



**Phase II Environmental Site
Assessment
920 First Avenue
Anchorage, Alaska**

Project No. 002397.PE06.01

February 2007

Prepared for:
PENCO
6000 A Street
Anchorage, Alaska 99518

Prepared by:
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List of Abbreviations and Acronyms

Acronym	Definition
ADEC	Alaska Department of Environmental Conservation
BGS	below ground surface
BH	Borehole
BTEX	benzene, toluene, ethylbenzene, and xylenes
DRO	diesel range organics
E & E	Ecology and Environment, Inc.
EPA	United States Environmental Protection Agency
GRO	gasoline range organics
mg/Kg	milligrams per kilpgram
mg/L	milligrams per liter
MW	monitoring well
ND	non-detect
PCBs	polychlorinated biphenyls
PID	photoionization detector
RRO	residual range organics
STL	Severn Trent Laboratories – Seattle
SVOCs	semi-volatile organic compounds
VOCs	volatile organic compounds

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Introduction

Ecology and Environment, Inc., (E & E) under contract with Pacific Environmental Corporation (PENCO), has prepared this Phase II Environmental Site Assessment report to present the results of environmental sampling activities conducted at 920 1st Avenue in Anchorage, Alaska (see Figures 1-1 and 1-2).

1.1 Purpose and Objectives

The purpose of this report is to expand on a Phase I Environmental Site Assessment report prepared by E & E for PENCO and to present the analytical findings from sampling activities conducted at the site. The objective is to determine if the analytical data gathered indicates the presence of contamination of site soil or groundwater at concentrations exceeding a reasonable level of concern.

This report presents the analytical results with a comparison to relevant State of Alaska standards.

1.2 Report Organization

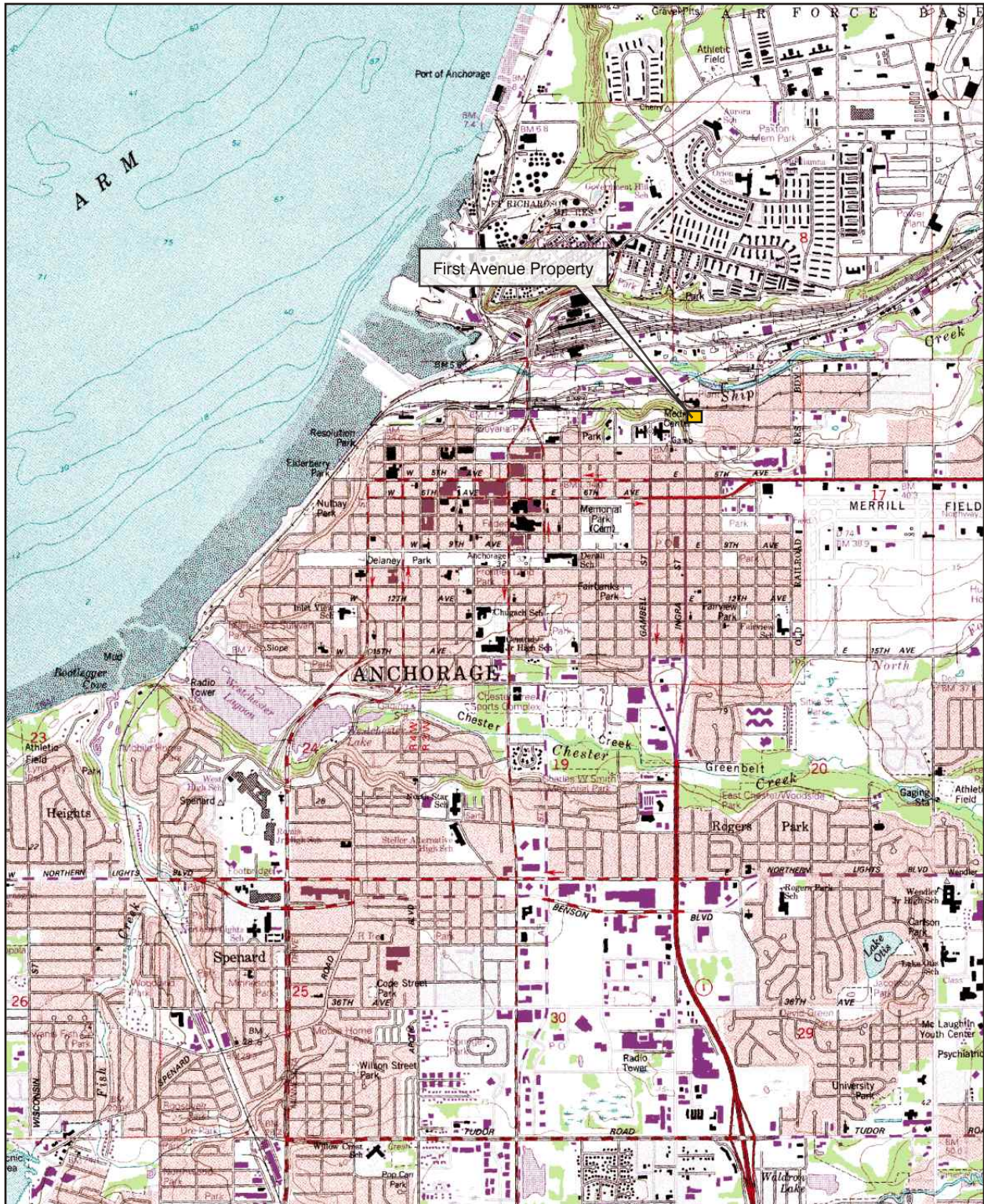
This report presents an environmental assessment based on the results, observations, and analytical data from the fieldwork performed by E & E at the site in January 2007. Following this introduction, the report is organized into the following sections:

- Section 2 presents a background summary, including a site location and description, and a summary of previous investigations provided to E & E;
- Section 3 presents a description of site investigation activities, including a summary of field efforts and methodologies used for sample collection;
- Section 4 presents a discussion of site investigation results, including a summary of analytical results, data validation, and significant findings;



1. Introduction

- Section 5 presents a summary of results and recommendations; and
- Section 6 lists references cited in the report.



SOURCE: 1979 USGS Map, Anchorage (A-8) NW Quadrangle, Alaska, 1:25000-Scale Series (Topographic), Revised 1994.

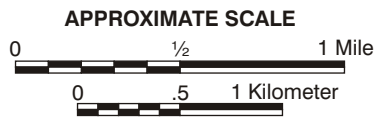


Figure 1-1 Site Vicinity Map

Project: Phase II Environmental Site Assessment
920 First Avenue, Anchorage, Alaska



SOURCE: Municipality of Anchorage, Alaska 2003

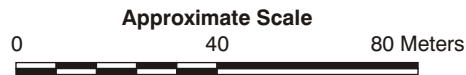


Figure 1-2 Site Location Map

Project: Phase II Environmental Site Assessment
920 First Avenue, Anchorage, Alaska

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Background Summary

The following subsections summarize the site location and description, site history, and previous investigations.

2.1 Site Location and Description

The 1st Avenue property is located east of downtown Anchorage, Alaska, at the corner of 1st Avenue and Ingra Street. The legal description of the property is Lot Block 34A, East Addition. It is a sloping site of approximately 33,000 square feet. The narrow side of the property fronts on 1st Avenue, and the lot is parallel to Ingra Street. The site slopes from the south down to the north.

The general area around the property is part of the slope into the Ship Creek Valley. Whereas the area at the top of the slope near 3rd Avenue is founded on sand and gravel, the soil stratigraphy changes to silt and clay progressing further down the slope.

A business operates on the property immediately to the east of the subject property. Upslope along Ingra Street is an Auto Auction business. Across Ingra is the slope below the former Native Medical Center. To the north is the property of Municipal Light and Power.

2.2 Site History

The subject property has remained vacant for many years. Just after the 1964 earthquake, there were a number of vehicles and other materials stored on the site, but they were removed before the mid 1970s. A number of air photographs were reviewed for the subject property. The site area has changed little since before the 1964 earthquake.

2.3 Previous Investigations

No other investigations of this site have occurred.

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Site Investigation Activities

The following subsections summarize site investigation activities. Field activities took place from January 10 to January 12, 2007. Field notes are contained in Appendix A of this report. Photographs from this investigation are contained in Appendix B.

3.1 Field Investigation

E & E field work included installation of five soil borings, one at each corner of the site and one in the center of the site (see Figure 3-1). Each soil boring was advanced using a Nodwell mounted rotary drill rig. Samples were collected using a 2-foot-long stainless steel split spoon sampler. The sampler was decontaminated between each use, with a rinsate sample collected to evaluate the effectiveness of the field decontamination procedure. A soil sample was collected by scooping soil from the split spoon sampler and placing it in a plastic bag with a ziplock closure. Collected soil samples were screened using a photoionization detector (PID) to determine relative presence of volatile organics. For all near-surface samples (2 to 4 feet below ground surface [bgs]) the collected soil was shipped off site for further analysis. A select number of subsurface soil samples were also collected for off-site analysis. Additionally, two boreholes (BH) (BH-1 and BH-2) were finished as monitoring wells.

3.1.1 Borehole Installation and Soil Sampling

Boring locations are presented on Figure 3-1, and a generalized drilling log is contained in Appendix D. Table 3-1 summarizes the depth, locations, and analysis for all samples collected at the site.

Soils were samples were collected at each BH location beginning below the frost layer, at about 2 feet bgs. Field samples were collected at the following depths for each BH:

- BH-1: Sample collected for PID and off-site analysis at 2 to 4 feet bgs; PID only at 10 to 12 feet and 15 to 17 feet bgs.
- BH-2: Sample collected for PID and off-site analysis at 2 to 4 feet bgs; and PID only at 15 to 17 feet bgs. No sample was collected at 10 to 12 feet bgs.

3. Site Investigation Activities

- BH-3: Sample collected for PID and off-site analysis at 2 to 4 feet and at 10 to 12 feet bgs, with PID only from 15 to 17 feet bgs.
- BH-4: Sample collected for PID and off-site analysis at 2 to 4 feet and for PID only at 10 to 12 feet and 15 to 17 feet bgs.
- BH-5: Sample collected for PID and off-site analysis at 2 to 4 feet and 15 to 17 feet bgs, with PID only from 10 to 12 feet bgs.

All soil samples were field screened using headspace PID protocols as recommended by Alaska Department of Environmental Conservation (ADEC). All soil samples collected from the near surface (2 to 4 feet bgs) were submitted for off-site analysis. PID screening was used to select additional samples for submittal for off-site analysis. Off-site analysis was performed by Severn Trent Laboratories – Seattle (STL), Tacoma, Washington, for the following:

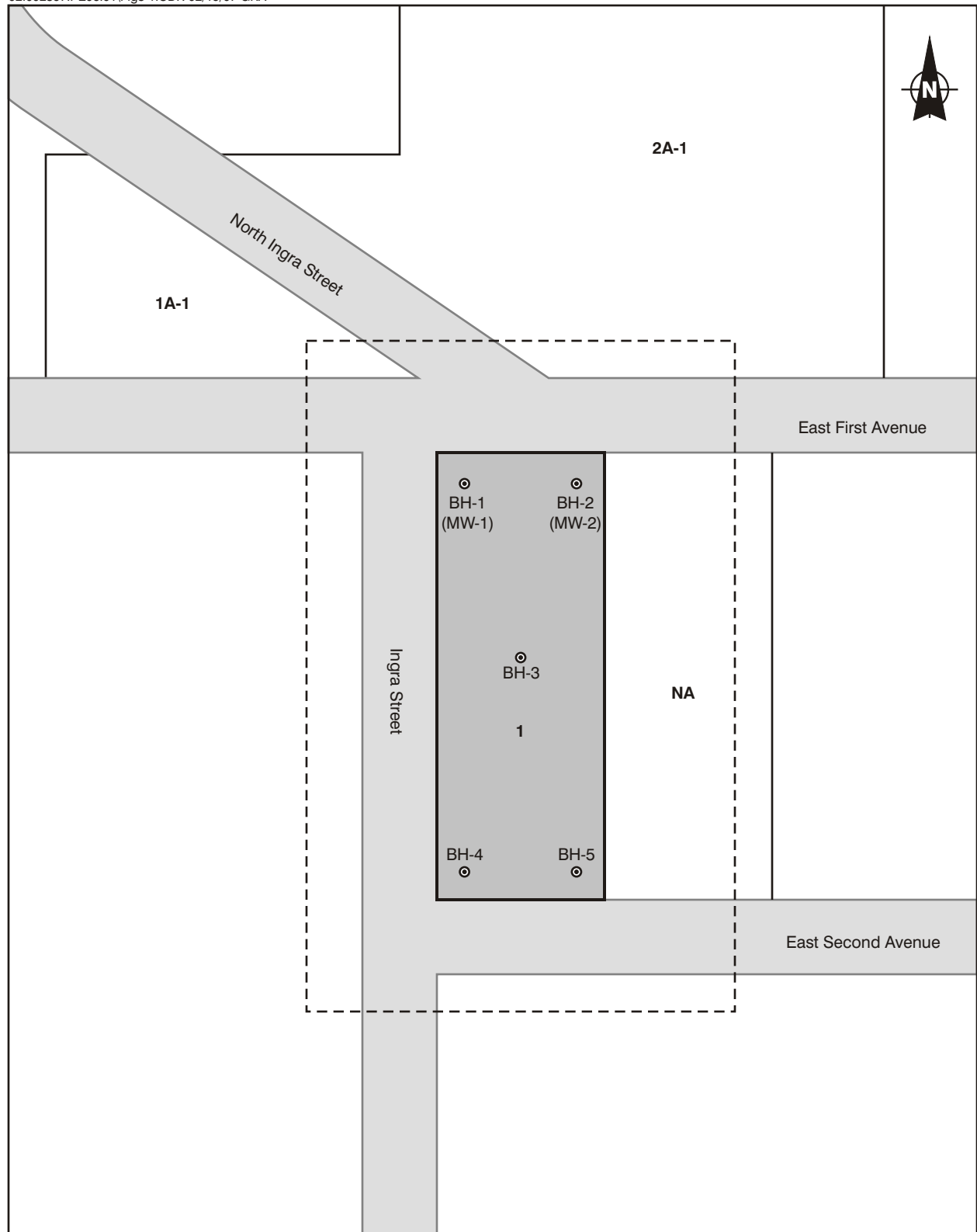
- Gasoline Range Organics (GRO) by Alaska Method AK101;
- Diesel Range Organics (DRO) by Method AK102;
- Residual Range Organics (RRO) by Method AK103;
- Polychlorinated Biphenyls (PCBs) by EPA Method 8082;
- Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270;
- Volatile Organic Compounds (VOCs) by EPA Method 8260; and
- Inorganics (metals) by EPA Method 6010B/7471A.

3.1.2 Monitoring Well Installation and Groundwater Sampling

Two of the boreholes selected for completion into groundwater monitoring wells. BH-1 and BH-2, located at the lower end of the site, near 1st Avenue, were selected for completion into monitoring wells. BH-1 became MW-1, and BH-2 became MW-2. Total depth of each well was approximately 20 feet bgs with 10 feet of polyvinyl chloride screen packed with sand.

E & E collected one groundwater sample from MW-2 for off-site analysis for:

- GRO by Alaska Method AK101;
- DRO by Method AK102;
- RRO by Method AK103;
- PCBs by EPA Method 8082;
- SVOCs by EPA Method 8270;
- VOCs by EPA Method 8260; and
- Inorganics (metals) by EPA Method 6010B/7471A.



SOURCE: Municipality of Anchorage, Alaska 2003

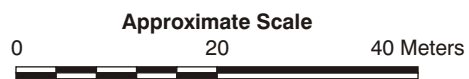


Figure 3-1 Site Location Map

Project: Phase II Environmental Site Assessment
920 First Avenue, Anchorage, Alaska

TABLE 3-1

**SAMPLE COLLECTION AND ANALYTICAL SUMMARY
FIRST AVENUE PROPERTY
ANCHORAGE, ALASKA**

Sample ID	Sample Date / Time	Matrix	Depth (feet)	Analysis								Field Location	Description
				PID Field Screening	AK 101 (GRO)	AK 102 (DRO)	AK 103 (RRO)	SVOCs (8270)	VOCs (8260)	PCBs (8082)	Metals (6010B/7471A)		
PEN001	1/10/2007 12:45	Subsurface Soil	2 to 4	X	X	X	X	X	X	X	X	BH 1	sandy gravel
PEN002	1/10/2007 13:15	Subsurface Soil	10 to 12	X								BH 1	silty clay with sand
PEN003	1/10/2007 13:50	Subsurface Soil	15 to 17	X								BH 1	silty clay
PEN004	1/10/2007 15:25	Subsurface Soil	2 to 4	X	X	X	X	X	X	X	X	BH 2	sandy gravel with loam
PEN005	1/10/2007 13:45	Subsurface Soil	15 to 17	X								BH 2	sandy silt
PEN006	1/11/2007 11:30	Subsurface Soil	2.5 to 4.5	X	X	X	X	X	X	X	X	BH 3	well graded sand
PEN007	1/11/2007 11:30	Subsurface Soil	2.5 to 4.5	X	X	X	X	X	X	X	X	BH 3	duplicate sample
PEN008	1/11/2007 11:40	Subsurface Soil	10 to 12	X	X	X	X	X	X	X	X	BH 3	sandy silt
PEN009	1/11/2007 11:50	Subsurface Soil	15 to 17	X								BH 3	silty clay
PEN010	1/11/2007 12:12	Subsurface Soil	2.5 to 4.5	X	X	X	X	X	X	X	X	BH 4	sandy gravel
PEN011	1/11/2007 12:30	Subsurface Soil	10 to 12	X								BH 4	sandy gravel
PEN012	1/11/2007 12:40	Subsurface Soil	15 to 17	X								BH 4	well graded sand
PEN013	1/11/2007 13:05	Subsurface Soil	2.5 to 4.5	X	X	X	X	X	X	X	X	BH 5	well graded sand
PEN014	1/11/2007 13:20	Subsurface Soil	10 to 12	X								BH 5	silty sand
PEN015	1/11/2007 13:30	Subsurface Soil	15 to 17	X	X	X	X	X	X	X	X	BH 5	silty sand
PEN016W	1/11/2007 16:00	Rinsate Sample	na		X	X	X	X	X	X	X	na	split spoon rinsate
PEN017W	1/12/2007 12:00	Groundwater	na		X	X	X	X	X	X	X	MW-2 (BH 2)	turbid water

Key:

BH = Bore Hole

DRO = Diesel Range Organics

GRO = Gasoline Range Organics

PCBs = Polychlorinated biphenyls

PID - Photo ionization detector

RRO - Residual Range Organics

SVOCs - semi-Volatile Organic Compounds

VOCs - Volatile Organic Compounds

4

Site Investigation Results

The following subsections describe the results of the current investigation. Analytical data were validated by an E & E chemist. Data validation memoranda and laboratory analytical data reports are contained in Appendix E.

4.1 State of Alaska Cleanup Values

ADEC Method Two Soil Cleanup Levels for under 40-inch precipitation zones [18 AAC 75.341(c), (d)] were used in interpretations of analytical data from the site. To be protective, analytical results were compared to the most conservative concentration of the three categories of Soil Cleanup Levels (Ingestion, Inhalation, and Migration to Groundwater) for under 40-inch precipitation zones.

4.2 Soil Analytical Results

A total of seven primary samples and one duplicate sample were collected at the site. Five of the seven samples (PEN001, PEN004, PEN006, PEN010, and PEN013) were from near-surface soils. One sample (PEN 008) was from approximately 10 to 12 feet bgs, and one sample (PEN 0015) was collected from 15 to 17 feet bgs. Table 4-1 summarizes the analytical results for soil samples collected at the site. Because the number of VOC and SVOC analytes is extensive, Table 4-1 only lists those for which a laboratory result above non-detect was reported.

All soil samples collected appeared clean, without any odor. Analysis for GRO, DRO, VOCs, and PCBs indicates no evidence of contamination for these analytes. For SVOC analysis, two analytes were detected in sample PEN001 above non-detect (phenanthrene and pyrene) but well below ADEC cleanup levels. In sample PEN010, one analyte (bis [2-ethylhexyl] phthalate) was detected, again well below the ADEC cleanup level established for this analyte.

Soils at the site were tested for nine inorganics: arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury. Arsenic at concentrations above ADEC cleanup values were detected in all soil samples collected at the site. No evidence of a source of arsenic contamination exists at the site. Three soil samples contained chromium above the ADEC cleanup value of 26 milligrams per kilogram. The elevated chromium and arsenic values may be within soil background concentrations for the site area (Gough *et al.* 1988).

4.3 Groundwater Analytical Results

One groundwater sample (PEN017W) was collected from MW-2 (BH-2), located at the northeast corner of the site (see Table 4-2). Analytical results for ADEC fuels indicate the presence of DRO in groundwater at 0.24 mg/liter (mg/L) which is below the ADEC cleanup value for DRO in groundwater of 1.5 mg/L. Inorganics found in groundwater exceeded established ADEC cleanup values for all analytes (arsenic, barium, cadmium, chromium, lead, selenium, and mercury) except silver.

Because of the low recharge rate of the well, field filtration of the sample was not accomplished, and it is expected this lack of filtration contributed to the elevated values for the above metals. No PCB or VOC analytes were detected in groundwater. Seventeen SVOCs were detected, with concentrations exceeding ADEC cleanup values for three analytes: bis(2-ethylhexyl)phthalate (0.046 mg/L); benzo[a]pyrene (0.00029 mg/L); and, dibenz(a,h)anthracene (0.00017 mg/L).

TABLE 4-1

**SUBSURFACE SOIL SAMPLES
ANALYTICAL RESULTS SUMMARY
FIRST AVENUE PROPERTY
ANCHORAGE, ALASKA**

Field Sample Number	PEN001	PEN004	PEN006	PEN007	PEN008	PEN010	PEN013	PEN015	ADEC Method 2 VALUES
Depth (Feet bgs)	2 to 4	2 to 4	2.5 to 4.5	2.5 to 4.5	10 to 12	2.5 to 4.5	2.5 to 4.5	15 to 17	
Location	BH 1	BH 2	BH 3	BH 3	BH 3	BH 4	BH 5	BH 5	
ADEC Fuels (mg/kg)									
Gasoline Range Organics (GRO)	ND	ND	ND	ND	ND	ND	ND	ND	300 mg/kg
Diesel Range Organics (DRO)	ND	ND	ND	ND	ND	ND	ND	ND	250 mg/kg
Inorganics (mg/kg)									
Arsenic	3.4	5.4	2.8	2.7	8.2	3.5	3.2	3.7	2
Barium	35	48	29	36	81	29	30	38	1,100
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	5
Chromium	25	33	28	32	42	20	25	26	26
Lead	4.8	5.7	2.5	2.6	6.5	3.7	2.8	2.8	1,000
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	3.5
Silver	ND	ND	ND	ND	ND	ND	ND	ND	21
Mercury	0.05	0.071	0.036	0.044	0.12	0.052	0.05	0.03	1.4
Polychlorinated biphenyls (mg/kg)									
PCBs	ND	ND	ND	ND	ND	ND	ND	ND	--
Semivolatile Organic Compounds (mg/Kg)									
Phenanthrene	0.020	ND	ND	ND	ND	ND	ND	ND	4,300
Pyrene	0.025	ND	ND	ND	ND	ND	ND	ND	1,500
Bis(2-ethylhexyl) phthalate	ND	ND	ND	ND	26	ND	ND	ND	1,200
Volatile Organic Compounds (mg/Kg)									
VOCs	ND	ND	ND	ND	ND	ND	ND	ND	--

Note: **Bold** type indicates the sample result is greater than the reported detection limit.

Underlined type indicates the sample result exceeds a screening value.

