UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite

OFFICE OF
ENVIRONMENTAL CLEANUP

7 February 2013

MEMORANDUM

SUBJECT: Potlatch Free Product Recovery System
Avery Landing Site, Avery, Idaho

FROM: Earl Liverman, Federal On-Scene Coordinator
Emergency Preparedness & Prevention Unit

TO: Avery Landing Removal Action Site File

The purpose of this memorandum is to describe the discovery and removal of the Free Product Recovery System (FPRS) infiltration trench and associated structures, along with petroleum and hazardous substances contaminated soil from this area located within the Forest Highway 50 (Highway) right-of-way (ROW) by the U.S. Environmental Protection Agency (EPA) during conduct of the 2012 Avery Landing Removal Action.

1. Background

The FPRS was installed and operated by Potlatch Corporation (Potlatch) pursuant to a consent order entered into with the State of Idaho, Department of Health and Welfare, Division of Environmental Quality (IDEQ 1994). The FPRS was designed to intercept and remove free phase petroleum product referred to as light non-aqueous phase liquid (LNAPL) from groundwater. The system consisted of four subsurface extraction trenches and extraction wells, an aboveground storage tank (AST), an infiltration trench, and appurtenant flow lines (Hart Crowser 1994a). Each extraction well contained two total fluids pumps - a groundwater pump and an LNAPL pump. Although there is information which suggests that the FPRS system was to have included an oil/water separator, the FPRS as-built drawings prepared by Potlatch's contractor Hart Crowser, Inc. (Hart Crowser) show that an oil/water separator was not included as part of the constructed system. Further, an oil/water separator was not discovered when EPA partially dismantled the system as part of the removal action.

The LNAPL was collected in the AST for off-Site disposal. The groundwater, apparently absent the application of an oil/water separator or any other treatment technology, was pumped to the infiltration trench installed in the Highway north roadside ditch where it was reinjected underground (Hart Crowser 1994a). The groundwater then gradually percolated through the bottom and sides of the trench through the surrounding subsoil into the aquifer. Based on EPA's review of construction and project documents and the involvement of individuals with sufficient knowledge and experience, the infiltration trench functioned as a mechanism for discharge of groundwater and/or to encourage subsurface movement of the LNAPL toward the downgradient extraction trenches and

recovery wells. The FPRS was operated by Potlatch from approximately 1994 through 2000, and recovery of 1,290 gallons of petroleum was reported for this period (Potlatch 2001).

2. Construction of the FPRS Infiltration Trench

The FPRS was constructed for Potlatch by Hart Crowser during the Fall 1994 (Hart Crowser 1994b). The FPRS construction report states:

> *09/27/94 Activity: Excavated 230 linear feet of infiltration trench to a depth from 6.5 to 7.5 feet and placed 2 feet of crushed rock for the infiltration bed. In addition, 140 feet of carrier pipe trench was excavated to a depth of 4.5 to 5.5 feet. The carrier and infiltration piping was installed with one foot of crushed rock placed over the pipe.*
>
> *09/27/94 Comments: Infiltration trench repositioned to start 10 feet west of cast iron culvert. The carrier pipe was placed in the highway culvert and temporarily plugged.*

3. Discovery of the FPRS Infiltration Trench

The FPRS infiltration trench was discovered by EPA west of Piezometer 3 on 21 June 2012 as EPA was excavating petroleum and hazardous substances contaminated soil from the north roadside ditch of the Highway ROW. The infiltration trench was encountered in the roadside ditch approximately 7 feet below ground surface. Two 3-inch polyvinyl chloride (PVC) pipes – one solid (carrier) pipe and one perforated pipe – were in the infiltration trench and the pipes were surrounded by approximately 2 to 3 feet of crushed rock (see Photographs 1, 2, 3, and 4). The length of the infiltration trench along the Highway ROW measured approximately 230 linear feet, and the width of the infiltration trench measured approximately 6 feet.

