene	65		35 - 114
2-Fluorobiphenyl	60		43 - 116
d10-Azobenzene	87		62 - 127
2.4.6-Tribromophenol	91		10 - 123
d14-p-Terphenyl	96		33 - 141

Sample No. 13 Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	41		21 - 100
d5-Phenol	34		10 - 94
2-Bromophenol	65		40 - 107
d5-Nitrobenzene	82		35 - 114
2-Fluorobiphenyl	82		43 - 116
d10-Azobenzene	101		62 - 127
2.4.6-Tribromophenol	89		10 - 123
d14-p-Terphenyl	79		33 - 141

Sample No. 14 Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	33		21 - 100
d5-Phenol	24		10 - 94
2-Bromophenol	81		40 - 107
d5-Nitrobenzene	73		35 - 114
2-Fluorobiphenyl	63		43 - 116
d10-Azobenzene	87		62 - 127
2.4.6-Tribromophenol	99		10 - 123
d14-p-Terphenyl	81		33 - 141

Sample No. 18 Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	40		21 - 100
d5-Phenol	33		10 - 94
2-Bromophenol	99		40 - 107
d5-Nitrobenzene	75		35 - 114
2-Fluorobiphenyl	65		43 - 116
d10-Azobenzene	87		62 - 127
2.4.6-Tribromophenol	120		10 - 123
d14-p-Terphenyl	66		33 - 141

Sample No. 19 Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	33		21 - 100
d5-Phenol	25		10 - 94
2-Bromophenol	55		40 - 107
d5-Nitrobenzene	87		35 - 114
2-Fluorobiphenyl	87		43 - 116
d10-Azobenzene	115		62 - 127
2.4.6-Tribromophenol	87		10 - 123
d14-p-Terphenyl	65		33 - 141

Sample No. 19 Matrix: WATER Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits

JOB No. 3893 DATE: 07/02/87

Sample No. 1 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	100		86 - 115
d4-1.2-Dichloroethane	109		76 - 114
d8-Toluene	102		88 - 110

Sample No. 1MS Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	106		86 - 115
d4-1.2-Dichloroethane	98		76 - 114
d8-Toluene	101		88 - 110

Sample No. 1MSD Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	107		86 - 115
d4-1.2-Dichloroethane	103		76 - 114
d8-Toluene	107		88 - 110

Sample No. 2 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	102		86 - 115
d4-1.2-Dichloroethane	106		76 - 114
d8-Toluene	100		88 - 110

Sample No. 3 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	97		86 - 115
d4-1,2-Dichloroethane	109		76 - 114
d8-Toluene	117		88 - 110

Sample No. 0514VW8S1 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	99		86 - 115
d4-1,2-Dichloroethane	94		76 - 114
d8-Toluene	106		88 - 110

Sample No. 0514VW8J1 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	95		86 - 115
d4-1,2-Dichloroethane	130		76 - 114
d8-Toluene	101		88 - 110

JOB No. 3893 DATE: 06/05/87

Sample No. 5 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	91		86 - 115
d4-1.2-Dichloroethane	95		76 - 114
d8-Toluene	111	D	88 - 110

Sample No. 6 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	92		86 - 115
d4-1.2-Dichloroethane	94		76 - 114
d8-Toluene	108		88 - 110

Sample No. 7 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	90		86 - 115
d4-1.2-Dichloroethane	91		76 - 114
d8-Toluene	102		88 - 110

Sample No. 8 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	91		86 - 115
d4-1.2-Dichloroethane	94		76 - 114
d8-Toluene	103		88 - 110

D: Persistently poor surrogate and spike recoveries signal a laboratory problem and the need for re-extraction and re-analysis. However, occasional outliers are regarded as anomolies and, in this case, re-analysis was not deemed necessary because other indicators were in control.

Sample No. 9 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	91		86 - 115
d4-1.2-Dichloroethane	92		76 - 114
d8-Toluene	109		88 - 110

Sample No. 10MSD Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	90		86 - 115
d4-1.2-Dichloroethane	114		76 - 114
d8-Toluene	90		88 - 110

Sample No. 10 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	87		86 - 115
d4-1.2-Dichloroethane	94		76 - 114
d8-Toluene	112	D	88 - 110

Sample No. 10MS Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	91		86 - 115
d4-1.2-Dichloroethane	108		76 - 114
d8-Toluene	113	D	88 - 110

D: Persistently poor surrogate and spike recoveries signal a laboratory problem and the need for re-extraction and re-analysis. However, occasional.outliers are regarded as anomolies and, in this case, re-analysis was not deemed necassary because other indicators were in control.

JOB No. 3893 DATE: 06/05/87

Sample No. 11 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	95		86 - 115
d4-1.2-Dichloroethane	97		76 - 114
d8-Toluene	101		88 - 110

Sample No. 12 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	97		86 - 115
d4-1.2-Dichloroethane	98		76 - 114
d8-Toluene	102		88 - 110

Sample No. 0526VW8S1 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	95		86 - 115
d4-1.2-Dichloroethane	95		76 - 114
d8-Toluene	98		88 - 110

JOB No. 3893   DATE: 07/01/87

Sample No. 80605VWBS1   Matrix: WATER   Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	94		86 - 115
d4-1.2-Dichloroethane	95		76 - 114
d8-Toluene	98		88 - 110

Sample No. F83803VFB   Matrix: WATER   Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	93		86 - 115
d4-1.2-Dichloroethane	89		76 - 114
d8-Toluene	100		88 - 110

Sample No. 13   Matrix: WATER   Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	93		86 - 115
d4-1.2-Dichloroethane	90		76 - 114
d8-Toluene	97		88 - 110

Sample No. 13MS   Matrix: WATER   Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	93		86 - 115
d4-1.2-Dichloroethane	96		76 - 114
d8-Toluene	101		88 - 110

Sample No. 13MSD Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	91		86 - 115
d4-1.2-Dichloroethane	90		76 - 114
d8-Toluene	98		88 - 110

Sample No. 14 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	93		86 - 115
d4-1.2-Dichloroethane	90		76 - 114
d8-Toluene	99		88 - 110

Sample No. 15 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	90		86 - 115
d4-1.2-Dichloroethane	100		76 - 114
d8-Toluene	96		88 - 110

Sample No. 16 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	92		86 - 115
d4-1.2-Dichloroethane	88		76 - 114
d8-Toluene	97		88 - 110

Sample No. 17 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	94		86 - 115
d4-1,2-Dichloroethane	100		76 - 114
d8-Toluene	100		88 - 110

Sample No. 18 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	98		86 - 115
d4-1,2-Dichloroethane	95		76 - 114
d8-Toluene	99		88 - 110

Sample No. 19 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	96		86 - 115
d4-1,2-Dichloroethane	97		76 - 114
d8-Toluene	102		88 - 110

Sample No. 0517W8J1 Matrix: WATER Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	89		86 - 115
d4-1.2-Dichloroethane	98		76 - 114
d8-Toluene	107		88 - 110

JOB No. 38930 DATE: 06/01/87

Sample No. [illegible] Matrix: WATER Analysis: PEST

Surrogate Compound	Percent Recovery	Comment	Control Limits
Dibutylchlorendate	144		24 - 150
Isodrin	91		43 - 118

Sample No. 0527PWB1 Matrix: WATER Analysis: PEST

Surrogate Compound	Percent Recovery	Comment	Control Limits
Dibutylchlorendate	84		24 - 150
Isodrin	52		43 - 118

QB No. 3893 DATE: 09/15/87

Sample No. 80612GHB.WLQ Matrix: WATER Analysis: HERB

Surrogate Compound	Percent Recovery	Comment	Control Limits
2.4.5-T	95		61 - 127

Sample No. 11 Matrix: WATER Analysis: HERB

Surrogate Compound	Percent Recovery	Comment	Control Limits
2.4.5-T	95		61 - 127

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Testing Laboratories, Inc.

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Chemistry, Microbiology and Technical Services

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-VFB
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER FIELD BLANK

VOLATILE ORGANICS (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Chloromethane	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
Bromomethane	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
Vinyl Chloride	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
Chloroethane	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
Methylene Chloride	3.	J	ug/L	5.	N/A	6/05/87	N/A	EP 624
Acrolein	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
*Acetone	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
Acrylonitrile	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
*Carbon Disulfide	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
1,1-Dichloroethylene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
1,1-Dichloroethane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
trans-1,2-Dichloroethylene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Chloroform	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
*2-Butanone	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
1,2-Dichloroethane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
1,1,1-Trichloroethane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Carbon Tetrachloride	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
*Vinyl Acetate	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
Bromodichloromethane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
1,2-Dichloropropane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Trichloroethylene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Benzene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Chlorodibromomethane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
1,1,2-Trichloroethane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624

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Chemistry, Microbiology, and Technical Services

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-VFB
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER FIELD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
2-Chloroethyl vinyl ether	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Bromoform	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
*4-Methyl-2-pentanone	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
*2-Hexanone	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
1,1,2,2-Tetrachloroethane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Tetrachloroethylene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Toluene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Chlorobenzene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
trans-1,3-Dichloropropene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Ethylbenzene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
cis-1,3-Dichloropropene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
*Styrene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
*Total Xylenes	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624

*Additional compounds from the EPA's Hazardous Substances List.

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APPENDIX

Method Blank Summary

Blank Name	Sample Numbers	Analyte	Result	Units
B0528HGW01	11 - 12	Mercury	1. U	ug/L
B0528HGW02	11 - 12	Mercury	1. U	ug/L
B05271CP01	11 - 12	Antimony	5. U	ug/L
B0527GF01	11 - 12	Thallium	5. U	ug/L
B0602HYW01	11 - 12	Arsenic	5. U	ug/L
B0602HW01	11 - 12	Selenium	5. U	ug/L
B0605HY.W01	13 - 19	Selenium	5. U	ug/L
B0605HY.W01	13 - 19	Arsenic	5. U	ug/L
B0612ICPW01	13 - 19	Silver	1. U	ug/L
B0612ICPW01	13 - 19	Beryllium	1. U	ug/L
B0612ICPW01	13 - 19	Cadmium	1. U	ug/L
B0612ICPW01	13 - 19	Chromium	1. U	ug/L
B0612ICPW01	13 - 19	Copper	2.	ug/L
B0612ICPW01	13 - 19	Lead	10. U	ug/L
B0612ICPW01	13 - 19	Nickel	2. U	ug/L
B0612ICPW01	13 - 19	Zinc	11.	ug/L
B0612ICPW02	13 - 19	Silver	1. U	ug/L
B0612ICPW02	13 - 19	Beryllium	1. U	ug/L
B0612ICPW02	13 - 19	Cadmium	1. U	ug/L
B0612ICPW02	13 - 19	Chromium	1. U	ug/L
B0612ICPW02	13 - 19	Copper	1.	ug/L
B0612ICPW02	13 - 19	Lead	10. U	ug/L
B0612ICPW02	13 - 19	Nickel	2. U	ug/L

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Invoice

Blank Name	Sample Numbers	Analyte	Result	Units
B0612ICPW02	13 - 19	Zinc	3.	ug/L
B0612ICPW02	13 - 19	Antimony	5. U	ug/L
B0617HGW01	13 - 19	Mercury	1. U	ug/L
B0617HGW02	13 - 19	Mercury	1. U	ug/L
B0612GFW01	13 - 19	Thallium	5. U	ug/L
B0521HGW01	8 - 10	Mercury	1. U	ug/L
B0521HGW02	8 - 10	Mercury	1. U	ug/L
B0520HYW01	8 - 10	Selenium	5. U	ug/L
B0520HYW01	8 - 10	Arsenic	5. U	ug/L
B0527ICP02	8 - 12	Antimony	5. U	ug/L
B0527GF02	8 - 12	Thallium	5. U	ug/L
B0518ICPW01	1 - 7	Silver	1. U	ug/L
B0518ICPW01	1 - 7	Beryllium	1. U	ug/L
B0518ICPW01	1 - 7	Cadmium	1. U	ug/L
B0518ICPW01	1 - 7	Chromium	2.	ug/L
B0518ICPW01	1 - 7	Copper	2.	ug/L
B0518ICPW01	1 - 7	Lead	10. U	ug/L
B0518ICPW01	1 - 7	Nickel	2. U	ug/L
B0518ICPW01	1 - 7	Zinc	3.	ug/L
B0527ICPW01	8 - 12	Silver	1. U	ug/L
B0527ICPW01	8 - 12	Beryllium	1. U	ug/L
B0527ICPW01	8 - 12	Cadmium	1. U	ug/L
B0527ICPW01	8 - 12	Chromium	1. U	ug/L
B0527ICPW01	8 - 12	Copper	1. U	ug/L
B0527ICPW01	8 - 12	Lead	10. U	ug/L
B0527ICPW01	8 - 12	Nickel	2. U	ug/L
B0527ICPW01	8 - 12	Zinc	1.	ug/L
B0520HGW01	1 - 7	Mercury	1. U	ug/L
B0520HGW02	1 - 7	Mercury	1. U	ug/L
B0518HYW01	1 - 7	Selenium	5. U	ug/L
B0519HYW01	1 - 7	Arsenic	5. U	ug/L
B0518ICP01	1 - 12	Antimony	5. U	ug/L
B0611GF01	1 - 7	Thallium	5. U	ug/L

Net 30 Days

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Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-0514VWBSI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

VOLATILE ORGANICS (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Chloromethane	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
Bromomethane	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
Vinyl Chloride	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
Chloroethane	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
Methylene Chloride	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Acrolein	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
*Acetone	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
Acrylonitrile	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
*Carbon Disulfide	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
1,1-Dichloroethylene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
1,1-Dichloroethane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
trans-1,2-Dichloroethylene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Chloroform	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
*2-Butanone	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
1,2-Dichloroethane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
1,1,1-Trichloroethane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Carbon Tetrachloride	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
*Vinyl Acetate	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
Bromodichloromethane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
1,2-Dichloropropane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Trichloroethylene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Benzene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Chlorodibromomethane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
1,1,2-Trichloroethane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624

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Certificate

Chemistry, Microbiology, and Technical Services

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-0514VWBSI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
2-Chloroethyl vinyl ether	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Bromoform	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
*4-Methyl-2-pentanone	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
*2-Hexanone	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
1,1,2,2-Tetrachloroethane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Tetrachloroethylene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Toluene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Chlorobenzene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
trans-1,3-Dichloropropene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Ethylbenzene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
cis-1,3-Dichloropropene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
*Styrene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
*Total Xylenes	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624

*Additional compounds from the EPA's Hazardous Substances List.

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LABORATORY I.D. NO.: 3893-0514VWBJI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

VOLATILE ORGANICS (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Chloromethane	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
Bromomethane	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
Vinyl Chloride	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
Chloroethane	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
Methylene Chloride	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Acrolein	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
*Acetone	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
Acrylonitrile	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
*Carbon Disulfide	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
1,1-Dichloroethylene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
1,1-Dichloroethane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
trans-1,2-Dichloroethylene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Chloroform	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
*2-Butanone	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
1,2-Dichloroethane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
1,1,1-Trichloroethane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Carbon Tetrachloride	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
*Vinyl Acetate	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
Bromodichloromethane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
1,2-Dichloropropane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Trichloroethylene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Benzene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Chlorodibromomethane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
1,1,2-Trichloroethane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624

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Chemistry, Microbiology, and Technical Services

Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-0514VWBJI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
2-Chloroethyl vinyl ether	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Bromoform	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
*4-Methyl-2-pentanone	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
*2-Hexanone	10.	U	ug/L	10.	N/A	5/14/87	N/A	EP 624
1,1,2,2-Tetrachloroethane	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Tetrachloroethylene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Toluene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Chlorobenzene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
trans-1,3-Dichloropropene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
Ethylbenzene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
cis-1,3-Dichloropropene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
*Styrene	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624
*Total Xylenes	5.	U	ug/L	5.	N/A	5/14/87	N/A	EP 624

*Additional compounds from the EPA's Hazardous Substances List.

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TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-0517VWBJI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

VOLATILE ORGANICS (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Chloromethane	10.	U	ug/L	10.	N/A	5/17/87	N/A	EP 624
Bromomethane	10.	U	ug/L	10.	N/A	5/17/87	N/A	EP 624
Vinyl Chloride	10.	U	ug/L	10.	N/A	5/17/87	N/A	EP 624
Chloroethane	10.	U	ug/L	10.	N/A	5/17/87	N/A	EP 624
Methylene Chloride	1.	J	ug/L	5.	N/A	5/17/87	N/A	EP 624
Acrolein	10.	U	ug/L	10.	N/A	5/17/87	N/A	EP 624
*Acetone	8.	J	ug/L	10.	N/A	5/17/87	N/A	EP 624
Acrylonitrile	10.	U	ug/L	10.	N/A	5/17/87	N/A	EP 624
*Carbon Disulfide	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
1,1-Dichloroethylene	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
1,1-Dichloroethane	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
trans-1,2-Dichloroethylene	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
Chloroform	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
*2-Butanone	10.	U	ug/L	10.	N/A	5/17/87	N/A	EP 624
1,2-Dichloroethane	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
1,1,1-Trichloroethane	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
Carbon Tetrachloride	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
*Vinyl Acetate	10.	U	ug/L	10.	N/A	5/17/87	N/A	EP 624
Bromodichloromethane	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
1,2-Dichloropropane	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
Trichloroethylene	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
Benzene	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
Chlorodibromomethane	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
1,1,2-Trichloroethane	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624

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940 South Harney St., Seattle, Washington 98108 (206)767-5060

Certificate

Chemistry, Microbiology, and Technical Services

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-0517VWBJI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
2-Chloroethyl vinyl ether	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
Bromoform	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
*4-Methyl-2-pentanone	10.	U	ug/L	10.	N/A	5/17/87	N/A	EP 624
*2-Hexanone	10.	U	ug/L	10.	N/A	5/17/87	N/A	EP 624
1,1,2,2-Tetrachloroethane	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
Tetrachloroethylene	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
Toluene	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
Chlorobenzene	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
trans-1,3-Dichloropropene	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
Ethylbenzene	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
cis-1,3-Dichloropropene	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
*Styrene	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624
*Total Xylenes	5.	U	ug/L	5.	N/A	5/17/87	N/A	EP 624

*Additional compounds from the EPA's Hazardous Substances List.

Laucks
Testing Laboratories, Inc.
940 South Harney St. Seattle Washington 98108 (206)767-5060

Certificate

Chemistry, Microbiology, and Technical Services

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-0526VWBSI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

VOLATILE ORGANICS (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Chloromethane	10.	U	ug/L	10.	N/A	5/26/87	N/A	EP 624
Bromomethane	10.	U	ug/L	10.	N/A	5/26/87	N/A	EP 624
Vinyl Chloride	10.	U	ug/L	10.	N/A	5/26/87	N/A	EP 624
Chloroethane	10.	U	ug/L	10.	N/A	5/26/87	N/A	EP 624
Methylene Chloride	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
Acrolein	10.	U	ug/L	10.	N/A	5/26/87	N/A	EP 624
*Acetone	10.	U	ug/L	10.	N/A	5/26/87	N/A	EP 624
Acrylonitrile	10.	U	ug/L	10.	N/A	5/26/87	N/A	EP 624
*Carbon Disulfide	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
1,1-Dichloroethylene	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
1,1-Dichloroethane	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
trans-1,2-Dichloroethylene	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
Chloroform	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
*2-Butanone	10.	U	ug/L	10.	N/A	5/26/87	N/A	EP 624
1,2-Dichloroethane	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
1,1,1-Trichloroethane	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
Carbon Tetrachloride	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
*Vinyl Acetate	10.	U	ug/L	10.	N/A	5/26/87	N/A	EP 624
Bromodichloromethane	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
1,2-Dichloropropane	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
Trichloroethylene	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
Benzene	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
Chlorodibromomethane	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
1,1,2-Trichloroethane	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-0526VWBSI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
2-Chloroethyl vinyl ether	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
Bromoform	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
*4-Methyl-2-pentanone	10.	U	ug/L	10.	N/A	5/26/87	N/A	EP 624
*2-Hexanone	10.	U	ug/L	10.	N/A	5/26/87	N/A	EP 624
1,1,2,2-Tetrachloroethane	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
Tetrachloroethylene	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
Toluene	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
Chlorobenzene	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
trans-1,3-Dichloropropene	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
Ethylbenzene	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
cis-1,3-Dichloropropene	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
*Styrene	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624
*Total Xylenes	5.	U	ug/L	5.	N/A	5/26/87	N/A	EP 624

*Additional compounds from the EPA's Hazardous Substances List.

Laucks Testing Laboratories, Inc.

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Chemistry, Microbiology, and Technical Services

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TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-0605VWBSI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

VOLATILE ORGANICS (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Chloromethane	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
Bromomethane	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
Vinyl Chloride	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
Chloroethane	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
Methylene Chloride	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Acrolein	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
*Acetone	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
Acrylonitrile	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
*Carbon Disulfide	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
1,1-Dichloroethylene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
1,1-Dichloroethane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
trans-1,2-Dichloroethylene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Chloroform	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
*2-Butanone	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
1,2-Dichloroethane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
1,1,1-Trichloroethane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Carbon Tetrachloride	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
*Vinyl Acetate	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
Bromodichloromethane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
1,2-Dichloropropane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Trichloroethylene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Benzene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Chlorodibromomethane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
1,1,2-Trichloroethane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624

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TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-0605VWBSI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
2-Chloroethyl vinyl ether	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Bromoform	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
*4-Methyl-2-pentanone	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
*2-Hexanone	10.	U	ug/L	10.	N/A	6/05/87	N/A	EP 624
1,1,2,2-Tetrachloroethane	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Tetrachloroethylene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Toluene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Chlorobenzene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
trans-1,3-Dichloropropene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
Ethylbenzene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
cis-1,3-Dichloropropene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
*Styrene	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624
*Total Xylenes	5.	U	ug/L	5.	N/A	6/05/87	N/A	EP 624

*Additional compounds from the EPA's Hazardous Substances List.

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Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-0519SWBI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

SEMI-VOLATILES (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
N-nitrosodimethylamine	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Bis(2-chloroethyl)ether	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
2-Chlorophenol	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Phenol	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
1,3-Dichlorobenzene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
1,4-Dichlorobenzene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
1,2-Dichlorobenzene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Bis(2-chloroisopropyl)ether	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Hexachloroethane	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
N-nitroso-di-n-propylamine	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Nitrobenzene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Isophorone	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
2-Nitrophenol	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
2,4-Dimethylphenol	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Bis(2-chloroethoxy)methane	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
2,4-Dichlorophenol	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
1,2,4-Trichlorobenzene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Naphthalene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Hexachlorobutadiene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
4-Chloro-M-cresol	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Hexachlorocyclopentadiene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
2,4,6-Trichlorophenol	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
2-Chloronaphthalene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Acenaphthylene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625

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SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Dimethylphthalate	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
2,6-Dinitrotoluene	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Acenaphthene	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
2,4-Dinitrophenol	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
2,4-Dinitrotoluene	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
4-Nitrophenol	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Fluorene	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
4-Chlorophenyl phenyl ether	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Diethylphthalate	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
4,6-Dinitro-o-cresol	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
1,2-Diphenylhydrazine	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
4-Bromophenyl phenyl ether	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Hexachlorobenzene	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Pentachlorophenol	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Phenanthrene	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Anthracene	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Dibutylphthalate	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Fluoranthene	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Pyrene	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Benzidine	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Butyl benzyl phthalate	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Benzo(a)anthracene	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Chrysene	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
3,3'-Dichlorobenzidine	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Bis(2-ethylhexyl)phthalate	5.	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
N-nitrosodiphenylamine	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Di-n-octyl phthalate	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Benzo(b)fluoranthene	1. U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625

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Chemistry, Microbiology, and Technical Services

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LABORATORY I.D. NO.: 3893-0519SWBI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Benzo(k)fluoranthene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Benzo(a)pyrene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Indeno(1,2,3-cd)pyrene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Dibenzo(ah)anthracene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
Benzo(ghi)perylene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
*Aniline	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
*Benzoic Acid	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
*Benzyl Alcohol	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
*4-Chloroaniline	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
*Dibenzofuran	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
*2-Methylnaphthalene	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
*2-Methylphenol	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
*4-Methylphenol	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
*2-Nitroaniline	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
*3-Nitroaniline	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
*4-Nitroaniline	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625
*2,4,5-Trichlorophenol	1.	U	ug/L	1.	5/19/87	5/20/87	SW 3510	EP 625

*Additional compounds from the EPA's Hazardous Substances List.

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LABORATORY I.D. NO.: 3893-0526SWBI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

SEMI-VOLATILES (BY GC/MS)

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
N-nitrosodimethylamine	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Bis(2-chloroethyl)ether	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
2-Chlorophenol	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Phenol	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
1,3-Dichlorobenzene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
1,4-Dichlorobenzene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
1,2-Dichlorobenzene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Bis(2-chloroisopropyl)ether	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Hexachloroethane	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
N-nitroso-di-n-propylamine	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Nitrobenzene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Isophorone	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
2-Nitrophenol	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
2,4-Dimethylphenol	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Bis(2-chloroethoxy)methane	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
2,4-Dichlorophenol	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
1,2,4-Trichlorobenzene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Naphthalene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Hexachlorobutadiene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
4-Chloro-M-cresol	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Hexachlorocyclopentadiene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
2,4,6-Trichlorophenol	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
2-Chloronaphthalene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Acenaphthylene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625

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TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-0526SWBI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Dimethylphthalate	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
2,6-Dinitrotoluene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Acenaphthene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
2,4-Dinitrophenol	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
2,4-Dinitrotoluene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
4-Nitrophenol	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Fluorene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
4-Chlorophenyl phenyl ether	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Diethylphthalate	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
4,6-Dinitro-o-cresol	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
1,2-Diphenylhydrazine	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
4-Bromophenyl phenyl ether	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Hexachlorobenzene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Pentachlorophenol	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Phenanthrene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Anthracene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Dibutylphthalate	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Fluoranthene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Pyrene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Benzidine	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Butyl benzyl phthalate	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Benzo(a)anthracene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Chrysene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
3,3'-Dichlorobenzidine	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Bis(2-ethylhexyl)phthalate	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
N-nitrosodiphenylamine	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Di-n-octyl phthalate	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Benzo(b)fluoranthene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625

	Sample No. : SB-5-1-1				Sample No. : SB-5-1-5				Sample No. : SB-5-1-7				Sample No. : SB-5-1-11			
	Type : SB				Type : SB				Type : SB				Type : SB			
	Matrix : SOIL				Matrix : SOIL				Matrix : SOIL				Matrix : SOIL			
	Assoc Sample(s) : QA-2-1-10				Assoc Sample(s) : QA-2-1-10				Assoc Sample(s) : QA-2-1-10				Assoc Sample(s) : QA-2-1-10			
	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD	Test Result	Flag	Unit	LLD
SEMI-VOLATILES (BY GC/MS)																
Benzo(ghi)perylene	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*Aniline	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*Benzoic Acid	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*Benzl Alcohol	2400	U	ug/kg	[illegible]	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*4-Chloroaniline	2400	U	ug/kg	240[illegible]	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*Dibenzofuran	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*2-Methylnaphthalene	20000		ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*2-Methylphenol	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*4-Methylphenol	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*2-Nitroaniline	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*3-Nitroaniline	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*4-Nitroaniline	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50
*2,4,5-Trichlorophenol	2400	U	ug/kg	2400	50	U	ug/kg	50	50	U	ug/kg	50	50	U	ug/kg	50

*Additional compounds from the EPA's Hazardous Substance List.

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TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-0526SWBI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Benzo(k)fluoranthene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Benzo(a)pyrene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Indeno(1,2,3-cd)pyrene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Dibenzo(ah)anthracene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
Benzo(ghi)perylene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
*Aniline	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
*Benzoic Acid	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
*Benzyl Alcohol	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
*4-Chloroaniline	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
*Dibenzofuran	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
*2-Methylnaphthalene	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
*2-Methylphenol	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
*4-Methylphenol	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
*2-Nitroaniline	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
*3-Nitroaniline	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
*4-Nitroaniline	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625
*2,4,5-Trichlorophenol	1. U	ug/L	1.	5/26/87	6/01/87	SW 3510	EP 625

*Additional compounds from the EPA's Hazardous Substances List.

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Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-B0611MPPWLT
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

SEMI-VOLATILES (BY GC/MS)

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
N-nitrosodimethylamine	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Bis(2-chloroethyl)ether	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
2-Chlorophenol	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Phenol	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
1,3-Dichlorobenzene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
1,4-Dichlorobenzene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
1,2-Dichlorobenzene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Bis(2-chloroisopropyl)ether	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Hexachloroethane	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
N-nitroso-di-n-propylamine	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Nitrobenzene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Isophorone	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
2-Nitrophenol	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
2,4-Dimethylphenol	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Bis(2-chloroethoxy)methane	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
2,4-Dichlorophenol	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
1,2,4-Trichlorobenzene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Naphthalene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Hexachlorobutadiene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
4-Chloro-M-cresol	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Hexachlorocyclopentadiene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
2,4,6-Trichlorophenol	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
2-Chloronaphthalene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Acenaphthylene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625

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TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-B0611MPPWLT
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Dimethylphthalate	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
2,6-Dinitrotoluene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Acenaphthene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
2,4-Dinitrophenol	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
2,4-Dinitrotoluene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
4-Nitrophenol	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Fluorene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
4-Chlorophenyl phenyl ether	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Diethylphthalate	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
4,6-Dinitro-o-cresol	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
1,2-Diphenylhydrazine	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
4-Bromophenyl phenyl ether	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Hexachlorobenzene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Pentachlorophenol	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Phenanthrene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Anthracene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Dibutylphthalate	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Fluoranthene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Pyrene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Benzidine	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Butyl benzyl phthalate	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Benzo(a)anthracene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Chrysene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
3,3'-Dichlorobenzidine	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Bis(2-ethylhexyl)phthalate	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
N-nitrosodiphenylamine	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Di-n-octyl phthalate	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Benzo(b)fluoranthene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625

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LABORATORY I.D. NO.: 3893-B0611MPPWLT
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Benzo(k)fluoranthene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Benzo(a)pyrene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Indeno(1,2,3-cd)pyrene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Dibenzo(ah)anthracene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
Benzo(ghi)perylene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
*Aniline	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
*Benzoic Acid	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
*Benzyl Alcohol	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
*4-Chloroaniline	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
*Dibenzofuran	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
*2-Methylnaphthalene	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
*2-Methylphenol	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
*4-Methylphenol	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
*2-Nitroaniline	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
*3-Nitroaniline	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
*4-Nitroaniline	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625
*2,4,5-Trichlorophenol	1. U	ug/L	1.	6/05/87	6/16/87	SW 3510	EP 625

*Additional compounds from the EPA's Hazardous Substances List.