Key:

BH = Bore Hole

DRO = Diesel Range Organics

GRO = Gasoline Range Organics

mg/Kg = milligrams per kilogram

ND = Non-detect

PCBs = Polychlorinated biphenyls

PID - Photo ionization detector

RRO - Residual Range Organics

SVOCs - semi-Volatile Organic Compounds

VOCs - Volatile Organic Compounds

TABLE 4 - 2

**WATER SAMPLES
ANALYTICAL RESULTS SUMMARY
FIRST AVENUE PROPERTY
ANCHORAGE, ALASKA**

Field Sample Number	PEN016W	PEN017W	ADEC Values
Location	Split Spoon Rinsate	MW-2 (BH 2)	
ADEC Fuels (mg/L)			
Gasoline Range Organics (GRO)	ND	ND	1.3 mg/L
Diesel Range Organics (DRO)	ND	0.24	1.5 mg/L
Inorganics (mg/L)			
Arsenic	ND	0.45	0.05
Barium	ND	6.1	2
Cadmium	ND	0.013	0.005
Chromium	ND	2.9	0.1
Lead	ND	0.73	0.015
Selenium	ND	0.16	0.05
Silver	ND	ND	0.18
Mercury	ND	0.021	0.002
Polychlorinated biphenyls (mg/L)			
PCBs	ND	ND	
Semivolatile Organic Compounds (mg/L)			
2-Methylphenol	ND	0.0048	1.8
Fluorene	ND	0.00079	1.46
Phenanthrene	ND	0.0027	11.0
Fluoranthene	ND	0.00056	1.46
Pyrene	ND	0.00065	1.1
Butyl benzyl phthalate	ND	0.0038	7.3
Benzo[a]anthracene	ND	0.00021	0.001
Chrysene	ND	0.00075	0.1
Bis(2-ethylhexyl) phthalate	ND	0.046	0.006
Di-n-octyl phthalate	ND	0.0049	3.65
Benzofluoranthene	ND	0.00064	0.001*
Benzo[a]pyrene	ND	0.00029	0.0002
Indeno[1,2,3-cd]pyrene	ND	0.00027	0.001
Dibenz(a,h)anthracene	ND	0.00017	0.0001
Benzo[g,h,i]perylene	ND	0.00041	1.1
1-Methylnaphthalene	ND	0.0025	1.5
Di-n-butyl phthalate	ND	0.094	3.65
Volatile Organic Compounds (mg/L)			
VOCs	ND	ND	

* value for benzo(b)fluoranthene

see key on next page

Note: **Bold** type indicates the sample result is greater than the reported detection limit.Underlined type indicates the sample result exceeds a screening value.

Key:

BH = Bore Hole

DRO = Diesel Range Organics

GRO = Gasoline Range Organics

mg/L = milligrams per liter

MW = monitoring well

ND = Non-detect

PCBs = Polychlorinated biphenyls

PID - Photo ionization detector

RRO - Residual Range Organics

SVOCs - semi-Volatile Organic Compounds

VOCs - Volatile Organic Compounds

5

Summary and Conclusions

This investigation was designed to determine if soils and groundwater at 920 First Avenue in Anchorage, Alaska, contain any environmental contaminants at concentrations of concern.

This investigation found no potential contamination sources at the site. For the current investigation, five soil borings were completed, with two of the borings finished as monitoring wells.

Based on analytical results of soils, no evidence exists of a source contributing contaminants to the environment.

Groundwater analytical results do not indicate the presence of contamination at concentrations of a concern for inorganics. The concentration of bis(2-ethylhexyl) phthalate is considered elevated. E & E recommends redevelopment and re-sampling of MW-2 and possibly MW-1 for both inorganics and SVOCs.

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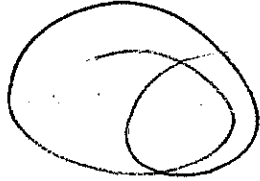
References

L.P. Gough, R.C. Severson, and H.T. Shacklette, 1988, Elemental Concentrations in Soils and Other Surficial Materials in Alaska, USGS Paper 1458.

A

Site Investigation Field Notes

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2 Wed 1/10/07^{07 ml}

0830 - Dan Frank and Mike Jones (E&E) depart for E&E Warehouse and TIT instrumentation.

1015 - E&E crew on-site. Discovery drilling crew on-site. E&E conducts safety meeting. Topics discussed include cold weather ops, chemical hazards and physical hazards. Discovery will provide safety briefing on drill rig safety after the rig has been moved into place.

1115 - Discovery setting up on BH-1

1155 - Break for lunch and to pick up decom equipment.

1230 - E&E back on-site

1245 - E&E collects soil sample PEN001. See table on page 18 for sample description.

TH/TH

Wed 1/10/07

3

1315 - E&E collects ^{soil} sample PEN002. See Table on page 18 for sample description.

1350 - E&E collects soil sample PEN003. See table on page 18 for sample description. BH-1 to be completed ~~at~~ ^{as} monitoring well MW-1.

1500 - Discovery Drilling sets up on bore hole BH-2. Note weather overnight temp ~50F.

^{ml} 1525
1524 - E&E collects soil sample PEN004. See table on page 18 for sample description.

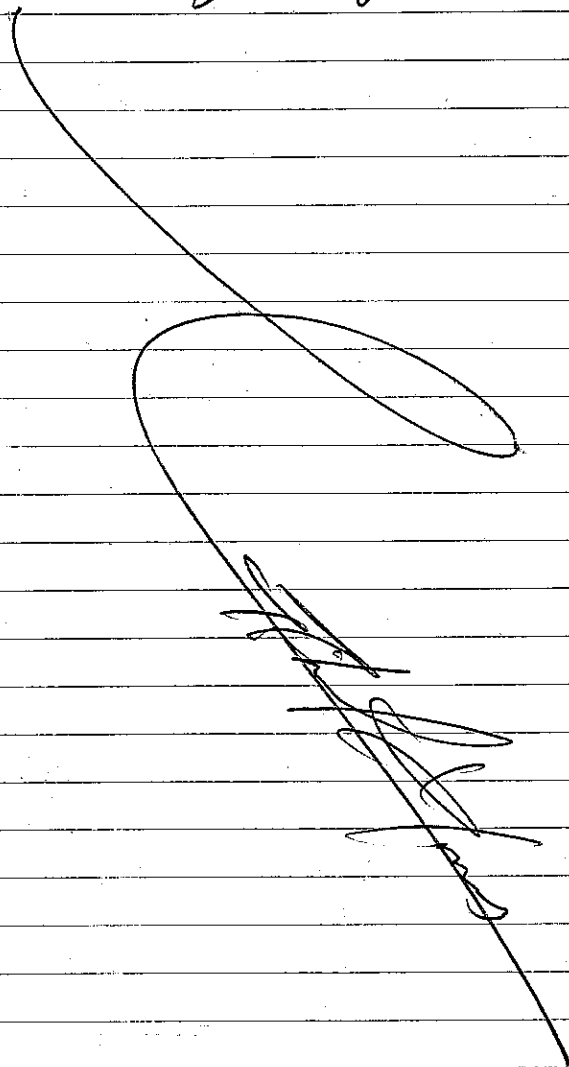
1545 - E&E collects soil sample PEN005. See table on page 18 for sample description. BH-2 to be completed as monitoring well MW-2.

1600 - Discovery to finish MW-2 tomorrow. E&E off-site to decom split spoons.

TH/TH

Wed 1/10/07

1700 - E&E at main office.
End of day.



Thurs 1/11/07

0900 - E&E crew (Jones and Frank) depart E&E main office for warehouse to pick up gear.

1005 - E&E crew at the site, Discovery finishing MW-2 well install.
Note: weather overcast, temp ~20°F.

1115 - E&E and Discovery have safety meeting. Discuss physical and chemical hazards and rig safety.

1120 - Discovery setting up on B&B.

1130 - Soil sample PEN006 collected. Sample PEN007 collected as a field duplicate.

1140 - Soil sample PEN008 collected. Note sample descriptions table on page.
Note that field screening for volatiles performed with mini-rm 2000 using heated headspace method.

J. A. Jones

Thurs 1/11/07

1150 - Sample PENO09 collected

1212 - Sample PENO10 collected

1230 - Sample PENO11 collected

1240 - Sample PENO12 collected.

1305 - Sample PENO13 collected.

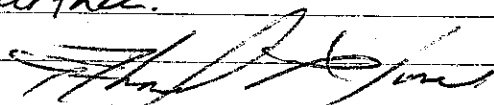
1320 - Sample PENO14 collected.

1330 - Sample PENO15 collected.

1600 - Collected Rinse sample PENO16W

1710 - MW-1 water level @ 22.53'
 from TOC. Total depth @ 23.58'
 from TOC. E&E developing MW-1.
 1-gal purged from MW-1, TOC 3 ft.

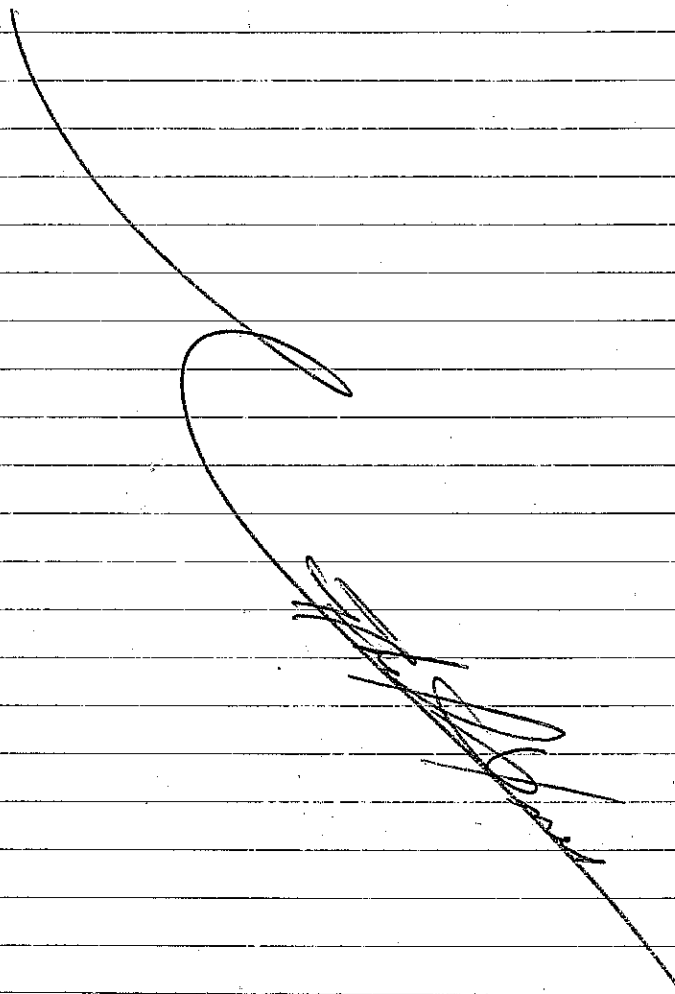
1720 - MW-2 water level @ 15.16' from
 TOC. Total depth @ 22.55' from
 TOC. TOC 2.5 ft from ground
 surface.



Thurs 1/11/07

1730 - 6-gallons purged from MW-2.
 Well needs to be surged.

1740 - E&E off-site.



11/12/07 Fri

1125 - E&E at site. Well depth for MW-2 @ 16.24' from TDC. E&E begins to purge MW-2.

1200 - Sample PENC17W Collected from Monitoring well MW-2. Note 6-gallons purged from MW-2. Heavy turbidity in the sample.

1245 - Jones and Frank at E&E office.

1300 - Break for lunch

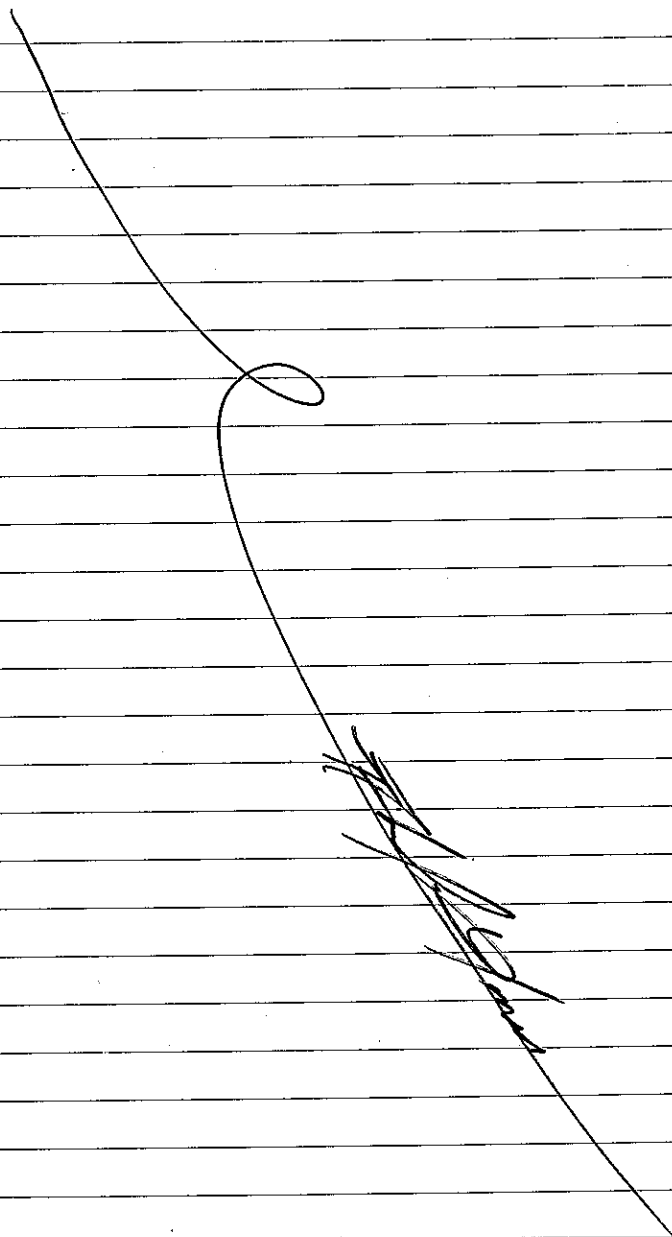
1330 - Jones at E&E warehouse to package samples for shipping to STL Seattle.

1730 - Jones at Alaska Air Cargo (Goldstr-
eak)

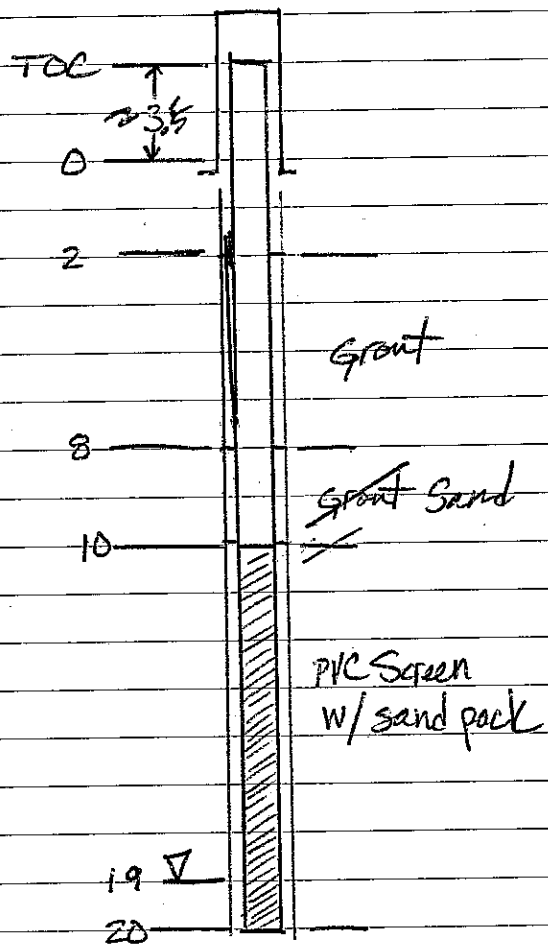
01 15

1845 - Jones departs AIC Air Cargo for E&E office.

1830 - End of day.



MW-1



18	Samp ID	Date	Time	Matrix	Depth	PID
	PEN001	1/10/07	1245	Soil	2'-4'	.8ppm
	PEN 002	↓	1315	↓	10'-12'	.7ppm
	PEN 003	↓	1350	↓	15'-17'	.8ppm
	PEN 004	↓	1525	↓	2'-4'	.6ppm
	PEN 005	↓	1545	↓	15'-17'	.6ppm
	PEN 006	1/11/07	1130	↓	2.5'-4.5'	.4ppm
	PEN 007	↓	1130	↓	2.5'-4.5'	.4ppm
	PEN 008	↓	1140	↓	10'-12'	.6ppm
	PEN 009	↓	1150	↓	15'-17'	.6ppm
	PEN 010	↓	1212	↓	2.5'-4.5'	.5ppm
	PEN 011	↓	1230	↓	10'-12'	.5ppm
	PEN 012	↓	1240	↓	15'-17'	.6ppm
	PEN 013	↓	1305	↓	2.5'-4.5'	.2ppm
	PEN 014	↓	1320	↓	10'-12'	.4ppm
	PEN 015	↓	1330	↓	15'-17'	.4ppm
	PEN 016W	1/11/07	1600	Water	NA	NA
	PEN 017W	1/12/07	1200	Water	NA	NA

19	PID	Description	GRD/BTEX/VOCs, SVOCs PCB, PAH, TAL Metals off-site
		Sandy gravel	Yes
		silty clay w/ sand	No
		silty clay	No
		sandy soil w/ lwm	Yes
		sandy silt	No
		well graded sand	Yes
		"	Yes (Field Dupe of PEN006)
		Sandy Silt	Yes
		Sandy Silt, Clay @ 16.5'	No
		Gravel w/ sand	Yes
		Sand w/ gravel	No
		Well graded sand	No
		Well graded sand	Yes
		silty sand	No
		silty sand	Yes
		Rinseate	Yes
		Sample from MW-2	Yes

B

Photographs of Site Investigation



Time: 12:18
Direction: West

Date: 1/10/07
Description: Off-loading drilling equipment.



Time: 12:18
Direction: South

Date: 1/10/07
Description: Off-loading drilling equipment.



Time: 12:18
Direction: South

Date: 1/10/07
Description: Snow berms at north end of site.



Time: 12:53
Direction: Southwest

Date: 1/10/07
Description: Off-loading drilling.



Time: 12:53
Direction: South

Date: 1/10/07
Description: Off-loading drilling equipment.



Time: 2:47
Direction: Southwest

Date: 1/10/07
Description: Drilling BH-1 (MW-1).



Time: 2:49
Direction: Down

Date: 1/10/07
Description: Split-spoon with soil sample.



Time: 4:54
Direction: East

Date: 1/10/07
Description: Positioning for BH-2 (MW-2).



Time: 5:05
Direction: East

Date: 1/10/07
Description: Drilling at BH-2.



Time: 5:06
Direction: North

Date: 1/10/07
Description: Drilling at BH-2; view from southwest corner of site.



Time: 2:10 Date: 1/11/07
Direction: South Description: BH-1; MW-1 well stand in center.



Time: 2:10 Date: 1/11/07
Direction: East Description: View of BH-2; MW-2 from MW-1.

C

**Data Validation Memo and
Laboratory Analytical Reports**



ecology and environment, inc.

International Specialists in the Environment

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MEMORANDUM

DATE: February 6, 2007

TO: Jim Gill, Project Manager, E & E, Anchorage, AK

FROM: Mark Woodke, Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Summary Check,
First Avenue Property, Anchorage, Alaska**

REF: 002397.PE06

The data summary check of 8 soil and 1 water samples collected from the First Avenue Property site located in Anchorage, Alaska, has been completed. Analysis for Diesel Range Organics (DRO; ADEC Methods AK102/103) was performed by STL-Seattle, Inc., Tacoma, Washington.

The samples were numbered:

Soil	PEN001	PEN004	PEN006	PEN007	PEN008
	PEN010	PEN013	PEN015		
Water	PEN016W				

Data Qualifications:

1. Sample Holding Times: Acceptable.

The samples were maintained and received within the QC limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were collected between January 10 and 12, 2007, were extracted between January 16 and 18, 2007, and were analyzed by January 18, 2007, therefore meeting QC criteria of less than 7 days between collection and extraction for water samples, less than 14 days between collection and extraction for soil samples, and less than 40 days between extraction and analysis.

2. Initial and Continuing Calibration: Not Provided.

Calibration information was not provided.

3. Blanks: Acceptable.

A method blank was analyzed for each extraction batch for each matrix and analysis system. DRO were not detected in any blank.

4. System Monitoring Compounds (SMC): Acceptable.

All recoveries of the SMCs were greater than 10% and within QC criteria.

5. Matrix and Blank Spikes: Acceptable.

Matrix and blank spike results were within QC limits.

6. Duplicates: Acceptable.

Spike duplicate results were acceptable.

7. Quantitation and Quantitation Limits: Not Provided.

Information needed to recalculate sample results and quantitation limits were not provided.

8. Laboratory Contact: Not Required.

No laboratory contact was required.

9. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the Sampling Plan, the OSWER Directive "Quality Assurance/Quality Control Guidance for Removal Activities, Data Validation Procedures" (EPA/540/G-90/004) and the analytical methods. Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN001

Lab Sample ID: 580-4732-1

Date Sampled: 01/10/2007 1245

Client Matrix: Solid

% Moisture: 3.8

Date Received: 01/17/2007 1000

AK102 & 103 Nonhalogenated Organics by FID (Diesel Range Organics & Residual Range Organics)

Method: AK102 & 103

Analysis Batch: 580-14888

Instrument ID: SEA016

Preparation: 3550B

Prep Batch: 580-14845

Lab File ID: EP20385.D

Dilution: 1.0

Initial Weight/Volume: 10.8512 g

Date Analyzed: 01/18/2007 1033

Final Weight/Volume: 10 mL

Date Prepared: 01/17/2007 1507

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
DRO (nC10-<nC25)		ND		19 U
Surrogate		%Rec		Acceptance Limits
o-Terphenyl		84		60 - 120
n-Triacontane-d62		94		60 - 120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN004

Lab Sample ID: 580-4732-2

Date Sampled: 01/10/2007 1525

Client Matrix: Solid

% Moisture: 15.9

Date Received: 01/17/2007 1000

AK102 & 103 Nonhalogenated Organics by FID (Diesel Range Organics & Residual Range Organics)

Method: AK102 & 103

Analysis Batch: 580-14888

Instrument ID: SEA016

Preparation: 3550B

Prep Batch: 580-14845

Lab File ID: EP20386.D

Dilution: 1.0

Initial Weight/Volume: 10.7147 g

Date Analyzed: 01/18/2007 1054

Final Weight/Volume: 10 mL

Date Prepared: 01/17/2007 1507

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
DRO (nC10-<nC25)		ND		22 U
Surrogate		%Rec		Acceptance Limits
o-Terphenyl		94		60 - 120
n-Triacontane-d62		96		60 - 120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN006

Lab Sample ID: 580-4732-3

Date Sampled: 01/11/2007 1130

Client Matrix: Solid

% Moisture: 19.4

Date Received: 01/17/2007 1000

AK102 & 103 Nonhalogenated Organics by FID (Diesel Range Organics & Residual Range Organics)

Method: AK102 & 103

Analysis Batch: 580-14888

Instrument ID: SEA016

Preparation: 3550B

Prep Batch: 580-14845

Lab File ID: EP20387.D

Dilution: 1.0

Initial Weight/Volume: 10.0795 g

Date Analyzed: 01/18/2007 1115

Final Weight/Volume: 10 mL

Date Prepared: 01/17/2007 1507

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
DRO (nC10-<nC25)		ND		25 U
Surrogate		%Rec		Acceptance Limits
o-Terphenyl		89		60 - 120
n-Triacontane-d62		90		60 - 120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN007

Lab Sample ID: 580-4732-4

Date Sampled: 01/11/2007 1130

Client Matrix: Solid

% Moisture: 19.9

Date Received: 01/17/2007 1000

AK102 & 103 Nonhalogenated Organics by FID (Diesel Range Organics & Residual Range Organics)

Method:	AK102 & 103	Analysis Batch: 580-14888	Instrument ID: SEA016
Preparation:	3550B	Prep Batch: 580-14845	Lab File ID: EP20388.D
Dilution:	1.0		Initial Weight/Volume: 10.2607 g
Date Analyzed:	01/18/2007 1135		Final Weight/Volume: 10 mL
Date Prepared:	01/17/2007 1507		Injection Volume:
			Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
DRO (nC10-<nC25)		ND		24 U
Surrogate		%Rec		Acceptance Limits
o-Terphenyl		81		60 - 120
n-Triacontane-d62		93		60 - 120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN008

Lab Sample ID: 580-4732-5

Date Sampled: 01/11/2007 1140

Client Matrix: Solid

% Moisture: 24.0

Date Received: 01/17/2007 1000

AK102 & 103 Nonhalogenated Organics by FID (Diesel Range Organics & Residual Range Organics)

Method: AK102 & 103

Analysis Batch: 580-14888

Instrument ID: SEA016

Preparation: 3550B

Prep Batch: 580-14845

Lab File ID: EP20389.D

Dilution: 1.0

Initial Weight/Volume: 10.6543 g

Date Analyzed: 01/18/2007 1156

Final Weight/Volume: 10 mL

Date Prepared: 01/17/2007 1507

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
DRO (nC10-<nC25)		ND		25 U
Surrogate		%Rec		Acceptance Limits
o-Terphenyl		84		60 - 120
n-Triacontane-d62		86		60.- 120

Handwritten signatures:
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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN010

Lab Sample ID: 580-4732-6

Date Sampled: 01/11/2007 1212

Client Matrix: Solid

% Moisture: 4.7

Date Received: 01/17/2007 1000

AK102 & 103 Nonhalogenated Organics by FID (Diesel Range Organics & Residual Range Organics)

Method: AK102 & 103

Analysis Batch: 580-14888

Instrument ID: SEA016

Preparation: 3550B

Prep Batch: 580-14845

Lab File ID: EP20390.D

Dilution: 1.0

Initial Weight/Volume: 10.3155 g

Date Analyzed: 01/18/2007 1217

Final Weight/Volume: 10 mL

Date Prepared: 01/17/2007 1507

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
DRO (nC10-<nC25)		ND		20 U
Surrogate		%Rec		Acceptance Limits
o-Terphenyl		83		60 - 120
n-Triacontane-d62		94		60 - 120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN013

Lab Sample ID: 580-4732-7

Client Matrix: Solid

% Moisture: 7.1

Date Sampled: 01/11/2007 1305

Date Received: 01/17/2007 1000

AK102 & 103 Nonhalogenated Organics by FID (Diesel Range Organics & Residual Range Organics)

Method: AK102 & 103

Analysis Batch: 580-14888

Instrument ID: SEA016

Preparation: 3550B

Prep Batch: 580-14845

Lab File ID: EP20391.D

Dilution: 1.0

Initial Weight/Volume: 10.6736 g

Date Analyzed: 01/18/2007 1237

Final Weight/Volume: 10 mL

Date Prepared: 01/17/2007 1507

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
DRO (nC10-<nC25)		ND		20
Surrogate		%Rec		Acceptance Limits
o-Terphenyl		86		60 - 120
n-Triacontane-d62		91		60 - 120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN015

Lab Sample ID: 580-4732-8

Client Matrix: Solid

% Moisture: 18.7

Date Sampled: 01/11/2007 1330

Date Received: 01/17/2007 1000

AK102 & 103 Nonhalogenated Organics by FID (Diesel Range Organics & Residual Range Organics)

Method: AK102 & 103
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 01/18/2007 1350
Date Prepared: 01/17/2007 1507

Analysis Batch: 580-14888
Prep Batch: 580-14845

Instrument ID: SEA016
Lab File ID: EP20394.D
Initial Weight/Volume: 10.6138 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
DRO (nC10-<nC25)		ND		23
Surrogate		%Rec		Acceptance Limits
o-Terphenyl		89		60 - 120
n-Triacontane-d62		89		60 - 120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN016W

Lab Sample ID: 580-4732-9

Date Sampled: 01/11/2007 1600

Client Matrix: Water

Date Received: 01/17/2007 1000

AK102 & 103 Nonhalogenated Organics by FID (Diesel Range Organics & Residual Range Organics)

Method:	AK102 & 103	Analysis Batch: 580-14952	Instrument ID: SEA016
Preparation:	3510C	Prep Batch: 580-14876	Lab File ID: EP20399.D
Dilution:	1.0		Initial Weight/Volume: 980 mL
Date Analyzed:	01/18/2007 1555		Final Weight/Volume: 1 mL
Date Prepared:	01/18/2007 1217		Injection Volume:
			Column ID: PRIMARY

Analyte	Result (mg/L)	Qualifier	RL
DRO (nC10-<nC25)	ND		0.10 U
Surrogate	%Rec		Acceptance Limits
o-Terphenyl	80		60 - 120
n-Triacontane-d62	84		60 - 120

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MEMORANDUM

DATE: February 6, 2007
TO: Jim Gill, Project Manager, E & E, Anchorage, AK
FROM: Mark Woodke, Chemist, E & E, Seattle, Washington *MW*
SUBJ: **Organic Data Summary Check,
First Avenue Property, Anchorage, Alaska**
REF: 002397.PE06

The data summary check of 8 soil and 1 water samples collected from the First Avenue Property site located in Anchorage, Alaska, has been completed. Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by STL-Seattle, Inc., Tacoma, Washington.

The samples were numbered:

Soil	PEN001	PEN004	PEN006	PEN007	PEN008
	PEN010	PEN013	PEN015		
Water	PEN016W				

Data Qualifications:

1. **Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were collected between January 10 and 12, 2007, were extracted by January 16, 2007, and were analyzed by January 18, 2007, therefore meeting holding time criteria of less than 7 days between collection and extraction (14 days for soil) and less than 40 days between extraction and analysis.

2. **Tuning: Not Provided.**

Tuning information was not provided.

3. **Initial and Continuing Calibration: Not Provided.**

Calibration information was not provided.

4. Blanks: Acceptable.

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank.

5. System Monitoring Compounds (SMCs): Acceptable.

All SMC recoveries were within QC limits.

6. Matrix Spike (MS)/MS Duplicate (MSD)/Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.

All spike analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within the QC limits except 2-methylphenol (4 high recoveries), isophorone (3 high recoveries), diethylphthalate (1 high recovery), 4-nitroaniline (2 high recoveries), 3,3-dichlorobenzidine (1 high recovery), and n-nitroso-di-n-propylamine (2 low recoveries) in batch 14855 and 2-methylphenol, isophorone, 4-nitroaniline, 3,3-dichlorobenzidine (2 high recoveries), and 3-nitroaniline, d-n-butylphthalate, and fluoranthene (1 high recovery) in batch 14933. Positive results associated with high recovery outliers were qualified as estimated quantities (J) and all results associated with low recovery outliers were qualified as estimated quantities (J or UJ).

7. Duplicate Analysis: Acceptable.

Blank spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

8. Internal Standards: Not Provided.

Internal standard information was not provided.

9. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- J - The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.
- U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
- UJ - The material was analyzed for, but not detected. The reported detection limit is estimated because quality control criteria were not met.

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN001

Lab Sample ID: 580-4732-1

Date Sampled: 01/10/2007 1245

Client Matrix: Solid

% Moisture: 3.8

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method:	8270C	Analysis Batch: 580-14932	Instrument ID: SEA002
Preparation:	3550B	Prep Batch: 580-14855	Lab File ID: AT07014.D
Dilution:	1.0		Initial Weight/Volume: 10.7102 g
Date Analyzed:	01/18/2007 1311		Final Weight/Volume: 10 mL
Date Prepared:	01/18/2007 0636		Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Phenol		ND		97
Bis(2-chloroethyl)ether		ND		97
2-Chlorophenol		ND		97
1,3-Dichlorobenzene		ND		49
1,4-Dichlorobenzene		ND		49
Benzyl alcohol		ND		97
1,2-Dichlorobenzene		ND		49
2-Methylphenol		ND	*	97
Bis(2-chloroisopropyl) ether		ND		150
3 & 4 Methylphenol		ND		190
N-Nitrosodi-n-propylamine		ND		97
Hexachloroethane		ND		97
Nitrobenzene		ND		97
Isophorone		ND	*	97
2-Nitrophenol		ND		97
2,4-Dimethylphenol		ND		97
Benzoic acid		ND		2400
Bis(2-chloroethoxy)methane		ND		97
2,4-Dichlorophenol		ND		97
1,2,4-Trichlorobenzene		ND		49
Naphthalene		ND		19
4-Chloroaniline		ND		97
Hexachlorobutadiene		ND		49
4-Chloro-3-methylphenol		ND		97
2-Methylnaphthalene		ND		19
Hexachlorocyclopentadiene		ND		97
2,4,6-Trichlorophenol		ND		150
2,4,5-Trichlorophenol		ND		97
2-Chloronaphthalene		ND		19
2-Nitroaniline		ND		97
Dimethyl phthalate		ND		97
Acenaphthylene		ND		19
2,6-Dinitrotoluene		ND		97
3-Nitroaniline		ND		97
Acenaphthene		ND		19
2,4-Dinitrophenol		ND		970
4-Nitrophenol		ND		970
Dibenzofuran		ND		97
2,4-Dinitrotoluene		ND		97
Diethyl phthalate		ND	*	97
4-Chlorophenyl phenyl ether		ND		97
Fluorene		ND		19
4-Nitroaniline		ND		97

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2/6/07

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN001

Lab Sample ID: 580-4732-1

Date Sampled: 01/10/2007 1245

Client Matrix: Solid

% Moisture: 3.8

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method:	8270C	Analysis Batch: 580-14932	Instrument ID: SEA002
Preparation:	3550B	Prep Batch: 580-14855	Lab File ID: AT07014.D
Dilution:	1.0		Initial Weight/Volume: 10.7102 g
Date Analyzed:	01/18/2007 1311		Final Weight/Volume: 10 mL
Date Prepared:	01/18/2007 0636		Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
4,6-Dinitro-2-methylphenol		ND		970
N-Nitrosodiphenylamine		ND		49
4-Bromophenyl phenyl ether		ND		97
Hexachlorobenzene		ND		49
Pentachlorophenol		ND		97
Phenanthrene		20		19
Anthracene		ND		19
Di-n-butyl phthalate		ND		190
Fluoranthene		ND		19
Pyrene		25		19
Butyl benzyl phthalate		ND		97
3,3'-Dichlorobenzidine		ND		190
Benzo[a]anthracene		ND		24
Chrysene		ND		24
Bis(2-ethylhexyl) phthalate		ND		1500
Di-n-octyl phthalate		ND		190
Benzo[fluoranthene]		ND		39
Benzo[a]pyrene		ND		29
Indeno[1,2,3-cd]pyrene		ND		39
Dibenz(a,h)anthracene		ND		39
Benzo[g,h,i]perylene		ND		24
Carbazole		ND		150
1-Methylnaphthalene		ND		29
Surrogate		%Rec		Acceptance Limits
2-Fluorophenol		107		36 - 145
Phenol-d5		100		38 - 149
Nitrobenzene-d5		99		38 - 141
2-Fluorobiphenyl		99		42 - 140
2,4,6-Tribromophenol		91		28 - 143
Terphenyl-d14		107		42 - 151

*MW
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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN004

Lab Sample ID: 580-4732-2

Date Sampled: 01/10/2007 1525

Client Matrix: Solid

% Moisture: 15.9

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method:	8270C	Analysis Batch: 580-14932	Instrument ID: SEA002
Preparation:	3550B	Prep Batch: 580-14855	Lab File ID: AT07017.D
Dilution:	1.0		Initial Weight/Volume: 10.5717 g
Date Analyzed:	01/18/2007 1432		Final Weight/Volume: 10 mL
Date Prepared:	01/18/2007 0636		Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Phenol		ND		110
Bis(2-chloroethyl)ether		ND		110
2-Chlorophenol		ND		110
1,3-Dichlorobenzene		ND		56
1,4-Dichlorobenzene		ND		56
Benzyl alcohol		ND		110
1,2-Dichlorobenzene		ND		56
2-Methylphenol		ND	*	110
Bis(2-chloroisopropyl) ether		ND		170
3 & 4 Methylphenol		ND		220
N-Nitrosodi-n-propylamine		ND		110
Hexachloroethane		ND		110
Nitrobenzene		ND		110
Isophorone		ND	*	110
2-Nitrophenol		ND		110
2,4-Dimethylphenol		ND		110
Benzoic acid		ND		2800
Bis(2-chloroethoxy)methane		ND		110
2,4-Dichlorophenol		ND		110
1,2,4-Trichlorobenzene		ND		56
Naphthalene		ND		22
4-Chloroaniline		ND		110
Hexachlorobutadiene		ND		56
4-Chloro-3-methylphenol		ND		110
2-Methylnaphthalene		ND		22
Hexachlorocyclopentadiene		ND		110
2,4,6-Trichlorophenol		ND		170
2,4,5-Trichlorophenol		ND		110
2-Chloronaphthalene		ND		22
2-Nitroaniline		ND		110
Dimethyl phthalate		ND		110
Acenaphthylene		ND		22
2,6-Dinitrotoluene		ND		110
3-Nitroaniline		ND		110
Acenaphthene		ND		22
2,4-Dinitrophenol		ND		1100
4-Nitrophenol		ND		1100
Dibenzofuran		ND		110
2,4-Dinitrotoluene		ND		110
Diethyl phthalate		ND	*	110
4-Chlorophenyl phenyl ether		ND		110
Fluorene		ND		22
4-Nitroaniline		ND		110



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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN004

Lab Sample ID: 580-4732-2

Date Sampled: 01/10/2007 1525

Client Matrix: Solid

% Moisture: 15.9

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C

Analysis Batch: 580-14932

Instrument ID: SEA002

Preparation: 3550B

Prep Batch: 580-14855

Lab File ID: AT07017.D

Dilution: 1.0

Initial Weight/Volume: 10.5717 g

Date Analyzed: 01/18/2007 1432

Final Weight/Volume: 10 mL

Date Prepared: 01/18/2007 0636

Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
4,6-Dinitro-2-methylphenol		ND		1100
N-Nitrosodiphenylamine		ND		56
4-Bromophenyl phenyl ether		ND		110
Hexachlorobenzene		ND		56
Pentachlorophenol		ND		110
Phenanthrene		ND		22
Anthracene		ND		22
Di-n-butyl phthalate		ND		220
Fluoranthene		ND		22
Pyrene		ND		22
Butyl benzyl phthalate		ND		110
3,3'-Dichlorobenzidine		ND		220
Benzo[a]anthracene		ND		28
Chrysene		ND		28
Bis(2-ethylhexyl) phthalate		ND		1700
Di-n-octyl phthalate		ND		220
Benzo[fluoranthene]		ND		45
Benzo[a]pyrene		ND		34
Indeno[1,2,3-cd]pyrene		ND		45
Dibenz(a,h)anthracene		ND		45
Benzo[g,h,i]perylene		ND		28
Carbazole		ND		170
1-Methylnaphthalene		ND		34
Surrogate		%Rec		Acceptance Limits
2-Fluorophenol		103		36 - 145
Phenol-d5		98		38 - 149
Nitrobenzene-d5		104		38 - 141
2-Fluorobiphenyl		99		42 - 140
2,4,6-Tribromophenol		86		28 - 143
Terphenyl-d14		106		42 - 151



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2607

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN006

Lab Sample ID: 580-4732-3

Date Sampled: 01/11/2007 1130

Client Matrix: Solid

% Moisture: 19.4

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method:	8270C	Analysis Batch: 580-14932	Instrument ID: SEA002
Preparation:	3550B	Prep Batch: 580-14855	Lab File ID: AT07018.D
Dilution:	1.0		Initial Weight/Volume: 10.7369 g
Date Analyzed:	01/18/2007 1459		Final Weight/Volume: 10 mL
Date Prepared:	01/18/2007 0636		Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Phenol		ND		120
Bis(2-chloroethyl)ether		ND		120
2-Chlorophenol		ND		120
1,3-Dichlorobenzene		ND		58
1,4-Dichlorobenzene		ND		58
Benzyl alcohol		ND		120
1,2-Dichlorobenzene		ND		58
2-Methylphenol		ND	*	120
Bis(2-chloroisopropyl) ether		ND		170
3 & 4 Methylphenol		ND		230
N-Nitrosodi-n-propylamine		ND		120
Hexachloroethane		ND		120
Nitrobenzene		ND		120
Isophorone		ND	*	120
2-Nitrophenol		ND		120
2,4-Dimethylphenol		ND		120
Benzoic acid		ND		2900
Bis(2-chloroethoxy)methane		ND		120
2,4-Dichlorophenol		ND		120
1,2,4-Trichlorobenzene		ND		58
Naphthalene		ND		23
4-Chloroaniline		ND		120
Hexachlorobutadiene		ND		58
4-Chloro-3-methylphenol		ND		120
2-Methylnaphthalene		ND		23
Hexachlorocyclopentadiene		ND		120
2,4,6-Trichlorophenol		ND		170
2,4,5-Trichlorophenol		ND		120
2-Chloronaphthalene		ND		23
2-Nitroaniline		ND		120
Dimethyl phthalate		ND		120
Acenaphthylene		ND		23
2,6-Dinitrotoluene		ND		120
3-Nitroaniline		ND		120
Acenaphthene		ND		23
2,4-Dinitrophenol		ND		1200
4-Nitrophenol		ND		1200
Dibenzofuran		ND		120
2,4-Dinitrotoluene		ND		120
Diethyl phthalate		ND	*	120
4-Chlorophenyl phenyl ether		ND		120
Fluorene		ND		23
4-Nitroaniline		ND		120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN006

Lab Sample ID: 580-4732-3

Date Sampled: 01/11/2007 1130

Client Matrix: Solid

% Moisture: 19.4

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method:	8270C	Analysis Batch: 580-14932	Instrument ID: SEA002
Preparation:	3550B	Prep Batch: 580-14855	Lab File ID: AT07018.D
Dilution:	1.0		Initial Weight/Volume: 10.7369 g
Date Analyzed:	01/18/2007 1459		Final Weight/Volume: 10 mL
Date Prepared:	01/18/2007 0636		Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
4,6-Dinitro-2-methylphenol		ND		1200
N-Nitrosodiphenylamine		ND		58
4-Bromophenyl phenyl ether		ND		120
Hexachlorobenzene		ND		58
Pentachlorophenol		ND		120
Phenanthrene		ND		23
Anthracene		ND		23
Di-n-butyl phthalate		ND		230
Fluoranthene		ND		23
Pyrene		ND		23
Butyl benzyl phthalate		ND		120
3,3'-Dichlorobenzidine		ND		230
Benzo[a]anthracene		ND		29
Chrysene		ND		29
Bis(2-ethylhexyl) phthalate		ND		1700
Di-n-octyl phthalate		ND		230
Benzo[fluoranthene]		ND		46
Benzo[a]pyrene		ND		35
Indeno[1,2,3-cd]pyrene		ND		46
Dibenz(a,h)anthracene		ND		46
Benzo[g,h,i]perylene		ND		29
Carbazole		ND		170
1-Methylnaphthalene		ND		35
Surrogate		%Rec		Acceptance Limits
2-Fluorophenol		105		36 - 145
Phenol-d5		100		38 - 149
Nitrobenzene-d5		97		38 - 141
2-Fluorobiphenyl		99		42 - 140
2,4,6-Tribromophenol		90		28 - 143
Terphenyl-d14		105		42 - 151

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN007

Lab Sample ID: 580-4732-4

Client Matrix: Solid

% Moisture: 19.9

Date Sampled: 01/11/2007 1130

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C Analysis Batch: 580-14932 Instrument ID: SEA002
 Preparation: 3550B Prep Batch: 580-14855 Lab File ID: AT07019.D
 Dilution: 1.0 Initial Weight/Volume: 10.7332 g
 Date Analyzed: 01/18/2007 1526 Final Weight/Volume: 10 mL
 Date Prepared: 01/18/2007 0636 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Phenol		ND		120
Bis(2-chloroethyl)ether		ND		120
2-Chlorophenol		ND		120
1,3-Dichlorobenzene		ND		58
1,4-Dichlorobenzene		ND		58
Benzyl alcohol		ND		120
1,2-Dichlorobenzene		ND		58
2-Methylphenol		ND	*	120
Bis(2-chloroisopropyl) ether		ND		170
3 & 4 Methylphenol		ND		230
N-Nitrosodi-n-propylamine		ND		120
Hexachloroethane		ND		120
Nitrobenzene		ND		120
Isophorone		ND	*	120
2-Nitrophenol		ND		120
2,4-Dimethylphenol		ND		120
Benzoic acid		ND		2900
Bis(2-chloroethoxy)methane		ND		120
2,4-Dichlorophenol		ND		120
1,2,4-Trichlorobenzene		ND		58
Naphthalene		ND		23
4-Chloroaniline		ND		120
Hexachlorobutadiene		ND		58
4-Chloro-3-methylphenol		ND		120
2-Methylnaphthalene		ND		23
Hexachlorocyclopentadiene		ND		120
2,4,6-Trichlorophenol		ND		170
2,4,5-Trichlorophenol		ND		120
2-Chloronaphthalene		ND		23
2-Nitroaniline		ND		120
Dimethyl phthalate		ND		120
Acenaphthylene		ND		23
2,6-Dinitrotoluene		ND		120
3-Nitroaniline		ND		120
Acenaphthene		ND		23
2,4-Dinitrophenol		ND		1200
4-Nitrophenol		ND		1200
Dibenzofuran		ND		120
2,4-Dinitrotoluene		ND		120
Diethyl phthalate		ND	*	120
4-Chlorophenyl phenyl ether		ND		120
Fluorene		ND		23
4-Nitroaniline		ND		120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN007

Lab Sample ID: 580-4732-4

Client Matrix: Solid

% Moisture: 19.9

Date Sampled: 01/11/2007 1130

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C Analysis Batch: 580-14932 Instrument ID: SEA002
 Preparation: 3550B Prep Batch: 580-14855 Lab File ID: AT07019.D
 Dilution: 1.0 Initial Weight/Volume: 10.7332 g
 Date Analyzed: 01/18/2007 1526 Final Weight/Volume: 10 mL
 Date Prepared: 01/18/2007 0636 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
4,6-Dinitro-2-methylphenol		ND		1200
N-Nitrosodiphenylamine		ND		58
4-Bromophenyl phenyl ether		ND		120
Hexachlorobenzene		ND		58
Pentachlorophenol		ND		120
Phenanthrene		ND		23
Anthracene		ND		23
Di-n-butyl phthalate		ND		230
Fluoranthene		ND		23
Pyrene		ND		23
Butyl benzyl phthalate		ND		120
3,3'-Dichlorobenzidine		ND		230
Benzo[a]anthracene		ND		29
Chrysene		ND		29
Bis(2-ethylhexyl) phthalate		ND		1700
Di-n-octyl phthalate		ND		230
Benzofluoranthene		ND		47
Benzo[a]pyrene		ND		35
Indeno[1,2,3-cd]pyrene		ND		47
Dibenz(a,h)anthracene		ND		47
Benzo[g,h,i]perylene		ND		29
Carbazole		ND		170
1-Methylnaphthalene		ND		35
Surrogate		%Rec		Acceptance Limits
2-Fluorophenol		101		36 - 145
Phenol-d5		97		38 - 149
Nitrobenzene-d5		95		38 - 141
2-Fluorobiphenyl		97		42 - 140
2,4,6-Tribromophenol		85		28 - 143
Terphenyl-d14		104		42 - 151