Petroleum was visibly observed in the subsurface soil throughout the entire length and width of the infiltration trench, and a strong petroleum odor was also noted along the full length of the trench. Petroleum was also observed in soil north and south of the constructed dimensions of the infiltration trench, and petroleum-stained soil was visible 6 to 8 feet below the bottom of the crushed rock-filled infiltration trench (see Photographs 5, 6, and 7).

(b) (5)

[redacted]

5. Field Screening and Analytical Results

Soil samples were collected by EPA's contractor Ecology and Environment, Inc. (E&E) on 21 and 23 July 2012 at two locations in the visibly petroleum-stained infiltration trench. A petroleum odor was associated with both samples. The samples were subjected to the petroleum sheen test, and the samples exhibited a positive sheen test based on the presence of droplets of petroleum and rainbow sheen in both samples.

The soil samples were also submitted to a laboratory for analyses for contaminants of concern, including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), Extended Diesel Range Total Petroleum Hydrocarbons (NWTPH-Dx), and polychlorinated biphenyls (PCB) analysis (E&E 2012a and E&E 2012b). The concentrations of the contaminants of concern that were detected in the samples are shown in the following table.

North Wall Infiltration Trench		
Contaminant	Sample Location	
	IE-01/IE-03 North Wall B	1E-02/IE-04 North Wall A
VOCs micrograms per kilogram (µg/kg)		
Acetone	15.7	10.7
SVOCs (µg/kg)		
Benzo(a)anthracene	402	251
Benzo(g,h,i)perylene	126JH	ND
Chrysene	629	384
Phenanthrene	2,940	1,880
Pyrene	2,660	1,110
NWTPH-DX (µg/kg)		
No. 2 Diesel (C10-C24)	1,700,000JH	590,000JH
Motor Oil (>C24-C36)	1,700,000JH	640,000JH
PCBs		
Aroclor - Total	ND	ND
Comments: ND – not detected JH – estimated with high bias		

6. Discussion of FPRS Discharge Trench Operation

Based on the performance reports prepared by Hart Crowser on FPRS operation, the system operated from late October 1994 to September 2000, with periods of non-operation due to seasonal shutdown or mechanical problems. From these reports, EPA estimates that the pumps in extraction wells EW-1 through EW-4 operated from 853 days for EW-1 to 1,668 days for EW-3. The maximum pumping rate for the type of pump used (i.e., Grundfos 40S10-3 submersible pump) is estimated to be 33 gallons per minute.

There is no groundwater sample data from the time period that the FPRS operated, thus EPA estimated an average Site concentration of 19,922 micrograms per liter (µg/L) by averaging the petroleum hydrocarbon concentrations measured in nine monitoring wells

sampled by EPA in 2007. Analytical results for total diesel- and heavy oil-range hydrocarbon concentrations in these wells ranged from 79 µg/L in well DW-01 to 155,000 µg/L in well EMW-06 (E&E 2007). If the four FPRS groundwater extraction pumps were each operated at a pumping rate of 33 gallons per minute, there was a potential capacity to discharge over 265,000,000 gallons of water, and the total mass of dissolved diesel- and heavy oil-range hydrocarbons dissolved in water would have been approximately 44,102 pounds. This estimate of dissolved-phase hydrocarbons may be on the maximum end of the range, but the FPRS operations reports do not provide groundwater extraction or reinjection volumes to allow for a more refined estimate.

In addition to this estimated quantity of dissolved-phase petroleum contamination that may have been discharged to soil and groundwater, petroleum contamination in the form of LNAPL was discharged on at least one occasion to the north Highway roadside ditch. This incident was reported by Hart Crowser in 1999, when free product was observed in the north ditch (Hart Crowser 1999). The quantity of LNAPL discharged during this incident is not reported, nor is it reported whether there were any other FPRS upsets that may have resulted in the discharge of additional LNAPL. Additionally, among the comments received from Potlatch during the EPA Engineering Evaluation/Cost Analysis public comment period, there is the following statement, which may or may not be related to the 1999 incident (Potlatch 2011):

> *There may have been one instance when reinjection of untreated ground water accidentally took place.*

7. Discussion of Submersible Pump Operation

The Grundfos 40S10-3 submersible pump is a positive air displacement pump designed for total fluid applications. The term total fluid applications means the pump is designed for recovery of fluids including water and petroleum.