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LABORATORY I.D. NO.: 3893-B0612GHB.WLQ
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

ORGANICS - E. P. TOXICITY

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Extraction Method	Method Prepared	Method Analyzed
2,4-D	0.0005 U	mg/L	0.0005	6/12/87	6/14/87	SW 1310	SW 3510	SW 8150
2,4,5-TP (silvex)	0.0005 U	mg/L	0.0005	6/12/87	6/14/87	SW 1310	SW 3510	SW 8150

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LABORATORY I.D. NO.: 3893-0527PWBI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

ORGANICS - E. P. TOXICITY

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Extraction Method	Method Prepared	Method Analyzed
Endrin	0.0002 U	mg/L	0.0002	5/27/87	5/30/87	SW 1310	SW 3510	SW 808[illegible]
Methoxychlor	0.001 U	mg/L	0.001	5/27/87	5/30/87	SW 1310	SW 3510	SW 80[illegible]
Toxaphene	0.01 U	mg/L	0.01	5/27/87	5/30/87	SW 1310	SW 3510	SW 8080
Lindane	0.0002 U	mg/L	0.0002	5/27/87	5/30/87	SW 1310	SW 3510	SW 80[illegible]

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TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3893-MB1
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: WATER METHOD BLANK

INORGANICS - E. P. TOXICITY

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Extraction Method	Method Prepared	Method Analyzed
Arsenic	0.2	U	mg/L	0.2	5/27/87	6/01/87	SW 1310	LX WM4A	SW 6010
Barium	0.1	U	mg/L	0.1	5/27/87	6/01/87	SW 1310	LX WM1	SW 6010
Cadmium	0.01	U	mg/L	0.01	5/27/87	6/01/87	SW 1310	LX WM1	SW 6010
Chromium	0.1	U	mg/L	0.1	5/27/87	6/01/87	SW 1310	LX WM1	SW 6010
Lead	0.1	U	mg/L	0.1	5/27/87	6/01/87	SW 1310	LX WM1	SW 6010
Mercury	0.005	U	mg/L	0.005	5/28/87	5/28/87	SW 1310	LX WM3	SW 7470
Selenium	0.2	U	mg/L	0.2	5/27/87	6/01/87	SW 1310	LX WM4B	SW 6010
Silver	0.1	U	mg/L	0.1	5/27/87	6/01/87	SW 1310	LX WM1	SW 6010

Laboratory QA/QC Results for Soil Samples

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Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0511VSBJI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

VOLATILE ORGANICS (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Chloromethane	10.	U	ug/kg,dry	10.	N/A	5/11/87	N/A	SW 8240
Bromomethane	10.	U	ug/kg,dry	10.	N/A	5/11/87	N/A	SW 8240
Vinyl Chloride	10.	U	ug/kg,dry	10.	N/A	5/11/87	N/A	SW 8240
Chloroethane	10.	U	ug/kg,dry	10.	N/A	5/11/87	N/A	SW 8240
Methylene Chloride	5.	U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
Acrolein	10.	U	ug/kg,dry	10.	N/A	5/11/87	N/A	SW 8240
*Acetone	10.	U	ug/kg,dry	10.	N/A	5/11/87	N/A	SW 8240
Acrylonitrile	10.	U	ug/kg,dry	10.	N/A	5/11/87	N/A	SW 8240
*Carbon Disulfide	5.	U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
1,1-Dichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
1,1-Dichloroethane	5.	U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
trans-1,2-Dichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
Chloroform	5.	U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
*2-Butanone	10.	U	ug/kg,dry	10.	N/A	5/11/87	N/A	SW 8240
1,2-Dichloroethane	5.	U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
1,1,1-Trichloroethane	5.	U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
Carbon Tetrachloride	5.	U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
*Vinyl Acetate	10.	U	ug/kg,dry	10.	N/A	5/11/87	N/A	SW 8240
Bromodichloromethane	5.	U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
1,2-Dichloropropane	5.	U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
Trichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
Benzene	5.	U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
Chlorodibromomethane	5.	U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
1,1,2-Trichloroethane	5.	U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240

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Certificate

Chemistry, Microbiology, and Technical Services

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0511VSBJI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
2-Chloroethyl vinyl ether	5. U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
Bromoform	5. U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
*4-Methyl-2-pentanone	10. U	ug/kg,dry	10.	N/A	5/11/87	N/A	SW 8240
*2-Hexanone	10. U	ug/kg,dry	10.	N/A	5/11/87	N/A	SW 8240
1,1,2,2-Tetrachloroethane	5. U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
Tetrachloroethylene	5. U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
Toluene	5. U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
Chlorobenzene	5. U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
trans-1,3-Dichloropropene	5. U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
Ethylbenzene	5. U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
cis-1,3-Dichloropropene	5. U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
*Styrene	5. U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240
*Total Xylenes	5. U	ug/kg,dry	5.	N/A	5/11/87	N/A	SW 8240

*Additional compounds from the EPA's Hazardous Substances List.

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LABORATORY I.D. NO.: 3894-0513VMSBJI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

VOLATILE ORGANICS (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Chloromethane	10.	U	ug/kg,dry	10.	N/A	5/13/87	N/A	SW 8240
Bromomethane	10.	U	ug/kg,dry	10.	N/A	5/13/87	N/A	SW 8240
Vinyl Chloride	10.	U	ug/kg,dry	10.	N/A	5/13/87	N/A	SW 8240
Chloroethane	10.	U	ug/kg,dry	10.	N/A	5/13/87	N/A	SW 8240
Methylene Chloride	5.	U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
Acrolein	10.	U	ug/kg,dry	10.	N/A	5/13/87	N/A	SW 8240
*Acetone	10.	U	ug/kg,dry	10.	N/A	5/13/87	N/A	SW 8240
Acrylonitrile	10.	U	ug/kg,dry	10.	N/A	5/13/87	N/A	SW 8240
*Carbon Disulfide	5.	U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
1,1-Dichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
1,1-Dichloroethane	5.	U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
trans-1,2-Dichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
Chloroform	5.	U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
*2-Butanone	10.	U	ug/kg,dry	10.	N/A	5/13/87	N/A	SW 8240
1,2-Dichloroethane	5.	U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
1,1,1-Trichloroethane	5.	U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
Carbon Tetrachloride	5.	U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
*Vinyl Acetate	10.	U	ug/kg,dry	10.	N/A	5/13/87	N/A	SW 8240
Bromodichloromethane	5.	U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
1,2-Dichloropropane	5.	U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
Trichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
Benzene	5.	U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
Chlorodibromomethane	5.	U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
1,1,2-Trichloroethane	5.	U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240

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Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0513VMSBJI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
2-Chloroethyl vinyl ether	5. U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
Bromoform	5. U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
*4-Methyl-2-pentanone	10. U	ug/kg,dry	10.	N/A	5/13/87	N/A	SW 8240
*2-Hexanone	10. U	ug/kg,dry	10.	N/A	5/13/87	N/A	SW 8240
1,1,2,2-Tetrachloroethane	5. U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
Tetrachloroethylene	5. U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
Toluene	5. U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
Chlorobenzene	5. U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
trans-1,3-Dichloropropene	5. U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
Ethylbenzene	5. U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
cis-1,3-Dichloropropene	5. U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
*Styrene	5. U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240
*Total Xylenes	5. U	ug/kg,dry	5.	N/A	5/13/87	N/A	SW 8240

*Additional compounds from the EPA's Hazardous Substances List.

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TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0520VSBJI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

VOLATILE ORGANICS (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Chloromethane	10.	U	ug/kg,dry	10.	N/A	5/20/87	N/A	SW 8240
Bromomethane	10.	U	ug/kg,dry	10.	N/A	5/20/87	N/A	SW 8240
Vinyl Chloride	10.	U	ug/kg,dry	10.	N/A	5/20/87	N/A	SW 8240
Chloroethane	10.	U	ug/kg,dry	10.	N/A	5/20/87	N/A	SW 8240
Methylene Chloride	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
Acrolein	10.	U	ug/kg,dry	10.	N/A	5/20/87	N/A	SW 8240
*Acetone	10.	U	ug/kg,dry	10.	N/A	5/20/87	N/A	SW 8240
Acrylonitrile	10.	U	ug/kg,dry	10.	N/A	5/20/87	N/A	SW 8240
*Carbon Disulfide	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
1,1-Dichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
1,1-Dichloroethane	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
trans-1,2-Dichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
Chloroform	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
*2-Butanone	10.	U	ug/kg,dry	10.	N/A	5/20/87	N/A	SW 8240
1,2-Dichloroethane	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
1,1,1-Trichloroethane	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
Carbon Tetrachloride	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
*Vinyl Acetate	10.	U	ug/kg,dry	10.	N/A	5/20/87	N/A	SW 8240
Bromodichloromethane	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
1,2-Dichloropropane	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
Trichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
Benzene	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
Chlorodibromomethane	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
1,1,2-Trichloroethane	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240

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TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0520VSBJI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
2-Chloroethyl vinyl ether	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
Bromoform	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
*4-Methyl-2-pentanone	10.	U	ug/kg,dry	10.	N/A	5/20/87	N/A	SW 8240
*2-Hexanone	10.	U	ug/kg,dry	10.	N/A	5/20/87	N/A	SW 8240
1,1,2,2-Tetrachloroethane	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
Tetrachloroethylene	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
Toluene	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
Chlorobenzene	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
trans-1,3-Dichloropropene	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
Ethylbenzene	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
cis-1,3-Dichloropropene	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
*Styrene	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240
*Total Xylenes	5.	U	ug/kg,dry	5.	N/A	5/20/87	N/A	SW 8240

*Additional compounds from the EPA's Hazardous Substances List.

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LABORATORY I.D. NO.: 3894-0521VSBJI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

VOLATILE ORGANICS (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Chloromethane	10.	U	ug/kg,dry	10.	N/A	5/21/87	N/A	SW 8240
Bromomethane	10.	U	ug/kg,dry	10.	N/A	5/21/87	N/A	SW 8240
Vinyl Chloride	10.	U	ug/kg,dry	10.	N/A	5/21/87	N/A	SW 8240
Chloroethane	10.	U	ug/kg,dry	10.	N/A	5/21/87	N/A	SW 8240
Methylene Chloride	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
Acrolein	10.	U	ug/kg,dry	10.	N/A	5/21/87	N/A	SW 8240
*Acetone	10.	U	ug/kg,dry	10.	N/A	5/21/87	N/A	SW 8240
Acrylonitrile	10.	U	ug/kg,dry	10.	N/A	5/21/87	N/A	SW 8240
*Carbon Disulfide	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
1,1-Dichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
1,1-Dichloroethane	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
trans-1,2-Dichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
Chloroform	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
*2-Butanone	10.	U	ug/kg,dry	10.	N/A	5/21/87	N/A	SW 8240
1,2-Dichloroethane	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
1,1,1-Trichloroethane	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
Carbon Tetrachloride	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
*Vinyl Acetate	10.	U	ug/kg,dry	10.	N/A	5/21/87	N/A	SW 8240
Bromodichloromethane	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
1,2-Dichloropropane	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
Trichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
Benzene	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
Chlorodibromomethane	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
1,1,2-Trichloroethane	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240

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Chemistry, Microbiology, and Technical Services

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0521VSBJI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
2-Chloroethyl vinyl ether	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
Bromoform	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
*4-Methyl-2-pentanone	10.	U	ug/kg,dry	10.	N/A	5/21/87	N/A	SW 8240
*2-Hexanone	10.	U	ug/kg,dry	10.	N/A	5/21/87	N/A	SW 8240
1,1,2,2-Tetrachloroethane	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
Tetrachloroethylene	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
Toluene	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
Chlorobenzene	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
trans-1,3-Dichloropropene	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
Ethylbenzene	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
cis-1,3-Dichloropropene	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
*Styrene	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240
*Total Xylenes	5.	U	ug/kg,dry	5.	N/A	5/21/87	N/A	SW 8240

*Additional compounds from the EPA's Hazardous Substances List.

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Chemistry, Microbiology, and Technical Services

Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0522VSBSI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

VOLATILE ORGANICS (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Chloromethane	10.	U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
Bromomethane	10.	U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
Vinyl Chloride	10.	U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
Chloroethane	10.	U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
Methylene Chloride	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Acrolein	10.	U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
*Acetone	10.	U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
Acrylonitrile	10.	U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
*Carbon Disulfide	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
1,1-Dichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
1,1-Dichloroethane	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
trans-1,2-Dichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Chloroform	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
*2-Butanone	10.	U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
1,2-Dichloroethane	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
1,1,1-Trichloroethane	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Carbon Tetrachloride	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
*Vinyl Acetate	10.	U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
Bromodichloromethane	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
1,2-Dichloropropane	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Trichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Benzene	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Chlorodibromomethane	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
1,1,2-Trichloroethane	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240

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Certificate

Chemistry, Microbiology, and Technical Services

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0522VSBSI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
2-Chloroethyl vinyl ether	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Bromoform	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
*4-Methyl-2-pentanone	10. U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
*2-Hexanone	10. U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
1,1,2,2-Tetrachloroethane	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Tetrachloroethylene	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Toluene	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Chlorobenzene	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
trans-1,3-Dichloropropene	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Ethylbenzene	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
cis-1,3-Dichloropropene	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
*Styrene	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
*Total Xylenes	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240

*Additional compounds from the EPA's Hazardous Substances List.

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Chemistry, Microbiology, and Technical Services

Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0522VSBJ1
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

VOLATILE ORGANICS (BY GC/MS)

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Chloromethane	10. U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
Bromomethane	10. U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
Vinyl Chloride	10. U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
Chloroethane	10. U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
Methylene Chloride	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Acrolein	10. U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
*Acetone	10. U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
Acrylonitrile	10. U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
*Carbon Disulfide	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
1,1-Dichloroethylene	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
1,1-Dichloroethane	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
trans-1,2-Dichloroethylene	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Chloroform	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
*2-Butanone	10. U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
1,2-Dichloroethane	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
1,1,1-Trichloroethane	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Carbon Tetrachloride	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
*Vinyl Acetate	10. U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
Bromodichloromethane	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
1,2-Dichloropropane	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Trichloroethylene	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Benzene	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Chlorodibromomethane	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
1,1,2-Trichloroethane	5. U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240

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Chemistry, Microbiology, and Technical Services

Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0522VSBJ1
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
2-Chloroethyl vinyl ether	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Bromoform	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
*4-Methyl-2-pentanone	10.	U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
*2-Hexanone	10.	U	ug/kg,dry	10.	N/A	5/22/87	N/A	SW 8240
1,1,2,2-Tetrachloroethane	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Tetrachloroethylene	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Toluene	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Chlorobenzene	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
trans-1,3-Dichloropropene	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
Ethylbenzene	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
cis-1,3-Dichloropropene	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
*Styrene	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240
*Total Xylenes	5.	U	ug/kg,dry	5.	N/A	5/22/87	N/A	SW 8240

*Additional compounds from the EPA's Hazardous Substances List.

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Chemistry, Microbiology, and Technical Services

Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0522VSBJ2
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

VOLATILE ORGANICS (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Chloromethane	2,000.	U	ug/kg,dry	2,000.	N/A	5/22/87	N/A	SW 8240
Bromomethane	2,000.	U	ug/kg,dry	2,000.	N/A	5/22/87	N/A	SW 8240
Vinyl Chloride	2,000.	U	ug/kg,dry	2,000.	N/A	5/22/87	N/A	SW 8240
Chloroethane	2,000.	U	ug/kg,dry	2,000.	N/A	5/22/87	N/A	SW 8240
Methylene Chloride	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
Acrolein	2,000.	U	ug/kg,dry	2,000.	N/A	5/22/87	N/A	SW 8240
*Acetone	1,400.	J	ug/kg,dry	2,000.	N/A	5/22/87	N/A	SW 8240
Acrylonitrile	2,000.	U	ug/kg,dry	2,000.	N/A	5/22/87	N/A	SW 8240
*Carbon Disulfide	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
1,1-Dichloroethylene	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
1,1-Dichloroethane	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
trans-1,2-Dichloroethylene	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
Chloroform	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
*2-Butanone	2,000.	U	ug/kg,dry	2,000.	N/A	5/22/87	N/A	SW 8240
1,2-Dichloroethane	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
1,1,1-Trichloroethane	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
Carbon Tetrachloride	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
*Vinyl Acetate	2,000.	U	ug/kg,dry	2,000.	N/A	5/22/87	N/A	SW 8240
Bromodichloromethane	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
1,2-Dichloropropane	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
Trichloroethylene	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
Benzene	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
Chlorodibromomethane	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
1,1,2-Trichloroethane	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240

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SAIC I.D. NO.: N/A
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SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
2-Chloroethyl vinyl ether	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
Bromoform	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
*4-Methyl-2-pentanone	2,000.	U	ug/kg,dry	2,000.	N/A	5/22/87	N/A	SW 8240
*2-Hexanone	2,000.	U	ug/kg,dry	2,000.	N/A	5/22/87	N/A	SW 8240
1,1,2,2-Tetrachloroethane	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
Tetrachloroethylene	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
Toluene	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
Chlorobenzene	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
trans-1,3-Dichloropropene	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
Ethylbenzene	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
cis-1,3-Dichloropropene	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
*Styrene	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240
*Total Xylenes	1,000.	U	ug/kg,dry	1,000.	N/A	5/22/87	N/A	SW 8240

*Additional compounds from the EPA's Hazardous Substances List.

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LABORATORY I.D. NO.: 3894-0523VSBSI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

VOLATILE ORGANICS (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Chloromethane	10.	U	ug/kg,dry	10.	N/A	5/23/87	N/A	SW 8240
Bromomethane	10.	U	ug/kg,dry	10.	N/A	5/23/87	N/A	SW 8240
Vinyl Chloride	10.	U	ug/kg,dry	10.	N/A	5/23/87	N/A	SW 8240
Chloroethane	10.	U	ug/kg,dry	10.	N/A	5/23/87	N/A	SW 8240
Methylene Chloride	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
Acrolein	10.	U	ug/kg,dry	10.	N/A	5/23/87	N/A	SW 8240
*Acetone	10.	U	ug/kg,dry	10.	N/A	5/23/87	N/A	SW 8240
Acrylonitrile	10.	U	ug/kg,dry	10.	N/A	5/23/87	N/A	SW 8240
*Carbon Disulfide	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
1,1-Dichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
1,1-Dichloroethane	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
trans-1,2-Dichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
Chloroform	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
*2-Butanone	10.	U	ug/kg,dry	10.	N/A	5/23/87	N/A	SW 8240
1,2-Dichloroethane	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
1,1,1-Trichloroethane	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
Carbon Tetrachloride	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
*Vinyl Acetate	10.	U	ug/kg,dry	10.	N/A	5/23/87	N/A	SW 8240
Bromodichloromethane	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
1,2-Dichloropropane	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
Trichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
Benzene	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
Chlorodibromomethane	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
1,1,2-Trichloroethane	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240

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LABORATORY I.D. NO.: 3894-0523VSBSI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
2-Chloroethyl vinyl ether	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
Bromoform	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
*4-Methyl-2-pentanone	10.	U	ug/kg,dry	10.	N/A	5/23/87	N/A	SW 8240
*2-Hexanone	10.	U	ug/kg,dry	10.	N/A	5/23/87	N/A	SW 8240
1,1,2,2-Tetrachloroethane	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
Tetrachloroethylene	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
Toluene	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
Chlorobenzene	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
trans-1,3-Dichloropropene	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
Ethylbenzene	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
cis-1,3-Dichloropropene	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
*Styrene	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240
*Total Xylenes	5.	U	ug/kg,dry	5.	N/A	5/23/87	N/A	SW 8240

*Additional compounds from the EPA's Hazardous Substances List.

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LABORATORY I.D. NO.: 3894-0526VSBJI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

VOLATILE ORGANICS (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Chloromethane	10.	U	ug/kg,dry	10.	N/A	5/26/87	N/A	SW 8240
Bromomethane	10.	U	ug/kg,dry	10.	N/A	5/26/87	N/A	SW 8240
Vinyl Chloride	10.	U	ug/kg,dry	10.	N/A	5/26/87	N/A	SW 8240
Chloroethane	10.	U	ug/kg,dry	10.	N/A	5/26/87	N/A	SW 8240
Methylene Chloride	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
Acrolein	10.	U	ug/kg,dry	10.	N/A	5/26/87	N/A	SW 8240
*Acetone	5.	J	ug/kg,dry	10.	N/A	5/26/87	N/A	SW 8240
Acrylonitrile	10.	U	ug/kg,dry	10.	N/A	5/26/87	N/A	SW 8240
*Carbon Disulfide	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
1,1-Dichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
1,1-Dichloroethane	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
trans-1,2-Dichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
Chloroform	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
*2-Butanone	10.	U	ug/kg,dry	10.	N/A	5/26/87	N/A	SW 8240
1,2-Dichloroethane	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
1,1,1-Trichloroethane	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
Carbon Tetrachloride	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
*Vinyl Acetate	10.	U	ug/kg,dry	10.	N/A	5/26/87	N/A	SW 8240
Bromodichloromethane	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
1,2-Dichloropropane	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
Trichloroethylene	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
Benzene	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
Chlorodibromomethane	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
1,1,2-Trichloroethane	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240

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SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
2-Chloroethyl vinyl ether	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
Bromoform	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
*4-Methyl-2-pentanone	10.	U	ug/kg,dry	10.	N/A	5/26/87	N/A	SW 8240
*2-Hexanone	10.	U	ug/kg,dry	10.	N/A	5/26/87	N/A	SW 8240
1,1,2,2-Tetrachloroethane	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
Tetrachloroethylene	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
Toluene	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
Chlorobenzene	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
trans-1,3-Dichloropropene	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
Ethylbenzene	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
cis-1,3-Dichloropropene	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
*Styrene	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240
*Total Xylenes	5.	U	ug/kg,dry	5.	N/A	5/26/87	N/A	SW 8240

*Additional compounds from the EPA's Hazardous Substances List.

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TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0518SSBI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

SEMI-VOLATILES (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
N-nitrosodimethylamine	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Bis(2-chloroethyl)ether	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
2-Chlorophenol	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Phenol	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
1,3-Dichlorobenzene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
1,4-Dichlorobenzene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
1,2-Dichlorobenzene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Bis(2-chloroisopropyl)ether	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Hexachloroethane	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
N-nitroso-di-n-propylamine	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Nitrobenzene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Isophorone	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
2-Nitrophenol	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
2,4-Dimethylphenol	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Bis(2-chloroethoxy)methane	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
2,4-Dichlorophenol	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
1,2,4-Trichlorobenzene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Naphthalene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Hexachlorobutadiene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
4-Chloro-M-cresol	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Hexachlorocyclopentadiene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
2,4,6-Trichlorophenol	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
2-Chloronaphthalene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Acenaphthylene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270

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SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Dimethylphthalate	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
2,6-Dinitrotoluene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Acenaphthene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
2,4-Dinitrophenol	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
2,4-Dinitrotoluene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
4-Nitrophenol	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Fluorene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
4-Chlorophenyl phenyl ether	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Diethylphthalate	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
4,6-Dinitro-o-cresol	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
1,2-Diphenylhydrazine	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
4-Bromophenyl phenyl ether	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Hexachlorobenzene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Pentachlorophenol	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Phenanthrene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Anthracene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Dibutylphthalate	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Fluoranthene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Pyrene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Benzidine	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Butyl benzyl phthalate	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Benzo(a)anthracene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Chrysene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
3,3'-Dichlorobenzidine	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Bis(2-ethylhexyl)phthalate	650.		ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
N-nitrosodiphenylamine	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Di-n-octyl phthalate	100.		ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Benzo(b)fluoranthene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270

Lauchs
Testing Laboratories, Inc.
940 South Harney St. Seattle, Washington 98108 (206)767-5060
Chemistry, Microbiology, and Technical Services

Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0518SSBI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Benzo(k)fluoranthene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Benzo(a)pyrene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Indeno(1,2,3-cd)pyrene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Dibenzo(ah)anthracene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
Benzo(ghi)perylene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
*Aniline	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
*Benzoic Acid	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
*Benzyl Alcohol	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
*4-Chloroaniline	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
*Dibenzofuran	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
*2-Methylnaphthalene	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
*2-Methylphenol	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
*4-Methylphenol	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
*2-Nitroaniline	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
*3-Nitroaniline	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
*4-Nitroaniline	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270
2,4,5-Trichlorophenol	50.	U	ug/kg,dry	50.	5/18/87	5/23/87	SW 3550	SW 8270

*Additional compounds from the EPA's Hazardous Substances List.

Laucks
Testing Laboratories, Inc.

940 South Harney St. Seattle. Washington 98108 (206)767-5060

Chemistry, Microbiology, and Technical Services

Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0519SSBI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

SEMI-VOLATILES (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
N-nitrosodimethylamine	50.	U	g/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Bis(2-chloroethyl)ether	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
2-Chlorophenol	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Phenol	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
1,3-Dichlorobenzene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
1,4-Dichlorobenzene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
1,2-Dichlorobenzene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Bis(2-chloroisopropyl)ether	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Hexachloroethane	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
N-nitroso-di-n-propylamine	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Nitrobenzene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Isophorone	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
2-Nitrophenol	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
2,4-Dimethylphenol	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Bis(2-chloroethoxy)methane	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
2,4-Dichlorophenol	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
1,2,4-Trichlorobenzene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Naphthalene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Hexachlorobutadiene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
4-Chloro-M-cresol	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Hexachlorocyclopentadiene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
2,4,6-Trichlorophenol	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
2-Chloronaphthalene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Acenaphthylene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270

Laucks Testing Laboratories, Inc.

940 South Harney St., Seattle, Washington 98108 (206)767-5060

Chemistry, Microbiology and Technical Services

Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0519SSBI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Dimethylphthalate	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
2,6-Dinitrotoluene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Acenaphthene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
2,4-Dinitrophenol	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
2,4-Dinitrotoluene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
4-Nitrophenol	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Fluorene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
4-Chlorophenyl phenyl ether	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Diethylphthalate	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
4,6-Dinitro-o-cresol	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
1,2-Diphenylhydrazine	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
4-Bromophenyl phenyl ether	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Hexachlorobenzene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Pentachlorophenol	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Phenanthrene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Anthracene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Dibutylphthalate	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Fluoranthene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Pyrene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Benzidine	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Butyl benzyl phthalate	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Benzo(a)anthracene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Chrysene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
3,3'-Dichlorobenzidine	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Bis(2-ethylhexyl)phthalate	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
N-nitrosodiphenylamine	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Di-n-octyl phthalate	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Benzo(b)fluoranthene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270

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Testing Laboratories, Inc.

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Certificate

Chemistry, Microbiology, and Technical Services

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0519SSBI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Benzo(k)fluoranthene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Benzo(a)pyrene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Indeno(1,2,3-cd)pyrene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Dibenzo(ah)anthracene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
Benzo(ghi)perylene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
*Aniline	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
*Benzoic Acid	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
*Benzyl Alcohol	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
*4-Chloroaniline	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
*Dibenzofuran	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
*2-Methylnaphthalene	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
*2-Methylphenol	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
*4-Methylphenol	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
*2-Nitroaniline	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
*3-Nitroaniline	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
*4-Nitroaniline	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270
2,4,5-Trichlorophenol	50.	U	ug/kg,dry	50.	5/19/87	5/29/87	SW 3550	SW 8270

*Additional compounds from the EPA's Hazardous Substances List.

Laucks
Testing Laboratories, Inc.
940 South Harney St. Seattle, Washington 98108 (206)767-5060
Chemistry, Microbiology, and Technical Services

Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0520SSBI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

SEMI-VOLATILES (BY GC/MS)

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
N-nitrosodimethylamine	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Bis(2-chloroethyl)ether	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
2-Chlorophenol	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Phenol	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
1,3-Dichlorobenzene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
1,4-Dichlorobenzene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
1,2-Dichlorobenzene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Bis(2-chloroisopropyl)ether	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Hexachloroethane	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
N-nitroso-di-n-propylamine	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Nitrobenzene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Isophorone	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
2-Nitrophenol	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
2,4-Dimethylphenol	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Bis(2-chloroethoxy)methane	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
2,4-Dichlorophenol	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
1,2,4-Trichlorobenzene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Naphthalene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Hexachlorobutadiene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
4-Chloro-M-cresol	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Hexachlorocyclopentadiene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
2,4,6-Trichlorophenol	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
2-Chloronaphthalene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Acenaphthylene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270

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Testing Laboratories, Inc.
940 South Harney St. Seattle, Washington 98108 (206)767-5060
Chemistry, Microbiology, and Technical Services

Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0520SSBI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Dimethylphthalate	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
2,6-Dinitrotoluene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Acenaphthene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
2,4-Dinitrophenol	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
2,4-Dinitrotoluene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
4-Nitrophenol	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Fluorene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
4-Chlorophenyl phenyl ether	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Diethylphthalate	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
4,6-Dinitro-o-cresol	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
1,2-Diphenylhydrazine	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
4-Bromophenyl phenyl ether	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Hexachlorobenzene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Pentachlorophenol	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Phenanthrene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Anthracene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Dibutylphthalate	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Fluoranthene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Pyrene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Benzidine	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Butyl benzyl phthalate	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Benzo(a)anthracene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Chrysene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
3,3'-Dichlorobenzidine	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Bis(2-ethylhexyl)phthalate	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
N-nitrosodiphenylamine	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Di-n-octyl phthalate	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Benzo(b)fluoranthene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270

Lauchs
Testing Laboratories, Inc.
940 South Harney St. Seattle, Washington 98108 (206)767-5060

Chemistry, Microbiology, and Technical Services

Certificate

TO: Science Applications International Corporation

LABORATORY I.D. NO.: 3894-0520SSBI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Benzo(k)fluoranthene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Benzo(a)pyrene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Indeno(1,2,3-cd)pyrene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Dibenzo(ah)anthracene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
Benzo(ghi)perylene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
*Aniline	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
*Benzoic Acid	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
*Benzyl Alcohol	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
*4-Chloroaniline	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
*Dibenzofuran	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
*2-Methylnaphthalene	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
*2-Methylphenol	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
*4-Methylphenol	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
*2-Nitroaniline	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
*3-Nitroaniline	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
*4-Nitroaniline	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270
2,4,5-Trichlorophenol	2,500.	U	ug/kg,dry	2,500.	5/20/87	6/01/87	SW 3550	SW 8270

*Additional compounds from the EPA's Hazardous Substances List.

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LABORATORY I.D. NO.: 3894-0526SSBI
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

SEMI-VOLATILES (BY GC/MS)

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
N-nitrosodimethylamine	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Bis(2-chloroethyl)ether	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
2-Chlorophenol	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Phenol	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
1,3-Dichlorobenzene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
1,4-Dichlorobenzene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
1,2-Dichlorobenzene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Bis(2-chloroisopropyl)ether	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Hexachloroethane	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
N-nitroso-di-n-propylamine	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Nitrobenzene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Isophorone	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
2-Nitrophenol	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
2,4-Dimethylphenol	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Bis(2-chloroethoxy)methane	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
2,4-Dichlorophenol	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
1,2,4-Trichlorobenzene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Naphthalene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Hexachlorobutadiene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
4-Chloro-M-cresol	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Hexachlorocyclopentadiene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
2,4,6-Trichlorophenol	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
2-Chloronaphthalene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Acenaphthylene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270

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SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Dimethylphthalate	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
2,6-Dinitrotoluene	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Acenaphthene	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
2,4-Dinitrophenol	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
2,4-Dinitrotoluene	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
4-Nitrophenol	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Fluorene	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
4-Chlorophenyl phenyl ether	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Diethylphthalate	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
4,6-Dinitro-o-cresol	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
1,2-Diphenylhydrazine	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
4-Bromophenyl phenyl ether	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Hexachlorobenzene	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Pentachlorophenol	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Phenanthrene	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Anthracene	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Dibutylphthalate	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Fluoranthene	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Pyrene	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Benzidine	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Butyl benzyl phthalate	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Benzo(a)anthracene	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Chrysene	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
3,3'-Dichlorobenzidine	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Bis(2-ethylhexyl)phthalate	52.		ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
N-nitrosodiphenylamine	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Di-n-octyl phthalate	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Benzo(b)fluoranthene	50.	U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270

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SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Method Prepared	Method Analyzed
Benzo(k)fluoranthene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Benzo(a)pyrene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Indeno(1,2,3-cd)pyrene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Dibenzo(ah)anthracene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
Benzo(ghi)perylene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
*Aniline	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
*Benzoic Acid	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
*Benzyl Alcohol	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
*4-Chloroaniline	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
*Dibenzofuran	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
*2-Methylnaphthalene	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
*2-Methylphenol	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
*4-Methylphenol	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
*2-Nitroaniline	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
*3-Nitroaniline	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
*4-Nitroaniline	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270
2,4,5-Trichlorophenol	50. U	ug/kg,dry	50.	5/26/87	6/01/87	SW 3550	SW 8270

*Additional compounds from the EPA's Hazardous Substances List.