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2/8/07

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN008

Lab Sample ID: 580-4732-5

Client Matrix: Solid

% Moisture: 24.0

Date Sampled: 01/11/2007 1140

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C

Analysis Batch: 580-14932

Instrument ID: SEA002

Preparation: 3550B

Prep Batch: 580-14855

Lab File ID: AT07020.D

Dilution: 1.0

Initial Weight/Volume: 10.3340 g

Date Analyzed: 01/18/2007 1553

Final Weight/Volume: 10 mL

Date Prepared: 01/18/2007 0636

Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Phenol		ND		130
Bis(2-chloroethyl)ether		ND		130
2-Chlorophenol		ND		130
1,3-Dichlorobenzene		ND		64
1,4-Dichlorobenzene		ND		64
Benzyl alcohol		ND		130
1,2-Dichlorobenzene		ND		64
2-Methylphenol		ND	*	130
Bis(2-chloroisopropyl) ether		ND		190
3 & 4 Methylphenol		ND		250
N-Nitrosodi-n-propylamine		ND		130
Hexachloroethane		ND		130
Nitrobenzene		ND		130
Isophorone		ND	*	130
2-Nitrophenol		ND		130
2,4-Dimethylphenol		ND		130
Benzoic acid		ND		3200
Bis(2-chloroethoxy)methane		ND		130
2,4-Dichlorophenol		ND		130
1,2,4-Trichlorobenzene		ND		64
Naphthalene		ND		25
4-Chloroaniline		ND		130
Hexachlorobutadiene		ND		64
4-Chloro-3-methylphenol		ND		130
2-Methylnaphthalene		ND		25
Hexachlorocyclopentadiene		ND		130
2,4,6-Trichlorophenol		ND		190
2,4,5-Trichlorophenol		ND		130
2-Chloronaphthalene		ND		25
2-Nitroaniline		ND		130
Dimethyl phthalate		ND		130
Acenaphthylene		ND		25
2,6-Dinitrotoluene		ND		130
3-Nitroaniline		ND		130
Acenaphthene		ND		25
2,4-Dinitrophenol		ND		1300
4-Nitrophenol		ND		1300
Dibenzofuran		ND		130
2,4-Dinitrotoluene		ND		130
Diethyl phthalate		ND	*	130
4-Chlorophenyl phenyl ether		ND		130
Fluorene		ND		25
4-Nitroaniline		ND		130

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Handwritten signature: Mar 2-6-07

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN008

Lab Sample ID: 580-4732-5

Date Sampled: 01/11/2007 1140

Client Matrix: Solid

% Moisture: 24.0

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method:	8270C	Analysis Batch: 580-14932	Instrument ID: SEA002
Preparation:	3550B	Prep Batch: 580-14855	Lab File ID: AT07020.D
Dilution:	1.0		Initial Weight/Volume: 10.3340 g
Date Analyzed:	01/18/2007 1553		Final Weight/Volume: 10 mL
Date Prepared:	01/18/2007 0636		Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
4,6-Dinitro-2-methylphenol		ND		1300
N-Nitrosodiphenylamine		ND		64
4-Bromophenyl phenyl ether		ND		130
Hexachlorobenzene		ND		64
Pentachlorophenol		ND		130
Phenanthrene		ND		25
Anthracene		ND		25
Di-n-butyl phthalate		ND		250
Fluoranthene		ND		25
Pyrene		ND		25
Butyl benzyl phthalate		ND		130
3,3'-Dichlorobenzidine		ND		250
Benzo[a]anthracene		ND		32
Chrysene		ND		32
Bis(2-ethylhexyl) phthalate		26000		1900
Di-n-octyl phthalate		ND		250
Benzofluoranthene		ND		51
Benzo[a]pyrene		ND		38
Indeno[1,2,3-cd]pyrene		ND		51
Dibenz(a,h)anthracene		ND		51
Benzo[g,h,i]perylene		ND		32
Carbazole		ND		190
1-Methylnaphthalene		ND		38
Surrogate		%Rec		Acceptance Limits
2-Fluorophenol		101		36 - 145
Phenol-d5		96		38 - 149
Nitrobenzene-d5		91		38 - 141
2-Fluorobiphenyl		94		42 - 140
2,4,6-Tribromophenol		65		28 - 143
Terphenyl-d14		105		42 - 151

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2/07

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN010

Lab Sample ID: 580-4732-6

Date Sampled: 01/11/2007 1212

Client Matrix: Solid

% Moisture: 4.7

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method:	8270C	Analysis Batch: 580-14932	Instrument ID: SEA002
Preparation:	3550B	Prep Batch: 580-14855	Lab File ID: AT07021.D
Dilution:	1.0		Initial Weight/Volume: 10.6909 g
Date Analyzed:	01/18/2007 1620		Final Weight/Volume: 10 mL
Date Prepared:	01/18/2007 0636		Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Phenol		ND		98
Bis(2-chloroethyl)ether		ND		98
2-Chlorophenol		ND		98
1,3-Dichlorobenzene		ND		49
1,4-Dichlorobenzene		ND		49
Benzyl alcohol		ND		98
1,2-Dichlorobenzene		ND		49
2-Methylphenol		ND	*	98
Bis(2-chloroisopropyl) ether		ND		150
3 & 4 Methylphenol		ND		200
N-Nitrosodi-n-propylamine		ND		98
Hexachloroethane		ND		98
Nitrobenzene		ND		98
Isophorone		ND	*	98
2-Nitrophenol		ND		98
2,4-Dimethylphenol		ND		98
Benzoic acid		ND		2500
Bis(2-chloroethoxy)methane		ND		98
2,4-Dichlorophenol		ND		98
1,2,4-Trichlorobenzene		ND		49
Naphthalene		ND		20
4-Chloroaniline		ND		98
Hexachlorobutadiene		ND		49
4-Chloro-3-methylphenol		ND		98
2-Methylnaphthalene		ND		20
Hexachlorocyclopentadiene		ND		98
2,4,6-Trichlorophenol		ND		150
2,4,5-Trichlorophenol		ND		98
2-Chloronaphthalene		ND		20
2-Nitroaniline		ND		98
Dimethyl phthalate		ND		98
Acenaphthylene		ND		20
2,6-Dinitrotoluene		ND		98
3-Nitroaniline		ND		98
Acenaphthene		ND		20
2,4-Dinitrophenol		ND		980
4-Nitrophenol		ND		980
Dibenzofuran		ND		98
2,4-Dinitrotoluene		ND		98
Diethyl phthalate		ND	*	98
4-Chlorophenyl phenyl ether		ND		98
Fluorene		ND		20
4-Nitroaniline		ND		98

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN010

Lab Sample ID: 580-4732-6

Client Matrix: Solid

% Moisture: 4.7

Date Sampled: 01/11/2007 1212

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C Analysis Batch: 580-14932 Instrument ID: SEA002
 Preparation: 3550B Prep Batch: 580-14855 Lab File ID: AT07021.D
 Dilution: 1.0 Initial Weight/Volume: 10.6909 g
 Date Analyzed: 01/18/2007 1620 Final Weight/Volume: 10 mL
 Date Prepared: 01/18/2007 0636 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
4,6-Dinitro-2-methylphenol		ND		980
N-Nitrosodiphenylamine		ND		49
4-Bromophenyl phenyl ether		ND		98
Hexachlorobenzene		ND		49
Pentachlorophenol		ND		98
Phenanthrene		ND		20
Anthracene		ND		20
Di-n-butyl phthalate		ND		200
Fluoranthene		ND		20
Pyrene		ND		20
Butyl benzyl phthalate		ND		98
3,3'-Dichlorobenzidine		ND		200
Benzo[a]anthracene		ND		25
Chrysene		ND		25
Bis(2-ethylhexyl) phthalate		ND		1500
Di-n-octyl phthalate		ND		200
Benzo[fluoranthene		ND		39
Benzo[a]pyrene		ND		29
Indeno[1,2,3-cd]pyrene		ND		39
Dibenz(a,h)anthracene		ND		39
Benzo[g,h,i]perylene		ND		25
Carbazole		ND		150
1-Methylnaphthalene		ND		29
Surrogate		%Rec		Acceptance Limits
2-Fluorophenol		102		36 - 145
Phenol-d5		97		38 - 149
Nitrobenzene-d5		95		38 - 141
2-Fluorobiphenyl		96		42 - 140
2,4,6-Tribromophenol		87		28 - 143
Terphenyl-d14		107		42 - 151

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN013

Lab Sample ID: 580-4732-7

Client Matrix: Solid

% Moisture: 7.1

Date Sampled: 01/11/2007 1305

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C Analysis Batch: 580-14932 Instrument ID: SEA002
 Preparation: 3550B Prep Batch: 580-14855 Lab File ID: AT07022.D
 Dilution: 1.0 Initial Weight/Volume: 10.6535 g
 Date Analyzed: 01/18/2007 1647 Final Weight/Volume: 10 mL
 Date Prepared: 01/18/2007 0636 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Phenol		ND		100
Bis(2-chloroethyl)ether		ND		100
2-Chlorophenol		ND		100
1,3-Dichlorobenzene		ND		51
1,4-Dichlorobenzene		ND		51
Benzyl alcohol		ND		100
1,2-Dichlorobenzene		ND		51
2-Methylphenol		ND	*	100
Bis(2-chloroisopropyl) ether		ND		150
3 & 4 Methylphenol		ND		200
N-Nitrosodi-n-propylamine		ND		100
Hexachloroethane		ND		100
Nitrobenzene		ND		100
Isophorone		ND	*	100
2-Nitrophenol		ND		100
2,4-Dimethylphenol		ND		100
Benzoic acid		ND		2500
Bis(2-chloroethoxy)methane		ND		100
2,4-Dichlorophenol		ND		100
1,2,4-Trichlorobenzene		ND		51
Naphthalene		ND		20
4-Chloroaniline		ND		100
Hexachlorobutadiene		ND		51
4-Chloro-3-methylphenol		ND		100
2-Methylnaphthalene		ND		20
Hexachlorocyclopentadiene		ND		100
2,4,6-Trichlorophenol		ND		150
2,4,5-Trichlorophenol		ND		100
2-Chloronaphthalene		ND		20
2-Nitroaniline		ND		100
Dimethyl phthalate		ND		100
Acenaphthylene		ND		20
2,6-Dinitrotoluene		ND		100
3-Nitroaniline		ND		100
Acenaphthene		ND		20
2,4-Dinitrophenol		ND		1000
4-Nitrophenol		ND		1000
Dibenzofuran		ND		100
2,4-Dinitrotoluene		ND		100
Diethyl phthalate		ND	*	100
4-Chlorophenyl phenyl ether		ND		100
Fluorene		ND		20
4-Nitroaniline		ND		100

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN013

Lab Sample ID: 580-4732-7

Date Sampled: 01/11/2007 1305

Client Matrix: Solid

% Moisture: 7.1

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method:	8270C	Analysis Batch: 580-14932	Instrument ID: SEA002
Preparation:	3550B	Prep Batch: 580-14855	Lab File ID: AT07022.D
Dilution:	1.0		Initial Weight/Volume: 10.6535 g
Date Analyzed:	01/18/2007 1647		Final Weight/Volume: 10 mL
Date Prepared:	01/18/2007 0636		Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
4,6-Dinitro-2-methylphenol		ND		1000
N-Nitrosodiphenylamine		ND		51
4-Bromophenyl phenyl ether		ND		100
Hexachlorobenzene		ND		51
Pentachlorophenol		ND		100
Phenanthrene		ND		20
Anthracene		ND		20
Di-n-butyl phthalate		ND		200
Fluoranthene		ND		20
Pyrene		ND		20
Butyl benzyl phthalate		ND		100
3,3'-Dichlorobenzidine		ND		200
Benzo[a]anthracene		ND		25
Chrysene		ND		25
Bis(2-ethylhexyl) phthalate		ND		1500
Di-n-octyl phthalate		ND		200
Benzo[fluoranthene]		ND		40
Benzo[a]pyrene		ND		30
Indeno[1,2,3-cd]pyrene		ND		40
Dibenz(a,h)anthracene		ND		40
Benzo[g,h,i]perylene		ND		25
Carbazole		ND		150
1-Methylnaphthalene		ND		30
Surrogate		%Rec		Acceptance Limits
2-Fluorophenol		102		36 - 145
Phenol-d5		97		38 - 149
Nitrobenzene-d5		99		38 - 141
2-Fluorobiphenyl		100		42 - 140
2,4,6-Tribromophenol		88		28 - 143
Terphenyl-d14		114		42 - 151

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN015

Lab Sample ID: 580-4732-8

Date Sampled: 01/11/2007 1330

Client Matrix: Solid

% Moisture: 18.7

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method:	8270C	Analysis Batch: 580-14932	Instrument ID: SEA002
Preparation:	3550B	Prep Batch: 580-14855	Lab File ID: AT07023.D
Dilution:	1.0		Initial Weight/Volume: 10.9248 g
Date Analyzed:	01/18/2007 1714		Final Weight/Volume: 10 mL
Date Prepared:	01/18/2007 0636		Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Phenol		ND		110
Bis(2-chloroethyl)ether		ND		110
2-Chlorophenol		ND		110
1,3-Dichlorobenzene		ND		56
1,4-Dichlorobenzene		ND		56
Benzyl alcohol		ND		110
1,2-Dichlorobenzene		ND		56
2-Methylphenol		ND	*	110
Bis(2-chloroisopropyl) ether		ND		170
3 & 4 Methylphenol		ND		230
N-Nitrosodi-n-propylamine		ND		110
Hexachloroethane		ND		110
Nitrobenzene		ND		110
Isophorone		ND	*	110
2-Nitrophenol		ND		110
2,4-Dimethylphenol		ND		110
Benzoic acid		ND		2800
Bis(2-chloroethoxy)methane		ND		110
2,4-Dichlorophenol		ND		110
1,2,4-Trichlorobenzene		ND		56
Naphthalene		ND		23
4-Chloroaniline		ND		110
Hexachlorobutadiene		ND		56
4-Chloro-3-methylphenol		ND		110
2-Methylnaphthalene		ND		23
Hexachlorocyclopentadiene		ND		110
2,4,6-Trichlorophenol		ND		170
2,4,5-Trichlorophenol		ND		110
2-Chloronaphthalene		ND		23
2-Nitroaniline		ND		110
Dimethyl phthalate		ND		110
Acenaphthylene		ND		23
2,6-Dinitrotoluene		ND		110
3-Nitroaniline		ND		110
Acenaphthene		ND		23
2,4-Dinitrophenol		ND		1100
4-Nitrophenol		ND		1100
Dibenzofuran		ND		110
2,4-Dinitrotoluene		ND		110
Diethyl phthalate		ND	*	110
4-Chlorophenyl phenyl ether		ND		110
Fluorene		ND		23
4-Nitroaniline		ND		110

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN015

Lab Sample ID: 580-4732-8

Date Sampled: 01/11/2007 1330

Client Matrix: Solid

% Moisture: 18.7

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method:	8270C	Analysis Batch: 580-14932	Instrument ID: SEA002
Preparation:	3550B	Prep Batch: 580-14855	Lab File ID: AT07023.D
Dilution:	1.0		Initial Weight/Volume: 10.9248 g
Date Analyzed:	01/18/2007 1714		Final Weight/Volume: 10 mL
Date Prepared:	01/18/2007 0636		Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
4,6-Dinitro-2-methylphenol		ND		1100
N-Nitrosodiphenylamine		ND		56
4-Bromophenyl phenyl ether		ND		110
Hexachlorobenzene		ND		56
Pentachlorophenol		ND		110
Phenanthrene		ND		23
Anthracene		ND		23
Di-n-butyl phthalate		ND		230
Fluoranthene		ND		23
Pyrene		ND		23
Butyl benzyl phthalate		ND		110
3,3'-Dichlorobenzidine		ND		230
Benzo[a]anthracene		ND		28
Chrysene		ND		28
Bis(2-ethylhexyl) phthalate		ND		1700
Di-n-octyl phthalate		ND		230
Benzofluoranthene		ND		45
Benzo[a]pyrene		ND		34
Indeno[1,2,3-cd]pyrene		ND		45
Dibenz(a,h)anthracene		ND		45
Benzo[g,h,i]perylene		ND		28
Carbazole		ND		170
1-Methylnaphthalene		ND		34
Surrogate		%Rec		Acceptance Limits
2-Fluorophenol		102		36 - 145
Phenol-d5		96		38 - 149
Nitrobenzene-d5		94		38 - 141
2-Fluorobiphenyl		95		42 - 140
2,4,6-Tribromophenol		81		28 - 143
Terphenyl-d14		102		42 - 151

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN016W

Lab Sample ID: 580-4732-9

Date Sampled: 01/11/2007 1600

Client Matrix: Water

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method:	8270C	Analysis Batch: 580-14933	Instrument ID: SEA002
Preparation:	3510C	Prep Batch: 580-14860	Lab File ID: AT07027.D
Dilution:	1.0		Initial Weight/Volume: 995 mL
Date Analyzed:	01/18/2007 1903		Final Weight/Volume: 10 mL
Date Prepared:	01/18/2007 0755		Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Phenol	ND		3.0
Bis(2-chloroethyl)ether	ND		2.0
2-Chlorophenol	ND		2.0
1,3-Dichlorobenzene	ND		2.0
1,4-Dichlorobenzene	ND		2.0
Benzyl alcohol	ND		2.0
1,2-Dichlorobenzene	ND		2.0
2-Methylphenol	ND	*	2.0
Bis(2-chloroisopropyl) ether	ND		2.0
3 & 4 Methylphenol	ND		4.0
N-Nitrosodi-n-propylamine	ND		2.0
Hexachloroethane	ND		3.0
Nitrobenzene	ND		2.0
Isophorone	ND	*	2.0
2-Nitrophenol	ND		2.0
2,4-Dimethylphenol	ND		10
Benzoic acid	ND		10
Bis(2-chloroethoxy)methane	ND		2.0
2,4-Dichlorophenol	ND		2.0
1,2,4-Trichlorobenzene	ND		2.0
Naphthalene	ND		2.0
4-Chloroaniline	ND		2.0
Hexachlorobutadiene	ND		3.0
4-Chloro-3-methylphenol	ND		2.0
2-Methylnaphthalene	ND		1.0
Hexachlorocyclopentadiene	ND		10
2,4,6-Trichlorophenol	ND		3.0
2,4,5-Trichlorophenol	ND		2.0
2-Chloronaphthalene	ND		0.30
2-Nitroaniline	ND		2.0
Dimethyl phthalate	ND		2.0
Acenaphthylene	ND		0.40
2,6-Dinitrotoluene	ND		2.0
3-Nitroaniline	ND	*	2.0
Acenaphthene	ND		0.50
2,4-Dinitrophenol	ND		25
4-Nitrophenol	ND		10
Dibenzofuran	ND		2.0
2,4-Dinitrotoluene	ND		2.0
Diethyl phthalate	ND		2.0
4-Chlorophenyl phenyl ether	ND		2.0
Fluorene	ND		0.30
4-Nitroaniline	ND	*	3.0

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN016W

Lab Sample ID: 580-4732-9

Client Matrix: Water

Date Sampled: 01/11/2007 1600

Date Received: 01/17/2007 1000

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method:	8270C	Analysis Batch: 580-14933	Instrument ID: SEA002
Preparation:	3510C	Prep Batch: 580-14860	Lab File ID: AT07027.D
Dilution:	1.0		Initial Weight/Volume: 995 mL
Date Analyzed:	01/18/2007 1903		Final Weight/Volume: 10 mL
Date Prepared:	01/18/2007 0755		Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
4,6-Dinitro-2-methylphenol	ND		20
N-Nitrosodiphenylamine	ND		2.0
4-Bromophenyl phenyl ether	ND		2.0
Hexachlorobenzene	ND		2.0
Pentachlorophenol	ND		3.5
Phenanthrene	ND		0.40
Anthracene	ND		0.20
Di-n-butyl phthalate	ND	*	2.0
Fluoranthene	ND	*	0.25
Pyrene	ND		0.30
Butyl benzyl phthalate	ND		3.0
3,3'-Dichlorobenzidine	ND	*	10
Benzo[a]anthracene	ND		0.30
Chrysene	ND		0.20
Bis(2-ethylhexyl) phthalate	ND		15
Di-n-octyl phthalate	ND		2.0
Benzofluoranthene	ND		0.40
Benzo[a]pyrene	ND		0.20
Indeno[1,2,3-cd]pyrene	ND		0.30
Dibenz(a,h)anthracene	ND		0.30
Benzo[g,h,i]perylene	ND		0.30
Carbazole	ND		2.0
1-Methylnaphthalene	ND		0.30
Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	53		10 - 120
Phenol-d5	29		10 - 102
Nitrobenzene-d5	117		34 - 146
2-Fluorobiphenyl	116		35 - 143
2,4,6-Tribromophenol	91		29 - 151
Terphenyl-d14	119		35 - 166

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ecology and environment, inc.

International Specialists in the Environment

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MEMORANDUM

DATE: February 6, 2007

TO: Jim Gill, Project Manager, E & E, Anchorage, AK

FROM: Mark Woodke, Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Summary Check,
First Avenue Property, Anchorage, Alaska**

REF: 002397.PE06

The data summary check of 8 soil and 1 water samples collected from the First Avenue Property site located in Anchorage, Alaska, has been completed. Analysis for Polychlorinated Biphenyls (PCBs - EPA Method 8082) was performed by STL-Seattle, Inc., Tacoma, Washington.

The samples were numbered:

Soil	PEN001	PEN004	PEN006	PEN007	PEN008
	PEN010	PEN013	PEN015		
Water	PEN016W				

Data Qualifications:

1. Sample Holding Times: Acceptable.

The samples were maintained at 4°C ($\pm 2^\circ\text{C}$). The samples were collected between January 10 and 12, 2007, were extracted by January 16, 2007, and were analyzed by January 18, 2007, therefore meeting QC criteria of less than 7 days between collection and water sample extraction (14 days for soils) and less than 40 days between extraction and analysis.

2. Instrument Performance: Not Provided.

Instrument performance information was not provided.

3. Initial and Continuing Calibration: Not Provided.

Calibration information was not provided.

4. **Blanks: Acceptable.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in any blanks.

5. **System Monitoring Compounds (SMCs): Acceptable.**

All recoveries of the SMCs were within the established control limits.

6. **Blank and Matrix Spikes: Acceptable.**

Recoveries of all spiked analytes were within the appropriate control limits.

7. **Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits.

8. **Compound Identification: Not Provided.**

Information regarding dual-column confirmation was not provided.

9. **Target Compound Quantitation and Quantitation Limits: Not Provided.**

Information needed to recalculate sample results and quantitation limits was not provided.

10. **Laboratory Contact**

No laboratory contact was required.