Two pumps were installed in each extraction well. The lower pump was used to create a cone of depression (i.e., fluids within the influence of the pump would flow towards the pump from every direction). As a total fluid pump, there was nothing to prevent the lower pump from pumping both water and LNAPL directly to the discharge trench in the event that water levels lowered or if the pump was set too high. There were numerous mentions in the periodic Hart Crowser FPRS performance reports, that the pumps were frequently adjusted and that some of the pumps were set too high for optimal control.

8. Summary

Prior to conducting this work, the investigations and analyses of the free plume boundary conducted by various consultants for Potlatch, EPA, and the Federal Highway Administration (FHWA) did not show that the plume boundary extended north of the Highway, except possibly in the immediate proximity of the former 500,000-gallon AST.

During conduct of the Avery Landing Removal Action, EPA discovered the presence of petroleum and hazardous substances contamination associated with the FPRS infiltration trench located in the north roadside ditch of the Highway. The isolated nature of this contamination in a location where groundwater is known to have been reinjected by Potlatch as part of the FPRS suggests that the reinjected groundwater contained and so was a source of this contamination. This conclusion is further supported by information which shows there to have been a lack of any removal of contamination from the groundwater prior to reinjection in this area. The contamination of this area may also have been caused by the release of LNAPL, on one or more occasions, during operation of the FPRS. Additionally, since groundwater flow at the Avery Landing Site is generally to the south and west, it is possible that the reinjected groundwater and discharged LNAPL contributed to the groundwater-related contamination found elsewhere at FHWA property, the adjoining Bentcik property, and in the areas of the St. Joe River (E&E 2007).

REFERENCES

Ecology and Environment, Inc. (E&E). 31 July 2007. *Removal Assessment Report, Avery Landing Site, Avery, Idaho.*

_____. 31 July 2012a. Memorandum from Mark Woodke to Steve Hall discussing *Organic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho.*

_____. 6 August 2012b. Memorandum from Mark Woodke to Steve Hall discussing *Organic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho.*

Hart Crowser. 16 December 1994a. *Final Construction Record Drawings, Free Product Recovery System, Avery, Idaho,* prepared for Potlatch Corporation.

_____. 23 December 1994b. Memorandum from Jim Hest to Gregg Rapp discussing *Construction Report for Free Product Recovery System (FPRS), Avery Landing, Idaho.* J-2296-05.

_____. 28 April 1999. Letter from Terry Montoya and Matt Schultz to Gregory A. Rapp discussing *First Quarter 1999 Performance Report, Avery Landing Recovery System.*

Idaho Department of Health and Welfare, Division of Environmental Quality. 18 August 1994. *Consent Order between the Idaho Department of Health and Welfare, Division of Environmental Quality and Potlatch Corporation regarding the Avery Landing Site.*

Potlatch Corporation. 21 December 2001. Letter from Norm Linton to Kreg Beck discussing *Avery Landing Remediation and Project Schedule.*

Potlatch Land & Lumber, Inc. 11 March 2011. Letter from Lorrie D. Scott to Earl Liverman discussing *EPA's Draft Environmental Evaluation/Cost Analysis (EE/CA) for Avery Landing Site in Shoshone County, Idaho.*

WHW (Bill Welton) Field Notes. 30 July 2012. *Potlatch Perf Pipe (FPRS) on FHWA Property.*

PHOTOGRAPHS

1. Excavation of the FPRS infiltration trench (note the presence of the two PVC pipes – one solid [carrier] pipe and one perforated pipe – in the infiltration trench)