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SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

INORGANICS - E. P. TOXICITY

	Test Result/Flag		Unit	LLD	Date Prepared	Date Analyzed	Extraction Method	Method Prepared	Method Analyzed
Arsenic	0.2	U	mg/L	0.2	5/28/87	6/01/87	SW 1310	LX EP-3	SW 6010
Barium	0.1	U	mg/L	0.1	5/28/87	6/01/87	SW 1310	LX EP-3	SW 6010
Cadmium	0.01	U	mg/L	0.01	5/28/87	6/01/87	SW 1310	LX EP-3	SW 6010
Chromium	0.1	U	mg/L	0.1	5/28/87	6/01/87	SW 1310	LX EP-3	SW 6010
Lead	0.1	U	mg/L	0.1	5/28/87	6/01/87	SW 1310	LX EP-3	SW 6010
Mercury	0.005	U	mg/L	0.005	6/03/87	6/03/87	SW 1310	SW 7470	SW 7470
Selenium	0.2	U	mg/L	0.2	5/28/87	6/01/87	SW 1310	LX EP-3	SW 6010
Silver	0.1	U	mg/L	0.1	5/28/87	6/01/87	SW 1310	LX EP-3	SW 6010

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LABORATORY I.D. NO.:	3894-B0530GPX.WKI
SAIC I.D. NO.:	N/A
DATE OF SAMPLE RECEIPT:	N/A
SAMPLE MATRIX:	SOIL METHOD BLANK

ORGANICS - E. P. TOXICITY

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Extraction Method	Method Prepared	Method Analyzed
Endrin	0.0001 U	mg/L	0.0001	5/30/87	6/02/87	SW 1310	SW 3510	SW 8080
Methoxychlor	0.0005 U	mg/L	0.0005	5/30/87	6/02/87	SW 1310	SW 3510	SW 8080
Toxaphene	0.01 U	mg/L	0.01	5/30/87	6/02/87	SW 1310	SW 3510	SW 8080
Lindane	0.00005 U	mg/L	0.00005	5/30/87	6/05/87	SW 1310	SW 3510	SW 8080

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LABORATORY I.D. NO.: 3894-80612GHB.WLQ
SAIC I.D. NO.: N/A
DATE OF SAMPLE RECEIPT: N/A
SAMPLE MATRIX: SOIL METHOD BLANK

ORGANICS - E. P. TOXICITY

	Test Result/Flag	Unit	LLD	Date Prepared	Date Analyzed	Extraction Method	Method Prepared	Method Analyzed
2,4-D	0.0005 U	mg/L	0.0005	6/12/87	6/14/87	SW 1310	SW 3510	SW 8150
2,4,5-TP (silvex)	0.0005 U	mg/L	0.0005	6/12/87	6/14/87	SW 1310	SW 3510	SW 8150

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APPENDIX A

Method Blank Summary

Blank Name	Sample Numbers	Analyte	Result	Units
BO519ICPS01	1 - 19	Silver	0.5 U	mg/kg, dry
BO519ICPS01	1 - 19	Beryllium	0.1 U	mg/kg, dry
BO519ICPS01	1 - 19	Cadmium	0.5 U	mg/kg, dry
BO519ICPS01	1 - 19	Chromium	1. U	mg/kg, dry
BO519ICPS01	1 - 19	Copper	2.	mg/kg, dry
BO519ICPS01	1 - 19	Lead	10. U	mg/kg, dry
BO519ICPS01	1 - 19	Nickel	2. U	mg/kg, dry
BO519ICPS01	1 - 19	Zinc	4.	mg/kg, dry
BO519ICPS02	1 - 19	Silver	0.5 U	mg/kg, dry
BO519ICPS02	1 - 19	Beryllium	0.1 U	mg/kg, dry
BO519ICPS02	1 - 19	Cadmium	0.5 U	mg/kg, dry
BO519ICPS02	1 - 19	Chromium	1. U	mg/kg, dry
BO519ICPS02	1 - 19	Copper	1. U	mg/kg, dry
BO519ICPS02	1 - 19	Lead	10. U	mg/kg, dry
BO519ICPS02	1 - 19	Nickel	2. U	mg/kg, dry
BO519ICPS02	1 - 19	Zinc	3.	mg/kg, dry
BO528HGS01	1 - 12	Mercury	0.1 U	mg/kg, dry
BO528HGS02	1 - 12	Mercury	0.1 U	mg/kg, dry
BO522HYS01	1 - 19	Selenium	1.1	mg/kg, dry
BO522HYS01	1 - 19	Arsenic	0.5 U	mg/kg, dry

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Blank Name	Sample Numbers	Analyte	Result	Units
B05250GS01	1 - 19	Pet. H.C.	20. U	mg/kg, dry
B0519ICPS01	1 - 19	Antimony	3. U	mg/kg, dry
B0527GFS01	1 - 50	Thallium	0.5 U	mg/kg, dry
B0601HG01	13 - 35	Mercury	0.1 U	mg/kg, dry
B0601HG02	13 - 35	Mercury	0.1 U	mg/kg, dry
B0605HGS01	50, 61 - 77	Mercury	0.1 U	mg/kg, dry
B0605HGS02	50, 61 - 77	Mercury	0.1 U	mg/kg, dry
B0528HYS01	20 - 50	Arsenic	0.5 U	mg/kg, dry
B0528HYS02	20 - 50	Arsenic	0.5 U	mg/kg, dry
B0528HYS01	20 - 50	Selenium	1.8	mg/kg, dry
B0528HYS02	20-50	Selenium	1.7	mg/kg, dry
B05280GS01	20 - 50	Pet. H.C.	20. U	mg/kg, dry
B0526ICPS01	20 - 50	Antimony	3. U	mg/kg, dry
B0526ICPS01	20 - 50	Silver	0.5 U	mg/kg, dry
B0526ICPS01	20 - 50	Beryllium	0.1 U	mg/kg, dry
B0526ICPS01	20 - 50	Cadmium	0.5 U	mg/kg, dry
B0526ICPS01	20 - 50	Chromium	1. U	mg/kg, dry
B0526ICPS01	20 - 50	Copper	1. U	mg/kg, dry
B0526ICPS01	20 - 50	Lead	10. U	mg/kg, dry
B0526ICPS01	20 - 50	Nickel	2. U	mg/kg, dry
B0526ICPS01	20 - 50	Zinc	3.	mg/kg, dry
B0526ICPS02	20 - 50	Silver	0.5 U	mg/kg, dry
B0526ICPS02	20 - 50	Beryllium	0.1 U	mg/kg, dry
B0526ICPS02	20 - 50	Cadmium	0.5 U	mg/kg, dry
B0526ICPS02	20 - 50	Chromium	1. U	mg/kg, dry
B0526ICPS02	20 - 50	Copper	1. U	mg/kg, dry
B0526ICPS02	20 - 50	Lead	10. U	mg/kg, dry
B0526ICPS02	20 - 50	Nickel	2. U	mg/kg, dry
B0526ICPS02	20 - 50	Zinc	3.	mg/kg, dry

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Blank Name	Sample Numbers	Analyte	Result	Units
B0528ICPS01	51 - 77	Silver	0.5 U	mg/kg, dry
B0528ICPS01	51 - 77	Beryllium	0.1 U	mg/kg, dry
B0528ICPS01	51 - 77	Cadmium	0.5 U	mg/kg, dry
B0528ICPS01	51 - 77	Chromium	1. U	mg/kg, dry
B0528ICPS01	51 - 77	Copper	1. U	mg/kg, dry
B0528ICPS01	51 - 77	Lead	10. U	mg/kg, dry
B0528ICPS01	51 - 77	Nickel	2. U	mg/kg, dry
B0528ICPS01	51 - 77	Zinc	1. U	mg/kg, dry
B0528ICPS02	51 - 77	Silver	0.5 U	mg/kg, dry
B0528ICPS02	51 - 77	Beryllium	0.1 U	mg/kg, dry
B0528ICPS02	51 - 77	Cadmium	0.5 U	mg/kg, dry
B0528ICPS02	51 - 77	Chromium	1. U	mg/kg, dry
B0528ICPS02	51 - 77	Copper	1. U	mg/kg, dry
B0528ICPS02	51 - 77	Lead	10. U	mg/kg, dry
B0528ICPS02	51 - 77	Nickel	2. U	mg/kg, dry
B0528ICPS02	51 - 77	Zinc	1. U	mg/kg, dry
B0601HYS01	51 - 77	Arsenic	0.5 U	mg/kg, dry
B0601HYS02	51 - 77	Arsenic	0.5 U	mg/kg, dry
B0601HYS01	51 - 77	Selenium	0.9	mg/kg, dry
B0601HYS02	51 - 77	Selenium	1.2	mg/kg, dry
B06100GS01	66 - 77	Pet. H.C.	20. UX	mg/kg, dry
B06120GS01	51 - 62	Pet. H.C.	20. UX	mg/kg, dry
B0528ICPS03	51 - 62	Antimony	3.	mg/kg, dry
B0529GFS01	51 - 62	Thallium	0.5 U	mg/kg, dry

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Sample	Analyte	Spike Added (parts per million (mg/kg))	Sample Result (parts per million (mg/kg))	MS Result (parts per million (mg/kg))	% Rec	MSD Result (mg/kg)	% Rec	RPD	QC Limits RPD	QC Limits REC
39	Arsenic	25.	4.1	28.	94.	28.	94.	0.	*	*
50	Arsenic	25.	5.7	28.	88.	29.	93.	3.	*	*
29	Pet. H.C.	415.	20.UX	390.X	95.	390.X	95.	0.	*	*
49	Pet. H.c.	420.	20.UX	410.X	94.	390.X	90.	4.	*	*
39	✗ Selenium	2.5	0.5UX	2.9	116.	2.6	104.	11.	*	*
50	Selenium	2.5	0.5UX	2.4	96.	2.1	84.	13.	*	*
39	✓Antimony	12.5	3.U	12.	94.	10.5	80.	~~16.~~	*	*
35	Mercury	0.27	0.1U	26.	94.	0.26	94.	0.	*	*
50	Mercury	0.26	0.1U	0.27	108.	0.27	108.	0.	*	*
39	✓Silver	10.	0.5U	6.4	64.	6.5	65.	~~2.~~	*	*
39	Beryllium	5.	0.3	4.3	78.	4.6	86.	10.#	8.	61-113
39	Cadmium	5.	0.5U	4.6	91.	4.6	92.	1.	26.	65-124
39	Chromium	100.	11.	93.	82.	97.	85.	4.	10.	76-123
39	Copper	100.	10.	91.	81.	95.	85.	5.	11.	80-118
39	Lead	100.	10.U	87.	79.	91.	83.	5.	40.	66-135
39	Nickel	100.	7.	92.	85.	95.	88.	3.	21.	75-128
39	Zinc	100.	32.B	110.B	76.	110.B	82.	8.	24.	67-121
37	✓Thallium	2.5	0.5U	3.3	133.	3.3	133.	~~0.~~	*	*
55	✓Silver	10.	0.5U	5.3	53.	7.0	70.	~~28.~~	*	*
55	Beryllium	5.	0.7	4.9	84.	5.2	90.	7.	8.	61-113
55	Cadmium	5.	0.5U	4.5	89.	43.	85.	5.	26.	65-124
55	Chromium	100.	14.	110.	92.	100.	89.	3.	10.	76-123
55	Copper	100.	18.	110.	89.	100.	86.	3.	11.	80-118
55	Lead	100.	10.U	100.	93.	100.	93.	0.	40.	66-135
55	Nickel	100.	11.	100.	92.	100.	91.	1.	21.	75-128
55	Zinc	100.	54.	160.	106.	150.	97.	9.	24.	67-121
76	✓Silver	10.	0.5U	6.6	66.	6.9	69.	~~4.~~	*	*
76	Beryllium	5.	0.6	4.8	90.	4.6	80.	12.	8.	61-113
76	Cadmium	5.	0.5U	4.3	87.	42.	84.	3.	26.	65-124
76	Chromium	100.	13.	98.	85.	95.	83.	2.	10.	76-123
76	Copper	100.	9.	90.	81.	89.	80.	1.	11.	80-118
76	Lead	100.	10.U	97.	88.	96.	86.	2.	40.	66-135
76	Nickel	100.	6.	94.	88.	91.	85.	3.	21.	75-128
76	Zinc	100.	53.	140.	85.	140.	87.	2.	24.	67-121

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		parts per million (mg/kg)				mg/kg			QC Limits	
Sample	Analyte	Spike Added	Sample Result	MS Result	% Rec	MSD Result	% Rec	RPD	RPD	REC
77	Arsenic	25.	6.8	30.	93.	31.	96.	3.	*	*
77	Selenium	2.5	0.5UX	2.2	88.	2.4	96.	9.	*	*
67	Mercury	0.26	0.05U	0.27	102.	0.27	102.	0.	*	*
77	Mercury	0.27	0.05U	0.28	106.	0.28	106.	0.	*	*
68	Pet.H.C.	420.	37.X	390.X	83.	360.X	76.	9.	*	*
59	Pet.H.C.	480.	20.UX	450.X	94.	450.X	92.	2.	*	*
62	✓Thallium	2.5	0.5U	2.6	101.	2.6	101.	~~0.~~	*	*
55	✓Antimony	12.5	3.U	11.	44.	24.	95.	~~73.~~	*	*
76	✓Antimony	12.5	3.U	14.	55.	26.	102.	~~60.~~	*	*
60	✓Thallium	2.5	0.5U	13.	51.	12.	49.	~~4.~~	*	*
45.	✓Silver	10.	0.5U	6.1	61.	7.0	70.	~~14.~~	*	*
45	Beryllium	5.	0.3	4.5	84.	4.6	86.	2.	*	*
45	Cadmium	5.	0.5U	4.6	91.	4.4	88.	3.	*	*
45	Chromium	100.	15.	100.	85.	97.	82.	4.	*	*
45	Copper	100.	7.	93.	86.	91.	84.	2.	*	*
45	Lead	100.	10.U	90.	84.	89.	84.	0.	*	*
45	Nickel	100.	11.	95.	84.	97.	86.	2.	*	*
45	Zinc	100.	39.B	120.B	82.	120.B	78.	5.	*	*
45	✓Antimony	12.5	3.U	7.4	54.	8.2	62.	~~14.~~	*	*
21	✓Thallium	2.5	0.5U	13.	53.	13.	50.	~~6.~~	*	*

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APPENDIX B

Replicate Quality Control Report

Sample #	Analyte	Replicate 1 (%)	Replicate 2 (%)	Relative Error, %
8	TS	84.6	83.8	1.0
19	TS	87.1	87.1	0.
46	TS	95.2	95.4	0.2
50	TS	96.6	96.6	0.
77	TS	94.1	94.3	0.2

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APPENDIX C

Matrix Spike/Matrix Spike Duplicate Report

Inorganics/Metals Analyses

		parts per million (mg/kg)				mg/kg			QC Limits	
Sample	Analyte	Spike Added	Sample Result	MS Result	% Rec	MSD Result	% Rec	RPD	RPD	REC
6	Arsenic	25.	9.7	32.	89.	33.	94.	5.	*	*
6	Selenium	2.5	0.5UX	2.2X	88.	2.4X	96.	9.	*	*
1	Pet. H.C.	46.D	120.X	540.X	92.	530.X	89.	3.	*	*
6	✓Antimony	25.	3.U	26.	103.	24.	95.	~~8.~~	*	*
9	✓Thallium	2.5	0.5U	2.1	88.	2.2	91.	~~3.~~	*	*
6	✓Silver	10.	0.5U	8.1	81.	8.3	83.	~~2.~~	*	*
6	Beryllium	5.	0.2	4.8	93.	4.8	92.	1.	8.	61-113
6	Cadmium	5.	0.5U	4.6	91.	4.8	97.	6.	26.	65-124
6	Chromium	100.	6.	110.	99.	100.	97.	2.	10.	76-126
6	Copper	100.	6.	100.	98.	100.	98.	0.	11.	80-118
6	Lead	100.	10.U	110.	107.	100.	103.	4.	40.	66-135
6	Nickel	100.	2.U	100.	105.	100.	102.	3.	21.	75-128
6	Zinc	100.	26.8	130.	102.	130.	102.	0.	24.	67-121
11	Mercury	0.26	0.1U	0.24	92.	0.23	88.	4.	*	*
19	Mercury	0.28	0.1U	0.29	100.	0.29	100.	0.	*	*

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APPENDIX D

Matrix Spike/Matrix Spike Duplicate Report

Organics

Reported below are the results of additional QC compounds utilized in the analysis of organic compounds. Compounds of interest are spiked into two additional sample aliquots prior to extraction and/or analysis to monitor for matrix effects, sample processing errors, and to calculate percent recoveries of compunds of interest and relative error in the analysis. The control limits represent the 95% confidence interval established in the laboratory through repetitive analysis of these sample types.

		parts per billion (ug/kg)				ug/kg			QC Limits	
Sample	Analyte	Spike Added	Sample Result	MS Result	% Rec	MSD Result	% Rec	RPD	RPD	REC
71	2,4-D	41.	0.	35.	85.	36.	88.	3.5	*	*
71	2,4,5-TP	21.	0.14	17.	81.	17.	81.	0.	*	*
		parts per billion (ug/L)				ug/L				
65	Lindane	0.20	0.0	0.26	130.	0.55	275.	71.6	15.	56-120
65	Heptachlor	0.20	0.0	0.19	95.0	0.18	90.0	5.4	20.	40-131
65	Aldrin	0.20	0.0	0.15	75.0	0.14	70.0	6.9	22.	40-120
65	Dieldrin	0.50	0.0	0.34	68.0	0.37	74.0	-8.5	18.	52-126
65	Endrin	0.50	0.0	0.51	102.	0.55	110.	-7.5	21.	56-121
65	DDT	0.50	0.0	0.29	58.0	0.27	54.0	7.1	27.	38-120

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Sample #7

Compound	Conc Spike (ug/kg)	Conc Samp (ug/kg)	Conc MS (ug/kg)	% REC	Conc MSD (ug/kg)	% REC	RPD	RPD Limit	REC Limit
1,1-Dichloroethene	88.3	0.	112.	127.	95.3	108.	16.	22	59-172
Trichloroethene	88.3	0.	105.	119.	102.	116.	2.6	24	62-137
Chlorobenzene	88.3	0.	99.9	113.	98.7	112.	0.9	21	60-133
Toluene	88.3	0.	84.4	95.6	86.1	97.5	-1.97	21	59-139
Benzene	88.3	0.	81.7	92.5	80.9	91.6	1.0	21	66-142

Sample #14

Compound	Conc Spike	Conc Samp	Conc MS	% REC	Conc MSD	% REC	RPD	RPD Limit	REC Limit
1,1-Dichloroethene	99.0	0.	134.	135.	129.	130.	3.8	22	59-172
Trichloroethene	99.0	0.	126.	127.	125.	126.	0.8	24	62-137
Chlorobenzene	99.0	0.	122.	123.	122.	123.	0.	21	60-133
Toluene	99.0	0.	119.	120.	118.	119.	0.8	21	59-139
Benzene	99.0	0.	124.	125.	124.	125.	0.	21	66-142

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LABORATORY NO. 3894

Sample #40

Compound	Conc Spike (ug/kg)	Conc Samp (ug/kg)	Conc MS (ug/kg)	% REC	Conc MSD (ug/kg)	% REC	RPD	RPD Limit	REC Limit
1,1-Dichloroethene	87.1	0.	57.8	66.4	56.5	64.9	2.3	22	59-172
Trichloroethene	87.1	0.	78.8	90.5	88.2	101.	-11.	24	62-137
Chlorobenzene	87.1	0.	84.9	97.5	95.3	109.	-11.	21	60-133
Toluene	87.1	0.	74.8	85.9	81.9	94.0	-9.	21	59-139
Benzene	87.1	0.	66.8	76.7	77.6	89.1	-15.	21	66-142

Sample #76

Compound	Conc Spike	Conc Samp	Conc MS	% REC	Conc MSD	% REC	RPD	RPD Limit	REC Limit
1,1-Dichloroethene	122.	0.	135.	111.	157.	129.	-15.	22	59-172
Trichloroethene	122.	0.	155.	127.	155.	127.	0.	24	62-137
Chlorobenzene	122.	0.	146.	120.	148.	121.	-0.8	21	60-133
Toluene	122.	0.	151.	124.	150.	123.	0.8	21	59-139
Benzene	122.	0.	156.	128.	160.	131.	-2.3	21	66-142

Key

Conc = Concentration
Samp = Sample
MS = Matrix Spike
MSD = Matrix Spike Duplicate
REC = Recovery
RPD = Relative Percent Difference

MS/MSD REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE REPORT

LABORATORY NO. 3894
CLIENT: SAIC
MATRIX: SOIL

UNITS REPORTED IN:UG ADDED

SMP NO.	ANALYTE	SPIKE ADDED	SAMPLE RESULT	FOR CALC.	MS RESULT	% REC	MSD RESULT	% REC	RPD	QC LIMITS RPD	QC LIMITS % REC
67	1,2,4-TRICHLOROBENZENE	100.0	<1.25	0	58.0	58.0	69.6	69.6	18.2	0-23	38-107
	ACENAPHTHENE	100.0	<1.25	0	63.2	63.2	74.9	74.9	17.0	0-19	31-137
	2,4-DINITROTOLUENE	100.0	<1.25	0	62.1	62.1	67.4	67.4	8.3	0-47	28-89
	PYRENE	100.0	<1.25	0	65.9	65.9	72.4	72.4	9.4	0-36	35-142
	N-NITROSO-DI-N-PROPYLAMINE	100.0	<1.25	0	76.9	76.9	80.5	80.5	4.6	0-38	41-126
___B/N___	1,4-DICHLOROBENZENE	100.0	<1.25	0	60.2	60.2	69.9	69.9	14.8	0-27	28-104
	PENTACHLOROPHENOL	200.0	<1.25	0	72.8	36.4	106.3	53.2	37.4	0-47	17-109
	PHENOL	200.0	<1.25	0	124.3	62.2	146.1	73.0	16.1	0-35	26-90
	2-CHLOROPHENOL	200.0	<1.25	0	144.8	72.4	167.2	83.6	14.3	0-50	25-102
	4-CHLORO-3-METHYLPHENOL	200.0	<1.25	0	162.5	81.2	168.1	84.0	3.4	0-33	26-103
__ACIDS__	4-NITROPHENOL	200.0	<1.25	0	134.6	67.3	157.8	78.9	15.8	0-50	11-114

MS/MSD REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE REPORT

LABORATORY NO.3694
CLIENT:SAIC
MATRIX:SOIL

UNITS REPORTED IN:UG ADDED

SMP_NO.	ANALYTE	SPIKE ADDED	SAMPLE RESULT	FOR CALC.	MS RESULT	% REC	MSD RESULT	% REC	RPD	QC LIMITS RPD	QC LIMITS % REC
9	1,2,4-TRICHLOROBENZENE	100.0	<1.25	0	67.6	67.6	56.7	56.7	17.5	0-23	38-107
	ACENAPHTHENE	100.0	<1.25	0	64.5	64.5	51.1	51.1	23.1	0-19	31-137
	2,4-DINITROTOLUENE	100.0	<1.25	0	91.5	91.5	82.4	82.4	10.3	0-47	28-89
	PYRENE	100.0	<1.25	0	65.5	65.5	61.9	61.9	5.7	0-36	35-142
	N-NITROSO-DI-N-PROPYLAMINE	100.0	<1.25	0	66.3	66.3	55.1	55.1	18.4	0-38	41-126
___B/N___	1,4-DICHLOROBENZENE	100.0	<1.25	0	41.6	41.6	34.4	34.4	18.9	0-27	28-104
	PENTACHLOROPHENOL	200.0	<1.25	0	42.6	21.3	36.5	18.3	15.4	0-47	17-109
	PHENOL	200.0	<1.25	0	114.2	57.1	98.5	49.2	14.7	0-35	26-90
	2-CHLOROPHENOL	200.0	<1.25	0	169.7	84.9	148.8	74.4	13.2	0-50	25-102
	4-CHLORO-3-METHYLPHENOL	200.0	<1.25	0	169.6	84.8	129.0	64.5	27.2	0-33	26-103
ACIDS__	4-NITROPHENOL	200.0	<1.25	0	134.6	67.3	128.7	64.4	4.5	0-50	11-114

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APPENDIX E

Surrogate Recovery Quality Control Report

Attached are surrogate (chemically similar) compounds utilized in the analysis of organic compounds. The surrogates are added to every sample prior to extraction and analysis to monitor for matrix effects, purging efficiency, and sample processing errors. The control limits represent the 95% confidence interval established in our laboratory through repetitive analysis of these sample types.

Comment Key

C. Matrix interference. Presence of unknown constituents in the sample (which were not on your list of analytes and therefore were not determined) will occasionally interfere with our ability to detect your target compounds at a more sensitive level, or will mask or enhance the measurement of spiking compound concentrations.

JOB No. 3894 DATE: 06/01/87

Sample No. MB1 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	83		25 - 121
d5-Phenol	79		24 - 113
2-Bromophenol	80		44 - 112
d5-Nitrobenzene	84		23 - 120
2-Fluorobiphenyl	69		30 - 115
d10-Azobenzene	84		60 - 126
2.4.6-Tribromophenol	87		19 - 122
d14-p-Terphenyl	82		18 - 137

Sample No. 20 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	79		25 - 121
d5-Phenol	89		24 - 113
2-Bromophenol	80		44 - 112
d5-Nitrobenzene	75		23 - 120
2-Fluorobiphenyl	72		30 - 115
d10-Azobenzene	87		60 - 126
2.4.6-Tribromophenol	81		19 - 122
d14-p-Terphenyl	81		18 - 137

Sample No. 22 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	75		25 - 121
d5-Phenol	81		24 - 113
2-Bromophenol	69		44 - 112
d5-Nitrobenzene	74		23 - 120
2-Fluorobiphenyl	67		30 - 115
d10-Azobenzene	76		60 - 126
2.4.6-Tribromophenol	90		19 - 122
d14-p-Terphenyl	73		18 - 137

Sample No. 17 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	80		25 - 121
d5-Phenol	73		24 - 113
2-Bromophenol	68		44 - 112
d5-Nitrobenzene	84		23 - 120
2-Fluorobiphenyl	85		30 - 115
d10-Azobenzene	96		60 - 126
2.4.6-Tribromophenol	71		19 - 122
d14-p-Terphenyl	122		18 - 137

Sample No. 18 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	79		25 - 121
d5-Phenol	88		24 - 113
2-Bromophenol	78		44 - 112
d5-Nitrobenzene	104		23 - 120
2-Fluorobiphenyl	121		30 - 115
d10-Azobenzene	106		60 - 126
2.4.6-Tribromophenol	40		19 - 122
d14-p-Terphenyl	76.		18 - 137

Sample No. 19 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	44		25 - 121
d5-Phenol	62		24 - 113
2-Bromophenol	48		44 - 112
d5-Nitrobenzene	68		23 - 120
2-Fluorobiphenyl	71		30 - 115
d10-Azobenzene	75		60 - 126
2.4.6-Tribromophenol	25		19 - 122
d14-p-Terphenyl	109		18 - 137

Sample No. 14 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	62		25 - 121
d5-Phenol	71		24 - 113
2-Bromophenol	62		44 - 112
d5-Nitrobenzene	77		23 - 120
2-Fluorobiphenyl	90		30 - 115
d10-Azobenzene	79		60 - 126
2.4.6-Tribromophenol	37		19 - 122
d14-p-Terphenyl	110		18 - 137

Sample No. 15 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	75		25 - 121
d5-Phenol	75		24 - 113
2-Bromophenol	68		44 - 112
d5-Nitrobenzene	80		23 - 120
2-Fluorobiphenyl	83		30 - 115
d10-Azobenzene	76		60 - 126
2.4.6-Tribromophenol	64		19 - 122
d14-p-Terphenyl	119		18 - 137

Sample No. 16 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	66		25 - 121
d5-Phenol	71		24 - 113
2-Bromophenol	62		44 - 112
d5-Nitrobenzene	72		23 - 120
2-Fluorobiphenyl	92		30 - 115
d10-Azobenzene	78		60 - 126
2.4.6-Tribromophenol	33		19 - 122
d14-p-Terphenyl	129		18 - 137

JOB No. 3894 DATE: 06/11/87

Sample No. 9 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	67		25 - 121
d5-Phenol	72		24 - 113
2-Bromophenol	66		44 - 112
d5-Nitrobenzene	86		23 - 120
2-Fluorobiphenyl	96		30 - 115
d10-Azobenzene	77		60 - 126
2.4.6-Tribromophenol	47		19 - 122
d14-p-Terphenyl	112		18 - 137

Sample No. 9MS Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	74		25 - 121
d5-Phenol	72		24 - 113
2-Bromophenol	71		44 - 112
d5-Nitrobenzene	74		23 - 120
2-Fluorobiphenyl	86		30 - 115
d10-Azobenzene	88		60 - 126
2.4.6-Tribromophenol	72		19 - 122
d14-p-Terphenyl	120		18 - 137

Sample No. 9MSD Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	58		25 - 121
d5-Phenol	57		24 - 113
2-Bromophenol	55		44 - 112
d5-Nitrobenzene	63		23 - 120
2-Fluorobiphenyl	66		30 - 115
d10-Azobenzene	75		60 - 126
2.4.6-Tribromophenol	67		19 - 122
d14-p-Terphenyl	118		18 - 137

Sample No. 23 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	58		25 - 121
d5-Phenol	82		24 - 113
2-Bromophenol	62		44 - 112
d5-Nitrobenzene	78		23 - 120
2-Fluorobiphenyl	72		30 - 115
d10-Azobenzene	88		60 - 126
2.4.6-Tribromophenol	26		19 - 122
d14-p-Terphenyl	72		18 - 137

Sample No. 24 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	82		25 - 121
d5-Phenol	89		24 - 113
2-Bromophenol	82		44 - 112
d5-Nitrobenzene	86		23 - 120
2-Fluorobiphenyl	71		30 - 115
d10-Azobenzene	90		60 - 126
2.4.6-Tribromophenol	103		19 - 122
d14-p-Terphenyl	75		18 - 137

JOB No. 3894   DATE: 06/02/87

Sample No. MB2   Matrix: SOIL   Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	78		25 - 121
d5-Phenol	75		24 - 113
2-Bromophenol	74		44 - 112
d5-Nitrobenzene	64		23 - 120
2-Fluorobiphenyl	62		30 - 115
d10-Azobenzene	62		60 - 126
2.4.6-Tribromophenol	59		19 - 122
d14-p-Terphenyl	84		18 - 137

Sample No. 21   Matrix: SOIL   Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	86		25 - 121
d5-Phenol	86		24 - 113
2-Bromophenol	88		44 - 112
d5-Nitrobenzene	69		23 - 120
2-Fluorobiphenyl	72		30 - 115
d10-Azobenzene	76		60 - 126
2.4.6-Tribromophenol	82		19 - 122
d14-p-Terphenyl	86		18 - 137

JOB No. 3894 DATE: 06/02/87

Sample No. MB3 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	87		25 - 121
d5-Phenol	82		24 - 113
2-Bromophenol	85		44 - 112
d5-Nitrobenzene	80		23 - 120
2-Fluorobiphenyl	70		30 - 115
d10-Azobenzene	86		60 - 126
2.4.6-Tribromophenol	71		19 - 122
d14-p-Terphenyl	87		18 - 137

Sample No. 66 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	82		25 - 121
d5-Phenol	78		24 - 113
2-Bromophenol	78		44 - 112
d5-Nitrobenzene	78		23 - 120
2-Fluorobiphenyl	74		30 - 115
d10-Azobenzene	74		60 - 126
2.4.6-Tribromophenol	71		19 - 122
d14-p-Terphenyl	90		18 - 137

Sample No. 67 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	75		25 - 121
d5-Phenol	76		24 - 113
2-Bromophenol	72		44 - 112
d5-Nitrobenzene	69		23 - 120
2-Fluorobiphenyl	67		30 - 115
d10-Azobenzene	68		60 - 126
2.4.6-Tribromophenol	75		19 - 122
d14-p-Terphenyl	75		18 - 137

Sample No. 67MS Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	66		25 - 121
d5-Phenol	69		24 - 113
2-Bromophenol	68		44 - 112
d5-Nitrobenzene	62		23 - 120
2-Fluorobiphenyl	61		30 - 115
d10-Azobenzene	72		60 - 126
2,4,6-Tribromophenol	72		19 - 122
d14-p-Terphenyl	70		18 - 137