11. **Overall Assessment**

The overall usefulness of the data is based on the criteria outlined in the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN001

Lab Sample ID: 580-4732-1

Client Matrix: Solid

% Moisture: 3.8

Date Sampled: 01/10/2007 1245

Date Received: 01/17/2007 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082

Preparation: 3550B

Dilution: 5.0

Date Analyzed: 01/18/2007 1226

Date Prepared: 01/18/2007 0708

Analysis Batch: 580-14910

Prep Batch: 580-14858

Instrument ID: SEA034

Lab File ID: PCB5802.D

Initial Weight/Volume: 10.5684 g

Final Weight/Volume: 20 mL

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
PCB-1016		ND		0.098
PCB-1221		ND		0.098
PCB-1232		ND		0.098
PCB-1242		ND		0.098
PCB-1248		ND		0.098
PCB-1254		ND		0.098
PCB-1260		ND		0.098
Surrogate		%Rec		Acceptance Limits
Tetrachloro-m-xylene		92		45 - 155
DCB Decachlorobiphenyl		96		50 - 150



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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN004

Lab Sample ID: 580-4732-2

Date Sampled: 01/10/2007 1525

Client Matrix: Solid

% Moisture: 15.9

Date Received: 01/17/2007 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082

Analysis Batch: 580-14910

Instrument ID: SEA034

Preparation: 3550B

Prep Batch: 580-14858

Lab File ID: PCB5803.D

Dilution: 5.0

Initial Weight/Volume: 10.9875 g

Date Analyzed: 01/18/2007 1250

Final Weight/Volume: 20 mL

Date Prepared: 01/18/2007 0708

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
PCB-1016		ND		0.11
PCB-1221		ND		0.11
PCB-1232		ND		0.11
PCB-1242		ND		0.11
PCB-1248		ND		0.11
PCB-1254		ND		0.11
PCB-1260		ND		0.11
Surrogate		%Rec		Acceptance Limits
Tetrachloro-m-xylene		96		45 - 155
DCB Decachlorobiphenyl		98		50 - 150

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN006

Lab Sample ID: 580-4732-3

Client Matrix: Solid

% Moisture: 19.4

Date Sampled: 01/11/2007 1130

Date Received: 01/17/2007 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082

Analysis Batch: 580-14910

Instrument ID: SEA034

Preparation: 3550B

Prep Batch: 580-14858

Lab File ID: PCB5804.D

Dilution: 5.0

Initial Weight/Volume: 10.5546 g

Date Analyzed: 01/18/2007 1314

Final Weight/Volume: 20 mL

Date Prepared: 01/18/2007 0708

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
PCB-1016		ND		0.12
PCB-1221		ND		0.12
PCB-1232		ND		0.12
PCB-1242		ND		0.12
PCB-1248		ND		0.12
PCB-1254		ND		0.12
PCB-1260		ND		0.12
Surrogate		%Rec		Acceptance Limits
Tetrachloro-m-xylene		93		45 - 155
DCB Decachlorobiphenyl		98		50 - 150

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN007

Lab Sample ID: 580-4732-4

Date Sampled: 01/11/2007 1130

Client Matrix: Solid

% Moisture: 19.9

Date Received: 01/17/2007 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082

Analysis Batch: 580-14910

Instrument ID: SEA034

Preparation: 3550B

Prep Batch: 580-14858

Lab File ID: PCB5805.D

Dilution: 5.0

Initial Weight/Volume: 10.6841 g

Date Analyzed: 01/18/2007 1337

Final Weight/Volume: 20 mL

Date Prepared: 01/18/2007 0708

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
PCB-1016		ND		0.12
PCB-1221		ND		0.12
PCB-1232		ND		0.12
PCB-1242		ND		0.12
PCB-1248		ND		0.12
PCB-1254		ND		0.12
PCB-1260		ND		0.12
Surrogate		%Rec		Acceptance Limits
Tetrachloro-m-xylene		95		45 - 155
DCB Decachlorobiphenyl		102		50 - 150

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN008

Lab Sample ID: 580-4732-5

Date Sampled: 01/11/2007 1140

Client Matrix: Solid

% Moisture: 24.0

Date Received: 01/17/2007 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082

Analysis Batch: 580-14910

Instrument ID: SEA034

Preparation: 3550B

Prep Batch: 580-14858

Lab File ID: PCB5806.D

Dilution: 5.0

Initial Weight/Volume: 10.1413 g

Date Analyzed: 01/18/2007 1401

Final Weight/Volume: 20 mL

Date Prepared: 01/18/2007 0708

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
PCB-1016		ND		0.13
PCB-1221		ND		0.13
PCB-1232		ND		0.13
PCB-1242		ND		0.13
PCB-1248		ND		0.13
PCB-1254		ND		0.13
PCB-1260		ND		0.13
Surrogate		%Rec		Acceptance Limits
Tetrachloro-m-xylene		97		45 - 155
DCB Decachlorobiphenyl		102		50 - 150

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN010

Lab Sample ID: 580-4732-6

Client Matrix: Solid

% Moisture: 4.7

Date Sampled: 01/11/2007 1212

Date Received: 01/17/2007 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082

Analysis Batch: 580-14910

Instrument ID: SEA034

Preparation: 3550B

Prep Batch: 580-14858

Lab File ID: PCB5807.D

Dilution: 5.0

Initial Weight/Volume: 10.9159 g

Date Analyzed: 01/18/2007 1425

Final Weight/Volume: 20 mL

Date Prepared: 01/18/2007 0708

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
PCB-1016		ND		0.096
PCB-1221		ND		0.096
PCB-1232		ND		0.096
PCB-1242		ND		0.096
PCB-1248		ND		0.096
PCB-1254		ND		0.096
PCB-1260		ND		0.096
Surrogate		%Rec		Acceptance Limits
Tetrachloro-m-xylene		97		45 - 155
DCB Decachlorobiphenyl		99		50 - 150

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN013

Lab Sample ID: 580-4732-7

Client Matrix: Solid

% Moisture: 7.1

Date Sampled: 01/11/2007 1305

Date Received: 01/17/2007 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082

Analysis Batch: 580-14910

Instrument ID: SEA034

Preparation: 3550B

Prep Batch: 580-14858

Lab File ID: PCB5812.D

Dilution: 5.0

Initial Weight/Volume: 10.3764 g

Date Analyzed: 01/18/2007 1623

Final Weight/Volume: 20 mL

Date Prepared: 01/18/2007 0708

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
PCB-1016		ND		0.10
PCB-1221		ND		0.10
PCB-1232		ND		0.10
PCB-1242		ND		0.10
PCB-1248		ND		0.10
PCB-1254		ND		0.10
PCB-1260		ND		0.10
Surrogate		%Rec		Acceptance Limits
Tetrachloro-m-xylene		97		45 - 155
DCB Decachlorobiphenyl		95		50 - 150

Mu
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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN015

Lab Sample ID: 580-4732-8

Client Matrix: Solid

% Moisture: 18.7

Date Sampled: 01/11/2007 1330

Date Received: 01/17/2007 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3550B
Dilution: 5.0
Date Analyzed: 01/18/2007 1646
Date Prepared: 01/18/2007 0708

Analysis Batch: 580-14910
Prep Batch: 580-14858

Instrument ID: SEA034
Lab File ID: PCB5813.D
Initial Weight/Volume: 10.6448 g
Final Weight/Volume: 20 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
PCB-1016		ND		0.12
PCB-1221		ND		0.12
PCB-1232		ND		0.12
PCB-1242		ND		0.12
PCB-1248		ND		0.12
PCB-1254		ND		0.12
PCB-1260		ND		0.12
Surrogate		%Rec		Acceptance Limits
Tetrachloro-m-xylene		98		45 - 155
DCB Decachlorobiphenyl		97		50 - 150

Mu
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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN016W

Lab Sample ID: 580-4732-9

Client Matrix: Water

Date Sampled: 01/11/2007 1600

Date Received: 01/17/2007 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 01/18/2007 2241
Date Prepared: 01/18/2007 0756

Analysis Batch: 580-14914
Prep Batch: 580-14862

Instrument ID: SEA034
Lab File ID: PCB5828.D
Initial Weight/Volume: 970 mL
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
PCB-1016	ND		0.52
PCB-1221	ND		0.52
PCB-1232	ND		0.52
PCB-1242	ND		0.52
PCB-1248	ND		0.52
PCB-1254	ND		0.52
PCB-1260	ND		0.52
Surrogate	%Rec		Acceptance Limits
Tetrachloro-m-xylene	85		60 - 150
DCB Decachlorobiphenyl	63		40 - 135

MW
2/8/07



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MEMORANDUM

DATE: February 6, 2007

TO: Jim Gill, Project Manager, E & E, Anchorage, AK

FROM: Mark Woodke, Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Summary Check,
First Avenue Property, Anchorage, Alaska**

REF: 002397.PE06

The data summary check of 8 soil and 1 water samples collected from the First Avenue Property site located in Anchorage, Alaska, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6010 and 7471) were performed by STL-Seattle, Inc., Tacoma, Washington.

The samples were numbered:

Soil	PEN001	PEN004	PEN006	PEN007	PEN008
	PEN010	PEN013	PEN015		
Water	PEN016W				

Data Qualifications:

1. **Sample Holding Times: Acceptable.**

All liquid samples were preserved to a pH < 2. The samples were maintained at 4°C (± 2°C). The samples were collected between January 10 and 12, 2007, and were analyzed by January 25, 2007, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

2. **Initial and Continuing Calibration: Not Provided.**

Calibration information was not provided.

3. **Blanks: Acceptable.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. There were no detections in the blanks.

4. ICP Interference Check Sample: Not Provided.

Interference Check Sample information was not provided.

5. ICP Serial Dilution: Not Provided.

Serial dilution information was not provided.

6. Matrix Spike Analysis: Acceptable.

A matrix spike analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. Spike and spike duplicate recoveries were within the QC limits.

7. Duplicate Analysis: Satisfactory.

A laboratory duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All duplicate results were within QC limits except the arsenic result in the water duplicate. Arsenic in the water sample was qualified as an estimated quantity (UJ).

8. Laboratory Control Sample Analysis: Acceptable.

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS results were within the established control limits.

9. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical methods, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

UJ - The material was analyzed for, but not detected. The reported detection limit is estimated because quality control criteria were not met.

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN001

Lab Sample ID: 580-4732-1
Client Matrix: Solid

% Moisture: 3.8

Date Sampled: 01/10/2007 1245
Date Received: 01/17/2007 1000

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 01/18/2007 1450
Date Prepared: 01/18/2007 1100

Analysis Batch: 580-14896
Prep Batch: 580-14871

Instrument ID: SEA027
Lab File ID: N/A
Initial Weight/Volume: 1.0026 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		3.4		2.6
Barium		35		0.26
Cadmium		ND		0.26 U
Chromium		25		0.52
Lead		4.8		0.78
Selenium		ND		2.6 U
Silver		ND		0.52 U

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A
Preparation: 7471A
Dilution: 1.0
Date Analyzed: 01/18/2007 1150
Date Prepared: 01/18/2007 1000

Analysis Batch: 580-14883
Prep Batch: 580-14868

Instrument ID: SEA029
Lab File ID: N/A
Initial Weight/Volume: 0.5951 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.050		0.017

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2-6-07

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN004

Lab Sample ID: 580-4732-2

Date Sampled: 01/10/2007 1525

Client Matrix: Solid

% Moisture: 15.9

Date Received: 01/17/2007 1000

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B

Analysis Batch: 580-14896

Instrument ID: SEA027

Preparation: 3050B

Prep Batch: 580-14871

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.0668 g

Date Analyzed: 01/18/2007 1517

Final Weight/Volume: 50 mL

Date Prepared: 01/18/2007 1100

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		5.4		2.8
Barium		48		0.28
Cadmium		ND		0.28 U
Chromium		33		0.56
Lead		5.7		0.84
Selenium		ND		2.8 U
Silver		ND		0.56 U

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A

Analysis Batch: 580-14883

Instrument ID: SEA029

Preparation: 7471A

Prep Batch: 580-14868

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Voiume: 0.5378 g

Date Analyzed: 01/18/2007 1214

Final Weight/Volume: 50 mL

Date Prepared: 01/18/2007 1000

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.071		0.022

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN006

Lab Sample ID: 580-4732-3

Date Sampled: 01/11/2007 1130

Client Matrix: Solid

% Moisture: 19.4

Date Received: 01/17/2007 1000

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B

Analysis Batch: 580-14896

Instrument ID: SEA027

Preparation: 3050B

Prep Batch: 580-14871

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.2718 g

Date Analyzed: 01/18/2007 1520

Final Weight/Volume: 50 mL

Date Prepared: 01/18/2007 1100

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		2.8		2.4
Barium		29		0.24
Cadmium		ND		0.24 U
Chromium		28		0.49
Lead		2.5		0.73
Selenium		ND		2.4 U
Silver		ND		0.49 U

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A

Analysis Batch: 580-14883

Instrument ID: SEA029

Preparation: 7471A

Prep Batch: 580-14868

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.6863 g

Date Analyzed: 01/18/2007 1219

Final Weight/Volume: 50 mL

Date Prepared: 01/18/2007 1000

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.036		0.018

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN007

Lab Sample ID: 580-4732-4

Date Sampled: 01/11/2007 1130

Client Matrix: Solid

% Moisture: 19.9

Date Received: 01/17/2007 1000

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B

Analysis Batch: 580-14896

Instrument ID: SEA027

Preparation: 3050B

Prep Batch: 580-14871

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.1911 g

Date Analyzed: 01/18/2007 1524

Final Weight/Volume: 50 mL

Date Prepared: 01/18/2007 1100

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		2.7		2.6
Barium		36		0.26
Cadmium		ND		0.26 U
Chromium		32		0.52
Lead		2.6		0.79
Selenium		ND		2.6 U
Silver		ND		0.52 U

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A

Analysis Batch: 580-14883

Instrument ID: SEA029

Preparation: 7471A

Prep Batch: 580-14868

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.5627 g

Date Analyzed: 01/18/2007 1224

Final Weight/Volume: 50 mL

Date Prepared: 01/18/2007 1000

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.044		0.022

MW
2607

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN008

Lab Sample ID: 580-4732-5
Client Matrix: Solid

% Moisture: 24.0

Date Sampled: 01/11/2007 1140
Date Received: 01/17/2007 1000

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B Analysis Batch: 580-14896 Instrument ID: SEA027
Preparation: 3050B Prep Batch: 580-14871 Lab File ID: N/A
Dilution: 1.0 Initial Weight/Volume: 1.0120 g
Date Analyzed: 01/18/2007 1527 Final Weight/Volume: 50 mL
Date Prepared: 01/18/2007 1100

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		8.2		3.2
Barium		81		0.32
Cadmium		ND		0.32 U
Chromium		42		0.65
Lead		6.5		0.97
Selenium		ND		3.2 U
Silver		ND		0.65 U

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A Analysis Batch: 580-14883 Instrument ID: SEA029
Preparation: 7471A Prep Batch: 580-14868 Lab File ID: N/A
Dilution: 1.0 Initial Weight/Volume: 0.5412 g
Date Analyzed: 01/18/2007 1228 Final Weight/Volume: 50 mL
Date Prepared: 01/18/2007 1000

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.12		0.024

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN010

Lab Sample ID: 580-4732-6
Client Matrix: Solid

% Moisture: 4.7

Date Sampled: 01/11/2007 1212
Date Received: 01/17/2007 1000

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B Analysis Batch: 580-14896 Instrument ID: SEA027
Preparation: 3050B Prep Batch: 580-14871 Lab File ID: N/A
Dilution: 1.0 Initial Weight/Volume: 1.1524 g
Date Analyzed: 01/18/2007 1529 Final Weight/Volume: 50 mL
Date Prepared: 01/18/2007 1100

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		3.5		2.3
Barium		29		0.23
Cadmium		ND		0.23 U
Chromium		20		0.46
Lead		3.7		0.68
Selenium		ND		2.3 U
Silver		ND		0.46 U

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A Analysis Batch: 580-14883 Instrument ID: SEA029
Preparation: 7471A Prep Batch: 580-14868 Lab File ID: N/A
Dilution: 1.0 Initial Weight/Volume: 0.5288 g
Date Analyzed: 01/18/2007 1233 Final Weight/Volume: 50 mL
Date Prepared: 01/18/2007 1000

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.052		0.020

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2-6-07*

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN013

Lab Sample ID: 580-4732-7

Client Matrix: Solid

% Moisture: 7.1

Date Sampled: 01/11/2007 1305

Date Received: 01/17/2007 1000

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 01/18/2007 1532
Date Prepared: 01/18/2007 1100

Analysis Batch: 580-14896
Prep Batch: 580-14871

Instrument ID: SEA027
Lab File ID: N/A
Initial Weight/Volume: 1.1598 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		3.2		2.3
Barium		30		0.23
Cadmium		ND		0.23 U
Chromium		25		0.46
Lead		2.8		0.70
Selenium		ND		2.3 U
Silver		ND		0.46 U

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A
Preparation: 7471A
Dilution: 1.0
Date Analyzed: 01/18/2007 1248
Date Prepared: 01/18/2007 1000

Analysis Batch: 580-14883
Prep Batch: 580-14868

Instrument ID: SEA029
Lab File ID: N/A
Initial Weight/Volume: 0.6232 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.050		0.017

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN015

Lab Sample ID: 580-4732-8

Client Matrix: Solid

% Moisture: 18.7

Date Sampled: 01/11/2007 1330

Date Received: 01/17/2007 1000

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 01/18/2007 1536
Date Prepared: 01/18/2007 1100

Analysis Batch: 580-14896
Prep Batch: 580-14871

Instrument ID: SEA027
Lab File ID: N/A
Initial Weight/Volume: 1.1304 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		3.7		2.7
Barium		38		0.27
Cadmium		ND		0.27 U
Chromium		26		0.54
Lead		2.8		0.82
Selenium		ND		2.7 U
Silver		ND		0.54 U

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method: 7471A
Preparation: 7471A
Dilution: 1.0
Date Analyzed: 01/18/2007 1253
Date Prepared: 01/18/2007 1000

Analysis Batch: 580-14883
Prep Batch: 580-14868

Instrument ID: SEA029
Lab File ID: N/A
Initial Weight/Volume: 0.6500 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.030		0.019

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2607

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN016W

Lab Sample ID: 580-4732-9
Client Matrix: Water

Date Sampled: 01/11/2007 1600
Date Received: 01/17/2007 1000

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry-Total Recoverable

Method: 6010B Analysis Batch: 580-15062 Instrument ID: SEA027
Preparation: 3005A Prep Batch: 580-15049 Lab File ID: N/A
Dilution: 1.0 Initial Weight/Volume: 50 mL
Date Analyzed: 01/25/2007 0145 Final Weight/Volume: 50 mL
Date Prepared: 01/24/2007 1409

Analyte	Result (mg/L)	Qualifier	RL
Arsenic	ND		0.050 U
Barium	ND		0.0050
Cadmium	ND		0.0050
Chromium	ND		0.010
Lead	ND		0.015
Selenium	ND		0.050
Silver	ND		0.010

7470A Mercury in Liquid Waste (Manual Cold Vapor Technique)

Method: 7470A Analysis Batch: 580-15057 Instrument ID: SEA029
Preparation: 7470A Prep Batch: 580-15026 Lab File ID: N/A
Dilution: 1.0 Initial Weight/Volume: 50 mL
Date Analyzed: 01/24/2007 1256 Final Weight/Volume: 50 mL
Date Prepared: 01/24/2007 0937

Analyte	Result (mg/L)	Qualifier	RL
Mercury	ND		0.00020 U

mm
2-6-07



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MEMORANDUM

DATE: February 6, 2007

TO: Jim Gill, Project Manager, E & E, Anchorage, AK

FROM: Mark Woodke, Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Summary Check,
First Avenue Property, Anchorage, Alaska**

REF: 002397.PE06

The data summary check of 9 soil samples collected from the First Avenue Property site located in Anchorage, Alaska, has been completed. Analysis for Gasoline Range Organics (GROs; ADEC Method AK-101) analyses was performed by STL-Seattle, Inc., Tacoma, Washington.

The samples were numbered:

Soil	PEN001	PEN004	PEN006	PEN007	PEN008
	PEN010	PEN013	PEN015	Trip Blank	

Data Qualifications:

1. Sample Holding Times: Acceptable.

The samples were maintained and received within the QC limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were collected between January 10 and 12, 2007, and were analyzed by January 19, 2007, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples.

2. Initial and Continuing Calibration: Not Provided.

Calibration information was not provided.

3. Internal Standards: Not Provided.

Internal standard information was not provided.

4. Blanks: Acceptable.

A method blank was analyzed at the required frequency of every 12 hours for each matrix, preparation technique, and analysis system. GROs were not detected in any blank.

5. System Monitoring Compounds (SMC): Acceptable.

All recoveries of the SMCs were greater than 10% and within QC criteria.

6. Blank Spikes: Acceptable.

Blank spike results were within laboratory QC limits.

7. Duplicates: Acceptable.

Laboratory spike duplicate results were within laboratory QC limits.

8. Quantitation and Quantitation Limits: Acceptable.

Sample quantitation and sample quantitation limits were correctly calculated.

9. Laboratory Contact: Not Required.

No laboratory contact was required.

10. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the OSWER Directive "Quality Assurance/Quality Control Guidance for Removal Activities, Data Validation Procedures" (EPA/540/G-90/004) and the analytical method. Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

Analytical Data

Job Number: 580-4732-1

Client: Ecology and Environment, Inc.

Client Sample ID: PEN001

Lab Sample ID: 580-4732-1

Client Matrix: Solid

% Moisture: 3.8

Date Sampled: 01/10/2007 1245

Date Received: 01/17/2007 1000

AK101 Gasoline Range Organics

Method: AK101
Preparation: 5035
Dilution: 1.0
Date Analyzed: 01/19/2007 1704
Date Prepared: 01/19/2007 1000

Analysis Batch: 580-14994
Prep Batch: 580-14919

Instrument ID: SEA003
Lab File ID: CS169095.D
Initial Weight/Volume: 23.98 g
Final Weight/Volume: 1000 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10		ND		4.3 U
Surrogate		%Rec		Acceptance Limits
Trifluorotoluene (Surr)		99		60 - 120
4-Bromofluorobenzene (Surr)		108		60 - 120
Ethylbenzene-d10		114		60 - 120
Fluorobenzene (Surr)		104		60 - 120
Toluene-d8 (Surr)		115		60 - 120

MW
2607

Analytical Data

Job Number: 580-4732-1

Client: Ecology and Environment, Inc.

Client Sample ID: PEN004

Lab Sample ID: 580-4732-2

Client Matrix: Solid

% Moisture: 15.9

Date Sampled: 01/10/2007 1525

Date Received: 01/17/2007 1000

AK101 Gasoline Range Organics

Method: AK101
Preparation: 5035
Dilution: 1.0
Date Analyzed: 01/19/2007 1642
Date Prepared: 01/19/2007 1000

Analysis Batch: 580-14994
Prep Batch: 580-14919

Instrument ID: SEA003
Lab File ID: CS169094.D
Initial Weight/Volume: 18.71 g
Final Weight/Volume: 1000 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10		ND		6.4
Surrogate		%Rec		Acceptance Limits
Trifluorotoluene (Surr)		96		60 - 120
4-Bromofluorobenzene (Surr)		103		60 - 120
Ethylbenzene-d10		114		60 - 120
Fluorobenzene (Surr)		101		60 - 120
Toluene-d8 (Surr)		115		60 - 120

MW
2/6/02

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN006

Lab Sample ID: 580-4732-3

Client Matrix: Solid

% Moisture: 19.4

Date Sampled: 01/11/2007 1130

Date Received: 01/17/2007 1000

AK101 Gasoline Range Organics

Method: AK101
Preparation: 5035
Dilution: 1.0
Date Analyzed: 01/18/2007 1149
Date Prepared: 01/18/2007 0840

Analysis Batch: 580-14880
Prep Batch: 580-14864

Instrument ID: SEA003
Lab File ID: CS169076.D
Initial Weight/Volume: 18.51 g
Final Weight/Volume: 1000 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10		ND		6.7 U
Surrogate		%Rec		Acceptance Limits
Trifluorotoluene (Surr)		82		60 - 120
4-Bromofluorobenzene (Surr)		100		60 - 120
Ethylbenzene-d10		110		60 - 120
Fluorobenzene (Surr)		97		60 - 120
Toluene-d8 (Surr)		112		60 - 120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN007

Lab Sample ID: 580-4732-4

Client Matrix: Solid

% Moisture: 19.9

Date Sampled: 01/11/2007 1130

Date Received: 01/17/2007 1000

AK101 Gasoline Range Organics

Method: AK101
Preparation: 5035
Dilution: 1.0
Date Analyzed: 01/18/2007 1212
Date Prepared: 01/18/2007 0840

Analysis Batch: 580-14880
Prep Batch: 580-14864

Instrument ID: SEA003
Lab File ID: CS169077.D
Initial Weight/Volume: 19.52 g
Final Weight/Volume: 1000 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10		ND		6.4
Surrogate		%Rec		Acceptance Limits
Trifluorotoluene (Surr)		88		60 - 120
4-Bromofluorobenzene (Surr)		101		60 - 120
Ethylbenzene-d10		110		60 - 120
Fluorobenzene (Surr)		98		60 - 120
Toluene-d8 (Surr)		111		60 - 120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN008

Lab Sample ID: 580-4732-5

Client Matrix: Solid

% Moisture: 24.0

Date Sampled: 01/11/2007 1140

Date Received: 01/17/2007 1000

AK101 Gasoline Range Organics

Method: AK101
Preparation: 5035
Dilution: 1.0
Date Analyzed: 01/19/2007 1619
Date Prepared: 01/19/2007 1000

Analysis Batch: 580-14994
Prep Batch: 580-14919

Instrument ID: SEA003
Lab File ID: CS169093.D
Initial Weight/Volume: 30.13 g
Final Weight/Volume: 1000 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10		ND		4.4 U
Surrogate		%Rec		Acceptance Limits
Trifluorotoluene (Surr)		86		60 - 120
4-Bromofluorobenzene (Surr)		103		60 - 120
Ethylbenzene-d10		114		60 - 120
Fluorobenzene (Surr)		101		60 - 120
Toluene-d8 (Surr)		115		60 - 120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN010