2. Excavation of the FPRS infiltration trench (note the outline of the infiltration trench and the presence of the PVC pipe, crushed rock, and petroleum-stained soil)

3. Excavation of the FPRS infiltration trench; 3-inch PVC carrier and infiltration pipes (facing east)

4. 3-inch PVC carrier and infiltration pipes surrounded by crushed rock and embedded in infiltration trench

5. Excavation of the FPRS infiltration trench (facing east) (note the outline of the infiltration trench and the presence of petroleum-stained soil)

6. Excavation of the FPRS infiltration trench (facing west) (note the outline of the infiltration trench and the presence of petroleum stained soil)

7. Excavation of the FPRS infiltration trench (note the outline of the infiltration trench and the presence of petroleum-stained soil)

REFERENCES

ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

July 31, 2007

Mr. Earl Liverman, On-Scene Coordinator
United States Environmental Protection Agency, Region 10
1910 Northwest Boulevard, Suite 208
Coeur d'Alene, Idaho 83814

RE: Contract Number EP-S7-06-02, Technical Direction Document (TDD) Number 07-03-0004; Removal Assessment Report, Avery Landing Site, Avery, Idaho

Dear Mr. Liverman:

Enclosed please find the final Removal Assessment Report for the Avery Landing Site in Avery, Idaho. If you have any further questions or comments, please contact me at (206) 624-9537.

Sincerely,

Jeffrey Fowlow
START-3 Project Leader

Enclosures

cc: Clifford Villa, Assistant Regional Counsel, USEPA Region 10, Seattle, WA
Steven Hall, START-3 Project Manager, E & E, Seattle, WA

recycled paper

REMOVAL ASSESSMENT REPORT

Avery Landing Site
Avery, Idaho
TDD: 07-03-0004

Prepared for

U.S. Environmental Protection Agency, Region 10
1910 Northwest Boulevard, Suite 208
Coeur d'Alene, Idaho 83814

Prepared by

Ecology and Environment, Inc.
720 Third Avenue, Suite 1700
Seattle, Washington 98104

July 31, 2007

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REMOVAL ASSESSMENT DECISION - **EPA REGION 10**

Site Name: Avery Landing Site EPA ID #: 10ZZ

Contractor/TDD Number: Ecology and Environment, Inc. / TDD 07-03-0004

Address: One mile west of Avery on State Highway 50

City: Avery County or Borough: Shoshone County State: Idaho

Report Type: Removal Assessment Report Date: July 31, 2007

OSC DECISION:

Further Removal Assessment/Action is/is not (circle one) required because:

☐ 1. Removal assessment conducted, no further action required.

☐ 2. Referred to other EPA division: _____.

☐ 3. Referred to other agency: _____.

☐ 4. Clean up already in progress.

☐ 5. Wasn't able to locate or verify complaint.

☐ 6. Clean up appropriate but delayed due to resources or priority.

☐ 7. Other - discuss below.

DISCUSSION/RATIONALE:

Signature: _____ Date: _____

EPA On-Scene Coordinator

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REMOVAL ASSESSMENT REPORT
AVERY LANDING SITE
AVERY, IDAHO

TABLE OF CONTENTS

Section **Page**

1.0 INTRODUCTION 1-1
2.0 SITE CONDITIONS AND BACKGROUND 2-1
2.1 SITE CONDITIONS 2-1
2.1.1 Site Location 2-1
2.1.2 Site Layout 2-1
2.1.3 Geology and Hydrogeology 2-2
2.2 SITE HISTORY AND OWNERSHIP 2-2
2.3 SUMMARY OF PREVIOUS INVESTIGATIONS AND CLEANUPS 2-3
2.3.1 Free Product Recovery 2-3
2.3.2 EPA Site Inspection 2-3
3.0 FIELD SAMPLING EVENT 3-1
3.1 SOIL BORING AND MONITORING WELL INSTALLATION 3-1
3.1.1 Drilling Methods 3-1
3.1.2 Free Product Observations 3-2
3.1.3 Monitoring Well Development 3-2
3.2 MONITORING WELL SURVEY 3-3
3.3 SURFACE WATER OBSERVATIONS 3-4
3.4 INVESTIGATION-DERIVED WASTE 3-4
4.0 SAMPLE COLLECTION AND ANALYSIS 4-1
4.1 SAMPLE COLLECTION METHODS 4-1
4.1.1 Subsurface Soil Samples 4-1
4.1.2 Groundwater Samples 4-2
4.1.3 Surface Water Samples 4-2
4.1.4 Product Sample 4-3
4.1.5 Sample Preservation and Storage 4-3
4.1.6 Analytical Parameters 4-3
4.2 SUMMARY OF RESULTS 4-3
4.2.1 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS 4-4
4.2.2 Soil Sample Results 4-4
4.2.3 Groundwater Sample Results 4-6
4.2.4 Surface Water Sample Results 4-7
4.2.5 Product Sample Results 4-8
4.3 SUMMARY OF ARAR EXCEEDENCES 4-8
4.3.1 Analytical Data 4-8
4.3.2 Free Product Observations 4-10
4.4 COMPARISON OF SOIL RESULTS TO SEDIMENT GUIDELINES 4-11
5.0 QUALITY ASSURANCE / QUALITY CONTROL 5-1
5.1 SATISFACTION OF DATA QUALITY OBJECTIVES 5-1
5.2 QUALITY ASSURANCE/QUALITY CONTROL SAMPLES 5-2
5.3 PROJECT-SPECIFIC DATA QUALITY OBJECTIVES 5-2
5.3.1 Precision 5-2
5.3.2 Accuracy 5-2
5.3.3 Completeness 5-3
5.3.4 Representativeness 5-3

5.3.5 Comparability 5-3
5.4 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL PARAMETERS 5-3
5.4.1 Holding Times/Temperatures 5-3
5.4.2 Laboratory Blanks 5-3
5.4.3 Rinsate Blanks 5-4
5.4.4 Trip Blanks 5-4
5.4.5 Serial Dilution 5-4
6.0 SUMMARY AND CONCLUSIONS 6-1
7.0 REFERENCES 7-1

LIST OF APPENDICES

A PHOTOGRAPHIC DOCUMENTATION
B DRILLING LOGS
C CHAINS OF CUSTODY
D ANALYTICAL DATA REPORTS

REMOVAL ASSESSMENT REPORT
AVERY LANDING SITE
AVERY, IDAHO

LIST OF TABLES

Table		Page
3-1	Summary of Borings and Monitoring Wells	3-5
3-2	Summary of Free Product Observations in Soil Borings	3-6
3-3	Summary of Groundwater and Free Product Level Data	3-7
4-1	Summary of START-3 Samples	4-13
4-2	Summary of VOC Results in Soil Samples	4-14
4-3	Summary of SVOC Results in Soil Samples	4-15
4-4	Summary of PCB and DRO Results in Soil Samples	4-17
4-5	Summary of TAL Metal Results in Soil Samples	4-19
4-6	Summary of VOC Results in Groundwater Samples	4-21
4-7	Summary of SVOC Results in Groundwater Samples	4-22
4-8	Summary of PCB and DRO Results in Groundwater Samples	4-23
4-9	Summary of TAL Metal Results in Groundwater Samples	4-24
4-10	Summary of VOC Results in Surface Water Samples	4-25
4-11	Summary of SVOC Results in Surface Water Samples	4-26
4-12	Summary of PCB and DRO Results in Surface Water Samples	4-28
4-13	Summary of TAL Metal Results in Surface Water Samples	4-29
4-14	Summary of VOC Results in Product Sample	4-30
4-15	Summary of SVOC Results in Product Sample	4-31
4-16	Summary of PCB and DRO Results in Product Sample	4-33
4-17	Summary of TAL Metal Results in Product Sample	4-34
4-18	Summary of Exceedences of Federal Action Levels in Soil	4-35
4-19	Summary of Exceedences of State Action Levels in Soil	4-36
4-20	Summary of Exceedences of Federal Action Levels in Water	4-37
4-21	Summary of Exceedences of State Action Levels in Water	4-38
4-22	Comparison of Soil Sample Results to Consensus-Based Sediment Threshold Effect Concentrations	4-39