Sample No. 67MSD Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	85		25 - 121
d5-Phenol	85		24 - 113
2-Bromophenol	81		44 - 112
d5-Nitrobenzene	78		23 - 120
2-Fluorobiphenyl	74		30 - 115
d10-Azobenzene	77		60 - 126
2,4,6-Tribromophenol	84		19 - 122
d14-p-Terphenyl	79		18 - 137

Sample No. 0518SSB1 Matrix: SOIL Analysis: MS-ABN

Surrogate Compound	Percent Recovery	Comment	Control Limits
2-Fluorophenol	61		25 - 121
d5-Phenol	62		24 - 113
2-Bromophenol	56		44 - 112
d5-Nitrobenzene	71		23 - 120
2-Fluorobiphenyl	79		30 - 115
d10-Azobenzene	69		60 - 126
2.4.6-Tribromophenol	45		19 - 122
d14-p-Terphenyl	113		18 - 137

JOB No. 3694   DATE: 06/11/87

Sample No. B0530GPXWK1   Matrix: WATER   Analysis: PEST

Surrogate Compound	Percent Recovery	Comment	Control Limits
Dibutylchlorendate	84		24 - 150
Isodrin	41		43 - 118

Sample No. 63   Matrix: WATER   Analysis: PEST

Surrogate Compound	Percent Recovery	Comment	Control Limits
Dibutylchlorendate	97		24 - 150
Isodrin	51		43 - 118

Sample No. 64   Matrix: WATER   Analysis: PEST

Surrogate Compound	Percent Recovery	Comment	Control Limits
Dibutylchlorendate	86		24 - 150
Isodrin	26		43 - 118

Sample No. 65   Matrix: WATER   Analysis: PEST

Surrogate Compound	Percent Recovery	Comment	Control Limits
Dibutylchlorendate	90		24 - 150
Isodrin	59		43 - 118

Sample No. 65MSD   Matrix: WATER   Analysis: PEST

Surrogate Compound	Percent Recovery	Comment	Control Limits
Dibutylchlorendate	74		24 - 150
Isodrin	56		43 - 118

Sample No. 65MS Matrix: WATER Analysis: PEST

Surrogate Compound	Percent Recovery	Comment	Control Limits
Dibutylchlorendate	74		24 - 150
Isodrin	27		43 - 118

Sample No. 71 Matrix: WATER Analysis: PEST

Surrogate Compound	Percent Recovery	Comment	Control Limits
Dibutylchlorendate	95		24 - 150
Isodrin	33		43 - 118

Sample No. 72 Matrix: WATER Analysis: PEST

Surrogate Compound	Percent Recovery	Comment	Control Limits
Dibutylchlorendate	96		24 - 150
Isodrin	56		43 - 118

JOB No. 3894   DATE: 07/02/87

Sample No. 1   Matrix: SOIL   Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	86		74 - 121
d4-1,2-Dichloroethane	98		70 - 121
d8-Toluene	101		81 - 117

Sample No. 3   Matrix: SOIL   Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	91		74 - 121
d4-1,2-Dichloroethane	98		70 - 121
d8-Toluene	106		81 - 117

Sample No. 4   Matrix: SOIL   Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	120		74 - 121
d4-1,2-Dichloroethane	112		70 - 121
d8-Toluene	108		81 - 117

Sample No. 5   Matrix: SOIL   Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	90		74 - 121
d4-1,2-Dichloroethane	83		70 - 121
d8-Toluene	94		81 - 117

Sample No. 6 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	92		74 - 121
d4-1.2-Dichloroethane	101		70 - 121
d8-Toluene	95		81 - 117

Sample No. 7 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	94		74 - 121
d4-1.2-Dichloroethane	98		70 - 121
d8-Toluene	105		81 - 117

Sample No. 8 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	86		74 - 121
d4-1.2-Dichloroethane	98		70 - 121
d8-Toluene	96		81 - 117

Sample No. 0511VSBJ1 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	92		74 - 121
d4-1.2-Dichloroethane	97		70 - 121
d8-Toluene	93		81 - 117

JOB No. 3694 DATE: 06/19/87

Sample No. 7MS Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	83		74 - 121
d4-1.2-Dichloroethane	111		70 - 121
d8-Toluene	96		81 - 117

Sample No. 7MSD Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	81		74 - 121
d4-1.2-Dichloroethane	111		70 - 121
d8-Toluene	96		81 - 117

JOB No. 3894 DATE: 06/05/87

Sample No. 9 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	97		74 - 121
d4-1.2-Dichloroethane	96		70 - 121
d8-Toluene	95		81 - 117

Sample No. 10 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	98		74 - 121
d4-1.2-Dichloroethane	93		70 - 121
d8-Toluene	96		81 - 117

Sample No. 11 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	107		74 - 121
d4-1.2-Dichloroethane	99		70 - 121
d8-Toluene	100		81 - 117

Sample No. 12 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	112		74 - 121
d4-1.2-Dichloroethane	102		70 - 121
d8-Toluene	104		81 - 117

JOB No. 3894 DATE: 06/24/87

Sample No. 13 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	112		74 - 121
d4-1.2-Dichloroethane	103		70 - 121
d8-Toluene	108		81 - 117

Sample No. 14 MS Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	101		74 - 121
d4-1.2-Dichloroethane	104		70 - 121
d8-Toluene	99		81 - 117

Sample No. 14 MSD Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	100		74 - 121
d4-1.2-Dichloroethane	102		70 - 121
d8-Toluene	99		81 - 117

Sample No. 26 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	112		74 - 121
d4-1.2-Dichloroethane	126 *	C	70 - 121
d8-Toluene	104		81 - 117

Sample No. 14 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	105		74 - 121
d4-1.2-Dichloroethane	95		70 - 121
d8-Toluene	105		81 - 117

Sample No. 15 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	98		74 - 121
d4-1.2-Dichloroethane	102		70 - 121
d8-Toluene	110		81 - 117

Sample No. 16 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	112		74 - 121
d4-1.2-Dichloroethane	100		70 - 121
d8-Toluene	88		81 - 117

Sample No. 17 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	98		74 - 121
d4-1.2-Dichloroethane	97		70 - 121
d8-Toluene	99		81 - 117

JOB No. 3894 DATE: 06/05/87

Sample No. 20 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	99		74 - 121
d4-1.2-Dichloroethane	99		70 - 121
d8-Toluene	104		81 - 117

Sample No. 21 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	87		74 - 121
d4-1.2-Dichloroethane	97		70 - 121
d8-Toluene	95		81 - 117

Sample No. 22 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	100		74 - 121
d4-1.2-Dichloroethane	97		70 - 121
d8-Toluene	102		81 - 117

Sample No. 23 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	95		74 - 121
d4-1.2-Dichloroethane	106		70 - 121
d8-Toluene	104		81 - 117

Sample No. 24 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	102		74 - 121
d4-1.2-Dichloroethane	97		70 - 121
d8-Toluene	101		81 - 117

Sample No. 25 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	97		74 - 121
d4-1.2-Dichloroethane	92		70 - 121
d8-Toluene	105		81 - 117

Sample No. 27 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	96		74 - 121
d4-1.2-Dichloroethane	108		70 - 121
d8-Toluene	103		81 - 117

Sample No. 0520VS8J1 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	97		74 - 121
d4-1.2-Dichloroethane	100		70 - 121
d8-Toluene	102		81 - 117

JOB No. 3894 DATE: 06/04/87

Sample No. 18 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	97		74 - 121
d4-1,2-Dichloroethane	125		70 - 121
d8-Toluene	102		81 - 117

Sample No. 19 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	93		74 - 121
d4-1,2-Dichloroethane	~~113~~ 113		70 - 121
d8-Toluene	108		81 - 117

Sample No. 28 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	92		74 - 121
d4-1,2-Dichloroethane	124		70 - 121
d8-Toluene	111		81 - 117

Sample No. 29 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	93		74 - 121
d4-1,2-Dichloroethane	123		70 - 121
d8-Toluene	112		81 - 117

Sample No. 30 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
-Bromofluorobenzene	94		74 - 121
_4-1.2-Dichloroethane	119		70 - 121
d8-Toluene	111		81 - 117

ample No. 3' Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	93		74 - 121
4-1.2-Dichloroethane	118		70 - 121
d8-Toluene	109		81 - 117

Sample No. 32 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	94		74 - 121
d4-1.2-Dichloroethane	121		70 - 121
8-Toluene	111		81 - 117

Sample No. 33 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	94		74 - 121
d4-1.2-Dichloroethane	124 *		70 - 121
.8-Toluene	111		81 - 117

Sample No. 34 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	91		74 - 121
d4-1,2-Dichloroethane	123 ✓		70 - 121
d8-Toluene	107		81 - 117

Sample No. 35 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	94		74 - 121
d4-1,2-Dichloroethane	109		70 - 121
d8-Toluene	107		81 - 117

Sample No. 36 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	94		74 - 121
d4-1,2-Dichloroethane	110		70 - 121
d8-Toluene	108		81 - 117

Sample No. 37 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	93		74 - 121
d4-1,2-Dichloroethane	108		70 - 121
d8-Toluene	106		81 - 117

Sample No. 38 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	94		74 - 121
d4-1,2-Dichloroethane	110		70 - 121
d8-Toluene	109		81 - 117

Sample No. 39 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	93		74 - 121
d4-1,2-Dichloroethane	112		70 - 121
d8-Toluene	107		81 - 117

Sample No. 0521VS8J1 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	95		74 - 121
d4-1,2-Dichloroethane	106		70 - 121
d8-Toluene	102		81 - 117

JOB No. 3894 DATE: 06/05/87

Sample No. 40MSD Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	95		74 - 121
d4-1.2-Dichloroethane	100		70 - 121
d8-Toluene	102		81 - 117

Sample No. 40 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	92		74 - 121
d4-1.2-Dichloroethane	100		70 - 121
d8-Toluene	101		81 - 117

Sample No. 40MS Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	97		74 - 121
d4-1.2-Dichloroethane	104		70 - 121
d8-Toluene	102		81 - 117

Sample No. 41 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	96		74 - 121
d4-1.2-Dichloroethane	103		70 - 121
d8-Toluene	105		81 - 117

Sample No. 43 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	113		74 - 121
d4-1.2-Dichloroethane	127	C	70 - 121
d8-Toluene	102		81 - 117

Sample No. 54 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	97		74 - 121
d4-1.2-Dichloroethane	102		70 - 121
d8-Toluene	99		81 - 117

Sample No. 55 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	98		74 - 121
d4-1.2-Dichloroethane	104		70 - 121
d8-Toluene	101		81 - 117

Sample No. 56 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	94		74 - 121
d4-1.2-Dichloroethane	111		70 - 121
d8-Toluene	99		81 - 117

Sample No. 42 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	96		74 - 121
d4-1.2-Dichloroethane	101		70 - 121
d8-Toluene	103		81 - 117

Sample No. 44 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	89		74 - 121
d4-1.2-Dichloroethane	96		70 - 121
d8-Toluene	97		81 - 117

Sample No. 45 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	97		74 - 121
d4-1.2-Dichloroethane	93		70 - 121
d8-Toluene	103		81 - 117

Sample No. 46 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	103		74 - 121
d4-1.2-Dichloroethane	92		70 - 121
d8-Toluene	104		81 - 117

Sample No. 47 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	98		74 - 121
d4-1.2-Dichloroethane	94		70 - 121
d8-Toluene	104		81 - 117

Sample No. 48 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	97		74 - 121
d4-1.2-Dichloroethane	98		70 - 121
d8-Toluene	102		81 - 117

Sample No. 49 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	97		74 - 121
d4-1.2-Dichloroethane	98		70 - 121
d8-Toluene	105		81 - 117

Sample No. 50 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	95		74 - 121
d4-1.2-Dichloroethane	103		70 - 121
d8-Toluene	104		81 - 117

Sample No. 51 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	94		74 - 121
d4-1.2-Dichloroethane	100		70 - 121
d8-Toluene	102		81 - 117

Sample No. 52 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	98		74 - 121
d4-1.2-Dichloroethane	99		70 - 121
d8-Toluene	102		81 - 117

Sample No. 53 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	93		74 - 121
d4-1.2-Dichloroethane	96		70 - 121
d8-Toluene	101		81 - 117

Sample No. 0523VS8S1 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	94		74 - 121
d4-1.2-Dichloroethane	95		70 - 121
d8-Toluene	100		81 - 117

Sample No. 61 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	100		74 - 121
d4-1.2-Dichloroethane	109		70 - 121
d8-Toluene	101		81 - 117

Sample No. 62 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	101		74 - 121
d4-1.2-Dichloroethane	119		70 - 121
d8-Toluene	101		81 - 117

Sample No. 66 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	96		74 - 121
d4-1.2-Dichloroethane	127	C	70 - 121
d8-Toluene	103		81 - 117

Sample No. 0522V8J2 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	101		74 - 121
d4-1.2-Dichloroethane	106		70 - 121
d8-Toluene	103		81 - 117

Sample No. 57	Matrix: SOIL	Analysis: MS-VOA	
Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	102		74 - 121
d4-1.2-Dichloroethane	103		70 - 121
d8-Toluene	100		81 - 117

Sample No. 58	Matrix: SOIL	Analysis: MS-VOA	
Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	99		74 - 121
d4-1.2-Dichloroethane	102		70 - 121
d8-Toluene	99		81 - 117

Sample No. 59	Matrix: SOIL	Analysis: MS-VOA	
Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	100		74 - 121
d4-1.2-Dichloroethane	112		70 - 121
d8-Toluene	98		81 - 117

Sample No. 60	Matrix: SOIL	Analysis: MS-VOA	
Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	101		74 - 121
d4-1.2-Dichloroethane	102		70 - 121
d8-Toluene	101		81 - 117

JOB No. 3894   DATE: 06/11/87

Sample No. 67   Matrix: SOIL   Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	96		74 - 121
d4-1,2-Dichloroethane	91		70 - 121
d8-Toluene	103		81 - 117

Sample No. 68   Matrix: SOIL   Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	96		74 - 121
d4-1,2-Dichloroethane	88		70 - 121
d8-Toluene	96		81 - 117

Sample No. 69   Matrix: SOIL   Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	95		74 - 121
d4-1,2-Dichloroethane	99		70 - 121
d8-Toluene	100		81 - 117

Sample No. 70   Matrix: SOIL   Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	97		74 - 121
d4-1,2-Dichloroethane	90		70 - 121
d8-Toluene	101		81 - 117

Sample No. 73 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	96		74 - 121
d4-1.2-Dichloroethane	90		70 - 121
d8-Toluene	102		81 - 117

Sample No. 74 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	102		74 - 121
d4-1.2-Dichloroethane	90		70 - 121
d8-Toluene	102		81 - 117

Sample No. 76MSD Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	101		74 - 121
d4-1.2-Dichloroethane	102		70 - 121
d8-Toluene	103		81 - 117

Sample No. 76 .... Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	101		74 - 121
d4-1.2-Dichloroethane	102		70 - 121
d8-Toluene	104		81 - 117

Sample No. 76MS   Matrix: SOIL   Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	101		74 - 121
d4-1.2-Dichloroethane	101		70 - 121
d8-Toluene	104		81 - 117

Sample No. 77 ....   Matrix: SOIL   Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	102		74 - 121
d4-1.2-Dichloroethane	91		70 - 121
d8-Toluene	106		81 - 117

Sample No. 75[illegible]   Matrix: SOIL   Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	102		74 - 121
d4-1.2-Dichloroethane	90		70 - 121
d8-Toluene	102		81 - 117

Sample No. 0522VS8J1 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	96		74 - 121
d4-1.2-Dichloroethane	118		70 - 121
d8-Toluene	100		81 - 117

Sample No. 0522VSB1 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	97		74 - 121
d4-1.2-Dichloroethane	99		70 - 121
d8-Toluene	99		81 - 117

JOB No. 3894 DATE: 06/19/87

Sample No. 2RI Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	105		74 - 121
d4-1.2-Dichloroethane	84		70 - 121
d8-Toluene	98		81 - 117

Sample No. 0513VMSBJ1 Matrix: SOIL Analysis: MS-VOA

Surrogate Compound	Percent Recovery	Comment	Control Limits
p-Bromofluorobenzene	90		74 - 121
d4-1.2-Dichloroethane	82		70 - 121
d8-Toluene	91		81 - 117

:OB No. 3894 DATE: 06/15/87

Sample No. 80612GHB.WLQ Matrix: WATER Analysis: HERB

Surrogate Compound	Percent Recovery	Comment	Control Limits
..4.5-T	85		61 - 127

Sample No. 63 Matrix: WATER Analysis: HERB

Surrogate Compound	Percent Recovery	Comment	Control Limits
2.4.5-T	99		61 - 127

Sample No. 64 Matrix: WATER Analysis: HERB

Surrogate Compound	Percent Recovery	Comment	Control Limits
2.4.5-T	137	C	61 - 127

Sample No. 65 Matrix: WATER Analysis: HERB

Surrogate Compound	Percent Recovery	Comment	Control Limits
2.4.5-T	94		61 - 127

Sample No. 71 Matrix: WATER Analysis: HERB

Surrogate Compound	Percent Recovery	Comment	Control Limits
2.4.5-T	99		61 - 127

Sample No. 71MS Matrix: WATER Analysis: HERB

Surrogate Compound	Percent Recovery	Comment	Control Limits
2.4.5-T	80		61 - 127

Sample No. 71MSD Matrix: WATER Analysis: HERB

Surrogate Compound	Percent Recovery	Comment	Control Limits
2.4.5-T	78		61 - 127

Sample No. 72 Matrix: WATER Analysis: HERB

Surrogate Compound	Percent Recovery	Comment	Control Limits
2.4.5-T	87		61 - 127

Additional Laboratory Replicate Sample Analyses Results

TABLE 1
Customer Sample Number Verses Laboratory Number

Sample Number	Customer Sample Number		Analysis
870513-001	MW-6-1-1		VOA, BNA, metals, petroleum hydrocarbons
870513-002	SB-1-1-10		VOA, metals, petroleum hydrocarbons
870518-002	SB-5-1-5		VOA, BNA, metals, petroleum hydrocarbons
870518-003	SB-1-2-2	(EPA Split)	VOA, metals, petroleum hydrocarbons
870518-004	SB-1-5-4		VOA, metals, petroleum hydrocarbons
870518-005	QA-2-1-6	(Field Blank)	VOA, metals, petroleum hydrocarbons
870521-059	SB-2-2-2		VOA, metals, petroleum hydrocarbons
870521-060	SD-1-3		VOA, metals, petroleum hydrocarbons
870521-061	SL-1-1-1		Ignitibility
870521-062	TS-6-1		Ignitibility
870521-063	SL-1-1-1	(EP Toxicity)	EP Toxicity Metals
870521-064	TS-6-1	(EP Toxicity)	EP Toxicity Metals
870604-083	MW-1-1	(EPA Split)	VOA, metals, petroleum hydrocarbons

TABLE 2
Laboratory Blank Samples

Lab Number of Blank	Associated Samples
Laboratory Blanks for VOAs	
870618-079	QA-2-1-6
870731-044	MW-6-1-1 SB-1-1-10 SB-5-1-5 SB-1-5-4 SB-2-2-2 SD-1-3 MW-1-1
870805-039	SB-1-2-2
Laboratory Blanks for BNAs	
870601-001	MW-6-1-1 SB-5-1-5
Laboratory Blanks for EP Toxicity Metals	
870527-070	SL-1-1-1 TS-6-1

CHAIN-OF-CUSTODY

PROJ NO. SAIC 127-03-347-02	PROJECT NAME Gowen Field, Boise ID

SAMPLERS: (Signature) J. Eric Gibson
J. Eric Gibson

NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	Pet. Hydro.	VOC	metals	BNA			REMARKS
	6/2	1710		✓	MW-1-1 7/30/87 (58)	4	✓	✓	✓				IEPA Split
						4							

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
J. Eric Gibson		M M Lindauer 6/4/87 1200			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

OJ NO. AIC 9-03 347-02	PROJECT NAME Gowen Field, Boise, ID

LERS: (Signature) J. Eric Gibson

GE
GEM

NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	Petro Hydrocarbons	VOC	Metals	BNA	EP Tox (Metals Only)	Ig	REMARKS
	5/15	1005		✓	SB-2-2-2 7/30/87	(75) 2	✓	✓	✓				
	5/15	1100		✓	SD-1-3 7/30/87	(75) 2	✓	✓	✓				
	5/15	1030	✓		SL-1-1-1	2				✓	✓		
	5/15	0935		✓	TS-6-1	1							

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
J. Eric Gibson	5/19 1415	M M Lindauer 5/20/87 10:10			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

CHAIN OF CUSTODY RECORD

PROJ NO. SAIC # 827-03-341-02

PROJECT NAME Gowen Field, Boise ID

PLERS: (Signature) J. Eric Gibson

NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Petroleum Hydrocarbons	VOC's	Metals	BN/A Extractables			REMARKS
	5/13	0700		✓	QA-2-1-6 6/18/87 (77)	4	✓	✓	✓				Field Blank Water
	5/12	1320		✓	SB-5-1-5 7/25 7/30/87 (78)	2	✓	✓	✓	✓			
	5/13	0830		✓	SB-1-22 8/5/87 (83)	2	✓	✓	✓				IEPA split
	5/14	0325		✓	SB-1-5-4 7/30/87 (76)	2	✓	✓	✓				Soil

NO indication of acid on Bott. PH OK unchecked BY M.L.

NOT cold received in CARDBOARD w. dry ice.

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
J. Eric Gibson	5-14-87 1447	MM Lindauer 5/15/87 1020			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

CHAIN OF CUSTODY RECORD

870518-002,005

PROJ. NO. AIC 27-03-347-02

PROJECT NAME: Gowen Field, Boise, ID

SAMPLERS: (Signature) J. Eric Gibson

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Petroleum Hydro.	Metals	VOC	BNA			REMARKS
	5-8-87	0910		✓	MW-6-1-1 7/25/87 7/30/87 (82)	2	✓	✓	✓	✓			
	5-7-87	1215		✓	SB-1-1-10 7/30/87 (83)	2	✓	✓	✓				

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
J. Eric Gibson	5-11-87 / 1727				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		[illegible signature]	5/12/87 / 1015	

LABORATORY DATA SET

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name: [illegible]
Customer Sample Number: [illegible]   Lab Sample Number: 870518-001
Date Sample Received: 18-MAY-1987   Date Sample Completed: 11-AUG-1987
Date Sampled: Sampled By:
Material Description: [illegible]   Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
190202	EPA-3050(7.5)	EPA-6010	Antimony	<5.0	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Beryllium	1.2	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Cadmium	<0.50	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Chromium	20	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Copper	17	ug/g	EA HESTER	[illegible]
	EPA-3050(7.5)	EPA-6010	Lead	9.2	ug/g	EA HESTER	[illegible]
	EPA-3050(7.5)	EPA-6010	Nickel	13	ug/g	EA HESTER	[illegible]
	EPA-3050(7.5)	EPA-6010	Silver	<0.50	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Zinc	47	ug/g	EA HESTER	19-JUN-1987
192003		EPA-7060	Arsenic	3.4	mg/kg	LG HAMILTON	1-JUL-1987
		EPA-7740	Selenium	<0.5	mg/kg	LG HAMILTON	1-JUL-1987
		EPA-7841	Thallium	<1.0	mg/kg	LG HAMILTON	1-JUL-1987
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] SCHAEFER	[illegible]
[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]

[illegible]

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 870513-001
Laboratory Name: Organic Mass Spectroscopy
File ID: 2021
Instrument ID: FINN-5100
Data Release Authorized By: [illegible] Canada

Customer Sample ID: MW-5-1-1
Customer Name: SCWEN
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 13-MAY-1987

[illegible]atile Organic Compounds - HSL

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Moisture: [illegible]
Percent Moisture (decanted):
Associated Blank: 870731-044

Date Analyzed: 30-JUL-1987
Analysis Procedure Number: EPA-8240
Conc/Dilution Factor: 5
Analyst: [illegible]

CAS		ug/kg
74-87-3	chloromethane	50U
74-83-9	bromomethane	50U
75-01-4	vinyl chloride	50U
75-00-3	chloroethane	50U
75-09-2	methylene chloride	30 B
67-64-1	acetone	1150 J
75-15-0	carbon disulfide	25U
75-35-4	1,1-dichloroethene	25U
75-34-3	1,1-dichloroethane	25U
[illegible]	trans-1,2-dichloroethene	25U
[illegible]	chloroform	25U
[illegible]	1,2-dichloroethane	25U
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

CAS		ug/kg
79-00-5	1,1,2-trichloroethane	25U
71-43-2	benzene	25U
10061-02-6	trans-1,3-dichloropropene	25U
110-75-8	2-chloroethylvinyl ether	[illegible]
75-25-2	bromoform	25U
108-10-1	4-methyl-2-pentanone	50U
591-78-6	2-hexanone	50U
127-18-4	tetrachloroethene	25U
79-34-5	1,1,2,2-tetrachloroethane	25U
[illegible]	toluene	[illegible]
[illegible]	[illegible] benzene	[illegible]
[illegible]	ethylbenzene	[illegible]
[illegible]	[illegible]	[illegible]
	total xylenes	[illegible]

[illegible]

[illegible] Compound was analyzed for but not detected. The number is the attainable detection limit for the [illegible]
[illegible] [illegible] was found in the reagent [illegible]
[illegible] indicates an estimated value.
[illegible] detected.

Surrogate Recovery Data
[illegible]

[illegible]	[illegible]	[illegible]	Percent Recovered
[illegible]			
[illegible]			[illegible]
[illegible]			

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 870513-001
Laboratory Name: Organic Mass Spectroscopy
File ID:) 06202
Instrument ID: HP5985
Data Release Authorized By: DC Canada

Customer Sample ID: MW-6-1-1
Customer Name: BOWEN
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 13-MAY-1987

B/N/A Fraction Organic Compounds - HSL

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Moisture: 13
Percent Moisture (decanted):
Associated Blank: 870601-001

Date Analyzed: 25-JUL-1987
Analysis Procedure Number: EPA-8270
Conc/Dilution Factor: 1.0
Analyst: [illegible] HOLSOPPLE

CAS		ug/kg	CAS		ug/kg
108-95-2	phenol	330U	106-47-8	4-chloroaniline	[illegible]
111-44-4	bis(2-chloroethyl)ether	[illegible]	87-68-3	hexachlorobutadiene	[illegible]
95-57-8	2-chlorophenol	330U	59-50-71-5	4-chloro-3-methylphenol	[illegible]
541-73-1	1,3-dichlorobenzene	330U	91-57-6	2-methylnaphthalene	[illegible]
106-46-7	1,4-dichlorobenzene	330U	77-47-4	hexachlorocyclopentadiene	330U
100-51-6	benzyl alcohol	330U	88-06-2	2,4,6-trichlorophenol	330U
95-50-1	1,2-dichlorobenzene	330U	95-95-4	2,4,5-trichlorophenol	1600U
95-48-7	2-methylphenol	330U	91-58-7	2-chloronaphthalene	330U
39638-32-9	bis(2-chloroisopropyl)ether	330U	88-74-4	2-nitroaniline	1600U
106-44-5	4-methylphenol	87	131-11-3	dimethylphthalate	[illegible]
621-64-7	n-nitroso-di-n-propylamine	[illegible]	208-96-8	acenaphthylene	[illegible]
67-72-1	hexachloroethane	330U	99-09-2	3-nitroaniline	[illegible]
[illegible]	nitrobenzene	[illegible]	[illegible]	acenaphthene	[illegible]
[illegible]	isophorone	[illegible]	[illegible]	2,4-dinitrophenol	[illegible]
[illegible]	2-nitrophenol	[illegible]	[illegible]	4-nitrophenol	[illegible]
[illegible]	2,4-dimethylphenol	[illegible]	[illegible]	dibenzofuran	[illegible]
65-85-0	benzoic acid	[illegible]	121-14-2	2,4-dinitrotoluene	[illegible]
[illegible]	bis(2-chloroethoxy)methane	[illegible]	[illegible]	2,6-dinitrotoluene	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	diethyl phthalate	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	naphthalene	[illegible]	[illegible]	fluorene	[illegible]

[illegible]

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent [illegible] the sample.
J - Indicates an estimated value.
[illegible] Detected.

AnaLIS ID: 870513-001
Laboratory Name: Organic Mass Spectroscopy
File ID:) 06202
Instrument ID: HP5985
Data Release Authorized By: DC Canada

Customer Sample ID: MW-6-1-1
Customer Name: SOWEN
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 13-MAY-1987

B/N/A Fraction Organic Compounds - HSL

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Moisture: 19
Percent Moisture (decanted):
Associated Blank: 870601-001

Date Analyzed: 25-JUL-1987
Analysis Procedure Number: EPA-8270
Conc/Dilution Factor: 1.0
Analyst: L HOLSOPPLE

CAS		ug/kg
100-01-6	4-nitroaniline	1600U
534-52-1	4,6-dinitro-2-methylphenol	1600U
86-30-6	N-nitrosodiphenylamine	330U
101-55-3	4-bromophenyl-phenylether	330U
118-74-1	hexachlorobenzene	330U
87-86-5	pentachlorophenol	1600U
85-01-8	phenanthrene	330U
120-12-7	anthracene	33[illegible]
84-74-2	di-n-butylphthalate	330U
206-44-0	fluoranthene	[illegible]
129-00-0	pyrene	[illegible]
85-68-7	butylbenzylphthalate	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	benz[illegible]anthracene	[illegible]
[illegible]-7	bis(2-ethylhexyl)phthalate	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]-84-0	di-n-octylphthalate	330U
[illegible]	benzo[illegible]fluoranthene	[illegible]
[illegible]	benzo[illegible]fluoranthene	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

CAS		ug/kg
53-70-3	dibenz(a,h)anthracene	330U
191-24-2	benzo(g,h,i)perylene	330U

[illegible]

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not detected.

Surrogate Recovery Data

[illegible]	[illegible]	[illegible]	Percent Recovered
[illegible]		[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
TERPHENYL-D14	[illegible]	33	33.0

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 870513-001
Laboratory Name: Organic Mass Spectroscopy
File ID:) G6202
Instrument ID: HP5985
Data Release Authorized By: [illegible]

Customer Sample ID: AW-6-1-1
Customer Name: BOWEN
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 13-MAY-1987

Tentatively Identified Compounds

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Moisture: 19
Percent Moisture (decanted):
Associated Blank: [illegible]

Date Analyzed: 25-JUL-1987
Analysis Procedure Number: EPA-8270
Conc/Dilution Factor: 1.0
Analyst: [illegible]

CAS		ug/kg	CAS		ug/kg
	DIACETONE ALCOHOL	170100 B J		VALERIC ACID	[illegible] J
	BUTYL CELLOSOLVE	190 J		PALMITIC ACID	[illegible]
	ALKYL KETONE	2900 J		DIMETHYL HEPTANE	[illegible] J
	UNKNOWN #1	4550 J		TRIMETHYL HEXANE	[illegible] J
	DIOCTYL SEBACATE	[illegible] J		UNKNOWN HYDROCARBONS	37400 J
	UNKNOWN #2	[illegible] J			

Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not detected.