Lab Sample ID: 580-4732-6

Client Matrix: Solid

% Moisture: 4.7

Date Sampled: 01/11/2007 1212

Date Received: 01/17/2007 1000

AK101 Gasoline Range Organics

Method: AK101
Preparation: 5035
Dilution: 1.0
Date Analyzed: 01/19/2007 1557
Date Prepared: 01/19/2007 1000

Analysis Batch: 580-14994
Prep Batch: 580-14919

Instrument ID: SEA003
Lab File ID: CS169092.D
Initial Weight/Volume: 18.64 g
Final Weight/Volume: 1000 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10		ND		5.6 U
Surrogate		%Rec		Acceptance Limits
Trifluorotoluene (Surr)		100		60 - 120
4-Bromofluorobenzene (Surr)		102		60 - 120
Ethylbenzene-d10		114		60 - 120
Fluorobenzene (Surr)		101		60 - 120
Toluene-d8 (Surr)		116		60 - 120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN013

Lab Sample ID: 580-4732-7

Client Matrix: Solid

% Moisture: 7.1

Date Sampled: 01/11/2007 1305

Date Received: 01/17/2007 1000

AK101 Gasoline Range Organics

Method: AK101
Preparation: 5035
Dilution: 1.0
Date Analyzed: 01/19/2007 1534
Date Prepared: 01/19/2007 1000

Analysis Batch: 580-14994
Prep Batch: 580-14919

Instrument ID: SEA003
Lab File ID: CS169091.D
Initial Weight/Volume: 22.60 g
Final Weight/Volume: 1000 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10		ND		4.8 U
Surrogate		%Rec		Acceptance Limits
Trifluorotoluene (Surr)		95		60 - 120
4-Bromofluorobenzene (Surr)		104		60 - 120
Ethylbenzene-d10		114		60 - 120
Fluorobenzene (Surr)		101		60 - 120
Toluene-d8 (Surr)		116		60 - 120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN015

Lab Sample ID: 580-4732-8

Client Matrix: Solid

% Moisture: 18.7

Date Sampled: 01/11/2007 1330

Date Received: 01/17/2007 1000

AK101 Gasoline Range Organics

Method: AK101

Analysis Batch: 580-14994

Instrument ID: SEA003

Preparation: 5035

Prep Batch: 580-14919

Lab File ID: CS169090.D

Dilution: 1.0

Initial Weight/Volume: 21.32 g

Date Analyzed: 01/19/2007 1512

Final Weight/Volume: 1000 mL

Date Prepared: 01/19/2007 1000

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10		ND		5.8 U
Surrogate		%Rec		Acceptance Limits
Trifluorotoluene (Surr)		93		60 - 120
4-Bromofluorobenzene (Surr)		104		60 - 120
Ethylbenzene-d10		114		60 - 120
Fluorobenzene (Surr)		101		60 - 120
Toluene-d8 (Surr)		115		60 - 120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-4732-10

Date Sampled: 01/11/2007 0000

Client Matrix: Solid

Date Received: 01/17/2007 1000

AK101 Gasoline Range Organics

Method: AK101

Analysis Batch: 580-14994

Instrument ID: SEA003

Preparation: 5035

Prep Batch: 580-14919

Lab File ID: CS169089.D

Dilution: 1.0

Initial Weight/Volume: 25 g

Date Analyzed: 01/19/2007 1449

Final Weight/Volume: 1000 mL

Date Prepared: 01/19/2007 1000

Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10		ND		4.0 U
Surrogate		%Rec		Acceptance Limits
Trifluorotoluene (Surr)		104		60 - 120
4-Bromofluorobenzene (Surr)		102		60 - 120
Ethylbenzene-d10		114		60 - 120
Fluorobenzene (Surr)		101		60 - 120
Toluene-d8 (Surr)		115		60 - 120

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ecology and environment, inc.

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MEMORANDUM

DATE: February 6, 2007

TO: Jim Gill, Project Manager, E & E, Anchorage, AK

FROM: Mark Woodke, Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Summary Check,
First Avenue Property, Anchorage, Alaska**

REF: 002397.PE06

The data summary check of 9 soil samples collected from the First Avenue Property site located in Anchorage, Alaska, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by STL-Seattle, Inc., Tacoma, Washington.

The samples were numbered:

Soil	PEN001	PEN004	PEN006	PEN007	PEN008
	PEN010	PEN013	PEN015	Trip Blank	

Data Qualifications:

1. **Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were collected between January 10 and 12, 2007, and were analyzed by January 18, 2007, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples.

2. **Tuning: Not Provided.**

Tuning information was not provided.

3. **Initial and Continuing Calibration: Not Provided.**

Calibration information was not provided.

4. **Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank.

5. System Monitoring Compounds (SMCs): Acceptable.

All SMC recoveries were within QC limits.

6. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except chloroethane (two low recoveries) and chlorobromomethane (one high recovery). Positive results and sample quantitation limits associated with the low recovery outlier were qualified as estimated quantities (J or UJ). Positive results associated with the high recovery outlier were qualified as estimated quantities (J).

7. Duplicate Analysis: Satisfactory.

Laboratory duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All duplicate results were within QC limits except trichlorofluoromethane; no action was taken based on this outlier alone.

8. Internal Standards: Not Provided.

Internal standard information was not provided.

9. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- J - The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.
- U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
- UJ - The material was analyzed for, but not detected. The reported detection limit is estimated because quality control criteria were not met.

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN001

Lab Sample ID: 580-4732-1
 Client Matrix: Solid

% Moisture: 3.8

Date Sampled: 01/10/2007 1245
 Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
 Preparation: 5035
 Dilution: 1.0
 Date Analyzed: 01/17/2007 1923
 Date Prepared: 01/17/2007 1500

Analysis Batch: 580-14881
 Prep Batch: 580-14844

Instrument ID: SEA001
 Lab File ID: AG30614.D
 Initial Weight/Volume: 23.98 g
 Final Weight/Volume: 1000 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Dichlorodifluoromethane		ND		43
Chloromethane		ND		43
Vinyl chloride		ND		17
Bromomethane		ND		220
Chloroethane		ND	*	220
Trichlorofluoromethane		ND	*	43
1,1-Dichloroethene		ND		17
Methylene Chloride		ND		43
trans-1,2-Dichloroethene		ND		43
1,1-Dichloroethane		ND		43
2,2-Dichloropropane		ND		43
cis-1,2-Dichloroethene		ND		43
Chlorobromomethane		ND	*	43
Chloroform		ND		43
1,1,1-Trichloroethane		ND		17
Carbon tetrachloride		ND		17
1,1-Dichloropropene		ND		43
Benzene		ND		8.7
1,2-Dichloroethane		ND		43
Trichloroethene		ND		17
1,2-Dichloropropane		ND		8.7
Dibromomethane		ND		43
Dichlorobromomethane		ND		43
cis-1,3-Dichloropropene		ND		43
Toluene		ND		43
trans-1,3-Dichloropropene		ND		43
1,1,2-Trichloroethane		ND		43
Tetrachloroethene		ND		27
1,3-Dichloropropane		ND		17
Chlorodibromomethane		ND		43
Ethylene Dibromide		ND		43
Chlorobenzene		ND		43
Ethylbenzene		ND		43
1,1,1,2-Tetrachloroethane		ND		43
1,1,2,2-Tetrachloroethane		ND		8.7
m-Xylene & p-Xylene		ND		43
o-Xylene		ND		43
Styrene		ND		43
Bromoform		ND		43
Isopropylbenzene		ND		43
Bromobenzene		ND		43
N-Propylbenzene		ND		43
1,2,3-Trichloropropane		ND		43

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN001

Lab Sample ID: 580-4732-1

Date Sampled: 01/10/2007 1245

Client Matrix: Solid

% Moisture: 3.8

Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B

Analysis Batch: 580-14881

Instrument ID: SEA001

Preparation: 5035

Prep Batch: 580-14844

Lab File ID: AG30614.D

Dilution: 1.0

Initial Weight/Volume: 23.98 g

Date Analyzed: 01/17/2007 1923

Final Weight/Volume: 1000 mL

Date Prepared: 01/17/2007 1500

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
2-Chlorotoluene		ND		43
1,3,5-Trimethylbenzene		ND		43
4-Chlorotoluene		ND		43
tert-Butylbenzene		ND		43
1,2,4-Trimethylbenzene		ND		43
sec-Butylbenzene		ND		43
1,3-Dichlorobenzene		ND		43
4-Isopropyltoluene		ND		43
1,4-Dichlorobenzene		ND		43
n-Butylbenzene		ND		43
1,2-Dichlorobenzene		ND		43
1,2-Dibromo-3-Chloropropane		ND		43
1,2,4-Trichlorobenzene		ND		43
1,2,3-Trichlorobenzene		ND		43
Hexachlorobutadiene		ND		43
Naphthalene		ND		43
Surrogate		%Rec		Acceptance Limits
Fluorobenzene (Surr)		92		75 - 125
Toluene-d8 (Surr)		93		75 - 125
Ethylbenzene-d10		95		75 - 125
4-Bromofluorobenzene (Surr)		91		75 - 125
Trifluorotoluene (Surr)		109		75 - 125

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN004

Lab Sample ID: 580-4732-2

Client Matrix: Solid

% Moisture: 15.9

Date Sampled: 01/10/2007 1525

Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5035
Dilution: 1.0
Date Analyzed: 01/17/2007 1942
Date Prepared: 01/17/2007 1500

Analysis Batch: 580-14881
Prep Batch: 580-14844

Instrument ID: SEA001
Lab File ID: AG30615.D
Initial Weight/Volume: 18.71 g
Final Weight/Volume: 1000 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Dichlorodifluoromethane		ND		64
Chloromethane		ND		64
Vinyl chloride		ND		25
Bromomethane		ND		320
Chloroethane		ND	*	320
Trichlorofluoromethane		ND	*	64
1,1-Dichloroethene		ND		25
Methylene Chloride		ND		64
trans-1,2-Dichloroethene		ND		64
1,1-Dichloroethane		ND		64
2,2-Dichloropropane		ND		64
cis-1,2-Dichloroethene		ND		64
Chlorobromomethane		ND	*	64
Chloroform		ND		64
1,1,1-Trichloroethane		ND		25
Carbon tetrachloride		ND		25
1,1-Dichloropropene		ND		64
Benzene		ND		13
1,2-Dichloroethane		ND		64
Trichloroethene		ND		25
1,2-Dichloropropane		ND		13
Dibromomethane		ND		64
Dichlorobromomethane		ND		64
cis-1,3-Dichloropropene		ND		64
Toluene		ND		64
trans-1,3-Dichloropropene		ND		64
1,1,2-Trichloroethane		ND		64
Tetrachloroethene		ND		40
1,3-Dichloropropane		ND		25
Chlorodibromomethane		ND		64
Ethylene Dibromide		ND		64
Chlorobenzene		ND		64
Ethylbenzene		ND		64
1,1,1,2-Tetrachloroethane		ND		64
1,1,2,2-Tetrachloroethane		ND		13
m-Xylene & p-Xylene		ND		64
o-Xylene		ND		64
Styrene		ND		64
Bromoform		ND		64
Isopropylbenzene		ND		64
Bromobenzene		ND		64
N-Propylbenzene		ND		64
1,2,3-Trichloropropane		ND		64

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN004

Lab Sample ID: 580-4732-2

Client Matrix: Solid

% Moisture: 15.9

Date Sampled: 01/10/2007 1525

Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B

Preparation: 5035

Dilution: 1.0

Date Analyzed: 01/17/2007 1942

Date Prepared: 01/17/2007 1500

Analysis Batch: 580-14881

Prep Batch: 580-14844

Instrument ID: SEA001

Lab File ID: AG30615.D

Initial Weight/Volume: 18.71 g

Final Weight/Volume: 1000 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
2-Chlorotoluene		ND		64
1,3,5-Trimethylbenzene		ND		64
4-Chlorotoluene		ND		64
tert-Butylbenzene		ND		64
1,2,4-Trimethylbenzene		ND		64
sec-Butylbenzene		ND		64
1,3-Dichlorobenzene		ND		64
4-Isopropyltoluene		ND		64
1,4-Dichlorobenzene		ND		64
n-Butylbenzene		ND		64
1,2-Dichlorobenzene		ND		64
1,2-Dibromo-3-Chloropropane		ND		64
1,2,4-Trichlorobenzene		ND		64
1,2,3-Trichlorobenzene		ND		64
Hexachlorobutadiene		ND		64
Naphthalene		ND		64
Surrogate		%Rec		Acceptance Limits
Fluorobenzene (Surr)		92		75 - 125
Toluene-d8 (Surr)		90		75 - 125
Ethylbenzene-d10		94		75 - 125
4-Bromofluorobenzene (Surr)		91		75 - 125
Trifluorotoluene (Surr)		103		75 - 125

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN006

Lab Sample ID: 580-4732-3

Date Sampled: 01/11/2007 1130

Client Matrix: Solid

% Moisture: 19.4

Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B

Analysis Batch: 580-14881

Instrument ID: SEA001

Preparation: 5035

Prep Batch: 580-14844

Lab File ID: AG30616.D

Dilution: 1.0

Initial Weight/Volume: 18.51 g

Date Analyzed: 01/17/2007 2000

Final Weight/Volume: 1000 mL

Date Prepared: 01/17/2007 1500

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Dichlorodifluoromethane		ND		67
Chloromethane		ND		67
Vinyl chloride		ND		27
Bromomethane		ND		340
Chloroethane		ND	*	340
Trichlorofluoromethane		ND	*	67
1,1-Dichloroethene		ND		27
Methylene Chloride		ND		67
trans-1,2-Dichloroethene		ND		67
1,1-Dichloroethane		ND		67
2,2-Dichloropropane		ND		67
cis-1,2-Dichloroethene		ND		67
Chlorobromomethane		ND	*	67
Chloroform		ND		67
1,1,1-Trichloroethane		ND		27
Carbon tetrachloride		ND		27
1,1-Dichloropropene		ND		67
Benzene		ND		13
1,2-Dichloroethane		ND		67
Trichloroethene		ND		27
1,2-Dichloropropane		ND		13
Dibromomethane		ND		67
Dichlorobromomethane		ND		67
cis-1,3-Dichloropropene		ND		67
Toluene		ND		67
trans-1,3-Dichloropropene		ND		67
1,1,2-Trichloroethane		ND		67
Tetrachloroethene		ND		42
1,3-Dichloropropane		ND		27
Chlorodibromomethane		ND		67
Ethylene Dibromide		ND		67
Chlorobenzene		ND		67
Ethylbenzene		ND		67
1,1,1,2-Tetrachloroethane		ND		67
1,1,2,2-Tetrachloroethane		ND		13
m-Xylene & p-Xylene		ND		67
o-Xylene		ND		67
Styrene		ND		67
Bromoform		ND		67
Isopropylbenzene		ND		67
Bromobenzene		ND		67
N-Propylbenzene		ND		67
1,2,3-Trichloropropane		ND		67

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN006

Lab Sample ID: 580-4732-3

Date Sampled: 01/11/2007 1130

Client Matrix: Solid

% Moisture: 19.4

Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B

Analysis Batch: 580-14881

Instrument ID: SEA001

Preparation: 5035

Prep Batch: 580-14844

Lab File ID: AG30616.D

Dilution: 1.0

Initial Weight/Volume: 18.51 g

Date Analyzed: 01/17/2007 2000

Final Weight/Volume: 1000 mL

Date Prepared: 01/17/2007 1500

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
2-Chlorotoluene		ND		67
1,3,5-Trimethylbenzene		ND		67
4-Chlorotoluene		ND		67
tert-Butylbenzene		ND		67
1,2,4-Trimethylbenzene		ND		67
sec-Butylbenzene		ND		67
1,3-Dichlorobenzene		ND		67
4-Isopropyltoluene		ND		67
1,4-Dichlorobenzene		ND		67
n-Butylbenzene		ND		67
1,2-Dichlorobenzene		ND		67
1,2-Dibromo-3-Chloropropane		ND		67
1,2,4-Trichlorobenzene		ND		67
1,2,3-Trichlorobenzene		ND		67
Hexachlorobutadiene		ND		67
Naphthalene		ND		67
Surrogate		%Rec		Acceptance Limits
Fluorobenzene (Surr)		92		75 - 125
Toluene-d8 (Surr)		91		75 - 125
Ethylbenzene-d10		94		75 - 125
4-Bromofluorobenzene (Surr)		89		75 - 125
Trifluorotoluene (Surr)		95		75 - 125

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN007

Lab Sample ID: 580-4732-4
 Client Matrix: Solid

% Moisture: 19.9

Date Sampled: 01/11/2007 1130
 Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
 Preparation: 5035
 Dilution: 1.0
 Date Analyzed: 01/17/2007 2019
 Date Prepared: 01/17/2007 1500

Analysis Batch: 580-14881
 Prep Batch: 580-14844

Instrument ID: SEA001
 Lab File ID: AG30617.D
 Initial Weight/Volume: 19.52 g
 Final Weight/Volume: 1000 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Dichlorodifluoromethane		ND		64
Chloromethane		ND		64
Vinyl chloride		ND		26
Bromomethane		ND		320
Chloroethane		ND	*	320
Trichlorofluoromethane		ND	*	64
1,1-Dichloroethene		ND		26
Methylene Chloride		ND		64
trans-1,2-Dichloroethene		ND		64
1,1-Dichloroethane		ND		64
2,2-Dichloropropane		ND		64
cis-1,2-Dichloroethene		ND		64
Chlorobromomethane		ND	*	64
Chloroform		ND		64
1,1,1-Trichloroethane		ND		26
Carbon tetrachloride		ND		26
1,1-Dichloropropene		ND		64
Benzene		ND		13
1,2-Dichloroethane		ND		64
Trichloroethene		ND		26
1,2-Dichloropropane		ND		13
Dibromomethane		ND		64
Dichlorobromomethane		ND		64
cis-1,3-Dichloropropene		ND		64
Toluene		ND		64
trans-1,3-Dichloropropene		ND		64
1,1,2-Trichloroethane		ND		64
Tetrachloroethene		ND		40
1,3-Dichloropropane		ND		26
Chlorodibromomethane		ND		64
Ethylene Dibromide		ND		64
Chlorobenzene		ND		64
Ethylbenzene		ND		64
1,1,1,2-Tetrachloroethane		ND		64
1,1,2,2-Tetrachloroethane		ND		13
m-Xylene & p-Xylene		ND		64
o-Xylene		ND		64
Styrene		ND		64
Bromoform		ND		64
Isopropylbenzene		ND		64
Bromobenzene		ND		64
N-Propylbenzene		ND		64
1,2,3-Trichloropropane		ND		64

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN007

Lab Sample ID: 580-4732-4
 Client Matrix: Solid

% Moisture: 19.9

Date Sampled: 01/11/2007 1130
 Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
 Preparation: 5035
 Dilution: 1.0
 Date Analyzed: 01/17/2007 2019
 Date Prepared: 01/17/2007 1500

Analysis Batch: 580-14881
 Prep Batch: 580-14844

Instrument ID: SEA001
 Lab File ID: AG30617.D
 Initial Weight/Volume: 19.52 g
 Final Weight/Volume: 1000 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
2-Chlorotoluene		ND		64
1,3,5-Trimethylbenzene		ND		64
4-Chlorotoluene		ND		64
tert-Butylbenzene		ND		64
1,2,4-Trimethylbenzene		ND		64
sec-Butylbenzene		ND		64
1,3-Dichlorobenzene		ND		64
4-Isopropyltoluene		ND		64
1,4-Dichlorobenzene		ND		64
n-Butylbenzene		ND		64
1,2-Dichlorobenzene		ND		64
1,2-Dibromo-3-Chloropropane		ND		64
1,2,4-Trichlorobenzene		ND		64
1,2,3-Trichlorobenzene		ND		64
Hexachlorobutadiene		ND		64
Naphthalene		ND		64
Surrogate		%Rec		Acceptance Limits
Fluorobenzene (Surr)		90		75 - 125
Toluene-d8 (Surr)		90		75 - 125
Ethylbenzene-d10		96		75 - 125
4-Bromofluorobenzene (Surr)		91		75 - 125
Trifluorotoluene (Surr)		93		75 - 125

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN008

Lab Sample ID: 580-4732-5

Date Sampled: 01/11/2007 1140

Client Matrix: Solid

% Moisture: 24.0

Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B

Analysis Batch: 580-14881

Instrument ID: SEA001

Preparation: 5035

Prep Batch: 580-14844

Lab File ID: AG30618.D

Dilution: 1.0

Initial Weight/Volume: 30.13 g

Date Analyzed: 01/17/2007 2038

Final Weight/Volume: 1000 mL

Date Prepared: 01/17/2007 1500

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Dichlorodifluoromethane		ND		44
Chloromethane		ND		44
Vinyl chloride		ND		17
Bromomethane		ND		220
Chloroethane		ND	*	220
Trichlorofluoromethane		ND	*	44
1,1-Dichloroethene		ND		17
Methylene Chloride		ND		44
trans-1,2-Dichloroethene		ND		44
1,1-Dichloroethane		ND		44
2,2-Dichloropropane		ND		44
cis-1,2-Dichloroethene		ND		44
Chlorobromomethane		ND	*	44
Chloroform		ND		44
1,1,1-Trichloroethane		ND		17
Carbon tetrachloride		ND		17
1,1-Dichloropropene		ND		44
Benzene		ND		8.7
1,2-Dichloroethane		ND		44
Trichloroethene		ND		17
1,2-Dichloropropane		ND		8.7
Dibromomethane		ND		44
Dichlorobromomethane		ND		44
cis-1,3-Dichloropropene		ND		44
Toluene		ND		44
trans-1,3-Dichloropropene		ND		44
1,1,2-Trichloroethane		ND		44
Tetrachloroethene		ND		27
1,3-Dichloropropane		ND		17
Chlorodibromomethane		ND		44
Ethylene Dibromide		ND		44
Chlorobenzene		ND		44
Ethylbenzene		ND		44
1,1,1,2-Tetrachloroethane		ND		44
1,1,2,2-Tetrachloroethane		ND		8.7
m-Xylene & p-Xylene		ND		44
o-Xylene		ND		44
Styrene		ND		44
Bromoform		ND		44
Isopropylbenzene		ND		44
Bromobenzene		ND		44
N-Propylbenzene		ND		44
1,2,3-Trichloropropane		ND		44

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN008

Lab Sample ID: 580-4732-5

Date Sampled: 01/11/2007 1140

Client Matrix: Solid

% Moisture: 24.0

Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
 Preparation: 5035
 Dilution: 1.0
 Date Analyzed: 01/17/2007 2038
 Date Prepared: 01/17/2007 1500

Analysis Batch: 580-14881
 Prep Batch: 580-14844

Instrument ID: SEA001
 Lab File ID: AG30618.D
 Initial Weight/Volume: 30.13 g
 Final Weight/Volume: 1000 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
2-Chlorotoluene		ND		44
1,3,5-Trimethylbenzene		ND		44
4-Chlorotoluene		ND		44
tert-Butylbenzene		ND		44
1,2,4-Trimethylbenzene		ND		44
sec-Butylbenzene		ND		44
1,3-Dichlorobenzene		ND		44
4-Isopropyltoluene		ND		44
1,4-Dichlorobenzene		ND		44
n-Butylbenzene		ND		44
1,2-Dichlorobenzene		ND		44
1,2-Dibromo-3-Chloropropane		ND		44
1,2,4-Trichlorobenzene		ND		44
1,2,3-Trichlorobenzene		ND		44
Hexachlorobutadiene		ND		44
Naphthalene		ND		44
Surrogate		%Rec		Acceptance Limits
Fluorobenzene (Surr)		90		75 - 125
Toluene-d8 (Surr)		92		75 - 125
Ethylbenzene-d10		93		75 - 125
4-Bromofluorobenzene (Surr)		89		75 - 125
Trifluorotoluene (Surr)		87		75 - 125

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN010

Lab Sample ID: 580-4732-6

Date Sampled: 01/11/2007 1212

Client Matrix: Solid

% Moisture: 4.7

Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5035
Dilution: 1.0
Date Analyzed: 01/17/2007 2057
Date Prepared: 01/17/2007 1500