LIST OF FIGURES

Figure		Page
2-1	Site Location Map	2-5
2-2	Site Vicinity Map	2-6
2-3	Site Layout Map	2-7
2-4	Estimated Free Product Plume in 2000 and Historic Maximum Product Thicknesses	2-8
3-1	EPA Sample Location Map	3-8
3-2	Borings and Monitoring Wells with Observed Free Product, April 16-21, 2007	3-9
3-3	Groundwater Elevations, April 21, 2007	3-10
4-1	Exceedences of Federal Action Levels in Soil	4-41
4-2	Exceedences of State Action Levels in Soil	4-42
4-3	Exceedences of Federal Action Levels in Water	4-43
4-4	Exceedences of State Action Levels in Water	4-44

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LIST OF ACRONYMS

Acronym	Definition
ARARs	applicable or relevant and appropriate requirements
AST	above-ground storage tank
AWQC	Ambient Water Quality Criteria
bgs	below ground surface
˚C	degrees Celsius
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMC	CMC Real Estate Company
CMSPR	Chicago, Milwaukee, St. Paul, and Pacific Railroad
DEQ	Idaho Department of Environmental Quality (formerly Division of Environmental Quality)
DQO	data quality objectives
DRO	diesel-range organics
E & E	Ecology and Environment, Inc.
EPA	United States Environmental Protection Agency
Farallon	Farallon Consulting, L.L.C.
GPS	Global Positioning System
Hart Crowser	Hart Crowser, Inc.
HHMSSL	Human Health Medium-Specific Screening Level
HSA	hollow-stem auger
IDAPA	Idaho Administrative Procedures Act
J	estimated value
L/min	liter per minute
Laucks	Laucks Testing Laboratories, Inc.
MCL	Maximum Contaminant List
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MS	matrix spike
MSD	matrix spike duplicate
n.d.	not dated
NWTPH-Dx	Northwest Total Petroleum Hydrocarbons, Diesel Range Extended
ORO	oil-range organics
OSC	On-Scene Coordinator
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
Potlatch	Potlatch Corporation
PVC	polyvinyl chloride
QA/QC	quality assurance / quality control
R	rejected value
REM	Risk Evaluation Manual
RP	responsible party
RPD	relative percent difference
SQG	sediment quality guidelines
SSSP	site-specific sampling plan
START	Superfund Technical Assessment and Response Team
STL	STL-Seattle, Inc.
SVOCs	semivolatile organic compounds

TAL	target analyte list
TAT	Technical Assistance Team
TBC	criteria to be considered
TDD	Technical Direction Document
TEC	threshold effect concentration
U	not detected
UJ	estimated value (detection limit)
URS	URS Consultants, Inc.
URS Greiner	URS Greiner, Inc.
VOCs	volatile organic compounds

1.0 INTRODUCTION

The United States Environmental Protection Agency (EPA) has performed a removal assessment at the Avery Landing Site in Avery, Idaho. The site is located directly adjacent to the St. Joe River, and the site was the former location of a railroad roundhouse, maintenance, and refueling facility for the Chicago, Milwaukee, St. Paul, and Pacific Railroad (CMSPR). Through the years, petroleum hydrocarbon and other industrial products were likely spilled on site, which led to floating petroleum hydrocarbon on the groundwater table, petroleum seeps to the St. Joe River, and other contaminants found on site. Since the late 1980s, Potlatch Corporation (Potlatch), who purchased part of the property, has been investigating part of the site and performing site cleanup activities to address the petroleum hydrocarbon contamination on the groundwater table and seeping to the river. EPA is currently investigating the site to address the potential presence of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) hazardous substances in soil, groundwater, and surface water from the historic uses of the site as a railroad roundhouse and maintenance facility.