[illegible]

[illegible] = SK POLING
[illegible] = 2-JUN-1987

4w

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name:	GOWEN		
Customer Sample Number:	SB-1-1-10	Lab Sample Number:	870513-002
Date Sample Received:	13-MAY-1987	Date Sample Completed:	3-AUG-1987
Date Sampled:		Sampled By:	
Material Description:	GOWEN AFB	Req. Number:	

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
090208	EPA-3050(7.5)	EPA-6010	Antimony	16	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Beryllium	0.68	ug/g	EA HESTER	19-JUN-198
	EPA-3050(7.5)	EPA-6010	Cadmium	<0.30	ug/g	EA HESTER	19-JUN-198
	EPA-3050(7.5)	EPA-6010	Chromium	12	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Copper	6.3	ug/g	EA HESTER	19-JUN-19
	EPA-3050(7.5)	EPA-6010	Lead	6.8	ug/g	EA HESTER	19-JUN-19
	EPA-3050(7.5)	EPA-6010	Nickel	4.9	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Silver	<0.60	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Zinc	42	ug/g	EA HESTER	19-JUN-19
102003		EPA-7060	Arsenic	4.4	mg/kg	LG HAMILTON	1-JUL-1987
		EPA-7740	Selenium	<0.5	mg/kg	LG HAMILTON	1-JUL-19
		EPA-7841	Thallium	<1.0	mg/kg	LG HAMILTON	1-JUL-1987
103003	EPA-7471	EPA-7471	Mercury	<1.0	ug/g	C. SCHAEFER	[illegible]
[illegible]	EPA-3550	EPA-418.1	Petroleum Hydrocarbons	0.009	%	CA SEDLACEK	[illegible]-JUL-1987

Program Manager: MS Miller
Date Approved: 3-AUG-1987

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 870513-002
Laboratory Name: Organic Mass Spectroscopy
File ID: 2022
Instrument ID: FINN-5100
Data Release Authorized By: DC Canada

Customer Sample ID: SB-1-1-10
Customer Name: GOWEN
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 13-MAY-1987

Volatile Organic Compounds - HSL

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Mositure: 0
Percent Moisture (decanted):
Associated Blank: 870731-044

Date Analyzed: 30-JUL-1987
Analysis Procedure Number: EPA-8240
Conc/Dilution Factor: 5
Analyst: L HOLSOPPLE

CAS		ug/kg	CAS		ug/kg
74-87-3	chloromethane	50U	79-00-5	1,1,2-trichloroethane	25U
74-83-9	bromomethane	50U	71-43-2	benzene	25U
75-01-4	vinyl chloride	50U	10061-02-6	trans-1,3-dichloropropene	25U
75-00-3	chloroethane	50U	110-75-8	2-chloroethylvinyl ether	50U
75-09-2	methylene chloride	30 B	75-25-2	bromoform	25U
67-64-1	acetone	50U	108-10-1	4-methyl-2-pentanone	50U
75-15-0	carbon disulfide	25U	591-78-6	2-hexanone	50U
75-35-4	1,1-dichloroethene	25U	127-18-4	tetrachloroethene	25U
75-34-3	1,1-dichloroethane	25U	79-34-5	1,1,2,2-tetrachloroethane	25U
156-60-5	trans-1,2-dichloroethene	25U	108-88-3	toluene	5
67-66-3	chloroform	25U	108-90-7	chlorobenzene	25U
107-06-2	1,2-dichloroethane	25U	100-41-4	ethylbenzene	25U
78-93-3	2-butanone	40 B	100-42-5	styrene	25U
71-55-6	1,1,1-trichloroethane	25U		total xylenes	25U
56-23-5	carbon tetrachloride	25U			
108-05-4	vinyl acetate	50U			
75-27-4	bromodichloromethane	25U			
78-87-5	1,2-dichloropropane	25U			
10061-01-5	cis-1,3-dichloropropene	25U			
79-01-6	trichloroethene	25U			
124-48-1	dibromochloromethane	25U			

Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - indicates an estimated value.
ND - Not Detected.

Surrogate Recovery Data

Surrogate Compound	Amount Added	Amount Recovered	Percent Recovered
TOLUENE-D8	50	45	90.0
BROMOFLUOROBENZENE	50	49	98.0
1,2-DICHLOROETHANE-D4	50	49	98.0

Spike Recovery Data

Analysis	Amount Spiked	Amount Recovered	Percent Recovered
ARSENIC	2.0	1.7	85.00
MERCURY	0.500	0.512	102.40
SELENIUM	2.0	2.4	120.00
THALLIUM	2.0	1.8	90.00

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name: [illegible]
Customer Sample Number: 39-5-1-5
Date Sample Received: 18-MAY-1987
Date Sampled:
Material Description: [illegible]

Lab Sample Number: 870518-002
Date Sample Completed: 10-AUG-1987
Sampled By:
Req. Number:

[illegible]ity [illegible]er	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
[illegible]-008	EPA-3050(7.5)	EPA-6010	Antimony	<2.0	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Beryllium	0.68	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Cadmium	<0.30	ug/g	EA HESTER	[illegible]-JUN-1987
	EPA-3050(7.5)	EPA-6010	Chromium	9.1	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Copper	6.1	ug/g	EA HESTER	[illegible]
	EPA-3050(7.5)	EPA-6010	Lead	6.2	ug/g	EA HESTER	19-[illegible]-1987
	EPA-3050(7.5)	EPA-6010	Nickel	3.5	ug/g	EA HESTER	[illegible]
	EPA-3050(7.5)	EPA-6010	Silver	<0.50	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Zinc	32	ug/g	EA HESTER	19-JUN-1987
003		EPA-7060	Arsenic	3.3		LG HAMILTON	17-JUN-1987
		EPA-7740	Selenium	<0.5		LG HAMILTON	17-JUN-1987
		EPA-784[illegible]	Thallium	<1.0		LG HAMILTON	[illegible]
[illegible]	EPA-7471	EPA-7471	Mercury	<1.0	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		[illegible]	COMPLETE	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]
[illegible]

ORGANIC ANALYSIS DATA REPORT

Analis ID: 870518-002
Laboratory Name: Organic Mass Spectroscopy
File ID: 2023
Instrument ID: FINN-5100
Data Release Authorized By: [illegible] Canada

Customer Sample ID: SB-5-1-5
Customer Name: BOWEN
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 18-MAY-1987

Volatile Organic Compounds - MSL

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Moisture: 0
Percent Moisture (decanted):
Associated Blank: 870731-044

Date Analyzed: 30-JUL-1987
Analysis Procedure Number: EPA-8240
Conc/Dilution Factor: 5
Analyst: HOLSOPPLE

CAS		ug/Kg	CAS		ug/Kg
74-87-3	chloromethane	500	79-00-5	1,1,2-trichloroethane	250
74-83-9	bromomethane	500	71-43-2	benzene	250
75-01-4	vinyl chloride	500	10061-02-6	trans-1,3-dichloropropene	[illegible]
75-00-3	chloroethane	500	110-75-8	2-chloroethylvinyl ether	[illegible]
75-09-2	methylene chloride	[illegible]	75-25-2	bromoform	250
67-64-1	acetone	1300 J	108-10-1	4-methyl-2-pentanone	500
75-15-0	carbon disulfide	250	591-78-6	2-hexanone	500
75-35-4	1,1-dichloroethene	250	127-18-4	tetrachloroethene	250
75-34-3	1,1-dichloroethane	250	79-34-5	1,1,2,2-tetrachloroethane	250
[illegible]	[illegible]	[illegible]	[illegible]	toluene	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	chlorobenzene	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	ethylbenzene	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	styrene	[illegible]
[illegible]	[illegible]	[illegible]		total xylenes	[illegible]
[illegible]	[illegible]	[illegible]			
[illegible]	vinyl acetate	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			

[illegible]

U - [illegible] was analyzed for but not detected. The number is the attainable detection limit for the [illegible]
B - [illegible] was found in the reagent [illegible]
J - Indicates an estimated value.
[illegible] - [illegible] detected.

[illegible] recovery data

[illegible]

ORGANIC ANALYSIS DATA REPORT

Analis ID: 870318-002
Laboratory Name: Organic Mass Spectroscopy
File ID:) 06203
Instrument ID: HP5985
Data Release Authorized By: [illegible]

Customer Sample ID: SB-5-1-5
Customer Name: BOWEN
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: [illegible]-1987

B/N/A Fraction Organic Compounds - HSL

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Moisture: 1.3
Percent Moisture (decanted):
Associated Blank: [illegible]

Date Analyzed: 25-JUL-1987
Analysis Procedure Number: EPA-8270
Conc/Dilution Factor: 1.0
Analyst: [illegible]

CAS		(ug/L) µg/kg	CAS		(ug/L) µg/kg
108-95-2	phenol	330U	106-47-8	4-chloroaniline	[illegible]
111-44-4	bis(2-chloroethyl)ether	[illegible]	87-68-3	hexachlorobutadiene	[illegible]
95-57-8	2-chlorophenol	330U	59-50-7	4-chloro-3-methylphenol	[illegible]
541-73-1	1,3-dichlorobenzene	330U	91-57-6	2-methylnaphthalene	[illegible]
106-46-7	1,4-dichlorobenzene	330U	77-47-4	hexachlorocyclopentadiene	[illegible]
100-51-6	benzyl alcohol	330U	88-06-2	2,4,6-trichlorophenol	330U
95-50-1	1,2-dichlorobenzene	330U	95-95-4	2,4,5-trichlorophenol	1600U
95-48-7	2-methylphenol	330U	91-58-7	2-chloronapthalene	330U
39638-32-9	bis(2-chloroisopropyl)ether	330U	88-74-4	2-nitroaniline	1600U
106-44-5	4-methylphenol	330U	131-11-3	dimethylphthalate	330U
621-64-7	n-nitroso-di-n-propylamine	330U	208-96-8	acenaphthylene	[illegible]
[illegible]	hexachloroethane	[illegible]	[illegible]	[illegible]	[illegible]
98-95-3	nitrobenzene	330U	83-32-9	acenaphthene	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
88-75-5	2-nitrophenol	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	benzoic acid	330U	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	330U	84-66-2	diethylphthalate	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

[illegible]

U - [illegible] was analyzed [illegible] The number is the attainable detection limit for the sa[illegible]
B - Analyte was found in the reagent [illegible]
J - Indicates an estimated value.
D - [illegible] Detected.

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 870518-002	Customer Sample ID: SB-5-1-5
Laboratory Name: **Organic** Mass Spectroscopy	Customer Name: SOWEN
File ID:) 06203	Sample Matrix: SOIL
Instrument ID: HP5985	Requisition Number:
Data Release Authorized By: [illegible] Canada	Date Sample Received: 18-MAY-1987

B/N/A Fraction Organic Compounds - HSL

Date Extracted/Prepared:	Date Analyzed: 25-JUL-1987
Preparation Procedure Number:	Analysis Procedure Number: EPA-8270
Percent Moisture: [illegible]	Conc/Dilution Factor: 1.0
Percent Moisture (decanted):	Analyst: [illegible] HOLSOPPLE
Associated Blank: [illegible]	

CAS		ug/L	CAS		ug/L
100-01-6	4-nitroaniline	1600U	53-70-3	dibenz(a,h)anthracene	[illegible]
534-52-1	4,6-dinitro-2-methylphenol	1600U	191-24-2	benzo(g,h,i)perylene	[illegible]
86-30-6	n-nitrosodiphenylamine	330U			
101-55-3	4-bromophenyl-phenylether	330U			
118-74-1	hexachlorobenzene	330U			
87-86-5	pentachlorophenol	1600U			
85-01-8	phenanthrene	330U			
120-12-7	anthracene	330U			
84-74-2	di-n-butylphthalate	42 J			
206-44-0	fluoranthene	[illegible]			
129-00-0	pyrene	330U			
85-68-7	butylbenzylphthalate	[illegible]			
[illegible]	3,3'-dichlorobenzidine	[illegible]			
[illegible]	benzo(a)anthracene	[illegible]			
[illegible]	bis(2-ethylhexyl)phthalate	[illegible]			
[illegible]	chrysene	[illegible]			
[illegible]	di-n-octylphthalate	330U			
[illegible]	[illegible]	330U			
[illegible]	[illegible]	330U			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			

[illegible]

U - Compound **was analyzed** for but not detected. The number is the minimum attainable detection limit for the sample.
B - Analyte **was found in the reagent** [illegible]
J - Indicates **an estimated value.**
ND - [illegible] **Detected.**

Surrogate Recovery Data

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]PHENYL-D14	[illegible]	[illegible]	[illegible]

ORGANIC ANALYSIS DATA REPORT

AraLIS ID: 370518-002
Laboratory Name: Organic Mass Spectroscopy
File ID:) 06203
Instrument ID: HP5985
Data Release Authorized By: [illegible]

Customer Sample ID: [illegible]
Customer Name: BOWEN
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: [illegible]-1987

Tentatively Identified Compounds

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Mositure: 1.3
Percent Moisture (decanted):
Associated Blank: 370501-001

Date Analyzed: 25-[illegible]-1987
Analysis Procedure Number: EPA-8270
Conc/Dilution Factor: 1.0
Analyst: [illegible] HOLSOPPLE

CAS		ug/L	CAS		ug/L
	DIACETONE ALCOHOL	139900 B J		BUTYL CELLOSOLVE	[illegible] J
	PALMITIC ACID	77 J		TRIMETHYL HEPTANE	[illegible]
	DIMETHYL HEPTANE	5150 J		UNKNOWN	[illegible] J

Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not detected.

Base/Neutral Organics Extraction Data

[illegible]

	Amount Spiked	Amount Recovered	Percent Recovery
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		[illegible]

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Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name: GOWEN
Customer Sample Number: SB-1-2-2
Lab Sample Number: 870518-003
Date Sample Received: 18-MAY-1987
Date Sample Completed: 7-AUG-1987
Date Sampled:
Sampled By:
Material Description: GOWEN AFB
Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
090208	EPA-3050(7.5)	EPA-6010	Antimony	<5.0	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Beryllium	0.59	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Cadmium	<0.30	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Chromium	20	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Copper	14	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Lead	8.5	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Nickel	14	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Silver	<0.60	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Zinc	89	ug/g	EA HESTER	19-JUN-1987
102003		EPA-7060	Arsenic	1.2	ug/g	LG HAMILTON	17-JUN-1987
		EPA-7740	Selenium	<0.5	ug/g	LG HAMILTON	17-JUN-1987
		EPA-7841	Thallium	<1.0	ug/g	LG HAMILTON	17-JUN-1987
103003	EPA-7471	EPA-7471	Mercury	<1.0	ug/g	C. SCHAEFER	4-[illegible]-1987
184303	EPA-3550	EPA-418.1	Petroleum Hydrocarbons	0.003	%	CA SEDLACEK	14-JUL-1987

Program Manager: MS Miller
Date Approved: 7-AUG-1987

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 870518-003
Laboratory Name: Organic Mass Spectroscopy
File ID: 2079
Instrument ID: FINN-5100
Data Release Authorized By: DC Canada

Customer Sample ID: SB-1-2-2
Customer Name: GOWEN
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 18-MAY-1987

Volatile Organic Compounds - HSL

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Mositure: 0
Percent Moisture (decanted):
Associated Blank: 870805-039

Date Analyzed: 5-AUG-1987
Analysis Procedure Number: EPA-8240
Conc/Dilution Factor: 5
Analyst: L HOLSOPPLE

CAS		ug/Kg	CAS		ug/Kg
74-87-3	chloromethane	50U	79-00-5	1,1,2-trichloroethane	25U
74-83-9	bromomethane	50U	71-43-2	benzene	25U
75-01-4	vinyl chloride	50U	10061-02-6	trans-1,3-dichloropropene	25U
75-00-3	chloroethane	50U	110-75-8	2-chloroethylvinyl ether	50U
75-09-2	methylene chloride	25	75-25-2	bromoform	25U
67-64-1	acetone	50U	108-10-1	4-methyl-2-pentanone	50U
75-15-0	carbon disulfide	25U	591-78-6	2-hexanone	50U
75-35-4	1,1-dichloroethene	25U	127-18-4	tetrachloroethene	25U
75-34-3	1,1-dichloroethane	25U	79-34-5	1,1,2,2-tetrachloroethane	25U
156-60-5	trans-1,2-dichloroethene	25U	108-88-3	toluene	6
67-66-3	chloroform	25U	108-90-7	chlorobenzene	25U
107-06-2	1,2-dichloroethane	25U	100-41-4	ethylbenzene	25U
78-93-3	2-butanone	110	100-42-5	styrene	25U
71-55-6	1,1,1-trichloroethane	25U		total xylenes	25U
56-23-5	carbon tetrachloride	25U			
108-05-4	vinyl acetate	50U			
75-27-4	bromodichloromethane	25U			
78-87-5	1,2-dichloropropane	25U			
10061-01-5	cis-1,3-dichloropropene	25U			
79-01-6	trichloroethene	25U			
124-48-1	dibromochloromethane	25U			

Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not Detected.

Surrogate Recovery Data

Surrogate Compound	Amount Spiked	Amount Recovered	Percent Recovered
TOLUENE-D8	50	50	100.0
BROMOFLUOROBENZENE	50	47	94.0
1,2-DICHLOROETHANE-D4	50	48	96.0

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name: GOWEN
Customer Sample Number: SB-1-5-4
Lab Sample Number: 870518-004
Date Sample Received: 18-MAY-1987
Date Sample Completed: 3-AUG-1987
Date Sampled:
Sampled By:
Material Description: GOWEN AFB
Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
090208	EPA-3050(7.5)	EPA-6010	Antimony	<5.0	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Beryllium	0.59	ug/g	EA HESTER	19-JUN-198[illegible]
	EPA-3050(7.5)	EPA-6010	Cadmium	<0.30	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Chromium	10	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Copper	7.9	ug/g	EA HESTER	19-JUN-198[illegible]
	EPA-3050(7.5)	EPA-6010	Lead	11	ug/g	EA HESTER	19-JUN-198[illegible]
	EPA-3050(7.5)	EPA-6010	Nickel	6.9	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Silver	<0.60	ug/g	EA HESTER	19-JUN-198[illegible]
	EPA-3050(7.5)	EPA-6010	Zinc	37	ug/g	EA HESTER	19-JUN-198[illegible]
102003		EPA-7060	Arsenic	3.0	ug/g	LG HAMILTON	17-JUN-198[illegible]
		EPA-7740	Selenium	<0.5	ug/g	LG HAMILTON	17-JUN-198[illegible]
		EPA-7841	Thallium	<1.0	ug/g	LG HAMILTON	17-JUN-1987
103003	EPA-7471	EPA-7471	Mercury	<1.0	ug/g	C. SCHAEFER	4-JUN-198[illegible]
184303	EPA-3550	EPA-418.1	Petroleum hydrocarbons	0.005	%	CA SEDLACEK	14-JUL-1987

Program Manager: MS Miller
Date Approved: 3-AUG-1987

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 870518-004	**Customer Sample ID:** SB-1-5-4
Laboratory Name: Organic Mass Spectroscopy	**Customer Name:** GOWEN
File ID: 2024	**Sample Matrix:** SOIL
Instrument ID: FINN-5100	**Requisition Number:**
Data Release Authorized By: DC Canada	**Date Sample Received:** 18-MAY-1987

Volatile Organic Compounds -- HSL

Date Extracted/Prepared:	Date Analyzed: 30-JUL-1987
Preparation Procedure Number:	Analysis Procedure Number: EPA-8240
Percent Mositure: 0	Conc/Dilution Factor: 5
Percent Moisture (decanted):	Analyst: L HOLSOPPLE
Associated Blank: 870731-044	

CAS		ug/Kg	CAS		ug/Kg
74-87-3	chloromethane	50U	79-00-5	1,1,2-trichloroethane	25U
74-83-9	bromomethane	50U	71-43-2	benzene	25U
75-01-4	vinyl chloride	50U	10061-02-6	trans-1,3-dichloropropene	25U
75-00-3	chloroethane	50U	110-75-8	2-chloroethylvinyl ether	50U
75-09-2	methylene chloride	30 B	75-25-2	bromoform	25U
67-64-1	acetone	925	108-10-1	4-methyl-2-pentanone	50U
75-15-0	carbon disulfide	25U	591-78-6	2-hexanone	50U
75-35-4	1,1-dichloroethene	25U	127-18-4	tetrachloroethene	25U
75-34-3	1,1-dichloroethane	25U	79-34-5	1,1,2,2-tetrachloroethane	25U
156-60-5	trans-1,2-dichloroethene	25U	108-88-3	toluene	25U
67-66-3	chloroform	25U	108-90-7	chlorobenzene	25U
107-06-2	1,2-dichloroethane	25U	100-41-4	ethylbenzene	25U
78-93-3	2-butanone	40 B	100-42-5	styrene	25U
71-55-6	1,1,1-trichloroethane	25U		total xylenes	25U
56-23-5	carbon tetrachloride	25U			
108-05-4	vinyl acetate	50U			
75-27-4	bromodichloromethane	25U			
78-87-5	1,2-dichloropropane	25U			
10061-01-5	cis-1,3-dichloropropene	25U			
79-01-6	trichloroethene	25U			
124-48-1	dibromochloromethane	25U			

Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not Detected.

Surrogate Recovery Data

Surrogate Compound	Amount Spiked	Amount Recovered	Percent Recovered
TOLUENE-D8	50	45	90.0
BROMOFLUOROBENZENE	50	49	98.0
1,2-DICHLOROETHANE-D4	50	48	96.0

Spike Recovery Data

Analysis	Amount Spiked	Amount Recovered	Percent Recovered
MERCURY	0.500	0.471	94.20

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name:	GOWEN		
Customer Sample Number:	OA-2-1-6	**Lab Sample Number:**	870518-005
Date Sample Received:	18-MAY-1987	**Date Sample Completed:**	7-AUG-1987
Date Sampled:		**Sampled By:**	
Material Description:	GOWEN AFB	**Req. Number:**	

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
090108	EPA-200.7	EPA-200.7	Antimony	<0.050	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Beryllium	<0.0003	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Cadmium	<0.0030	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Chromium	<0.010	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Copper	<0.0040	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Lead	<0.050	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Nickel	<0.010	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Silver	<0.0060	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Zinc	<0.0010	mg/L	EA HESTER	6-AUG-1987
102007		EPA-7060	Arsenic	<0.005	mg/L	LG HAMILTON	1-JUL-1987
		EPA-7740	Selenium	<0.005	mg/L	LG HAMILTON	1-JUL-1987
		EPA-7841	Thallium	<0.01	mg/L	LG HAMILTON	1-JUL-1987
1030	EPA-7471	EPA-7471	Mercury	<0.0002	mg/L	C. SCHAEFER	9-JUL-1987
184208	EPA-3550	EPA-418.1	Petroleum Hydrocarbons	<0.5	mg/L	CA SEDLACEK	14-JUL-1987

Program Manager: MS Miller
Date Approved: 7-AUG-1987

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 870518-005
Laboratory Name: Organic Mass Spectroscopy
File ID:) 05048
Instrument ID: HP5995C
Data Release Authorized By: DC Canada

Customer Sample ID: QA-2-1-6
Customer Name: GOWEN
Sample Matrix: WATER
Requisition Number:
Date Sample Received: 18-MAY-1987

Volatile Organic Compounds - HSL

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Mositure:
Percent Moisture (decanted):
Associated Blank: 870618-079

Date Analyzed: 18-JUN-1987
Analysis Procedure Number: EPA-8240
Conc/Dilution Factor: 1.0
Analyst: L HOLSOPPLE

CAS		ug/L	CAS		ug/L
74-87-3	chloromethane	10U	79-00-5	1,1,2-trichloroethane	5U
74-83-9	bromomethane	10U	71-43-2	benzene	5U
75-01-4	vinyl chloride	10U	10061-02-6	trans-1,3-dichloropropene	5U
75-00-3	chloroethane	10U	110-75-8	2-chloroethylvinyl ether	10U
75-09-2	methylene chloride	5U	75-25-2	bromoform	5U
67-64-1	acetone	10U	108-10-1	4-methyl-2-pentanone	10U
75-15-0	carbon disulfide	5U	591-78-6	2-hexanone	10U
75-35-4	1,1-dichloroethene	5U	127-18-4	tetrachloroethene	5U
75-34-3	1,1-dichloroethane	5U	79-34-5	1,1,2,2-tetrachloroethane	5U
156-60-5	trans-1,2-dichloroethene	5U	108-88-3	toluene	1 [illegible]
67-66-3	chloroform	2 8J	108-90-7	chlorobenzene	5U
107-06-2	1,2-dichloroethane	5U	100-41-4	ethylbenzene	5U
78-93-3	2-butanone	14 B	100-42-5	styrene	5U
71-55-6	1,1,1-trichloroethane	5U		total xylenes	5U
56-23-5	carbon tetrachloride	5U			
108-05-4	vinyl acetate	10U			
75-27-4	bromodichloromethane	5U			
78-87-5	1,2-dichloropropane	5U			
10061-01-5	cis-1,3-dichloropropene	5U			
79-01-6	trichloroethene	5U			
124-48-1	dibromochloromethane	5U			

Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not Detected.

Surrogate Recovery Data

Surrogate Compound	Amount Spiked	Amount Recovered	Percent Recovered
TOLUENE-D8	[illegible]	52	104.0
BROMOFLUOROBENZENE	[illegible]	51	102.0
1,2-DICHLOROETHANE-D4	[illegible]	48	96.0

Spike Recovery Data

Analysis	Amount Spiked	Amount Recovered	Percent Recovered
MERCURY	0.00105	0.00122	116.19

4w

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name: GOWEN
Customer Sample Number: SB-2-2-2
Lab Sample Number: 870521-059
Date Sample Received: 21-MAY-1987
Date Sample Completed: 3-AUG-1987
Date Sampled:
Sampled By:
Material Description: GOWEN AFB
Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
090208	EPA-3050(7.5)	EPA-6010	Antimony	<5.0	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Beryllium	0.63	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Cadmium	<0.30	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Chromium	9.4	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Copper	8.3	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Lead	6.7	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Nickel	6.7	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Silver	<0.60	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Zinc	39	ug/g	EA HESTER	19-JUN-1987
102003		EPA-7060	Arsenic	5.8	mg/kg	LG HAMILTON	1-JUL-1987
		EPA-7740	Selenium	<0.5	mg/kg	LG HAMILTON	1-JUL-1987
		EPA-7841	Thallium	<1.0	mg/kg	LG HAMILTON	1-JUL-1987
103003	EPA-7471	EPA-7471	Mercury	<1.0	ug/g	C. SCHAEFER	[illegible]
184303	EPA-3550	EPA-418.1	Petroleum Hydrocarbons	0.003	%	CA SEDLACEK	[illegible]-JUL-1987

Program Manager: MS Miller
Date Approved: 3-AUG-1987

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 870521-059
Laboratory Name: Organic Mass Spectroscopy
File ID: 2025
Instrument ID: FINN-5100
Data Release Authorized By: DC Canada

Customer Sample ID: SB-2-2-2
Customer Name: GOWEN
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 21-MAY-1987

Volatile Organic Compounds - HSL

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Mositure: 0
Percent Moisture (decanted):
Associated Blank: 870731-044

Date Analyzed: 30-JUL-1987
Analysis Procedure Number: EPA-8240
Conc/Dilution Factor: 5
Analyst: L HOLSOPPLE

CAS		ug/Kg
74-87-3	chloromethane	50U
74-83-9	bromomethane	50U
75-01-4	vinyl chloride	50U
75-00-3	chloroethane	50U
75-09-2	methylene chloride	30 B
67-64-1	acetone	50U
75-15-0	carbon disulfide	25U
75-35-4	1,1-dichloroethene	25U
75-34-3	1,1-dichloroethane	25U
156-60-5	trans-1,2-dichloroethene	25U
67-66-3	chloroform	4 J
107-06-2	1,2-dichloroethane	25U
78-93-3	2-butanone	50 B
71-55-6	1,1,1-trichloroethane	25U
56-23-5	carbon tetrachloride	25U
108-05-4	vinyl acetate	50U
75-27-4	bromodichloromethane	25U
78-87-5	1,2-dichloropropane	25U
10061-01-5	cis-1,3-dichloropropene	25U
79-01-6	trichloroethene	25U
124-48-1	dibromochloromethane	25U

CAS		ug/Kg
79-00-5	1,1,2-trichloroethane	25U
71-43-2	benzene	25U
10061-02-6	trans-1,3-dichloropropene	25U
110-75-8	2-chloroethylvinyl ether	50U
75-25-2	bromoform	25U
108-10-1	4-methyl-2-pentanone	50U
591-78-6	2-hexanone	50U
127-18-4	tetrachloroethene	25U
79-34-5	1,1,2,2-tetrachloroethane	25U
108-88-3	toluene	25U
108-90-7	chlorobenzene	25U
100-41-4	ethylbenzene	25U
100-42-5	styrene	25U
	total xylenes	25U

Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not Detected.

Surrogate Recovery Data

Surrogate Compound	Amount Spiked	Amount Recovered	Percent Recovered
TOLUENE-D8	50	46	92.0
BROMOFLUOROBENZENE	50	49	98.0
1,2-DICHLOROETHANE-D4	50	48	96.0

W
4W

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name: GOWEN
Customer Sample Number: SD-1-3 Lab Sample Number: 870521-060
Date Sample Received: 21-MAY-1987 Date Sample Completed: 3-AUG-1987
Date Sampled: Sampled By:
Material Description: GOWEN AFB Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
090208	EPA-3050(7.5)	EPA-6010	Antimony	<5.0	ug/g	EA HESTER	19-JUN-198
	EPA-3050(7.5)	EPA-6010	Beryllium	0.96	ug/g	EA HESTER	19-JUN-198
	EPA-3050(7.5)	EPA-6010	Cadmium	<0.30	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Chromium	92	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Copper	15	ug/g	EA HESTER	19-JUN-198
	EPA-3050(7.5)	EPA-6010	Lead	10	ug/g	EA HESTER	19-JUN-198
	EPA-3050(7.5)	EPA-6010	Nickel	14	ug/g	EA HESTER	19-JUN-1987
	EPA-3050(7.5)	EPA-6010	Silver	<0.60	ug/g	EA HESTER	19-JUN-198
	EPA-3050(7.5)	EPA-6010	Zinc	73	ug/g	EA HESTER	19-JUN-198
102003		EPA-7060	Arsenic	3.3	mg/kg	LG HAMILTON	1-JUL-198
		EPA-7740	Selenium	<0.5	mg/kg	LG HAMILTON	1-JUL-198
		EPA-7841	Thallium	<1.0	mg/kg	LG HAMILTON	1-JUL-1987
103003	EPA-7471	EPA-7471	Mercury	<1.0	ug/g	C. SCHAEFER	4-JUN-198
184303	EPA-3550	EPA-418.1	Petroleum Hydrocarbons	0.005	%	CA SEDLACEK	14-JUL-198

Program Manager: MS Miller
Date Approved: 3-AUG-1987

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 870521-060
Laboratory Name: Organic Mass Spectroscopy
File ID: 2026
Instrument ID: FINN-5100
Data Release Authorized By: DC Canada

Customer Sample ID: SD-1-3
Customer Name: GOWEN
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 21-MAY-1987

Volatile Organic Compounds - HSL

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Mositure: 0
Percent Moisture (decanted):
Associated Blank: 870731-044

Date Analyzed: 30-JUL-1987
Analysis Procedure Number: EPA-8240
Conc/Dilution Factor: 5
Analyst: L HOLSOPPLE

CAS		ug/Kg	CAS		ug/Kg
74-87-3	chloromethane	50U	79-00-5	1,1,2-trichloroethane	25U
74-83-9	bromomethane	50U	71-43-2	benzene	25U
75-01-4	vinyl chloride	50U	10061-02-6	trans-1,3-dichloropropene	25U
75-00-3	chloroethane	50U	110-75-8	2-chloroethylvinyl ether	50U
75-09-2	methylene chloride	30 B	75-25-2	bromoform	25U
67-64-1	acetone	50U	108-10-1	4-methyl-2-pentanone	50U
75-15-0	carbon disulfide	25U	591-78-6	2-hexanone	50U
75-35-4	1,1-dichloroethene	25U	127-18-4	tetrachloroethene	25U
75-34-3	1,1-dichloroethane	25U	79-34-5	1,1,2,2-tetrachlorcethane	25U
156-60-5	trans-1,2-dichlorcethene	25U	108-88-3	toluene	25U
67-66-3	chloroform	25U	108-90-7	chlorobenzene	25U
107-06-2	1,2-dichloroethane	25U	100-41-4	ethylbenzene	25U
78-93-3	2-butanone	50 B	100-42-5	styrene	25U
71-55-6	1,1,1-trichloroethane	25U		total xylenes	25U
56-23-5	carbon tetrachloride	25U			
108-05-4	vinyl acetate	50U			
75-27-4	bromodichloromethane	25U			
78-87-5	1,2-dichloropropane	25U			
10061-01-5	cis-1,3-dichloropropene	25U			
79-01-6	trichloroethene	25U			
124-48-1	dibromochloromethane	25U			

Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not Detected.