Analysis Batch: 580-14881
Prep Batch: 580-14844

Instrument ID: SEA001
Lab File ID: AG30619.D
Initial Weight/Volume: 18.64 g
Final Weight/Volume: 1000 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Dichlorodifluoromethane		ND		56
Chloromethane		ND		56
Vinyl chloride		ND		23
Bromomethane		ND		280
Chloroethane		ND	*	280
Trichlorofluoromethane		ND	*	56
1,1-Dichloroethene		ND		23
Methylene Chloride		ND		56
trans-1,2-Dichloroethene		ND		56
1,1-Dichloroethane		ND		56
2,2-Dichloropropane		ND		56
cis-1,2-Dichloroethene		ND		56
Chlorobromomethane		ND	*	56
Chloroform		ND		56
1,1,1-Trichloroethane		ND		23
Carbon tetrachloride		ND		23
1,1-Dichloropropene		ND		56
Benzene		ND		11
1,2-Dichloroethane		ND		56
Trichloroethene		ND		23
1,2-Dichloropropane		ND		11
Dibromomethane		ND		56
Dichlorobromomethane		ND		56
cis-1,3-Dichloropropene		ND		56
Toluene		ND		56
trans-1,3-Dichloropropene		ND		56
1,1,2-Trichloroethane		ND		56
Tetrachloroethene		ND		35
1,3-Dichloropropane		ND		23
Chlorodibromomethane		ND		56
Ethylene Dibromide		ND		56
Chlorobenzene		ND		56
Ethylbenzene		ND		56
1,1,1,2-Tetrachloroethane		ND		56
1,1,2,2-Tetrachloroethane		ND		11
m-Xylene & p-Xylene		ND		56
o-Xylene		ND		56
Styrene		ND		56
Bromoform		ND		56
Isopropylbenzene		ND		56
Bromobenzene		ND		56
N-Propylbenzene		ND		56
1,2,3-Trichloropropane		ND		56

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN010

Lab Sample ID: 580-4732-6

Client Matrix: Solid

% Moisture: 4.7

Date Sampled: 01/11/2007 1212

Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B

Analysis Batch: 580-14881

Instrument ID: SEA001

Preparation: 5035

Prep Batch: 580-14844

Lab File ID: AG30619.D

Dilution: 1.0

Initial Weight/Volume: 18.64 g

Date Analyzed: 01/17/2007 2057

Final Weight/Volume: 1000 mL

Date Prepared: 01/17/2007 1500

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
2-Chlorotoluene		ND		56
1,3,5-Trimethylbenzene		ND		56
4-Chlorotoluene		ND		56
tert-Butylbenzene		ND		56
1,2,4-Trimethylbenzene		ND		56
sec-Butylbenzene		ND		56
1,3-Dichlorobenzene		ND		56
4-Isopropyltoluene		ND		56
1,4-Dichlorobenzene		ND		56
n-Butylbenzene		ND		56
1,2-Dichlorobenzene		ND		56
1,2-Dibromo-3-Chloropropane		ND		56
1,2,4-Trichlorobenzene		ND		56
1,2,3-Trichlorobenzene		ND		56
Hexachlorobutadiene		ND		56
Naphthalene		ND		56
Surrogate		%Rec		Acceptance Limits
Fluorobenzene (Surr)		90		75 - 125
Toluene-d8 (Surr)		91		75 - 125
Ethylbenzene-d10		93		75 - 125
4-Bromofluorobenzene (Surr)		89		75 - 125
Trifluorotoluene (Surr)		108		75 - 125

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN013

Lab Sample ID: 580-4732-7

Date Sampled: 01/11/2007 1305

Client Matrix: Solid

% Moisture: 7.1

Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B

Analysis Batch: 580-14881

Instrument ID: SEA001

Preparation: 5035

Prep Batch: 580-14844

Lab File ID: AG30620.D

Dilution: 1.0

Initial Weight/Volume: 22.60 g

Date Analyzed: 01/17/2007 2116

Final Weight/Volume: 1000 mL

Date Prepared: 01/17/2007 1500

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Dichlorodifluoromethane		ND		48
Chloromethane		ND		48
Vinyl chloride		ND		19
Bromomethane		ND		240
Chloroethane		ND	*	240
Trichlorofluoromethane		ND	*	48
1,1-Dichloroethene		ND		19
Methylene Chloride		ND		48
trans-1,2-Dichloroethene		ND		48
1,1-Dichloroethane		ND		48
2,2-Dichloropropane		ND		48
cis-1,2-Dichloroethene		ND		48
Chlorobromomethane		ND	*	48
Chloroform		ND		48
1,1,1-Trichloroethane		ND		19
Carbon tetrachloride		ND		19
1,1-Dichloropropene		ND		48
Benzene		ND		9.5
1,2-Dichloroethane		ND		48
Trichloroethene		ND		19
1,2-Dichloropropane		ND		9.5
Dibromomethane		ND		48
Dichlorobromomethane		ND		48
cis-1,3-Dichloropropene		ND		48
Toluene		ND		48
trans-1,3-Dichloropropene		ND		48
1,1,2-Trichloroethane		ND		48
Tetrachloroethene		ND		30
1,3-Dichloropropane		ND		19
Chlorodibromomethane		ND		48
Ethylene Dibromide		ND		48
Chlorobenzene		ND		48
Ethylbenzene		ND		48
1,1,1,2-Tetrachloroethane		ND		48
1,1,2,2-Tetrachloroethane		ND		9.5
m-Xylene & p-Xylene		ND		48
o-Xylene		ND		48
Styrene		ND		48
Bromoform		ND		48
Isopropylbenzene		ND		48
Bromobenzene		ND		48
N-Propylbenzene		ND		48
1,2,3-Trichloropropane		ND		48

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN013

Lab Sample ID: 580-4732-7

Date Sampled: 01/11/2007 1305

Client Matrix: Solid

% Moisture: 7.1

Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B

Analysis Batch: 580-14881

Instrument ID: SEA001

Preparation: 5035

Prep Batch: 580-14844

Lab File ID: AG30620.D

Dilution: 1.0

Initial Weight/Volume: 22.60 g

Date Analyzed: 01/17/2007 2116

Final Weight/Volume: 1000 mL

Date Prepared: 01/17/2007 1500

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
2-Chlorotoluene		ND		48
1,3,5-Trimethylbenzene		ND		48
4-Chlorotoluene		ND		48
tert-Butylbenzene		ND		48
1,2,4-Trimethylbenzene		ND		48
sec-Butylbenzene		ND		48
1,3-Dichlorobenzene		ND		48
4-Isopropyltoluene		ND		48
1,4-Dichlorobenzene		ND		48
n-Butylbenzene		ND		48
1,2-Dichlorobenzene		ND		48
1,2-Dibromo-3-Chloropropane		ND		48
1,2,4-Trichlorobenzene		ND		48
1,2,3-Trichlorobenzene		ND		48
Hexachlorobutadiene		ND		48
Naphthalene		ND		48
Surrogate		%Rec		Acceptance Limits
Fluorobenzene (Surr)		90		75 - 125
Toluene-d8 (Surr)		91		75 - 125
Ethylbenzene-d10		94		75 - 125
4-Bromofluorobenzene (Surr)		90		75 - 125
Trifluorotoluene (Surr)		101		75 - 125

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN015

Lab Sample ID: 580-4732-8

Client Matrix: Solid

% Moisture: 18.7

Date Sampled: 01/11/2007 1330

Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B

Analysis Batch: 580-14881

Instrument ID: SEA001

Preparation: 5035

Prep Batch: 580-14844

Lab File ID: AG30621.D

Dilution: 1.0

Initial Weight/Volume: 21.32 g

Date Analyzed: 01/17/2007 2135

Final Weight/Volume: 1000 mL

Date Prepared: 01/17/2007 1500

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Dichlorodifluoromethane		ND		58
Chloromethane		ND		58
Vinyl chloride		ND		23
Bromomethane		ND		290
Chloroethane		ND	*	290
Trichlorofluoromethane		ND	*	58
1,1-Dichloroethene		ND		23
Methylene Chloride		ND		58
trans-1,2-Dichloroethene		ND		58
1,1-Dichloroethane		ND		58
2,2-Dichloropropane		ND		58
cis-1,2-Dichloroethene		ND		58
Chlorobromomethane		ND	*	58
Chloroform		ND		58
1,1,1-Trichloroethane		ND		23
Carbon tetrachloride		ND		23
1,1-Dichloropropene		ND		58
Benzene		ND		12
1,2-Dichloroethane		ND		58
Trichloroethene		ND		23
1,2-Dichloropropane		ND		12
Dibromomethane		ND		58
Dichlorobromomethane		ND		58
cis-1,3-Dichloropropene		ND		58
Toluene		ND		58
trans-1,3-Dichloropropene		ND		58
1,1,2-Trichloroethane		ND		58
Tetrachloroethene		ND		36
1,3-Dichloropropane		ND		23
Chlorodibromomethane		ND		58
Ethylene Dibromide		ND		58
Chlorobenzene		ND		58
Ethylbenzene		ND		58
1,1,1,2-Tetrachloroethane		ND		58
1,1,2,2-Tetrachloroethane		ND		12
m-Xylene & p-Xylene		ND		58
o-Xylene		ND		58
Styrene		ND		58
Bromoform		ND		58
Isopropylbenzene		ND		58
Bromobenzene		ND		58
N-Propylbenzene		ND		58
1,2,3-Trichloropropane		ND		58

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: PEN015

Lab Sample ID: 580-4732-8

Client Matrix: Solid

% Moisture: 18.7

Date Sampled: 01/11/2007 1330

Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B

Analysis Batch: 580-14881

Instrument ID: SEA001

Preparation: 5035

Prep Batch: 580-14844

Lab File ID: AG30621.D

Dilution: 1.0

Initial Weight/Volume: 21.32 g

Date Analyzed: 01/17/2007 2135

Final Weight/Volume: 1000 mL

Date Prepared: 01/17/2007 1500

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
2-Chlorotoluene		ND		58
1,3,5-Trimethylbenzene		ND		58
4-Chlorotoluene		ND		58
tert-Butylbenzene		ND		58
1,2,4-Trimethylbenzene		ND		58
sec-Butylbenzene		ND		58
1,3-Dichlorobenzene		ND		58
4-Isopropyltoluene		ND		58
1,4-Dichlorobenzene		ND		58
n-Butylbenzene		ND		58
1,2-Dichlorobenzene		ND		58
1,2-Dibromo-3-Chloropropane		ND		58
1,2,4-Trichlorobenzene		ND		58
1,2,3-Trichlorobenzene		ND		58
Hexachlorobutadiene		ND		58
Naphthalene		ND		58
Surrogate		%Rec		Acceptance Limits
Fluorobenzene (Surr)		90		75 - 125
Toluene-d8 (Surr)		92		75 - 125
Ethylbenzene-d10		96		75 - 125
4-Bromofluorobenzene (Surr)		93		75 - 125
Trifluorotoluene (Surr)		97		75 - 125

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-4732-10

Date Sampled: 01/11/2007 0000

Client Matrix: Solid

Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B

Analysis Batch: 580-14881

Instrument ID: SEA001

Preparation: 5035

Prep Batch: 580-14844

Lab File ID: AG30622.D

Dilution: 1.0

Initial Weight/Volume: 25 g

Date Analyzed: 01/17/2007 2154

Final Weight/Volume: 1000 mL

Date Prepared: 01/17/2007 1500

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Dichlorodifluoromethane		ND		40
Chloromethane		ND		40
Vinyl chloride		ND		16
Bromomethane		ND		200
Chloroethane		ND	*	200
Trichlorofluoromethane		ND	*	40
1,1-Dichloroethene		ND		16
Methylene Chloride		ND		40
trans-1,2-Dichloroethene		ND		40
1,1-Dichloroethane		ND		40
2,2-Dichloropropane		ND		40
cis-1,2-Dichloroethene		ND		40
Chlorobromomethane		ND	*	40
Chloroform		ND		40
1,1,1-Trichloroethane		ND		16
Carbon tetrachloride		ND		16
1,1-Dichloropropene		ND		40
Benzene		ND		8.0
1,2-Dichloroethane		ND		40
Trichloroethene		ND		16
1,2-Dichloropropane		ND		8.0
Dibromomethane		ND		40
Dichlorobromomethane		ND		40
cis-1,3-Dichloropropene		ND		40
Toluene		ND		40
trans-1,3-Dichloropropene		ND		40
1,1,2-Trichloroethane		ND		40
Tetrachloroethene		ND		25
1,3-Dichloropropane		ND		16
Chlorodibromomethane		ND		40
Ethylene Dibromide		ND		40
Chlorobenzene		ND		40
Ethylbenzene		ND		40
1,1,1,2-Tetrachloroethane		ND		40
1,1,2,2-Tetrachloroethane		ND		8.0
m-Xylene & p-Xylene		ND		40
o-Xylene		ND		40
Styrene		ND		40
Bromoform		ND		40
Isopropylbenzene		ND		40
Bromobenzene		ND		40
N-Propylbenzene		ND		40
1,2,3-Trichloropropane		ND		40

Handwritten vertical line with a checkmark at the bottom and a '0' at the top, indicating that all results are below the Reporting Limit (RL).

Handwritten initials and date: *AW*
26-07

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4732-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-4732-10

Date Sampled: 01/11/2007 0000

Client Matrix: Solid

Date Received: 01/17/2007 1000

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5035
Dilution: 1.0
Date Analyzed: 01/17/2007 2154
Date Prepared: 01/17/2007 1500

Analysis Batch: 580-14881
Prep Batch: 580-14844

Instrument ID: SEA001
Lab File ID: AG30622.D
Initial Weight/Volume: 25 g
Final Weight/Volume: 1000 mL

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
2-Chlorotoluene		ND		40
1,3,5-Trimethylbenzene		ND		40
4-Chlorotoluene		ND		40
tert-Butylbenzene		ND		40
1,2,4-Trimethylbenzene		ND		40
sec-Butylbenzene		ND		40
1,3-Dichlorobenzene		ND		40
4-Isopropyltoluene		ND		40
1,4-Dichlorobenzene		ND		40
n-Butylbenzene		ND		40
1,2-Dichlorobenzene		ND		40
1,2-Dibromo-3-Chloropropane		ND		40
1,2,4-Trichlorobenzene		ND		40
1,2,3-Trichlorobenzene		ND		40
Hexachlorobutadiene		ND		40
Naphthalene		ND		40
Surrogate		%Rec		Acceptance Limits
Fluorobenzene (Surr)		90		75 - 125
Toluene-d8 (Surr)		92		75 - 125
Ethylbenzene-d10		95		75 - 125
4-Bromofluorobenzene (Surr)		92		75 - 125
Trifluorotoluene (Surr)		111		75 - 125

MW
2/07



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International Specialists in the Environment

720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: February 6, 2007

TO: Jim Gill, Project Manager, E & E, Anchorage, AK

FROM: Mark Woodke, Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Summary Check,
First Avenue Property, Anchorage, Alaska**

REF: 002397.PE06

The data summary check of 1 water sample collected from the First Avenue Property site located in Anchorage, Alaska, has been completed. Analysis for Diesel Range Organics (DRO; ADEC Methods AK102/103) was performed by STL-Seattle, Inc., Tacoma, Washington.

The sample was numbered:

Water PEN 017 W

Data Qualifications:

1. **Sample Holding Times: Acceptable.**

The sample was maintained and received within the QC limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The sample was collected on January 12, 2007, was extracted on January 16, 2007, and was analyzed on January 16, 2007, therefore meeting QC criteria of less than 7 days between collection and extraction for water samples and less than 40 days between extraction and analysis.

2. **Initial and Continuing Calibration: Not Provided.**

Calibration information was not provided.

3. **Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. DRO were not detected in any blank.

4. **System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC criteria.

5. Matrix and Blank Spikes: Acceptable.

Matrix and blank spike results were within QC limits.

6. Duplicates: Acceptable.

Spike duplicate results were acceptable.

7. Quantitation and Quantitation Limits: Not Provided.

Information needed to recalculate sample results and quantitation limits were not provided.

8. Laboratory Contact: Not Required.

No laboratory contact was required.

9. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the Sampling Plan, the OSWER Directive "Quality Assurance/Quality Control Guidance for Removal Activities, Data Validation Procedures" (EPA/540/G-90/004) and the analytical methods. Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: PEN 017 W

Lab Sample ID: 580-4721-1

Client Matrix: Water

Date Sampled: 01/12/2007 1200

Date Received: 01/15/2007 1200

AK102 & 103 Nonhalogenated Organics by FID (Diesel Range Organics & Residual Range Organics)

Method: AK102 & 103
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 01/16/2007 1456
Date Prepared: 01/16/2007 0909

Analysis Batch: 580-14817
Prep Batch: 580-14775

Instrument ID: SEA016
Lab File ID: EP20376.D
Initial Weight/Volume: 520 mL
Final Weight/Volume: 1 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (mg/L)	Qualifier	RL
DRO (nC10-<nC25)	0.24		0.19
Surrogate	%Rec		Acceptance Limits
o-Terphenyl	69		60 - 120
n-Triacontane-d62	79		60 - 120

MW
2/07



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MEMORANDUM

DATE: February 6, 2007

TO: Jim Gill, Project Manager, E & E, Anchorage, AK

FROM: Mark Woodke, Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Summary Check,
First Avenue Property, Anchorage, Alaska**

REF: 002397.PE06

The data summary check of 1 water sample collected from the First Avenue Property site located in Anchorage, Alaska, has been completed. Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by STL-Seattle, Inc., Tacoma, Washington.

The sample was numbered:

Water PEN 017 W

Data Qualifications:

1. Sample Holding Times: Acceptable.

The sample was maintained and received within the QC limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The sample was collected on January 12, 2007, was extracted by January 16, 2007, and was analyzed by January 17, 2007, therefore meeting holding time criteria of less than 7 days between collection and extraction and less than 40 days between extraction and analysis.

2. Tuning: Not Provided.

Tuning information was not provided.

3. Initial and Continuing Calibration: Not Provided.

Calibration information was not provided.

4. Blanks: Acceptable.

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank.

5. System Monitoring Compounds (SMCs): Satisfactory.

All SMC recoveries were within QC limits except the 2,4,6-tribromophenol recovery. No action was taken based on one outlier per sample per fraction.

6. Matrix Spike (MS)/MS Duplicate (MSD)/Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.

All spike analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within the QC limits except 4-chloroaniline (one low recovery) and 3-nitroaniline (two 0 % recoveries). The 4-chloroaniline result was qualified as an estimated quantity (UJ) and the 3-nitroaniline result was rejected (R).

7. Duplicate Analysis: Satisfactory.

Blank spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except 2-chlorophenol, acenaphthene, phenanthrene, and benzo(a)pyrene; no action was taken based on duplicated outliers alone.

8. Internal Standards: Not Provided.

Internal standard information was not provided.

9. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

R - The associated result is rejected.

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

UJ - The material was analyzed for, but not detected. The reported detection limit is estimated because quality control criteria were not met.

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: PEN 017 W

Lab Sample ID: 580-4721-1

Date Sampled: 01/12/2007 1200

Client Matrix: Water

Date Received: 01/15/2007 1200

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method:	8270C	Analysis Batch:	580-14809	Instrument ID:	SEA040
Preparation:	3510C	Prep Batch:	580-14776	Lab File ID:	ak007760.D
Dilution:	1.0			Initial Weight/Volume:	990 mL
Date Analyzed:	01/16/2007 1409			Final Weight/Volume:	5 mL
Date Prepared:	01/16/2007 0911			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Phenol	ND		1.5
Bis(2-chloroethyl)ether	ND		1.0
2-Chlorophenol	ND	*	1.0
1,3-Dichlorobenzene	ND		1.0
1,4-Dichlorobenzene	ND		1.0
Benzyl alcohol	ND		1.0
1,2-Dichlorobenzene	ND		1.0
2-Methylphenol	ND		1.0
Bis(2-chloroisopropyl) ether	ND		1.0
3 & 4 Methylphenol	ND		2.0
N-Nitrosodi-n-propylamine	ND		1.0
Hexachloroethane	ND		1.5
Nitrobenzene	ND		1.0
Isophorone	ND		1.0
2-Nitrophenol	ND		1.0
2,4-Dimethylphenol	ND		5.1
Benzoic acid	ND		5.1
Bis(2-chloroethoxy)methane	ND		1.0
2,4-Dichlorophenol	ND		1.0
1,2,4-Trichlorobenzene	ND		1.0
Naphthalene	ND		1.0
4-Chloroaniline	ND	*	1.0
Hexachlorobutadiene	ND		1.5
4-Chloro-3-methylphenol	ND		1.0
2-Methylnaphthalene	4.8		0.51
Hexachlorocyclopentadiene	ND		5.1
2,4,6-Trichlorophenol	ND		1.5
2,4,5-Trichlorophenol	ND		1.0
2-Chloronaphthalene	ND		0.15
2-Nitroaniline	ND		1.0
Dimethyl phthalate	ND		1.0
Acenaphthylene	ND		0.20
2,6-Dinitrotoluene	ND		1.0
3-Nitroaniline	ND	*	1.0
Acenaphthene	ND	*	0.25
2,4-Dinitrophenol	ND		13
4-Nitrophenol	ND		5.1
Dibenzofuran	ND		1.0
2,4-Dinitrotoluene	ND		1.0
Diethyl phthalate	ND		1.0
4-Chlorophenyl phenyl ether	ND		1.0
Fluorene	0.79		0.15
4-Nitroaniline	ND		1.5

MW 2/6/07

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: PEN 017 W

Lab Sample ID: 580-4721-1
 Client Matrix: Water

Date Sampled: 01/12/2007 1200
 Date Received: 01/15/2007 1200

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C Analysis Batch: 580-14809 Instrument ID: SEA040
 Preparation: 3510C Prep Batch: 580-14776 Lab File ID: ak007760.D
 Dilution: 1.0 Initial Weight/Volume: 990 mL
 Date Analyzed: 01/16/2007 1409 Final Weight/Volume: 5 mL
 Date Prepared: 01/16/2007 0911 Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
4,6-Dinitro-2-methylphenol	ND		10
N-Nitrosodiphenylamine	ND		1.0
4-Bromophenyl phenyl ether	ND		1.0
Hexachlorobenzene	ND		1.0
Pentachlorophenol	ND		1.8
Phenanthrene	2.7	*	0.20
Anthracene	ND		0.10
Fluoranthene	0.56	*	0.13
Pyrene	0.65		0.15
Butyl benzyl phthalate	3.8		1.5
3,3'-Dichlorobenzidine	ND		5.1
Benzo[a]anthracene	0.21		0.15
Chrysene	0.75		0.10
Di-n-octyl phthalate	4.9		1.0
Benzofluoranthene	0.64		0.20
Benzo[a]pyrene	0.29	*	0.10
Indeno[1,2,3-cd]pyrene	0.27		0.15
Dibenz(a,h)anthracene	0.17		0.15
Benzo[g,h,i]perylene	0.41		0.15
Carbazole	ND		1.0
1-Methylnaphthalene	2.5		0.15
Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	11		10 - 120
Phenol-d5	10		10 - 102
Nitrobenzene-d5	39		34 - 146
2-Fluorobiphenyl	47		35 - 143
2,4,6-Tribromophenol	14	IX	29 - 151
Terphenyl-d14	50		35 - 166

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: PEN 017 W

Lab Sample ID: 580-4721-1

Client Matrix: Water

Date Sampled: 01/12/2007 1200

Date Received: 01/15/2007 1200

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C

Analysis Batch: 580-14809

Instrument ID: SEA040

Preparation: 3510C

Prep Batch: 580-14776

Lab File ID: ak007768.D

Dilution: 5.0

Initial Weight/Volume: 990 mL

Date Analyzed: 01/17/2007 1241

Final Weight/Volume: 5 mL

Date Prepared: 01/16/2007 0911

Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Bis(2-ethylhexyl) phthalate	46		38

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2007

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: PEN 017 W

Lab Sample ID: 580-4721-1

Date Sampled: 01/12/2007 1200

Client Matrix: Water

Date Received: 01/15/2007 1200

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method:	8270C	Analysis Batch: 580-14809	Instrument ID: SEA040
Preparation:	3510C	Prep Batch: 580-14776	Lab File ID: ak007762.D
Dilution:	10		Initial Weight/Volume: 990 mL
Date Analyzed:	01/16/2007 1547		Final Weight/Volume: 5 mL
Date Prepared:	01/16/2007 0911		Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Di-n-butyl phthalate	94		10

MW
2/6/07



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International Specialists in the Environment

720 Third Avenue, Suite 1700, Seattle, WA 98104

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MEMORANDUM

DATE: February 6, 2007

TO: Jim Gill, Project Manager, E & E, Anchorage, AK

FROM: Mark Woodke, Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Summary Check,
First Avenue Property, Anchorage, Alaska**

REF: 002397.PE06

The data summary check of 1 water sample collected from the First Avenue Property site located in Anchorage, Alaska, has been completed. Analysis for Polychlorinated Biphenyls (PCBs - EPA Method 8082) was performed by STL-Seattle, Inc., Tacoma, Washington.