Surrogate Recovery Data

Surrogate Compound	Amount Spiked	Amount Recovered	Percent Recovered
TOLUENE-D8	50	47	94.0
BROMOFLUOROBENZENE	50	49	98.0
1,2-DICHLOROETHANE-D4	50	50	100.0

Spike Recovery Data

Analysis	Amount Spiked	Amount Recovered	Percent Recovered
MERCURY	0.500	0.488	97.60

4w

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name: GOWEN
Customer Sample Number: SL-1-1-1 Lab Sample Number: 870521-061
Date Sample Received: 21-MAY-1987 Date Sample Completed: 1-JUN-1987
Date Sampled: Sampled By:
Material Description: GOWEN SITE Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
1702	EPA-1310	TP-1702	EP-Tox	COMPLETE	-	LS JOHNSON	28-MAY-1987
1868	EPA-1010	EPA-1010	Flash Point	) 140	deg F	SB HARRIS	1-JUN-1987

Program Manager: MS Miller
Date Approved: 2-JUN-1987

W
4W

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name: GOWEN
Customer Sample Number: TS-6-1
Date Sample Received: 21-MAY-1987
Date Sampled:
Material Description: GOWEN SITE

Lab Sample Number: 870521-062
Date Sample Completed: 1-JUN-1987
Sampled By:
Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
1702	EPA-1310	TP-1702	EP-Tox	COMPLETE	-	LS JOHNSON	28-MAY-1987
1868	EPA-1010	EPA-1010	Flash Point	> 140	deg F	SB HARRIS	1-JUN-1987

Program Manager: MS Miller
Date Approved: 2-JUN-1987

4w

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name:	GOWEN		
Customer Sample Number:	SL-1-1-1 EP-TOX	Lab Sample Number:	870521-063
Date Sample Received:	21-MAY-1987	Date Sample Completed:	10-JUL-1987
Date Sampled:		Sampled By:	
Material Description:	GOWEN AFB	Req. Number:	

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
030207	EPA-6010	EPA-6010	Barium (EP-TOX)	0.21	mg/L	EA HESTER	4-JUN-1987
	EPA-6010	EPA-6010	Cadmium (EP-TOX)	<0.0030	mg/L	EA HESTER	4-JUN-1987
	EPA-6010	EPA-6010	Chromium (EP-TOX)	<0.010	mg/L	EA HESTER	4-JUN-1987
	EPA-6010	EPA-6010	Silver (EP-TOX)	<0.010	mg/L	EA HESTER	4-JUN-1987
102007		EPA-7060	Arsenic (EP-TOX)	0.006	mg/L	LG HAMILTON	10-JUL-1987
		EPA-7421	Lead (EP-TOX)	<0.004	mg/L	LG HAMILTON	10-JUL-1987
		EPA-7740	Selenium (EP-TOX)	<0.005	mg/L	LG HAMILTON	10-JUL-1987
103007	EPA-7470	EPA-7470	Mercury (EP-TOX)	<0.0002	mg/L	C. SCHAEFER	2-JUN-1987

Program Manager: MS Miller
Date Approved: 10-JUL-1987

W
4W

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name: GOWEN
Customer Sample Number: TS-6-1 EP-TOX
Lab Sample Number: 870521-064
Date Sample Received: 21-MAY-1987
Date Sample Completed: 10-JUL-1987
Date Sampled:
Sampled By:
Material Description: GOWEN AFB
Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
090207	EPA-6010	EPA-6010	Barium (EP-TOX)	<0.10	mg/L	EA HESTER	4-JUN-1987
	EPA-6010	EPA-6010	Cadmium (EP-TOX)	<0.0030	mg/L	EA HESTER	4-JUN-1987
	EPA-6010	EPA-6010	Chromium (EP-TOX)	<0.010	mg/L	EA HESTER	4-JUN-1987
	EPA-6010	EPA-6010	Silver (EP-TOX)	<0.010	mg/L	EA HESTER	4-JUN-1987
102007		EPA-7060	Arsenic (EP-TOX)	<0.005	mg/L	LG HAMILTON	10-JUL-1987
		EPA-7421	Lead (EP-TOX)	0.005	mg/L	LG HAMILTON	10-JUL-1987
		EPA-7740	Selenium (EP-TOX)	<0.005	mg/L	LG HAMILTON	10-JUL-1987
103007	EPA-7470	EPA-7470	Mercury (EP-TOX)	0.0003	mg/L	C. SCHAEFER	4-JUN-1987

Program Manager: MS Miller
Date Approved: 10-JUL-1987

Spike Recovery Data

Analysis	Amount Spiked	Amount Recovered	Percent Recovered
MERCURY (EP-TOX)	0.0020	0.00208	104.00

4w

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name: GOWEN
Customer Sample Number: MW-1-1
Lab Sample Number: 870604-083
Date Sample Received: 4-JUN-1987
Date Sample Completed: 7-AUG-1987
Date Sampled:
Sampled By:
Material Description: GOWEN AFB
Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
090108	EPA-200.7	EPA-200.7	Antimony	<0.050	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Beryllium	0.0009	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Cadmium	<0.0030	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Chromium	0.027	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Copper	0.029	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Lead	0.056	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Nickel	0.087	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Silver	<0.0060	mg/L	EA HESTER	6-AUG-1987
	EPA-200.7	EPA-200.7	Zinc	1.0	mg/L	EA HESTER	6-AUG-1987
102007		EPA-7060	Arsenic	0.009		LG HAMILTON	9-JUL-1987
		EPA-7740	Selenium	0.060		LG HAMILTON	9-JUL-1987
		EPA-7841	Thallium	<0.01		LG HAMILTON	9-JUL-1987
1030	EPA-7471	EPA-7471	Mercury	<0.000[illegible]	mg/L	[illegible]. SCHAEFER	[illegible]
184208	EPA-3550	EPA-418.1	Petroleum Hydrocarbons	<0.5	%	CA SEDLACEK	14-[illegible]-1987

Program Manager: MS Miller
Date Approved: 7-AUG-1987

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 870604-083	Customer Sample ID: MW-1-1
Laboratory Name: Organic Mass Spectroscopy	Customer Name: GOWEN
File ID: 2027	Sample Matrix: WATER
Instrument ID: FINN-5100	Requisition Number:
Data Release Authorized By: DC Canada	Date Sample Received: 4-JUN-1987

Volatile Organic Compounds - HSL

Date Extracted/Prepared:	Date Analyzed: 30-JUL-1987
Preparation Procedure Number:	Analysis Procedure Number: EPA-8240
Percent Mositure:	Conc/Dilution Factor: 1.0
Percent Moisture (decanted):	Analyst: L HOISOPPLE
Associated Blank: 870731-044	

CAS		ug/L	CAS		ug/L
74-87-3	chloromethane	10U	79-00-5	1,1,2-trichloroethane	5U
74-83-9	bromomethane	10U	71-43-2	benzene	5U
75-01-4	vinyl chloride	10U	10061-02-6	trans-1,3-dichloropropene	5U
75-00-3	chloroethane	10U	110-75-8	2-chloroethylvinyl ether	10U
75-09-2	methylene chloride	3 JB	75-25-2	bromoform	5U
67-64-1	acetone	10U	108-10-1	4-methyl-2-pentanone	10U
75-15-0	carbon disulfide	5U	591-78-6	2-hexanone	10U
75-35-4	1,1-dichloroethene	5U	127-18-4	tetrachloroethene	5U
75-34-3	1,1-dichloroethane	5U	79-34-5	1,1,2,2-tetrachloroethane	5U
156-60-5	trans-1,2-dichloroethene	5U	108-88-3	toluene	5U
67-66-3	chloroform	5U	108-90-7	chlorobenzene	5U
107-06-2	1,2-dichloroethane	5U	100-41-4	ethylbenzene	[illegible]
78-93-3	2-butanone	5 B	100-42-5	styrene	[illegible]
71-55-6	1,1,1-trichloroethane	5U		total xylenes	[illegible]
56-23-5	carbon tetrachloride	5U			
108-05-4	vinyl acetate	10U			
75-27-4	bromodichloromethane	5U			
78-87-5	1,2-dichloropropane	5U			
[illegible]	cis-1,3-dichloropropene	5U			
79-01-6	trichloroethene	5U			
124-48-1	dibromochloromethane	5U			

Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not Detected.

Surrogate Recovery Data

Surrogate Compound	Amount Added	Amount Recovered	Percent Recovered
TOLUENE-D8	[illegible]	44	88.0
BROMOFLUOROBENZENE	[illegible]	49	98.0
1,2-DICHLOROETHANE-D4	[illegible]	48	96.0

Spike Recovery Data

Analysis	Amount Spiked	Amount Recovered	Percent Recovered
ARSENIC	0.020	0.018	90.00
SELENIUM	0.020	0.021	105.00
THALLIUM	0.020	0.024	120.00

LABORATORY BLANK DATA

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name: GOWEN
Customer Sample Number:
Lab Sample Number: 870610-001
Date Sample Received: 10-JUN-1987
Date Sample Completed: 22-JUN-1987
Date Sampled:
Sampled By:
Material Description: REAGENT BLANK
Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
102003		EPA-7060	Arsenic	<0.005	mg/L	LG HAMILTON	17-JUN-1987
		EPA-7740	Selenium	<0.005	mg/L	LG HAMILTON	17-JUN-1987
		EPA-7841	Thallium	<0.01	mg/L	LG HAMILTON	17-JUN-1987

Program Manager: MS Miller
Date Approved:

ORGANIC ANALYSIS DATA REPORT

Anal.IS ID: 870601-001
Laboratory Name: Organic Mass Spectroscopy
File ID: 06348
Instrument ID: HP5985
Data Release Authorized By: [illegible]

Customer Sample ID: S-01-ENAS-1
Customer Name: [illegible]
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: [illegible]-1987

Tentatively Identified Compounds

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Moisture: 0
Percent Moisture (Decanted):
Associated Blank:

Date Analyzed: [illegible]-1987
Analysis Procedure Number: EPA-8270
Conc/Dilution Factor: 1.0
Analyst: [illegible]

CAS		[illegible]	CAS		[illegible]
	DIACETONE ALCOHOL	[illegible] J		ALIPHATIC HYDROCARBONS	[illegible]
	UNKNOWNS	[illegible] J			

Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the [illegible] as well as the sample.
J - Indicates an estimated value.
ND - Not Detected.

[illegible] Organics Extraction [illegible]

[illegible]

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name: ROGERS
Customer Sample Number: BLANK
Lab Sample Number: 870527-070
Date Sample Received: 27-MAY-1987
Date Sample Completed: 11-AUG-1987
Date Sampled:
Sampled By:
Material Description: EP TOX BLANK
Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
090207	EPA-6010	EPA-6010	Barium (EP-TOX)	<0.10	mg/L	EA HESTER	4-JUN-1987
	EPA-6010	EPA-6010	Cadmium (EP-TOX)	<0.0030	mg/L	EA HESTER	4-JUN-1987
	EPA-6010	EPA-6010	Chromium (EP-TOX)	<0.010	mg/L	EA HESTER	4-JUN-1987
	EPA-6010	EPA-6010	Lead (EP-TOX)	<0.050	mg/L	EA HESTER	4-JUN-1987
	EPA-6010	EPA-6010	Nickel (EP-TOX)	<0.050	mg/L	EA HESTER	4-JUN-1987
	EPA-6010	EPA-6010	Silver (EP-TOX)	<0.010	mg/L	EA HESTER	4-JUN-1987
.02007		EPA-7060	Arsenic (EP-TOX)	<0.005	mg/L	LG HAMILTON	10-JUL-1987
		EPA-7421	Lead (EP-TOX)	<0.004	mg/L	LG HAMILTON	10-JUL-1987
		EPA-7740	Selenium (EP-TOX)	<0.005	mg/L	LG HAMILTON	10-JUL-1987
007	EPA-7470	EPA-7470	Mercury (EP-TOX)	<0.0002	mg/L	C. SCHAEFER	2-JUN-1987
70303		EPA-1310	EP-TOX Extraction	COMPLETE	-	LS JOHNSON	28-MAY-1987
508		EPA-150.1	pH	7.0	-	LS JOHNSON	28-MAY-1987
708		TP-183708	Uranium (EP-TOX)	0.002	mg/L	HJ CULBERT JR	11-JUN-1987

Program Manager: CR Kirkpatrick
Date Approved: 11-AUG-1987

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Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name: GOWEN
Customer Sample Number:
Lab Sample Number: 870616-025
Date Sample Received: 16-JUN-1987
Date Sample Completed: 1-JUL-1987
Date Sampled:
Sampled By:
Material Description: REAGENT BLANK
Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
102007		EPA-7060	Arsenic	<0.005	mg/L	LG HAMILTON	1-JUL-198
		EPA-7740	Selenium	<0.005	mg/L	LG HAMILTON	1-JUL-198
		EPA-7841	Thallium	<0.01	mg/L	LG HAMILTON	1-JUL-1987

Program Manager: MS Miller
Date Approved: 10-JUL-1987

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 370801-001	Customer Sample ID: 6-01-BNAS-1
Laboratory Name: Organic Mass Spectroscopy	Customer Name: SCLSKY
File ID: 06348	Sample Matrix: SOIL
Instrument ID: HP5985	Requisition Number:
Data Release Authorized By: [illegible]	Date Sample Received: 1-JUN-1987

B/N/A Fraction Organic Compounds - HSL

Date Extracted/Prepared:	Date Analyzed: 8-AUG-1987
Preparation Procedure Number:	Analysis Procedure Number: EPA-8270
Percent Moisture: 0	Conc/Dilution Factor: 1.0
Percent Moisture (decanted):	Analyst: L HOLSOPPLE
Associated Blank:	

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-nitroaniline	1600	53-70-3	dibenz(a,h)anthracene	330
534-52-1	4,6-dinitro-2-methylphenol	1600	191-24-2	benzo(g,h,i)perylene	[illegible]
86-30-6	n-nitrosodiphenylamine	330			
101-55-3	4-bromophenyl-phenylether	330			
118-74-1	hexachlorobenzene	330			
87-86-5	pentachlorophenol	1600			
85-01-8	phenanthrene	330			
[illegible]-7	anthracene	[illegible]			
84-74-2	di-n-butylphthalate	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	pyrene	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	di-n-octylphthalate	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			

[illegible]

[illegible] ...ound was analyzed for but not detected. The value is the attainable detection limit for the [illegible]
[illegible] ...alyte was found in the reagent [illegible]
[illegible] ...icates an estimated value.
[illegible] ...ot detected.

[illegible] Recovery Data

[illegible]

ORGANIC ANALYSIS DATA REPORT

Analysis ID: 870601-001
Laboratory Name: Organic Mass Spectroscopy
File ID: 06348
Instrument ID: HP5985
Data Release Authorized By: [illegible] Canada

Customer Sample ID: 6-01-BNAS-1
Customer Name: SOLSKY
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 1-JUN-1987

B/N/A Fraction Organic Compounds - HSL

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Mositure: 0
Percent Moisture (decanted):
Associated Blank:

Date Analyzed: 6-AUG-1987
Analysis Procedure Number: EPA-8270
Conc/Dilution Factor: 1.0
Analyst: [illegible] HOLSOPPLE

CAS		ug/Kg	CAS		ug/Kg
108-95-2	phenol	330U	106-47-8	4-chloroaniline	[illegible]
111-44-4	bis(2-chloroethyl)ether	330U	87-68-3	hexachlorobutadiene	[illegible]
95-57-8	2-chlorophenol	330U	59-50-7	4-chloro-3-methylphenol	[illegible]
541-73-1	1,3-dichlorobenzene	330U	91-57-6	2-methylnaphthalene	[illegible]
106-46-7	1,4-dichlorobenzene	330U	77-47-4	hexachlorocyclopentadiene	330U
100-51-6	benzyl alcohol	330U	88-06-2	2,4,6-trichlorophenol	330U
95-50-1	1,2-dichlorobenzene	330U	95-95-4	2,4,5-trichlorophenol	1600U
95-48-7	2-methylphenol	330U	91-58-7	2-chloronaphthalene	330U
39638-32-9	bis(2-chloroisopropyl)ether	[illegible]	88-74-4	2-nitroaniline	1600U
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	330U	208-96-8	acenaphthylene	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	2,4-dinitrotoluene	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

. [illegible] und was analyzed for but not detected. The number is the attainable detection limit [illegible]
. [illegible] was found in the reagent [illegible]
. [illegible] ates an estimated value.
. [illegible] detected.

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name:	[illegible]		
Customer Sample Number:	6-11-SNAG-1	Lab Sample Number:	870601-001
Date Sample Received:	1-[illegible]-1987	Date Sample Completed:	10-AUG-1987
Date Sampled:		Sampled By:	SKP
Material Description:	[illegible] SOIL BLANK	Req. Number:	

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed

Program Manager: RE Miller
Date Approved: 11-AUG-1987

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 870806-039
Laboratory Name: Organic Mass Spectroscopy
File ID: 2069
Instrument ID: FINN-5100
Data Release Authorized By: [illegible]

Customer Sample ID:
Customer Name: KIMBROUGH
Sample Matrix: WATER
Requisition Number:
Date Sample Received: 5-AUG-1987

Volatile Organic Compounds - HSL

Date Extracted/Prepared:
Preparation Procedure Number: PURGE & TRAP
Percent Moisture:
Percent Moisture (decanted):
Associated Blank:

Date Analyzed: 5-AUG-1987
Analysis Procedure Number: EPA-624
Conc/Dilution Factor: 1.0
Analyst: [illegible]

CAS		ug/L	CAS		ug/L
74-87-3	chloromethane	10U	79-00-5	1,1,2-trichloroethane	5U
74-83-9	bromomethane	10U	71-43-2	benzene	5U
75-01-4	vinyl chloride	10U	10061-02-6	trans-1,3-dichloropropene	5U
75-00-3	chloroethane	10U	110-75-8	2-chloroethylvinyl ether	[illegible]
75-09-2	methylene chloride	5	75-25-2	bromoform	5U
67-64-1	acetone	[illegible]	108-10-1	4-methyl-2-pentanone	2 J
75-15-0	carbon disulfide	5U	591-78-6	2-hexanone	[illegible]
75-35-4	1,1-dichloroethene	[illegible]	127-18-4	tetrachloroethene	5U
75-34-3	1,1-dichloroethane	[illegible]	79-34-5	1,1,2,2-tetrachloroethane	5U
156-60-5	trans-1,2-dichloroethene	[illegible]	108-88-3	toluene	
67-66-3	chloroform	[illegible]	108-90-7	chlorobenzene	[illegible]
107-06-2	[illegible]	[illegible]	[illegible]	ethylbenzene	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]		[illegible] xylenes	[illegible]
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			

[illegible] compound was analyzed for but not detected. [illegible] is the attainable detection limit [illegible]
[illegible] was found in the reagent [illegible]
[illegible] indicates an estimated value.
[illegible] detected.

[illegible]

Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name: [illegible]

Customer Sample Number:

Lab Sample Number: 870805-039

Date Sample Received: 5-AUG-1987

Date Sample Completed: 11-AUG-1987

Date Sampled:

Sampled By: RPB

Material Description: ~~[illegible]~~ REAGENT WATER BLANK

Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed

Program Manager: [illegible] McMahon
Date Approved: 11-AUG-1987

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 870731-044
Laboratory Name: Organic Mass Spectroscopy
File ID: 2017
Instrument ID: FINN-5100
Data Release Authorized By: DC Canada

Customer Sample ID:
Customer Name: SCHEIB
Sample Matrix: WATER
Requisition Number:
Date Sample Received: 31-JUL-1987

Tentatively Identified Compounds

Date Extracted/Prepared:
Preparation Procedure Number: PURGE & TRAP
Percent Mositure:
Percent Moisture (decanted):
Associated Blank:

Date Analyzed: 30-JUL-1987
Analysis Procedure Number: EPA-624
Conc/Dilution Factor: 1.0
Analyst: L HOLSOPPLE

CAS		ug/L	CAS		ug/L
78-93-3	2-BUTANONE	30 J	591-78-6	2-HEXANONE	20 J

Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not Detected.

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 870731-044
Laboratory Name: Organic Mass Spectroscopy
File ID: 2017
Instrument ID: FINN-5100
Data Release Authorized By: DC Canada

Customer Sample ID:
Customer Name: SCHEIB
Sample Matrix: WATER
Requisition Number:
Date Sample Received: 31-JUL-1987

Priority Pollutant Volatile Organic Compounds

Date Extracted/Prepared:
Preparation Procedure Number: PURGE & TRAP
Percent Mositure:
Percent Moisture (decanted):
Associated Blank:

Date Analyzed: 30-JUL-1987
Analysis Procedure Number: EPA-624
Conc/Dilution Factor: 1.0
Analyst: L HOLSOPPLE

CAS		ug/L
74-87-3	chloromethane	10U
74-83-9	bromomethane	10U
75-01-4	vinyl chloride	10U
75-00-3	chloroethane	10U
75-09-2	methylene chloride	6
75-35-4	1,1-dichloroethene	5U
75-34-3	1,1-dichloroethane	5U
156-60-5	trans-1,2-dichloroethene	5U
67-66-3	chloroform	5U
107-06-2	1,2-dichloroethane	5U
71-55-6	1,1,1-trichloroethane	5U
56-23-5	carbon tetrachloride	5U
75-27-4	bromodichloromethane	5U
78-87-5	1,2-dichloropropane	5U
10061-01-5	cis-1,3-dichloropropene	5U
79-01-6	trichloroethene	5U
124-48-1	dibromochloromethane	5U
79-00-5	1,1,2-trichloroethane	5U
71-43-2	benzene	5U
10061-02-6	trans-1,3-dichloropropene	5U
110-75-8	2-chloroethylvinyl ether	10U
75-25-2	bromoform	5U
127-18-4	tetrachloroethene	5U
79-34-5	1,1,2,2-tetrachloroethane	5U
108-88-3	toluene	5U
108-90-7	chlorobenzene	5U
100-41-4	ethylbenzene	5U

Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not Detected.

Surrogate Recovery Data

Surrogate Compound	Amount Spiked	Amount Recovered	Percent Recovered
TOLUENE-D8	50	46	92.0
BROMOFLUOROBENZENE	50	49	98.0
1,2-DICHLOROETHANE-D4	50	46	92.0

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Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department
Results of Analyses

Customer Name: SCHEIB
Customer Sample Number:
Lab Sample Number: 870731-044
Date Sample Received: 31-JUL-1987
Date Sample Completed: 3-AUG-1987
Date Sampled:
Sampled By: KPB
Material Description: ~~K1232 NEUT PIT~~ REAGENT WATER BLANK
Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed

Program Manager: SR Rizk
Date Approved: 3-AUG-1987

ORGANIC ANALYSIS DATA REPORT

AnaLIS ID: 870618-079	Customer Sample ID: 0618VWBC1
Laboratory Name: Organic Mass Spectroscopy	Customer Name: SCHEIB
File ID:) 05036	Sample Matrix: WATER
Instrument ID: HP5995C	Requisition Number:
Data Release Authorized By: DC Canada	Date Sample Received: 18-JUN-1987

Volatile Organic Compounds - HSL

Date Extracted/Prepared:	Date Analyzed: 18-JUN-1987
Preparation Procedure Number: PURGE & TRAP	Analysis Procedure Number: EPA-624
Percent Mositure:	Conc/Dilution Factor: 1.0
Percent Moisture (decanted):	Analyst: L HOLSOPPLE
Associated Blank:	

CAS		ug/L	CAS		ug/L
74-87-3	chloromethane	10U	79-00-5	1,1,2-trichloroethane	5U
74-83-9	bromomethane	10U	71-43-2	benzene	5U
75-01-4	vinyl chloride	10U	10061-02-6	trans-1,3-dichloropropene	5U
75-00-3	chloroethane	10U	110-75-8	2-chloroethylvinyl ether	10U
75-09-2	methylene chloride	1 J	75-25-2	bromoform	5U
67-64-1	acetone	10U	108-10-1	4-methyl-2-pentanone	10U
75-15-0	carbon disulfide	5U	591-78-6	2-hexanone	10U
75-35-4	1,1-dichloroethene	5U	127-18-4	tetrachloroethene	5U
75-34-3	1,1-dichloroethane	5U	79-34-5	1,1,2,2-tetrachloroethane	5U
156-60-5	trans-1,2-dichloroethene	5U	108-88-3	toluene	[illegible]
67-66-3	chloroform	3 J	108-90-7	chlorobenzene	5U
107-06-2	1,2-dichloroethane	5U	100-41-4	ethylbenzene	5U
78-93-3	2-butanone	10	100-42-5	styrene	5U
71-55-6	1,1,1-trichloroethane	5U		total xylenes	[illegible]
56-23-5	carbon tetrachloride	5U			
108-05-4	vinyl acetate	10U			
75-27-4	bromodichloromethane	5U			
78-87-5	1,2-dichloropropane	5U			
10061-01-5	cis-1,3-dichloropropene	5U			
79-01-6	trichloroethene	5U			
124-48-1	dibromochloromethane	5U			

Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not Detected.

Surrogate Recovery Data

Surrogate Compound	Amount Spiked	Amount Recovered	Percent Recovered
TOLUENE-D8	50	49	98.0
BROMOFLUOROBENZENE	50	50	100.0
1,2-DICHLOROETHANE-D4	50	48	96.0

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Oak Ridge Gaseous Diffusion Plant
Analytical Chemistry Department.
Results of Analyses

Customer Name: SCHEIB
Customer Sample Number: 0618VWBC1 Lab Sample Number: 870618-079
Date Sample Received: 13-JUN-1987 Date Sample Completed: 29-JUN-1987
Date Sampled: Sampled By:
Material Description: REAGENT WATER BLANK 6/18/87 Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed

Program Manager: SR Rizk
Date Approved: 25-JUN-1987

APPENDIX J

BASELINE PUBLIC HEALTH EVALUATION

APPENDIX J

BASELINE PUBLIC HEALTH EVALUATION

1.0 OVERVIEW OF METHODS

The general approach to public health risk evaluation of exposure to chemical contaminants has been well established. It may be divided into four fundamental component analyses: 1) hazard identification, 2) exposure assessment, 3) toxicity or hazard assessment, and 4) risk characterization.

Hazard Identification. The first step in the assessment process is to identify all potential contaminants of concern. From the identified chemicals, compounds are then selected as the subject of the health evaluation. It is often impractical and unnecessary to evaluate all chemicals present at a waste site. Representative compounds may be selected on the basis of: 1) quantities present at the site, 2) extent of environmental contamination, toxicity, or hazardousness, and 3) mobility and persistence of the chemical in the environment. Guidance on the selection process may be found in the Superfund Public Health Evaluation Manual (USEPA 1986c).

Exposure Assessment. The objectives of the exposure assessment are to: 1) delineate exposure pathways; 2) identify species, populations, and systems at risk; and 3) measure or estimate, for each receptor, the intensity, duration, and frequency of the exposure or dose. Critical to the exposure assessment is a quantification of the releases of contaminants of concern to each environmental medium and an assessment of the transport and transformation of the subject compounds. The results of these analyses provide data on the magnitude and extent of contamination. Both monitoring data and environmental transport modeling may be used in the exposure assessment.

Hazard Assessment. The objectives of the toxicity or hazard assessment are to evaluate the inherent toxicity of the compounds under investigation, and to identify and select toxicological measures or endpoints for use in evaluating the significance of exposure. For each subject compound, available dose-response data are reviewed on the adverse effects in human and nonhuman receptors. Dose-response assessments for noncarcinogens provide an estimate of the no-observable-adverse-effect level (NOAEL) or lowest-observable-adverse-effect level (LOAEL). For carcinogenic compounds, the dose-response assessment yields estimates of probability or range of probabilities under which a carcinogenic effect will occur at a specified level of exposure.

Risk Characterization. The last step in public health evaluation is risk characterization. This is the process of integrating the results of the exposure and hazard (toxicity) assessment (i.e., of comparing estimates of dose with appropriate toxicological endpoints to determine the likelihood of adverse effect in exposed populations). It is common practice to consider risk characterization separately for carcinogenic and noncarcinogenic effects. This is due to a fundamental difference in the way organisms typically respond following exposure below which there is only a very small likelihood of adverse health impacts in an exposed individual. Exposure to carcinogenic compounds, however, is not thought to be characterized by the existence of a threshold. Rather, all levels of exposure are considered to carry a risk of adverse effect (risk per unit dose).

The procedure for calculating risk associated with exposure to carcinogenic compounds have been established by EPA (USEPA 1986a,b,c). A non-threshold, dose-response model is used to calculate a carcinogenic potency factor (which mathematically is the slope of the dose-response curve) for each chemical. To derive an estimate of risk, the carcinogenic potency factor (ql* defined below) is then multiplied by the estimated chronic daily intake (CDI) or dose experienced by the exposed individual:

$$R = CDI \times ql^* \qquad (1)$$

where

CDI = chronic daily intake (mg/kg body weight/day)

ql* = 95% upper bound estimate of the slope of the dose-response curve [(mg/kg body weight/day)-1]

R is an explicit estimate of excess or additional lifetime risk having a value between 0 and 1 and expresses the probability that an individual will develop cancer over a lifetime of exposure at the specified dose level. In evaluating risk of exposure to more than one carcinogen, the risk measure (R) for each compound may be summed (in the absence of information on antagonistic or synergistic effects) to give an overall estimate of total carcinogenic risk (USEPA 1986a; USEPA 1986b). This is done for each source of environmental release, associated exposure pathway, and receptor group at risk of exposure. Population risks are derived by multiplying the overall risk level (summed for all subject chemicals) by the number of people exposed. This would yield a measure of the additional incidence of cancer (i.e., additional number of new cases) in the exposed population over a lifetime (i.e., 70 years) of exposure.

The traditionally accepted practice of evaluating exposure to noncarcinogenic compounds has been experimentally to determine a NOAEL and to divide this by a safety factor to establish an acceptable human dose, e.g., acceptable daily intake or reference level (RL) (NRC 1983). The RL, for example, would then be compared to the average daily dose experienced by the exposed population to obtain a measure of concern for adverse noncarcinogenic effects:

$$NCE = D/RL$$

where

NCE = potential for adverse noncarcinogenic effects

D = average daily dose for subchronic or chronic exposure (mg/kg body weight/day)

RL = acceptable intake for subchronic or chronic exposure (mg/kg body weight/day)

The method of developing acceptable limits of exposure implies that the application of safety factors of various magnitudes to experimentally derived NOAEL will ensure minimal risk. A comprehensive compilation of acceptable limits (reference intake values) for acute and chronic exposure to noncarcinogens (AISs, AICs for the ingestion route) is found in USEPA (1986c). Final guidelines for evaluating exposure to mixtures of noncarcinogens is presented in USEPA (1986b).

2.0 EVALUATION OF HEALTH EFFECTS

2.1 Exposure to Contaminated Groundwater

Six inorganic compounds (chromium, copper, lead, nickel, selenium, and zinc), and three organic compounds (acetone, toluene, and bis-(2 ethylhexyl) phthalate) have been detected in the groundwater from the sites at Gowen Field. Table J-1 is a summary of mean and maximum levels of toxicants in on-site groundwater from the four monitoring wells. For comparison, the "applicable or relevant and appropriate requirements" (ARARs; i.e., federal and state criteria and standards) are included. As specified in the Superfund Amendments and Reauthorization Act of 1986 (SARA), on-site remedial actions are required to attain ARARs unless such requirements are formally waived.

Drinking water maximum contaminant level goals (MCLGs previously known as recommended maximum contaminant levels - RMCLs) are nonenforceable health goals established by the U.S. Environmental Protection Agency (EPA) Office of Drinking Water. MCLGs are also set at levels that will result in no known or anticipated adverse health effects incorporating an adequate margin of safety. Maximum contaminant levels (MCLs) are enforceable EPA standards set as close to the MCLGs as feasible, taking into consideration the cost and availability of treatment technologies.

Ambient water quality criteria (AWQC) are guidelines developed by the EPA Office of Water Regulations and Standards for the protection of aquatic life and human health. Although these are not enforceable standards, they present scientific data and guidance to be used by the states in developing water quality standards. A water quality standard consists of two parts: 1) a designated use for a water body to be protected, and 2) criteria or numerical pollutant concentration limits. AWQC adjusted for drinking water only may be used in evaluating the significance of groundwater levels at waste sites.

Examining Table J-1, it is shown that of the inorganic chemicals identified, levels of only two compounds were found to exceed ARARs. The mean and

TABLE J-1

ARARs FOR CHEMICALS IN GROUNDWATER AT THE FOUR SITES AT IDAHO AIR NATIONAL GUARD, GOWEN FIELD, BOISE, IDAHO

Parameter	Mean (a) Concentration (ug/l)	Maximum Concentration (ug/l)	Drinking Water MCL (b) (ug/l)	Drinking Water MCLG (d) (ug/l)	AWQC for Aquatic Organisms and Drinking Water (ug/l) (e)	AWQC Adjusted for Drinking Water Only (ug/l) (f)	Carcinogenity	
							Weight of Evidence (g)	Route (i)
INORGANICS								
Chromium	15	22		120			A	I
Copper	18	40		1,300	1,000 (d)	1,000 (d)		
Lead	15	29	50		50	50		
Nickel	38	79			13.4	15.4	A	I
Selenium	25	50	10	45	10	10		
Zinc	447	980	5,000 (c)		5,000 (h)	5,000 (h)		
ORGANICS								
Acetone	58	260						
Bis-(2 ethylhexyl) phthalate	8	14			15,000	21,000	B2	O
Toluene	20	74		2,000	14,300	15,000		

(a) Mean concentration in groundwater beneath the sites; Mean values were calculated treating "non-detected" values as if the subject chemical was present at half the detection limit.

(b) USEPA Primary Drinking Water Standard: Maximum Contaminant Levels.

(c) USEPA Secondary Drinking Water Regulation (not a health based standard).

(d) USEPA Maximum Contaminant Level Goals (all proposed values).

(e) USEPA Ambient Water Quality Criteria: guidelines devloped for evaluating human exposure to combined levels of toxicants in drinking (surface) water and contaminated fish.

(f) Ambient Water Quality Criteria: guidelines developed for evaluating levels of toxicants in drinking water only.

(g) Weight of Evidence rating quantifies the level of evidence that supports the designation of a chemical as a human carcinogen e.g.: A - sufficient evidence of carcinogenity in humans, B2 - probable human carcinogen, sufficient evidence of carcinogenity in animals, inadequate evidence of carcinogenity in humans.

(h) USEPA Ambient Water Quality Criterion for Zinc not derived for protection against potential toxicity, but rather to control undesireable taste and odor quality.

(i) Route of Exposure: I - Inhalation, O - Oral.

maximum levels of selenium (25 ug/L and 50 ug/L) exceeded the MCL (10 ug/L) and the mean and maximum levels of nickel (38 ug/L and 79 ug/L) exceeded the adjusted AWQC requirements (15.4 ug/L).

Acetone, toluene and bis-(2 ethylhexyl) phthalate were the organic compounds present in groundwater above detection limits. Levels of toluene and bis- (2 ethylhexyl) phthalate observed were less than the MCLs, MCLGs or adjusted AWQC. There are no available MCLs, MCLGs, or AWQCs for acetone.

Hazard Identification. For the purpose of baseline public health evaluation of the groundwater exposure pathway, long-term (chronic) and short-term (subchronic) effects of exposure to contaminants released from the site will be considered. All compounds identified in groundwater will be the subject of the assessment:

Inorganic Compounds: chromium (total), copper, lead, nickel, selenium, and zinc.

Organic Compounds: Acetone, toluene, and bis-(2 ethylhexyl) phthalate.

Exposure Assessment: The baseline public health evaluation of the groundwater exposure pathway focuses on the maximum level of the inorganic and organic compounds measured in the monitoring wells. Table J-2 summarizes the maximum levels for the compounds along with the corresponding doses for humans. Doses listed in Table J-2 were calculated assuming consumption of 2 liters (0.53 gallons) of water per day, 100 percent adsorption, for a 70-kg (154 lb) individual.

Toxicity Assessment: The objective of the toxicity assessment is to characterize the inherent toxicity of the subject compounds and to select appropriate toxicity measures for use in risk characterization. The potential for adverse noncarcinogenic effects are determined using acceptable intake levels for subchronic (AIS) or chronic (AIC) exposure available in the literature. All toxicity endpoints used in analysis of the groundwater exposure pathway are presented in Table J-3.

TABLE J-2

EXPOSURE LEVELS AND CORRESPONDING DOSES FOR RISK APPRAISAL OF GROUNDWATER EXPOSURE PATHWAY, IDAHO AIR NATIONAL GUARD, GOWEN FIELD, BOISE, IDAHO

Parameter	Maximum Observed Level (ug/l)	Dose (mg/kg/day) (ug/l)
INORGANICS		
Chromium	22	6.29E-04
Copper	40	1.14E-03
Lead	29	8.29E-04
Nickel	79	2.26E-03
Selenium	50	1.43E-03
Zinc	980	2.80E-02
ORGANICS		
Acetone	260	7.43E-03
Bis-(2 ethylhexyl) phthalate	14	4.00E-04
Toluene	74	2.11E-03

TABLE J-3

RISK CHARACTERIZATION OF THE GROUNDWATER EXPOSURE PATHWAY, IDAHO AIR NATIONAL GUARD, GOWEN FIELD, BOISE, IDAHO

Parameter	Dose (a) (mg/kg/day)	AIC (b) (oral) (mg/kg/day)	AIS (b) (oral) (mg/kg/day)	POTENTIAL FOR NONCARCINOGENIC EFFECTS			CARCINOGENIC RISK ESTIMATE
				DOSE/AIC	DOSE/AIS		
NONCARCINOGENIC							
Chromium	6.29E-04	5.00E-03	2.50E-03	<1	<1	NO	
Copper	1.14E-03	3.70E-02	3.70E-02	<1	<1	NO	
Lead	8.29E-04	1.40E-03	--	<1	--	NO	
Nickel	2.26E-03	1.00E-02	2.00E-02	<1	<1	NO	
Selenium	1.43E-03	3.00E-03	3.20E-03	<1	<1	NO	
Zinc	2.80E-02	2.10E-01	2.10E-01	<1	<1	NO	
Acetone	7.43E-03	1.00E-01	--	<1	--	NO	
Toluene	2.11E-03	3.00E-01	--	<1	--	NO	
CARCINOGENIC							
Bis-(2 ethylhexyl) phthalate *	4.00E-04	2.00E-02	--				2.70E-07

a. BASED ON MAXIMUM OBSERVED LEVELS IN ONSITE GROUNDWATER
b. AIC = ACCEPTABLE INTAKE VALUE FOR CHRONIC EXPOSURE
   AIS = ACCEPTABLE INTAKE VALUE FOR SUBCHRONIC EXPOSURE
   SOURCE: USEPA 1986
* CARCINOGENIC POTENCY FACTOR (ORAL ROUTE) = 6.84 X 10-4 / (mg/kg/day)

Bis-(2 ethylhexyl) phthalate is a probable human carcinogen through the oral route of exposure. Nickel and chromium VI are carcinogenic through the inhalation route of exposure. It should be noted that there is inadequate evidence to show carcinogenicity in humans for bis-(2 ethylhexyl) phthalate. The carcinogenic potency factor (ql*) is used in quantifying the potential carcinogenic risk of exposure to groundwater containing bis-(2 ethylhexyl) phthalate and the value for the oral route of exposure is given in Table J-E.

Risk Characterization: In this final step of the evaluation, exposure levels are compared with the toxicity measures selected for the subject compounds to evaluate the risk of adverse effects in humans. As shown in Table J-3, the potential for adverse noncarcinogenic effects was evaluated (threshold consideration) by comparing dose vs. the acceptable intake values for subchronic (AIS) and chronic (AIC) exposure.

Results of the risk characterization for the groundwater at the four sites are presented in Table J-3. Note that the risk evaluation of groundwater was conducted to evaluate the potential health significance of observed levels of contaminants. Currently, no one is using this aquifer as a source of drinking water. None of the estimated dose levels was found to exceed the AIS or AIC values for any given compound under evaluation. On this basis, no adverse noncarcinogenic effects would be anticipated for ingestion exposure to any of the groundwater contaminants.

Carcinogenic risks to human health were estimated for ingestion exposure to bis-(2 ethylhexyl) phthalate in the groundwater. It was assumed in the risk assessment that 2 liters of groundwater would be consumed per day, by a 70-kg (154 lb) individual and that adsorption equaled 100 percent. Again, this is a worst case assumption because the shallow groundwater aquifer is not used as a source of drinking water and this compound is considered a laboratory contaminant (i.e., it is not considered to be present in the groundwater at the sites). This was discussed in Section 3 (Discussion of Results and Significance of Findings) of this report. The carcinogenic risk estimate was developed for illustrative purposes based on the maximum concentration found in the groundwater. The additional lifetime individual risk of cancer associated with the maximum observed concentration in groundwater samples was determined as 2.7x 10^{-7} (i.e., an additional lifetime risk of cancer in an exposed individual of 2.7 in 10 million). This is shown in Table J-3.

EPA guidance proposed for hazardous waste site evaluation is used in interpreting these results. In the Remedial Investigation/Feasibility Study (RI/FS) process under the Comprehensive Environmental Response, Compensation and Liability Act/Superfund Amendments and Reauthorization Acts (CERCLA/SARA), recent EPA guidance indicates that remedial alternatives should be refined as necessary to ensure that options considered span a carcinogenic risk range from 10-4 to 10-7 (USEPA 1986c, Zamuda et al 1986). The 10-6 risk level, however, is often chosen as the target risk within their range (Zamuda et al 1986).

The risk characterization for the carcinogenic compound (bis-(2 ethylhexyl) phthalate) indicates an individual lifetime risk on the order of 10^{-7} for ingestion exposure to contaminated groundwater at the sites. Based on EPA guidelines, and given the conservative exposure scenarios and that this aquifer is not a source of drinking water, this level of risk is considered acceptable.

2.2 Exposure to Contaminated Soil and Sediment

Hazard Identification: The results of the on-site characterization of the contamination in soils and sediment is presented in Section 3 of this report. As detailed in Section 3 all soil and sediment samples were tested for inorganics and volatile organic compounds. A number of samples were also tested for semivolatile organic compounds. A variety of inorganic compounds were detected including arsenic, beryllium, chromium, copper, lead, mercury, nickel, and zinc. A number of organic compounds were also found. Table J-4 presents a complete list of inorganic and organic compounds detected in samples collected at less than 5 feet below ground surface and the observed concentrations in each of the soil and sediment samples.

For the purpose of the public health evaluation of the soil/sediment exposure pathway, chronic toxicological effects of long-term ingestion have been considered. The chronic effect of greatest significance, and which

TABLE J-4

CONCENTRATIONS OF CONTAMINANTS IN SOIL AND SEDIMENT AT IDAHO AIR NATIONAL GUARD, GOWEN FIELD, BOISE, IDAHO
DEPTH=<5 FEET BELOW GROUND SURFACE

Parameter	CONCENTRATIONS IN MG/KG									
	Soil Samples, Site 1						Soil Samples, Site 2			
	SB1-1-2	SB1-2-1 (5/7/87)	SB1-2-1 (5/13/87)	SB1-3-1	SB1-4-1	SB1-5-1	SB2-1-1	SB2-2-1	SB2-3-1	SB2-4-1
INORGANICS										
Arsenic	3.6E+00	4.9E+00	3.5E+00	4.4E+00	3.8E+00	4.1E+00	1.8E+01	1.2E+01	1.5E+01	9.4E+00
Beryllium	6.0E-01	4.0E-01	2.0E-01	3.0E-01	3.0E-01	3.0E-01	8.0E-01	7.0E-01	8.0E-01	5.0E-01
Cadmium										
Chromium	3.7E+01	2.0E+01	8.0E+00	1.5E+01	1.4E+01	1.1E+01	1.8E+01	1.4E+01	1.1E+01	1.0E+01
Copper	3.7E+01	1.6E+01	9.0E+00	1.0E+01	1.1E+01	1.0E+01	1.4E+01	1.8E+01	1.2E+01	3.4E+01
Lead		2.8E+01	1.3E+01	2.8E+01						
Mercury		2.0E-01								
Nickel	2.8E+01	9.0E+00	8.0E+00	9.0E+00	1.0E+01	7.0E+00	1.3E+01	1.1E+01	1.0E+01	9.0E+00
Zinc	6.6E+01	4.6E+01	9.4E+01	6.2E+01	3.5E+01	3.2E+01	4.8E+01	5.4E+01	3.0E+01	4.3E+01
ORGANICS										
Acenapthalene										
Acetone			4.0E+00					1.8E-01	1.9E-01	1.5E-01
Ethylbenzene		1.5E+01	1.1E+01	3.4E-02	1.0E+01					
2-methylnapthalene										
Pentachlorophenol										
Tetrachloroethylene				9.9E-02						
Toluene	1.3E+00	3.4E+01	1.5E+01	2.1E-02	1.6E+01					
Xylene	1.0E+01	2.4E+02	1.3E+02	2.1E-01	9.6E+01					

(Continued)

TABLE J-4 (Continued)

CONCENTRATIONS OF CONTAMINANTS IN SOIL AND SEDIMENT AT IDAHO AIR NATIONAL GUARD, GOWEN FIELD, BOISE, IDAHO
DEPTH=<5 FEET BELOW GROUND SURFACE

Parameter	CONCENTRATIONS IN MG/KG				
	Soil Site 5	Sediment Samples, Site 1			
	SB5-1-1	SD1-1	SD1-2	SD1-3	SD1-3 duplicate
INORGANICS					
Arsenic	5.9E+00	3.8E+00	3.9E+00	3.6E+00	4.3E+00
Beryllium	4.0E-01	5.0E-01	5.0E-01	5.0E-01	5.0E-01
Cadmium		5.0E-01	1.0E+00	8.0E-01	1.1E+00
Chromium	1.4E+01	4.0E+01	4.2E+01	4.1E+01	3.9E+01
Copper	1.3E+01	1.1E+01	1.4E+01	1.5E+01	1.8E+01
Lead		1.2E+01	2.8E+01	3.1E+01	2.6E+01
Mercury					
Nickel	1.0E+01	8.0E+00	1.1E+01	1.5E+01	1.0E+01
Zinc	5.3E+01	5.8E+01	9.7E+01	1.0E+02	9.5E+01
ORGANICS					
Acenapthalene	3.0E+00				
Acetone	2.7E-01			1.2E-02	
Ethylbenzene					
2-methylnapthalene	2.0E+01				
Pentachlorophenol	1.5E+02				
Tetrachloroethylene	1.2E-01	6.0E-03		1.1E-02	1.2E-02
Toluene	1.5E-02				
Xylene	3.8E-02	1.1E-02	6.0E-03		

typically drives the public health evaluation, is carcinogenesis. Two carcinogenic compounds were identified among those detected in the soil and sediment samples. The compounds are arsenic and tetrachloroethylene. Nickel and chromium VI are also suspected carcinogens but only by the inhalation route of exposure. Additionally, the potential for adverse noncarcinogenic effects will be examined for long-term ingestion exposure to the contaminants in soil and sediment.

Exposure Assessment: Soil samples were collected at various depths, but only those samples collected close to the surface (i.e. from a depth of < 5 feet below the ground surface) were considered in the public health evaluation. In order to conduct the risk evaluation of soil contamination, it is necessary to determine dose for the ingestion route. Ingestion exposure in this evaluation was based on an assumption of soil ingestion of 0.1 grams/day (USEPA 1986c).

The exposure period was projected to vary as the function of circumstances at the sites under investigation. Based on information obtained from Gowen Field personnel, the following soil exposure scenarios were constructed.

- Site 1 - Individuals ages 25 to 40 years are at risk of exposure. Fire training drills are conducted an average of 6 hours per month, 9 months per year, and an individual is exposed over a 15 year period. Individuals working in the Fire Training Pit are equipped with respirators and protective clothing. Observers are not protected.

- Site 2 - Individuals ages 25 to 50 are at risk of exposure. At this site, Gowen Field personnel work inside the adjoining building with some occasional outside activity. The exposure period is estimated to be 1 hour per day, 260 days per year, and an individual is exposed for 25 years.

- Sites 5 and 6 - These sites are isolated and no exposure of Gowen Field personnel or the public, to contaminated soil, is anticipated to occur. Although isolated, the public is not prevented from gaining access to these sites. Therefore, in order to incorporate consideration of the potential for some very limited but unlikely contact of the public with soil at Sites 5 and 6, an exposure period of 8 hours per year has been projected over a 70 year time frame (lifetime).

Dose associated with the soil ingestion exposure periods was determined as follows:

$$\text{Dose}_{\text{ingestion}} = C_s \times \text{HIF}_{\text{ingestion}}$$

where:

Dose ingestion = intake of a given soil contaminant (mg/kg body weight/day)

C_s = concentration of the subject chemical in soil (mg/kg)

HIF ingestion = human intake factor: quantity of soil ingested per kg body weight per day (kg soil/kg-day)

Based on the assumptions outlined above, the factor HIF was calculated as:

$$\text{HIF}_{\text{ingestion}} = \frac{0.1 \text{ g soil}}{\text{day}} \times \frac{1 \text{ kg soil}}{1{,}000 \text{ g soil}} \times \frac{1}{\underset{\text{body weight}}{70 \text{ kg}}} \times \frac{\text{duration of exposure}}{70 \text{ year}}$$

For Site 1, the duration of exposure was projected to be 0.123 years and HIF $_{\text{ingestion}}$ is equal to 2.5 x 10^{-9} kg soil/kg-day. At Site 2, the duration of exposure was estimated to be 0.856 years and $\text{HIF}_{\text{ingestion}}$ is equal to 1.75 x 10^{-8} kg soil/kg-day. At Sites 5 and 6 the exposure duration was 0.022 years and $\text{HIF}_{\text{ingestion}}$ is equal to 4.66 x 10^{-10} kg soil/kg-day. Mean and maximum doses associated with the concentration of each compound detected in the soil and sediment samples are listed in Table J-6.

<u>Toxicity Assessment</u>: The toxicological measure used in evaluating the potential for noncarcinogenic effects due to ingestion of contaminated soils and sediment are the AIC values for chronic oral exposure. These are presented in Table J-5. The carcinogenic potency factors (q1*) are used in quantifying the potential carcinogenic risk of exposure to contaminated soils and sediment. Values were obtained for arsenic and tetrachloroethylene for the oral route of exposure and are also presented in Table J-5.

TABLE J-5

TOXICITY MEASURES (a): EXPOSURE TO CONTAMINANTS IN SOIL

Parameter	AIC (oral) (mg/kg/day)	Carcinogenic Potency Factor (oral route) (mg/kg/day)-1
INORGANICS		
Arsenic	N/A	1.5E+01
Beryllium	5.0E-04	--
Cadmium	2.9E-04	--
Chromium (VI)	5.0E-03	--
Chromium (III)	1.0E-03	--
Copper	3.7E-02	--
Lead	1.4E-03	--
Mercury	2.0E-03	--
Nickel	1.0E-02	--
Zinc	2.1E-01	--
ORGANICS		
Acetone	1.0E-01	
Acenaphthalene	N/A	--
Ethylbenzene	1.0E-01	--
2-methylnaphthalene	N/A	--
Pentachlorophenol	3.0E-02	--
Tetrachloroethylene	N/A	1.1E-02
Toluene	3.0E-01	--
Xylenes	1.0E-02	--

a. SOURCE: USEPA 1986

TABLE J-6

RISK CHARACTERIZATION FOR NONCARCINOGENIC EFFECTS OF EXPOSURE TO CONTAMINATED SOIL AND SEDIMENTS, IDAHO AIR NATIONAL GUARD, GOWEN FIELD, BOISE, IDAHO

Parameter	Soil, Site 1	Soil, Site 2	Soil, Site 5	Sediment, Site 1	POTENTIAL FOR NONCARCINOGENIC EFFECTS	
	Mean Dose (mg/kg/day)	Mean Dose (mg/kg/day)	Mean Dose (mg/kg/day)	Mean Dose (mg/kg/day)	DOSE/AIC(a) (ALL SITES)	
INORGANICS						
Beryllium	8.75E-10	1.23E-08	1.86E-10	1.25E-09	<1	NO
Cadmium	--	--	--	2.13E-09	<1	NO
Chromium	4.38E-08	2.32E-07	6.52E-09	1.01E-07	<1	NO
Copper	3.88E-08	3.41E-07	6.06E-09	3.63E-08	<1	NO
Lead	2.88E-08	--	--	6.06E-08	<1	NO
Mercury	8.30E-11	--	--	--	<1	NO
Nickel	2.95E-08	1.88E-07	4.66E-09	2.75E-08	<1	NO
Zinc	1.40E-07	7.66E-07	2.47E-08	2.19E-07	<1	NO
ORGANICS						
Acenapthalene			1.40E-09		--	--
Acetone	1.67E-09	2.28E-09	1.26E-10		<1	NO
Ethylbenzene	1.50E-08				<1	NO
Methylnapthalene			9.32E-09		--	--
Pentachlorophenol			7.00E-08		<1	NO
Toluene	2.76E-08		7.00E-12		<1	NO
Xylene	1.98E-07		1.77E-11	1.06E-11	<1	NO

a. AIC VALUES FOR SOIL EXPOSURE PATHWAY ARE LISTED ON TABLE J-5

EPA guidelines stress the importance of considering the weight-of - evidence of the cause-and-effect relationship between exposure to a compound and carcinogenesis in receptors (USEPA 1986a). Arsenic is classified "A"; while tetrachloroethylene is classified "B2". (Group A - proven human carcinogen; Group B2 - probable human carcinogen).

Risk Characterization. The doses corresponding to the mean soil and sediment level of each compound were compared with the toxicity measures for ingestion exposure (AIC values) and results are summarized in Table J-6. The results show that none of the dose estimates exceed the corresponding AIC values. No adverse noncarcinogenic health effects would therefore be anticipated due to long-term ingestion of soils at the four sites.

Carcinogenic risks to human health were estimated for ingestion exposure to arsenic and tetrachloroethylene. Combined individual lifetime risk (across compounds) was developed based on the mean soil and sediment level for the carcinogenic compounds at each of the sites. Results are summarized in Table J-7. EPA guidance proposed for hazardous waste site evaluation is used in interpreting these results. In the Remedial Investigation/Feasibility Study (RI/FS) process under the Comprehensive Environmental Response, Compensation and Liability Act/Superfund Amendments and Reauthorization Acts (CERCLA/SARA), recent EPA guidance indicates that remedial alternatives should be refined as necessary to ensure that options considered span a carcinogenic risk range from 10-4 to 10-7 (USEPA 1986c, Zamuda et al 1986). The 10-6 risk level, however, is often chosen as the target risk within their range (Zamuda et al 1986).

The risk characterization for the carcinogenic compounds indicates a combined individual lifetime risk on the order of 10^{-6} or less for ingestion exposure to contaminated soil and sediment at each of the sites. The highest additional lifetime carcinogenic risks are observed for exposure to soil at Site 2. The risk estimates at Site 2, based on mean soil levels, are approximately 3.6×10^{-6} (i.e., an additional lifetime risk of cancer in an exposed individual of 3.6 in 1 million). Based on EPA guidelines, and given the conservative exposure scenarios, this level of risk is considered acceptable. The additional lifetime risk of cancer to exposed individuals at Sites

TABLE J-7

RISK CHARACTERIZATION FOR CARCINOGENIC EFFECTS OF EXPOSURE TO CONTAMINATED SOILS AND SEDIMENT (a), IDAHO AIR NATIONAL GUARD, GOWEN FIELD, BOISE, IDAHO

Parameter	Soil, Site 1		Soil, Site 2		Soil, Site 5		Sediment, Site 1	
	Mean Dose	Risk Estimate	Mean Dose	Risk Estimate	Mean Dose	Risk Estimate	Mean Dose	Risk Estimate
Arsenic	1.01E-08	1.52E-07	2.38E-07	3.57E-06	2.75E-09	4.12E-08	9.75E-09	1.46E-07
Tetrachloroethylene	4.13E-11	4.54E-13	--	--	5.59E-11	6.15E-13	1.81E-11	2.00E-13
Additional Combined Individual Cancer Risk		1.52E-07		3.57E-06		4.12E-08		1.46E-07

a. RISK = DOSE X CARCINOGENIC POTENCY FACTOR
CARCINOGENIC POTENCY FACTORS FOR SOIL EXPOSURE PATHWAY ARE LISTED IN TABLE J-5.

1, 5, and 6 are one to two orders of magnitude less that for Site 2. These carcinogenic risks would likewise be considered within the acceptable range.

This assessment also served to identify arsenic as the major contaminant of concern in soils and sediment at Gowen Field. The carcinogenic risk estimates at all sites, although not unacceptably high, are primarily attributable to the presence of arsenic which is the most potent of the carcinogens identified. Arsenic was detected at all sites sampled at comparable levels and in the background soil samples that were collected at remote locations removed from any Base activities. Because arsenic concentrations were found in the majority of the soil samples and the background samples, its presence is not considered to be due to Base activities.

APPENDIX K

BIOGRAPHIES OF KEY PERSONNEL

ROGER S. WETZEL, P.E.

EDUCATION

Virginia Polytechnic Institute: B.S., Civil Engineering (1970)
Licensed Professional Engineer - Virginia (No. 8221)

EXPERIENCE

Mr. Wetzel is currently managing the development and installation of in situ biological treatment at an Air Force site. The wastes present include solvents, jet fuels and plating wastes which were placed in a lagoon that has since been filled in and paved with asphalt. The techniques to be used for treatment will include injection/extraction of a solution of water, hydrogen peroxide and nutrients to enhance degradation of wastes using indigenous microorganisms. Mr. Wetzel managed the review of current literature, sampling for chemical and microbiological characterization, sampling for laboratory treatability studies, design of the laboratory program and site hydrogeological characterization. Design of the treatment system, installation of the system and monitoring of treatment effectiveness have been completed. Applicability of the technology for full scale site cleanup is being evaluated.

Recent experience includes managing the development of new approaches for mitigating sediments contaminated by chemical spills. Several simultaneous activities were conducted under this effort, including evaluating equipment for separating sediments by level of contamination, and writing a guidance manual for use by field coordinators responding to spills that result in sediments contamination. The need for these activities was identified in an initial phase of the program which included the documentation of a number of spill incidents and cleanup approaches.

Mr. Wetzel contributed to a feasibility study to evaluate and select the most appropriate remedial alternative for the Stringfellow waste site near Riverside, California. Eight other projects involved similar activities, such as evaluating remedial alternatives and estimating construction and long term operations and maintenance costs for waste site closure. Mr. Wetzel suggested types of information to be included in feasibility studies conducted under CERCLA (Superfund) as part of the Feasibility Study Guidance Document conducted for EPA's CERCLA program.

Mr. Wetzel provided technical input to environmental appraisal of solid and hazardous waste activities for a number of Department of Energy facilities. File data on seven facilities was reviewed and recommendations were made for setting priorities for future appraisals. Specific suggestions on record-keeping, compliance tracking, and communication with EPA and state and local regulatory agencies were made. Two facilities were visited and activities related to RCRA and CERCLA were reviewed in detail with technical staff.

Verified for accuracy by: Roger Wetzel Date: 8/25/86

SAIC

Mr. Wetzel has managed numerous projects related to the treatment, storage and disposal of hazardous wastes. He managed an investigation of treatment, storage, and disposal practices for ignitable, volatile, and reactive industrial wastes in support of evolving EPA RCRA regulations. Mr. Wetzel investigated land disposal practices and alternatives to land disposal (e.g. incineration) for wastes from the manufacture of pesticides, paints, organic solvents, and explosives. As part of this project, Mr. Wetzel contributed to the definition of volatility in the context of RCRA regulations.

For Los Alamos National Laboratory, Mr. Wetzel managed a project to compare chemical waste treatment, storage and disposal practices to low-level radioactive waste management practices. He designed a disposal cell for wastes from light water reactors. The design incorporated an envelope with alternating layers of specially sized limestone particles and a mixture of sand and calcium montmorillonite clay surrounding the wastes to provide passive containment. The proposed experiment was contained entirely within a synthetic liner so that quantities of water and contaminants could be accurately measured. Mr. Wetzel not only prepared plans and specifications, but also prepared a practical effectiveness testing program for the system. This program featured leak detection for the synthetic liner used to contain the experiment, removal of moisture in the unsaturated zone for periodic chemical analysis, and a materials balance analysis of contaminants.

Mr. Wetzel managed an intensive hydrogeological analysis of an active hazardous waste disposal facility for a project for Anne Arundel County in Maryland. An active citizen's group was involved in the project from the outset and frequent meetings were held to review progress. The hydrogeology and the presence of a sole source aquifer at the site necessitated the expansion of a groundwater monitoring program to include additional wells in specific configurations to provide a more representative assessment of groundwater quality. At the County's request, Mr. Wetzel reviewed the site closure plan and recommended modifications which involved a much more detailed plan for sampling and analyzing a surface runoff collection pond, surface water and decontamination areas.

Mr. Wetzel managed a project involving the designation of disposal technology alternatives and the preparation of general guidelines for hazardous waste and low-level radioactive waste facility siting for the State of West Virginia. He managed the development and implementation of a survey of users of low-level radioactive materials in five Western states and examined waste treatment, storage and disposal practices. The resulting profile was used to assist these states in the orderly planning and implementation of state waste management programs.

For a study of landfills located partially in saturated clay deposits, Mr. Wetzel critiqued liner and drain system designs to assure compliance with RCRA design standards and evaluated operational and maintenance procedures for leachate collection systems. He has conducted design reviews and recommended approaches for facility upgrade for RCRA Part B submittals prepared for private clients.

Verified for accuracy by: Roger Wetzel Date: 8/25/86

While serving as Technical Director for a series of investigations of the applicability and effectiveness of waste site remedial actions, Mr. Wetzel provided guidance on waste site and remedial action design and construction for 16 case studies of remedial actions across the U.S. He participated in the development of a manual regarding the engineering aspects of slurry trenching at waste sites. For a study of waste storage drum handling, Mr. Wetzel provided overview of drum consolidation methodologies, which use essentially the same testing protocols as those used by commercial waste disposal facilities to comply with RCRA.

Mr. Wetzel conducted a number of site visits to small POTWs under an EPA program to assist in the implementation phases of industrial pretreatment programs. Assistance included visiting industrial users, recommending effluent limitations to be placed on system users and recommending low-cost changes to facilities to more effectively meet discharge limitations. Typical issues involved the effectiveness of surface impoundment treatment systems and sludge dewatering and disposal. Recently, Mr. Wetzel managed a project to provide NPDES permit writers with guidance on the causes and prevention of industrial material spills.

For previous employers, Mr. Wetzel has performed the following:

- Contributed to the unique design of a small municipal collection, treatment and land disposal system for handling wastewater. This system included a sewage pump at each household, small diameter plastic pipe collection system, batch treatment and land disposal. The batch treatment system required development of design parameters for sequencing of flow to a series of treatment tanks. This sequencing batch treatment method has subsequently been applied by others to the treatment of high strength landfill leachates.

- Designed a solids handling and disposal system for a major steam electric utility. Activities included production of plans and specifications and assistance in equipment selection. In the course of conducting the project, Mr. Wetzel identified other process problems, which were subsequently verified and corrected by the utility.

- Provided input on environmental requirements and costs for the SRC-II coal liquefaction process. Mr. Wetzel contributed to equipment selection and costs for meeting anticipated wastewater and solid waste environmental requirements.

- Contributed to a number of industrial wastewater effluent guidelines development studies, particularly in the areas of treatment system costs and impacts of wastewater treatment on solid waste volumes and disposal needs.