The sample was numbered:

Water PEN 017 W

Data Qualifications:

1. **Sample Holding Times: Acceptable.**

The sample was maintained at 4°C ($\pm 2^\circ\text{C}$). The sample was collected on January 12, 2007, was extracted by January 16, 2007, and was analyzed by January 17, 2007, therefore meeting QC criteria of less than 7 days between collection and water sample extraction and less than 40 days between extraction and analysis.

2. **Instrument Performance: Not Provided.**

Instrument performance information was not provided.

3. **Initial and Continuing Calibration: Not Provided.**

Calibration information was not provided.

4. Blanks: Acceptable.

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in any blanks.

5. System Monitoring Compounds (SMCs): Satisfactory.

All recoveries of the SMCs were within the established control limits except both SMCs in the sample with low recoveries. Associated sample results were qualified as estimated quantities (UJ):

6. Blank and Matrix Spikes: Acceptable.

Recoveries of all spiked analytes were within the appropriate control limits except all four spike results with high recoveries. No action was taken based on these outliers as there were no detections in the sample.

7. Duplicates: Acceptable.

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits.

8. Compound Identification: Not Provided.

Information regarding dual-column confirmation was not provided.

9. Target Compound Quantitation and Quantitation Limits: Not Provided.

Information needed to recalculate sample results and quantitation limits was not provided.

10. Laboratory Contact

No laboratory contact was required.

11. Overall Assessment

The overall usefulness of the data is based on the criteria outlined in the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

UJ - The material was analyzed for but was not detected. The associated numerical value is the estimated sample quantitation limit.

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: PEN 017 W

Lab Sample ID: 580-4721-1

Date Sampled: 01/12/2007 1200

Client Matrix: Water

Date Received: 01/15/2007 1200

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method:	8082	Analysis Batch: 580-14831	Instrument ID: SEA034
Preparation:	3510C	Prep Batch: 580-14791	Lab File ID: PCB5740.D
Dilution:	1.0		Initial Weight/Volume: 865 mL
Date Analyzed:	01/17/2007 1122		Final Weight/Volume: 10 mL
Date Prepared:	01/16/2007 1252		Injection Volume:
			Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
PCB-1016	ND	*	0.58
PCB-1221	ND		0.58
PCB-1232	ND		0.58
PCB-1242	ND		0.58
PCB-1248	ND		0.58
PCB-1254	ND		0.58
PCB-1260	ND	*	0.58
Surrogate	%Rec		Acceptance Limits
Tetrachloro-m-xylene	38	IX	60 - 150
DCB Decachlorobiphenyl	37	IX	40 - 135

MW
2/6/07



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MEMORANDUM

DATE: February 6, 2007

TO: Jim Gill, Project Manager, E & E, Anchorage, AK

FROM: Mark Woodke, Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Summary Check,
First Avenue Property, Anchorage, Alaska**

REF: 002397.PE06

The data summary check of 1 water sample collected from the First Avenue Property site located in Anchorage, Alaska, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6010 and 7471) were performed by STL-Seattle, Inc., Tacoma, Washington.

The sample was numbered:

Water PEN 017 W

Data Qualifications:

1. **Sample Holding Times: Acceptable.**

The liquid sample was preserved to a pH < 2. The sample was maintained at 4°C ($\pm 2^\circ\text{C}$). The sample was collected on January 12, 2007, and was analyzed by January 17, 2007, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

2. **Initial and Continuing Calibration: Not Provided.**

Calibration information was not provided.

3. **Blanks: Acceptable.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. There were no detections in the blanks.

4. **ICP Interference Check Sample: Not Provided.**

Interference Check Sample information was not provided.

5. ICP Serial Dilution: Not Provided.

Serial dilution information was not provided.

6. Matrix Spike Analysis: Acceptable.

A matrix spike analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. Spike and spike duplicate recoveries were within the QC limits.

7. Duplicate Analysis: Acceptable.

A laboratory duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All duplicate results were within QC limits.

8. Laboratory Control Sample Analysis: Acceptable.

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS results were within the established control limits.

9. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical methods, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: PEN 017 W

Lab Sample ID: 580-4721-1
Client Matrix: Water

Date Sampled: 01/12/2007 1200
Date Received: 01/15/2007 1200

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry-Total Recoverable

Method: 6010B Analysis Batch: 580-14815 Instrument ID: SEA027
Preparation: 3005A Prep Batch: 580-14786 Lab File ID: N/A
Dilution: 1.0 Initial Weight/Volume: 50 mL
Date Analyzed: 01/16/2007 1756 Final Weight/Volume: 50 mL
Date Prepared: 01/16/2007 1220

Analyte	Result (mg/L)	Qualifier	RL
Arsenic	0.45		
Barium	6.1		0.050
Cadmium	0.013		0.0050
Chromium	2.9		0.0050
Lead	0.73		0.010
Selenium	0.16		0.015
Silver	ND		0.050
			0.010 U

7470A Mercury in Liquid Waste (Manual Cold Vapor Technique)

Method: 7470A Analysis Batch: 580-14836 Instrument ID: SEA029
Preparation: 7470A Prep Batch: 580-14812 Lab File ID: N/A
Dilution: 1.0 Initial Weight/Volume: 5 mL
Date Analyzed: 01/17/2007 1313 Final Weight/Volume: 50 mL
Date Prepared: 01/17/2007 0937

Analyte	Result (mg/L)	Qualifier	RL
Mercury	0.021		0.0020

MM
2-2-07



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720 Third Avenue, Suite 1700, Seattle, WA 98104
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MEMORANDUM

DATE: February 6, 2007

TO: Jim Gill, Project Manager, E & E, Anchorage, AK

FROM: Mark Woodke, Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Summary Check,
First Avenue Property, Anchorage, Alaska**

REF: 002397.PE06

The data summary check of 3 water samples collected from the First Avenue Property site located in Anchorage, Alaska, has been completed. Analysis for Gasoline Range Organics (GROs; ADEC Method AK-101) analyses was performed by STL-Seattle, Inc., Tacoma, Washington.

The samples were numbered:

Water PEN 016 W PEN 017 W Trip Blanks

Data Qualifications:

1. Sample Holding Times: Acceptable.

The samples were preserved to a pH < 2. The samples were maintained and received within the QC limits of 4°C ± 2°C. The samples were collected between January 11 and 12, 2007, and were analyzed by January 16, 2007, therefore meeting QC criteria of less than 14 days between collection and analysis for preserved water samples.

2. Initial and Continuing Calibration: Not Provided.

Calibration information was not provided.

3. Internal Standards: Not Provided.

Internal standard information was not provided.

4. Blanks: Acceptable.

A method blank was analyzed at the required frequency of every 12 hours for each matrix, preparation technique, and analysis system. GROs were not detected in any blank.

5. System Monitoring Compounds (SMC): Acceptable.

All recoveries of the SMCs were greater than 10% and within QC criteria.

6. Blank Spikes/Blank Spike Duplicates: Acceptable.

Blank spike results were within laboratory QC limits.

7. Duplicates: Acceptable.

Laboratory spike duplicate results were within laboratory QC limits.

8. Quantitation and Quantitation Limits: Acceptable.

Sample quantitation and sample quantitation limits were correctly calculated.

9. Laboratory Contact: Not Required.

No laboratory contact was required.

10. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the OSWER Directive "Quality Assurance/Quality Control Guidance for Removal Activities, Data Validation Procedures" (EPA/540/G-90/004) and the analytical method. Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: PEN 017 W

Lab Sample ID: 580-4721-1
Client Matrix: Water

Date Sampled: 01/12/2007 1200
Date Received: 01/15/2007 1200

AK101 Gasoline Range Organics

Method: AK101
Preparation: 5030B
Dilution: 2.0
Date Analyzed: 01/16/2007 1605
Date Prepared: 01/16/2007 1605

Analysis Batch: 580-14835

Instrument ID: SEA003
Lab File ID: CS169022.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (mg/L)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10	ND		0.10 U
Surrogate	%Rec		Acceptance Limits
Trifluorotoluene (Surr)	99		60 - 120
4-Bromofluorobenzene (Surr)	102		60 - 120
Ethylbenzene-d10	111		60 - 120
Fluorobenzene (Surr)	100		60 - 120
Toluene-d8 (Surr)	113		60 - 120

MW
2/8/07

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: TRIP BLANKS

Lab Sample ID: 580-4721-2

Client Matrix: Water

Date Sampled: 01/12/2007 0000

Date Received: 01/15/2007 1200

AK101 Gasoline Range Organics

Method: AK101
Preparation: 5030B
Dilution: 1.0
Date Analyzed: 01/16/2007 1519
Date Prepared: 01/16/2007 1519

Analysis Batch: 580-14835

Instrument ID: SEA003
Lab File ID: CS169020.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (mg/L)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10	ND		0.050 U
Surrogate	%Rec	Acceptance Limits	
Trifluorotoluene (Surr)	68	60 - 120	
4-Bromofluorobenzene (Surr)	102	60 - 120	
Ethylbenzene-d10	111	60 - 120	
Fluorobenzene (Surr)	100	60 - 120	
Toluene-d8 (Surr)	113	60 - 120	

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: PEN 016 W

Lab Sample ID: 580-4721-3

Client Matrix: Water

Date Sampled: 01/11/2007 1600

Date Received: 01/15/2007 1200

AK101 Gasoline Range Organics

Method: AK101
Preparation: 5030B
Dilution: 1.0
Date Analyzed: 01/16/2007 1712
Date Prepared: 01/16/2007 1712

Analysis Batch: 580-14835

Instrument ID: SEA003
Lab File ID: CS169025.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (mg/L)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10	ND		0.050 <i>U</i>
Surrogate	%Rec		Acceptance Limits
Trifluorotoluene (Surr)	101		60 - 120
4-Bromofluorobenzene (Surr)	102		60 - 120
Ethylbenzene-d10	111		60 - 120
Fluorobenzene (Surr)	99		60 - 120
Toluene-d8 (Surr)	113		60 - 120

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2/6/07



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MEMORANDUM

DATE: February 6, 2007

TO: Jim Gill, Project Manager, E & E, Anchorage, AK

FROM: Mark Woodke, Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Summary Check,
First Avenue Property, Anchorage, Alaska**

REF: 002397.PE06

The data summary check of 3 water samples collected from the First Avenue Property site located in Anchorage, Alaska, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by STL-Seattle, Inc., Tacoma, Washington.

The samples were numbered:

Water PEN 016 W PEN 017 W Trip Blanks

Data Qualifications:

1. **Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were collected between January 11 and 12, 2007, and were analyzed by January 16, 2007, therefore meeting QC criteria of less than 14 days between collection and analysis for preserved water samples.

2. **Tuning: Not Provided.**

Tuning information was not provided.

3. **Initial and Continuing Calibration: Not Provided.**

Calibration information was not provided.

4. **Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank.

5. System Monitoring Compounds (SMCs): Acceptable.

All SMC recoveries were within QC limits.

6. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Acceptable.

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

7. Duplicate Analysis: Acceptable.

Laboratory duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All duplicate results were within QC limits.

8. Internal Standards: Not Provided.

Internal standard information was not provided.

9. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: PEN 017 W

Lab Sample ID: 580-4721-1

Client Matrix: Water

Date Sampled: 01/12/2007 1200

Date Received: 01/15/2007 1200

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
 Preparation: 5030B
 Dilution: 2.0
 Date Analyzed: 01/16/2007 1239
 Date Prepared: 01/16/2007 1239

Analysis Batch: 580-14799

Instrument ID: SEA036
 Lab File ID: HP13722.D
 Initial Weight/Volume: 5 mL
 Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	RL
Dichlorodifluoromethane	ND		2.0
Chloromethane	ND		2.0
Vinyl chloride	ND		2.0
Bromomethane	ND		2.0
Chloroethane	ND		10
Trichlorofluoromethane	ND		2.0
1,1-Dichloroethene	ND		2.0
Methylene Chloride	ND		2.0
trans-1,2-Dichloroethene	ND		2.0
1,1-Dichloroethane	ND		2.0
2,2-Dichloropropane	ND		2.0
cis-1,2-Dichloroethene	ND		2.0
Chlorobromomethane	ND		2.0
Chloroform	ND		2.0
1,1,1-Trichloroethane	ND		2.0
Carbon tetrachloride	ND		2.0
1,1-Dichloropropene	ND		2.0
Benzene	ND		2.0
1,2-Dichloroethane	ND		2.0
Trichloroethene	ND		2.0
1,2-Dichloropropane	ND		2.0
Dibromomethane	ND		2.0
Dichlorobromomethane	ND		2.0
cis-1,3-Dichloropropene	ND		2.0
Toluene	ND		2.0
trans-1,3-Dichloropropene	ND		2.0
1,1,2-Trichloroethane	ND		2.0
Tetrachloroethene	ND		2.0
1,3-Dichloropropane	ND		2.0
Chlorodibromomethane	ND		2.0
Ethylene Dibromide	ND		2.0
Chlorobenzene	ND		2.0
Ethylbenzene	ND		2.0
1,1,1,2-Tetrachloroethane	ND		2.0
1,1,2,2-Tetrachloroethane	ND		2.0
m-Xylene & p-Xylene	ND		4.0
o-Xylene	ND		2.0
Styrene	ND		2.0
Bromoform	ND		2.0
Isopropylbenzene	ND		2.0
Bromobenzene	ND		2.0
N-Propylbenzene	ND		2.0
1,2,3-Trichloropropane	ND		2.0



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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: PEN 017 W

Lab Sample ID: 580-4721-1
Client Matrix: Water

Date Sampled: 01/12/2007 1200
Date Received: 01/15/2007 1200

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5030B
Dilution: 2.0
Date Analyzed: 01/16/2007 1239
Date Prepared: 01/16/2007 1239

Analysis Batch: 580-14799

Instrument ID: SEA036
Lab File ID: HP13722.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	RL
2-Chlorotoluene	ND		2.0
1,3,5-Trimethylbenzene	ND		2.0
4-Chlorotoluene	ND		2.0
tert-Butylbenzene	ND		2.0
1,2,4-Trimethylbenzene	ND		2.0
sec-Butylbenzene	ND		2.0
1,3-Dichlorobenzene	ND		2.0
4-isopropyltoluene	ND		2.0
1,4-Dichlorobenzene	ND		2.0
n-Butylbenzene	ND		2.0
1,2-Dichlorobenzene	ND		2.0
1,2-Dibromo-3-Chloropropane	ND		4.0
1,2,4-Trichlorobenzene	ND		2.0
1,2,3-Trichlorobenzene	ND		2.0
Hexachlorobutadiene	ND		2.0
Naphthalene	ND		2.0
Surrogate	%Rec		Acceptance Limits
Fluorobenzene (Surr)	94		80 - 120
Toluene-d8 (Surr)	98		80 - 120
Ethylbenzene-d10	100		80 - 120
4-Bromofluorobenzene (Surr)	100		80 - 120
Trifluorotoluene (Surr)	111		80 - 120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: TRIP BLANKS

Lab Sample ID: 580-4721-2

Date Sampled: 01/12/2007 0000

Client Matrix: Water

Date Received: 01/15/2007 1200

8260B Volatile Organic Compounds by GC/MS

Method:	8260B	Analysis Batch: 580-14799	Instrument ID: SEA036
Preparation:	5030B		Lab File ID: HP13720.D
Dilution:	1.0		Initial Weight/Volume: 5 mL
Date Analyzed:	01/16/2007 1158		Final Weight/Volume: 5 mL
Date Prepared:	01/16/2007 1158		

Analyte	Result (ug/L)	Qualifier	RL
Dichlorodifluoromethane	ND		1.0
Chloromethane	ND		1.0
Vinyl chloride	ND		1.0
Bromomethane	ND		1.0
Chloroethane	ND		5.0
Trichlorofluoromethane	ND		1.0
1,1-Dichloroethene	ND		1.0
Methylene Chloride	ND		1.0
trans-1,2-Dichloroethene	ND		1.0
1,1-Dichloroethane	ND		1.0
2,2-Dichloropropane	ND		1.0
cis-1,2-Dichloroethene	ND		1.0
Chlorobromomethane	ND		1.0
Chloroform	ND		1.0
1,1,1-Trichloroethane	ND		1.0
Carbon tetrachloride	ND		1.0
1,1-Dichloropropene	ND		1.0
Benzene	ND		1.0
1,2-Dichloroethane	ND		1.0
Trichloroethene	ND		1.0
1,2-Dichloropropane	ND		1.0
Dibromomethane	ND		1.0
Dichlorobromomethane	ND		1.0
cis-1,3-Dichloropropene	ND		1.0
Toluene	ND		1.0
trans-1,3-Dichloropropene	ND		1.0
1,1,2-Trichloroethane	ND		1.0
Tetrachloroethene	ND		1.0
1,3-Dichloropropane	ND		1.0
Chlorodibromomethane	ND		1.0
Ethylene Dibromide	ND		1.0
Chlorobenzene	ND		1.0
Ethylbenzene	ND		1.0
1,1,1,2-Tetrachloroethane	ND		1.0
1,1,2,2-Tetrachloroethane	ND		1.0
m-Xylene & p-Xylene	ND		2.0
o-Xylene	ND		1.0
Styrene	ND		1.0
Bromoform	ND		1.0
Isopropylbenzene	ND		1.0
Bromobenzene	ND		1.0
N-Propylbenzene	ND		1.0
1,2,3-Trichloropropane	ND		1.0

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: TRIP BLANKS

Lab Sample ID: 580-4721-2

Date Sampled: 01/12/2007 0000

Client Matrix: Water

Date Received: 01/15/2007 1200

8260B Volatile Organic Compounds by GC/MS

Method:	8260B	Analysis Batch: 580-14799	Instrument ID: SEA036
Preparation:	5030B		Lab File ID: HP13720.D
Dilution:	1.0		Initial Weight/Volume: 5 mL
Date Analyzed:	01/16/2007 1158		Final Weight/Volume: 5 mL
Date Prepared:	01/16/2007 1158		

Analyte	Result (ug/L)	Qualifier	RL
2-Chlorotoluene	ND		1.0
1,3,5-Trimethylbenzene	ND		1.0
4-Chlorotoluene	ND		1.0
tert-Butylbenzene	ND		1.0
1,2,4-Trimethylbenzene	ND		1.0
sec-Butylbenzene	ND		1.0
1,3-Dichlorobenzene	ND		1.0
4-Isopropyltoluene	ND		1.0
1,4-Dichlorobenzene	ND		1.0
n-Butylbenzene	ND		1.0
1,2-Dichlorobenzene	ND		1.0
1,2-Dibromo-3-Chloropropane	ND		2.0
1,2,4-Trichlorobenzene	ND		1.0
1,2,3-Trichlorobenzene	ND		1.0
Hexachlorobutadiene	ND		1.0
Naphthalene	ND		1.0
Surrogate	%Rec		Acceptance Limits
Fluorobenzene (Surr)	94		80 - 120
Toluene-d8 (Surr)	98		80 - 120
Ethylbenzene-d10	99		80 - 120
4-Bromofluorobenzene (Surr)	98		80 - 120
Trifluorotoluene (Surr)	106		80 - 120

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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: PEN 016 W

Lab Sample ID: 580-4721-3

Client Matrix: Water

Date Sampled: 01/11/2007 1600

Date Received: 01/15/2007 1200

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5030B
Dilution: 1.0
Date Analyzed: 01/16/2007 1219
Date Prepared: 01/16/2007 1219

Analysis Batch: 580-14799

Instrument ID: SEA036
Lab File ID: HP13721.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	RL
Dichlorodifluoromethane	ND		1.0
Chloromethane	ND		1.0
Vinyl chloride	ND		1.0
Bromomethane	ND		1.0
Chloroethane	ND		5.0
Trichlorofluoromethane	ND		1.0
1,1-Dichloroethene	ND		1.0
Methylene Chloride	ND		1.0
trans-1,2-Dichloroethene	ND		1.0
1,1-Dichloroethane	ND		1.0
2,2-Dichloropropane	ND		1.0
cis-1,2-Dichloroethene	ND		1.0
Chlorobromomethane	ND		1.0
Chloroform	ND		1.0
1,1,1-Trichloroethane	ND		1.0
Carbon tetrachloride	ND		1.0
1,1-Dichloropropene	ND		1.0
Benzene	ND		1.0
1,2-Dichloroethane	ND		1.0
Trichloroethene	ND		1.0
1,2-Dichloropropane	ND		1.0
Dibromomethane	ND		1.0
Dichlorobromomethane	ND		1.0
cis-1,3-Dichloropropene	ND		1.0
Toluene	ND		1.0
trans-1,3-Dichloropropene	ND		1.0
1,1,2-Trichloroethane	ND		1.0
Tetrachloroethene	ND		1.0
1,3-Dichloropropane	ND		1.0
Chlorodibromomethane	ND		1.0
Ethylene Dibromide	ND		1.0
Chlorobenzene	ND		1.0
Ethylbenzene	ND		1.0
1,1,1,2-Tetrachloroethane	ND		1.0
1,1,2,2-Tetrachloroethane	ND		1.0
m-Xylene & p-Xylene	ND		2.0
o-Xylene	ND		1.0
Styrene	ND		1.0
Bromoform	ND		1.0
Isopropylbenzene	ND		1.0
Bromobenzene	ND		1.0
N-Propylbenzene	ND		1.0
1,2,3-Trichloropropane	ND		1.0



MS
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Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-4721-1

Client Sample ID: PEN 016 W

Lab Sample ID: 580-4721-3

Date Sampled: 01/11/2007 1600

Client Matrix: Water

Date Received: 01/15/2007 1200

8260B Volatile Organic Compounds by GC/MS

Method: 8260B

Analysis Batch: 580-14799

Instrument ID: SEA036

Preparation: 5030B

Lab File ID: HP13721.D

Dilution: 1.0

Initial Weight/Volume: 5 mL

Date Analyzed: 01/16/2007 1219

Final Weight/Volume: 5 mL

Date Prepared: 01/16/2007 1219

Analyte	Result (ug/L)	Qualifier	RL
2-Chlorotoluene	ND		1.0
1,3,5-Trimethylbenzene	ND		1.0
4-Chlorotoluene	ND		1.0
tert-Butylbenzene	ND		1.0
1,2,4-Trimethylbenzene	ND		1.0
sec-Butylbenzene	ND		1.0
1,3-Dichlorobenzene	ND		1.0
4-Isopropyltoluene	ND		1.0
1,4-Dichlorobenzene	ND		1.0
n-Butylbenzene	ND		1.0
1,2-Dichlorobenzene	ND		1.0
1,2-Dibromo-3-Chloropropane	ND		2.0
1,2,4-Trichlorobenzene	ND		1.0
1,2,3-Trichlorobenzene	ND		1.0
Hexachlorobutadiene	ND		1.0
Naphthalene	ND		1.0
Surrogate	%Rec		Acceptance Limits
Fluorobenzene (Surr)	94		80 - 120
Toluene-d8 (Surr)	99		80 - 120
Ethylbenzene-d10	100		80 - 120
4-Bromofluorobenzene (Surr)	101		80 - 120
Trifluorotoluene (Surr)	108		80 - 120

MK
2-6-07