- Contributed to a program for developing new construction materials and techniques for airport runway pavements as an employee of the Federal Aviation Administration.

Verified for accuracy by: Roger Wetzel Date: 8/25/86

SAIC

SELECTED PUBLICATIONS

Wetzel, R.S., Tafuri, A.N., Sinclair, J.R. Improved Techniques for Removal of Sediments Contaminated with Hazardous Materials. Proceedings of the American Society of Civil Engineers Conference "Dredging 84", November 14-16, 1984.

Spooner, P., Wetzel, R.S., Spooner, C., Furman, C., Tokarski, E., Hunt, G., Hodge, V., Robinson, T. 1984. Slurry Trench Construction for Pollution Migration Control. Prepared under EPA Contract No. 68-03-3113.

Wetzel, R.S., Wagner, K., Tafuri, A.N. Drum Handling Practices at Abandoned Sites. Proceedings of the National Conference on Management of Uncontrolled Hazardous Waste Sites, November 29 - December 1, 1982.

Rogoshewski, P., Wetzel, R.S., Sanning, D. 1982. Handbook for Remedial Actions at Waste Disposal Sites. Proceedings of the Eighth Annual Research Symposium, USEPA, Office of Research and Development, March 1982.

Wetzel, R.S. 1981. Design of an Experimental Facility to Enhance In-Place Treatment of Radioactive Residuals. Proceedings of the 1981 National Meeting of the American Institute of Chemical Engineers, November 8-12, 1981.

Wetzel, R.S. 1979. Wastewater Reuse for the Solvent Refined Coal Process. Proceeding of the 86th National Meeting of the American Institute of Chemical Engineers, April 1-4, 1979.

Rogoshewski, P.J., Koester, P.A., Koralek, C.S., Wetzel, R.S. and Shields K.J. 1978. Standards of Practice Manual for the Solvent Refined Coal Liquefaction Process. Prepared under EPA Contract No. 68-02-2162.

Verified for accuracy by: Roger Wetzel Date: 8/26/86

SAIC

CONNIE M. DURST

EDUCATION

Virginia Polytechnic Institute: M.S., Environmental Engineering (1986)

University of Pittsburgh: B.S., Environmental Science (1977)

EXPERIENCE

Ms. Durst is an environmental engineer with SAIC's Applied Technology Division. She has more than 7 years of technical experience ranging from design of water, wastewater and hazardous waste treatment systems to evaluation and analyses of wastewater and soils. She is familar with RCRA regulations and permitting procedures. She has also managed quality control/quality assurance procedures and directed product research and development for a chemical manufacturing facility.

Currently, Ms. Durst is participating in several hazardous waste site investigations for both the Superfund program and the DOD Installation Restoration Program. She is providing engineering support for the Remedial Investigation/Feasibility Study of a top priority Superfund site. Her responsibilities include detailed investigation of previous remediation efforts and engineering evaluation of on-site treatment techniques and removal options for both contaminated soils and groundwater.

For the Air National Guard, Ms. Durst is the engineering operations manager for the Gowen Field, Idaho Installation Restoration Program Phase II/IV-A project. Her responsibilities include evaluation of the hazardous waste sites on the base to determine if remedial action is necessary. She is also directing the operations and evaluation of remedial action technologies which will result in the development of Remedial Action Plans for the contaminated sites.

Ms. Durst assisted with a Remedial Investigation/Feasibility Study of the Rockaway Borough Well Field, a contaminated aquifer site on the CERCLA National Priorities List. Her responsibilities included developing candidate remedial alternatives and identifying the most cost-effective method for treating the contaminated groundwater aquifer which supplied potable water for the community.

For the EPA, Ms. Durst contributed to the design and operations management of an in situ biological treatment system at an Air Force site. The groundwater and subsurface soils at the site were contaminated with solvents, jet fuels, and plating wastes. The bioreclamation project was implemented by the injection of hydrogen peroxide and nutrients to enhance microbial degradation of the wastes. Ms. Durst assisted with design of the injection and recovery system and developed a biological and chemical monitoring program to assess system operation and performance and evaluate treatment success. In addition, she was responsible for data analysis, field operations, and project engineering.

Verified for accuracy by: Connie M. Durst Date: 02-27-87

SAIC

Ms. Durst participated in SAIC's research effort to develop solids separation equipment for the separation of dredged contaminated sediments by level of contamination. The research effort was conducted for USEPA and the U.S. Coast Guard to evaluate methods to potentially reduce the cost of treatment and disposal of contaminated sediments. She was a major contributor to development of a laboratory research study and pilot-scale equipment testing procedures. The lab study was designed to examine the distribution of organic and inorganic contaminants in both the grain size and organic fractions of contaminated sediments. Pilot-scale equipment testing was designed to evaluate separation efficiencies of various types of equipment.

Under the RCRA Implementation Program, Ms. Durst has become familiar with hazardous waste regulations and participated in various aspects of the Program. She has reviewed RCRA Part B permit applications for completeness and technical deficiencies and formulated comments to direct the applicant in providing the necessary information in order to acquire RCRA permits. In addition, Ms. Durst has served as a member of Part B permit review QA/QC teams and has evaluated applications to meet the RCRA requirements under the Hazardous and Solid Waste Amendments of 1984. Ms. Durst has conducted RCRA Facility Assessments (RFA's) including preliminary reviews of files, visual site inspections, and as a member of environmental sampling teams. These activities have included identification of solid waste management units, evaluation of potential environmental releases from the units, review and evaluation of facility hazardous waste management practices, and acquisition of environmental samples for chemical analyses.

Through previous employment, Ms. Durst has gained experience in a wide range of technical areas. She contributed to the design of a municipal collection and treatment system for handling wastewater. The system included primary treatment, secondary activated sludge treatment, and anaerobic digestion of waste solids. She also participated on a project to evaluate the performance of a three stage, aerated lagoon treatment system. Monitoring of water quality and hydraulic parameters was conducted during a one-year time period. Following completion of the project, recommendations were made for system improvements.

Ms. Durst assisted with modifications and upgrade of a municipal water distribution and treatment system. Responsibilities included hydrant testing for pressure and flow rates, and pump, piping, and auxillary equipment design and selection.

For private clients, Ms. Durst has gained experience in hazardous waste treatment system design, treatability studies, delisting petitions, facility closure plans and RCRA Part B permit applications. She assisted with the design of a hazardous waste treatment system for an electric arc furnace steel production facility. Treatability studies were conducted, under her direction, to determine the most feasible method of rendering the waste material nonhazardous. She was also responsible for submitting a delisting petition to EPA for the treated nonhazardous waste. Facility closure plans for hazardous waste storage piles and surface impoundments were submitted under her direction for a steel production facility and a manufacturer of friction products. She is familiar with RCRA Part B permitting procedures. Experience in this area was gained by

Verified for accuracy by: Connie M. Durst Date: 02-27-87

SAIC

assisting with a permit application for a friction products manufacturing facility.

As an independent consultant for a chemical manufacturing plant, Ms. Durst established quality control/quality assurance procedures for the company and directed product research and development.

Ms. Durst is familiar with analytical procedures for characterizing and testing water, wastewater, soil and coals. She has assisted with mine reclamation studies and the design of treatability studies for acid mine drainage. She also has experience in field investigation activites including groundwater monitoring well installation and environmental sampling to include groundwater, surface water, stream sediments, and soils.

While attending graduate school at Virginia Polytechnic Institute and State University, Ms. Durst was a research assistant in the Department of Civil Engineering. Experience was gained in the design and operation of bench scale ion exchange, dual media filtration, biological wastewater treatment, and sedimentation unit process operations. Laboratory experience was also gained in the characterization of water, municipal wastewater and industrial wastewater. Her research effort at VPI&SU examined a treatment and recovery technique for a hazardous waste and was presented in a thesis entitled "Removal of Silver and Mercury from COD Waste Solutions."

PUBLICATIONS

Wetzel, R. S., D. H. Davidson, C. M. Durst, and D. J. Sarno. 1987. Effectiveness of In Situ Biological Treatment of Contaminated Groundwater and Soils at Kelly Air Force Base, Texas. Proceedings of the 4th Annual Conference on Hazardous Materials and Hazardous Wastes, Hazardous Materials Control Research Institute, Washington, D.C., March 16-18, 1987.

Wetzel, R. S., D. H. Davidson, C. M. Durst, and D. J. Sarno. 1986. Field Demonstration of In Situ Biological Treatment of Contaminated Groundwater and Soils. Proceedings of the 12th Annual Research Symposium on Land Disposal, Remedial Action, Incineration, and Treatment of Hazardous Waste, USEPA Hazardous Waste Engineering Research Laboratory, Cincinnati, Ohio, April 21-23, 1986.

Durst, C. M. 1986. Removal of Silver and Mercury from COD Waste Solutions. Thesis. Department of Civil Engineering, Virginia Polytechnic Institute and State University.

Wetzel, R. S., C. M. Durst, D. J. Sarno, P. A. Spooner, S. C. James, and E. Heyse. 1985. Demonstration of In Situ Biological Degradation of Contaminated Groundwater and Soils. Proceedings of the 6th National Conference on Management of Uncontrolled Hazardous Waste Sites, Hazardous Materials Control Research Institute, Washington, D.C., November 4-6, 1985.

Verified for accuracy by: Connie M. Durst Date: 02-27-87

SAIC

Durst, C. M., and W. R. Knocke. 1985. Removal of Silver from COD Waste Solutions. Proceedings of the 17th Mid-Atlantic Industrial Waste Conference, Lehigh University, June 23-25, 1985.

AWARDS, HONORS, PROFESSIONAL AFFILIATIONS AND CERTIFICATIONS

Virginia Engineer-In-Training Certification
Tau Beta Pi Engineering Honor Society
Phi Kappa Phi National Honor Society
Water Pollution Control Federation Member
American Water Works Association Member

Verified for accuracy by: Connie M. Durst Date: 02-27-87

SAIC

J. ERIC GIBSON

EDUCATION

University of Delaware, Bachelor of Science, Geology, (1984)

EXPERIENCE

Mr. Gibson is a geologist with SAIC's Applied Technologies Division, Geotechnical Assessment Section. He has been involved in the implementation of Air Force IRP (Installation Restoration Program) studies at Air Force Bases throughout the country. These studies, which are currently in the confirmation/quantification phase, are intended to determine the degree and extent of environmental degradation resulting from past operations at the Air Force Base. Mr. Gibson's responsibilities include: supervision of the drilling and installation of soil gas and groundwater monitoring wells; sampling of groundwater, surface waters, soils, and stream sediments; analysis of data; assessment of hydrologic conditions; characterization of the local hydrogeology; and preparation of the final reports.

He has also participated in an in-situ bioreclamation research project at a contaminated site located on Kelly Air Force Base, Texas. This research project was intended to enhance the microbial degradation of organic contaminants through the controlled injection of microbe proliferating nutrients. His responsibilities in this remedial action research project consisted of: system operation (control and planning of the pumping and injection rates of both circulated groundwater and microbial nutrients); groundwater sampling; supervision of subcontractor personnel; sampling of contaminated soils obtained by drilling equipment while employing sterile sampling techniques; and field analysis of soil and groundwater chemical parameters.

In addition to these activities, Mr. Gibson has participated in EPA Resource Conservation and Recovery Act (RCRA) Part B Application Completeness Checks. These checks, which were performed on permit applications submitted by various private companies with hazardous waste management facilities, required the evaluation of each application to determine the adequacy of the data provided and, on a preliminary basis, the technical soundness of the document.

Prior to joining SAIC, Mr. Gibson was a geologist with ATEC Associates of Salisbury, Maryland. With this geotechnical engineering firm, Mr. Gibson's responsibilities included the evaluation of driven splitspoon samples to facilitate construction of well logs; the inspection of structural foundations, data interpretation, and report preparation. He assisted in a variety of projects consisting of structural foundation recommendations; determination of the areal extent and volume of proposed borrow pit materials; and potentiometric mapping.

Verified for accuracy by: J. Eric Gibson Date: 8/25/86

SAIC

Also, Mr. Gibson was previously employed by Delmarva Drilling Company of Bridgeville, Delaware. As a member of the drilling group, he assisted with all facets of water well installation and evaluation. His responsibilities included: logging and installation of groundwater producing and monitoring wells; conducting water well pumping and slug tests used in the determination water well and aquifer parameters; recommendations concerning water well location and design; and data interpretation.

Mr. Gibson was a research assistant for the Geology Department of the University of Delaware, during the summer of 1984. In this capacity, he assisted in the investigation of the geological and environmental characteristics of a coastal area experiencing rapid erosion in Central Delaware. He was responsible for flowmeter installation; collection of sediment samples; surveying of the coastal zone; determining the location of sediment sources; and preparation of reports.

PROFESSIONAL AFFILIATIONS

National Water Well Association

PUBLICATIONS

Installation Restoration Program Phase II-Confirmation/Quantification, Stage 1, Draft Report for Charleston Air Force Base (Co-authored with E. Repa, et. al.); for U.S. Air Force, OEHL, Brooks AFB, Texas. (1985).

Verified for accuracy by: J Eric Gibson Date: 8/25/86

SAIC

SARA WILLIS HARTWELL

EDUCATION

B.S., Chemistry, Guilford College (1974)

SHORTCOURSES

1978. Column Selection in Gas Chromatography - Supelco, Inc., Bethesda, MD

1979. High Pressure Liquid Chromatography Apparatus Workshop - American Chemical Society Short Course, Philadelphia, PA

1980. Atomic Absorption Spectroscopy Course - Perkin Elmer, Gaithersburg, MD

1982. Polymer Chemistry, Principles and Practice - American Chemical Society Short Course, Blacksburg, VA

1982. Gel Permeation Chromatography - Waters, Inc., Milford, MA

EXPERIENCE

Ms. Hartwell is a Senior Chemist with SAIC's Environmental Technology Group in the Regulatory Compliance Division. She has 12 years of professional experience as an analytical chemist, including sampling techniques and analyses in environmental, biological and industrial systems.

As a Development Chemist with an industrial concern, Ms. Hartwell was involved in problem-solving research on polymers, coatings, adhesives, inks and aluminum. She has extensive experience with gas chromatography, high pressure liquid chromatography, gel permeation chromatography and fourier transform infrared spectroscopy. She served as technical advisor to a manufacturing operation, evaluating materials and process related issues with a wide spectrum of techniques including thermal analysis, rheology and optical microscopy. Ms. Hartwell designed and implemented a database management system for laboratory data, and trained the technical staff in its use. She was responsible for analytical method development, dissemination and implementation, including the selection and installation of appropriate instrumentation.

Ms. Hartwell was Chairman of the Building Safety Committee for 2 years, served on the Complex Safety Committee, and consulted with the company's safety department on chemical issues pertinent to the manufacturing operation.

As a Senior Research Technician in the Department of Environmental Toxicology at the Johns Hopkins University School of Public Health and Hygiene, Ms. Hartwell was the primary analyst on projects concerned with the analysis of phthalate esters, carbonyl sulfide and heavy metals in biological samples. She was responsible for analytical method development, as well as data management,

Verified for Accuracy by: Sara Willis Hartwell Date: Nov 18, 1986

SAIC

using gas chromatography and atomic absorption spectroscopy. She coordinated projects and instrument scheduling in a multi-user setting and taught a training course in the theory and practice of atomic absorption spectroscopy.

As a Laboratory Technician III with the Frederick Cancer Research Center, Ms. Hartwell performed both gas and liquid chromatographic analyses of anti-neoplastic agents in biological systems. She was responsible for the development of the analytical methods, sample handling and data management.

As a Chemist II at the Research Triangle Institute, Ms. Hartwell performed trace metal analyses on animal tissues, aqueous samples, tar residues and plant tissues. Using a wide range of chromatographic techniques, she worked on metabolic studies of testosterone propionate and trichlorocarbanalide in animal tissues and body fluids. Ms. Hartwell identified and quantified components of energy related wastes and effluents, including participation in pilot scale and in situ coal gasification studies. She was responsible for sample collection, preparation, preservation, storage, and analysis and the reduction and management of data. She had extensive experience with gas and high pressure liquid chromatography, mass spectra interpretation, column and thin layer chromatography and atomic absorption spectroscopy.

As a student, Ms. Hartwell was the Teaching Assistant for introductory chemistry labs.

ASSOCIATIONS

Ms. Hartwell is a member of the American Chemical Society.

PUBLICATIONS

Lateralization of Zinc in Rat Brain and Its Relationship to a Spartial Behavior, James J. Valdes, Sara W. Hartwell, Sheryl M. Sato, and John M. Frazier. Pharmacology, Biochemistry and Behavior, Volume 16, pp 915-917, 1982.

The Analysis of 5-Azacytidine (5AC) and 5,6-Dihydro-5-Azacytidine (H5AC) in L1210 Cell Culture Samples by Gas Chromatography (GC) and Mass Spectrometry (MS), C.J. Nielson, S.W. Hartwell, J.V. Evans, and S.K. Daley, presented at the American Society for Pharmacology and Experimental Therapeutics, Portland, Oregon, (August 19-24, 1979).

Characterization of the Components of Energy-Related Wastes and Effluents, E.D. Pellizzari, J.T. Bursey, D.J. Smith, N.P. Castillo, and S.L. Willis, presented at the 26th Annual Conference - Mass Spectrometry and Allied Topics, St. Louis, Missouri, (May 29 - June 2, 1978).

Identification of Organic Constituents in Aqueous Effluents from Energy-Related Processes, E.D. Pellizzari, N.P. Castillo, S. Willis, D. Smith, and J.T. Bursey, presented at the 175th ACS National Meeting, Anaheim, California, (March 12-17, 1978).

Verified for Accuracy by: Sara Willis Hartwell Date: Nov 18 1986

SAIC

Synthetic Fuels Production: Analysis of Process By-products from a Laboratory Scale Gasifier, C.M. Sparacino, R.A. Zweidinger, S. Willis, and D. Minnick, for presentation at EPA contractor's meeting, Atlanta, Georgia, (February 13-15, 1978).

Analytical Techniques and Analysis of Coal Tars, Waters and Gases, C.M. Sparacino, R.A. Zweidinger, and S. Willis, presented at EPA contractor's meeting, Hollywood, Florida, (September 12-16, 1977).

Application of Capillary GC/MS-Computer Techniques to Identification of Organic Components in Environmental Samples, E. Pellizzari, R. Berkley, J. Bunch, J. Bersey, D. Smith, R. Williams, and S. Willis, presented at American Society for Mass Spectrometry Convention, (May 29 - June 3, 1977).

The Metabolism and Toxicity of Halogenated Carbanilides: Biotransformation Products of 3,4,4'-Trichlorocarbanilide, C.G. Birch, R.A. Hiles, T.H. Eichold, A.R. Jeffcoat, R.W. Handy, J.M. Hill, S.L. Willis, T.R. Hess, and M.E. Wall, Drug Metabolism and Disposition, June, 1977.

The Metabolism and Toxicity of Halogenated Carbanilides, Biliary Metabolites of 3,4,4'-Trichlorocarbanilide and Trifluoromethyl-4,4'-Dichlorocarbanilide in the Rat, A. Robert Jeffcoat, Robert W. Handy, Mark T. Francis, Sara Willis, Monroe E. Wall, C. Grant Birch and Richard A. Hiles. Drug Metabolism and Disposition, Volume 5, Number 2.

Verified for Accuracy by: Sara Willis Hartwell Date: Nov 18 1986

SAIC

J. CANDACE NOTHWANGER

EDUCATION

University of Rochester; B.S., Geology/Biology (1984)

EXPERIENCE

Ms. Nothwanger is a geologist in the Geotechnical Assessment Section of SAIC's Waste Management Department. Her primary responsibilities include the assessment of geologic and hydrologic conditions at hazardous waste sites.

Ms. Nothwanger is currently involved in the implementation of environmental investigations conducted under the United States Air Force's Installation Restoration Program (IRP). This program was designed to determine the magnitude and extent of contamination resulting from previous operations at United States Air Force installations. In support of the IRP, Ms. Nothwanger supervised the installation of groundwater monitoring wells at Eielson Air Force Base, Alaska, George Air Force Base, California, Charleston Air Force Base, South Carolina, and McEntire Air National Guard Base, South Carolina. She also supervised the installation of soil gas monitoring wells, conducted well development operations and aquifer tests, and participated in soil, sediment, surface water, and ground water sampling efforts. Ms. Nothwanger participated in preparation of the work plans for field efforts at Eielson Air Force Base, Lowry Air Force Base (Colorado), and Gowen Field (Idaho). She also provided cost estimates and projections of hours required for segments of these projects. In addition, she completed data analysis, local hydrogeologic characterization and hydrologic assessment of the sites, and participated in final report preparation.

Under contract to the U.S. Environmental Protection Agency's Great Lakes National Program Office, Ms. Nothwanger is developing a Remedial Action Plan for the White Lake Area of Concern. Under the same program, recently she co-authored the Remedial Action Plan for the Muskegon Lake, Michigan Area of Concern.

Ms. Nothwanger was involved in the Remedial Investigation Feasibility Study (RI/FS) currently being conducted at Stringfellow Hazardous Waste Site, California. The investigation involves comprehensive evaluation of environmental conditions at the site and includes the determination of the aerial extent and direction of movement of the contaminant plume. Ms. Nothwanger was involved in data reorganization, literature search, report preparation, and development of ground water and geologic strata contour maps using the microcomputer (IBM-PC).

Ms. Nothwanger has conducted Part B Permit Application completeness checks under EPA's Resource Conservation and Recovery Act (RCRA). The completeness checks examine the information provided on permit applications submitted by private firms possessing hazardous waste management operations. The completeness checks evaluate the validity and adequacy of the data presented in order to determine the technical quality of the permit application.

Verified for accuracy by: J. Candace Nothwanger Date: 2-19-87

SAIC

In addition, Ms. Nothwanger was involved in the production of two major proposals. She coordinated project description, resume and matrix preparation efforts, and selection of qualified personnel based on project requirements.

Under contract to the United States Air Force Systems Command (AFSC)/Aeronautical Systems Division (ASD), SAIC conducted a site assessment of Air Force Plant (AFP) 38 in Porter, New York. Recommendations resulting from the investigation included further investigation of AFP 38 in conjunction with site clean-up and closure activities. In association with this closure plan, Ms. Nothwanger procured surveyor services, set specifications for this task, participated in cost estimate preparation, and coordinated communication between the Air Force Plant contact and the subcontractor.

Prior to joining SAIC, Ms. Nothwanger worked as a research assistant with Everett & Associates. In this position, she conducted literature search and plotted geologic data for an asbestos contaminant project. She also compiled data on acid precipitation and fracturing and deep well disposal for the American Petroleum Institute (API).

PUBLICATIONS

Waldron, M. and C. Nothwanger. 1986. Muskegon Lake Remedial Action Plan. Initial Draft. Prepared for U.S. EPA Great Lakes National Program Office. Contract 68-04-5041, WA86GL-06.

Eades, R., A. Lapins, C. Nothwanger, F. Zafran, and J. Mentz. 1985. Installation Restoration Program, Phase II - Confirmation/Quantification, Stage 1, McEntire Air National Guard Base, South Carolina USAF, OEHL, Brooks AFB, Texas.

PROFESSIONAL AFFILIATIONS AND CERTIFICATIONS

National Water Well Association (NWWA)

Verified for accuracy by: J. Candace Nothwanger Date: 2-19-87

SAIC

FREDERIC A. ZAFRAN

EDUCATION

Drexel University, M.S., Environmental Science (1979)
Michigan State University, B.S., Zoology (1973)

SUMMARY

Mr. Zafran is a Senior Environmental Scientist and Project Manager with expertise in the assessment of impacts of toxic substances and hazardous waste on environmental and biological systems. He is experienced in conducting public health and environmental risk assessments of contaminants released from Superfund sites, RCRA facilities, DOD and DOE waste sites, and laboratory and industrial facilities. Mr. Zafran's experience includes the assessment (fate and effects) of nonconventional, conventional and priority toxic pollutants (CWA Section 307a.1 compounds); drinking water additives; pesticides; industrial solvents; synfuels and synfuel products; dredge and fill materials; sewage sludge; coal ash; and complex hazardous wastes. Mr. Zafran's background encompasses work in environmental chemistry, ecology, and toxicology, as well as water quality planning and management.

EXPERIENCE

Mr. Zafran is currently managing a number of work assignments for EPA Headquarters and EPA Region V. For the Office of Drinking Water (ODW), Mr. Zafran and a staff of 10 scientists are preparing occurrence and exposure estimates for 24 pesticides/synthetic organic chemicals in public drinking water supplies (ground water and surface water). This work supports EPA in the development of drinking water MCLs. On another assignment for ODW, Mr. Zafran and SAIC technical staff are evaluating the relationships between occurrence of pesticides in ground water and site-specific measures of vulnerability and exploring the use of this information in developing ground-water monitoring programs for public water supply system. For the EPA Region V Great Lakes National Program Office, Mr. Zafran is responsible for the preparation of Remedial Action Plans for Deer Lake and Torch Lake in Michigan. In these two assignments, SAIC is evaluating environmental conditions in the river and lake systems, and developing a systematic and comprehensive approach to restoring beneficial uses.

Mr. Zafran has been extensively involved in public health and environmental assessment of hazardous waste sites. He is presently contributing to the Remedial Investigation and Feasibility Study for the Stringfellow Hazardous Waste Disposal Site (Glen Avon, CA), and is responsible for the public health risk assessment and environmental evaluation of remedial action alternatives. Mr. Zafran was SAIC/ETG Project Manager on a contract for the Depart-

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Date: 7/14/87

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ment of Energy to evaluate the extent of waste site contamination at the Savannah River Plant in Aiken, South Carolina, and to identify and select remedial action alternatives. He was responsible for the following assessments: (1) selection of indicator contaminants for 26 waste sites; (2) development and application of methods for characterizing long-term risks to human health for nonradioactive contaminants; (3) methods development for public health risk assessment (acute toxicity) of transportation and waste site closure accidents; and (4) review of transport models for ecosystem impact assessment. Mr. Zafran recently completed an assessment of potential long- and short-term risks to human health of release of chemicals from the proposed EPA Full Containment Hazardous Waste Research Facility in Cincinnati, Ohio. He evaluated impacts associated with day-to-day operations at the laboratory, as well as catastrophic release (explosion).

Mr. Zafran is also involved in Phase II and Phase IV Installation Restoration Program assessments of waste management activities at DOD Air National Guard Bases through the country. He is responsible for providing the public health and environmental risk assessments required to support site evaluation and remediation, at more than half a dozen facilities. Mr. Zafran is conducting a similar analysis on an RI/FS for the U.S. Ecology RCRA Facility in Sheffield Illinois.

For the EPA Office of Policy Analysis, Mr. Zafran contributed to a study on the comparative risks to human health of sources of ground-water contamination. He refined the approach to comparative risk analysis and characterized the release, transport, and transformation of indicator compounds from selected sources.

Mr. Zafran has assisted the EPA Office of Solid Waste (OSW) in reviewing applications submitted by industry for RCRA Part B permits. In addition, he has reviewed numerous delisting petitions for exclusion of waste generated at specific facilities, from listing under RCRA as hazardous waste. Also for OWS, Mr. Zafran assisted in evaluating the Vertical Horizontal Spread (VHS) ground-water transport model proposed by EPA for use in predicting levels of contaminants at receptor wells. In addition to evaluating the appropriateness of the model for its intended use, Mr. Zafran proposed a method for estimating concentration of organic compounds in leachate from land-farmed waste, or waste disposed in landfills. The approach involved predicting the equilibrium partitioning of contaminants between aqueous and solid phases of soil-water systems.

For the Chemical Manufacturers Association (CMA), Mr. Zafran recently prepared an overview of methods for characterizing risks to public health of long-term, low-level release of chemicals from industrial facilities. This work was incorporated into an Air Toxics Information Manual provided as guidance by CMA to member industries. For ARCO Chemical Company, he reviewed and synthesized information on mammalian toxicology and human healths effects of exposure to Stoddards Solvents.

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Mr. Zafran was technical reviewer of the EPA report "Health Assessment Document for Nickel," prepared by the Office of Research and Development. The report serves as a source document for Agency-wide use.

Mr. Zafran was involved in the development of a water quality management plan for the Grand Calumet River/Indiana Harbor Canal. He conducted a critical evaluation of the State's water quality criteria and standards program, developed a method for evaluating the existing sediment contamination problem, and used this method to identify and rank sediment contaminants of concern to aquatic life and human health.

As Work Assignment Manager on the Water Quality Based Program Contract for the EPA Office of Water Regulations and Standards, Mr. Zafran was responsible for: (1) developing hazard assessments (aquatic ecological effects and mammalian/human health effects) for 20 nonpriority pollutants found to be incompatible with the workings of POTWs; and (2) preparing a background and review document on methods for the derivation of sediment criteria and their application under CWA, MPRSA, RCRA, and CERCLA. Mr. Zafran was also technical contributor to an Environmental Impact Statement on the disposal of coal ash in the waters of the New York Bight. He evaluated the toxic impact to marine species associated with direct exposure to waste ash or contaminants released therefrom, and the potential for effects on human health and welfare.

Mr. Zafran conducted a study of the impact of coal liquefaction and shale oil products on aquatic systems. This work for the Office of Toxic Substances involved the assessment of the toxicity of compounds characteristic of synfuels that are responsible for major environmental effects: polycyclic aromatic hydrocarbons, polynuclear heterocyclic and aromatic bases, water soluble aliphatic and aromatic hydrocarbons, and trace metals.

Mr. Zafran contributed to the development of a field guide for EPA and the Coast Guard, on responding to the spill of sinking chemicals in aquatic systems. On the effort, Mr. Zafran outlined the approach to the following evaluations: (1) characterization of discharged materials and the environmental setting; (2) determination of the extent of contaminant transport; (3) evaluation of environmental impacts; (4) assessment of the need for response; and (5) establishment of response objectives.

For the Office of Analysis and Evaluation, Mr. Zafran conducted a study of environmental quality problems of the Narrangansett Bay estuary. This included the physical/chemical characterization of the estuarine system, and examination of uses of the Bay and an evaluation of water quality problems, wetland loss, and shoreline erosion. Also for this office, Mr. Zafran assisted in developing a five-year estuarine quality and protection program plan. He identified and evaluated research needs in the following six topical areas: estuarine characterization, site-specific criteria development, use attain-

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ability analyses, wasteload allocation techniques, monitoring, and benefit-cost assessment.

Mr. Zafran was Work Assignment Manager on a project for the EPA Office of Federal Activities to assess the extent to which the 404 Program (Dredge or Fill Program) assesses and supports research essential to the protection of sensitive aquatic resources. Analysis of existing research and future needs facilitated the development of a broad-based program plan for 404-related research activities.

Mr. Zafran conducted a preliminary study of the impacts of incineration of sewage sludge on human health and the environment. Specifically, he provided the EPA Sludge Task Force with an assessment of contaminants likely to be emitted to the atmosphere, a quantification of emissions factors, and an identification of pollutants of major concern. For the Office of Technology Assessment, Mr. Zafran prepared a comparative overview of ocean disposal of sewage sludge and disposal in terrestrial environments.

Mr. Zafran has contributed to the development of regulatory support documents for Toxic Substances Control Act Section 4, priority chemicals (Office of Pesticides and Toxic Substances). He was reasonable for the analysis of information on pollutant emission, environmental transport, and transformation as it relates to occupational and general population exposures. Also for OPTS, Mr. Zafran has prepared numerous Chemical Hazard Information Profiles, providing background health and exposure data in support of risk assessment and test rules development processes.

PREVIOUS EXPERIENCE

Prior to working for SAIC, Mr. Zafran was employed by the Krusen Center for Biomedical Research and Engineering, and was involved in the study of neuromuscular function in human locomotion. While in graduate school, Mr. Zafran worked as consultant (health systems planner) to the Pennsylvania Department of Health, representing the Drexel University Environmental Studies Institute.

PROFESSIONAL AFFILIATION

Society of Environmental Toxicology and Chemistry
Society for Risk Analysis

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