Ecology and Environment Inc. (E & E) has been tasked by EPA under Superfund Technical Assessment and Response Team (START)-3 contract number EP-S7-06-02, Technical Direction Document (TDD) 07-03-0004, to perform a removal assessment of the site through a review of its historic uses and the collection of soil, groundwater, and surface water samples for analytical testing. As a part of the field sampling event, START-3 installed six monitoring wells and advanced an additional seven soil borings to investigate subsurface soil and groundwater conditions.

This report is organized into the following sections: Introduction (Section 1), Site Conditions and Background (Section 2), Field Sampling Event (Section 3), Sample Collection and Analysis (Section 4), Quality Assurance / Quality Control (Section 5), Conclusions (Section 6), and References (Section 7). Selected photographs of site activities are included in Appendix A.

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2.0 SITE CONDITIONS AND BACKGROUND

2.1 SITE CONDITIONS

2.1.1 Site Location

The site is located in the St. Joe River valley in the Bitterroot Mountains in northern Idaho, one mile west of the town of Avery, Idaho, in Shoshone County (Figures 2-1 and 2-2). The site is located directly adjacent to the St. Joe River to the south and Highway 50 to the north, at 47° 13' 57" north latitude and 115° 43' 40" West longitude. The elevation of the site is approximately 2,540 feet above mean sea level (URS 1993).

The St. Joe River is a special resource water that is used for wildlife habitat, recreation, and as drinking water for downstream residents. According to IDAPA 58.01.02.110.11, the segment of the St. Joe River adjacent to the Avery Landing site that could be impacted by contaminants found at the site has the following designations: special resource water, domestic water supply, primary contact recreation, cold water communities, and salmonid spawning. The site is located in a narrow and remote river valley, and the immediate area around the site is residential and commercial.

2.1.2 Site Layout

The site is located in a flat, filled bank at a bend in the St. Joe River (Figure 2-3). There is little remaining at the site to indicate its previous use as a railroad roundhouse and maintenance facility, with the exception of a concrete slab and the remnants of rail lines leading to the former roundhouse. Presently, the site is relatively flat ground with gravel and a small amount of vegetative growth. The site was largely composed of fill material as a result of construction of the railroad facility, and Potlatch performed additional leveling and grading of the site after purchasing the property (URS 1993).

There are numerous monitoring wells and piezometers (hollow polyvinyl chloride [PVC] pipes installed vertically in subsurface soil and used to monitor groundwater elevations) located on site. There are several larger wells that were used for the product recovery system that was operated in the past. In the center of the site there is an above-ground storage tank (AST) and a shed on the concrete slab.

The site is approximately divided in half by two properties (Figure 2-3). The eastern portion of the site is owned by Larry Bentcik, who maintains a vacation cottage on the property. The western portion of the site is owned by Potlatch. On the Potlatch property, there are several houses, motor homes, and motor home utility hook-ups. Several residents live on the property year-round, and several more reside on the property seasonally. There is a domestic well on the property for use of the residents.

2.1.3 Geology and Hydrogeology

The site is located in northern Idaho, which is dominated by Precambrian metasedimentary, metamorphic, igneous intrusive, and volcanic formations. Younger sedimentary formations range from glacial deposits of outwash, till, glaciofluvial and glaciolacustrine deposits (TAT n.d.).

Locally, fill material is present to approximately 18 feet below ground surface (bgs; URS 1993). Groundwater elevations typically range from approximately 10 to 16 feet bgs (Hart Crowser 2000a). Groundwater elevations appear to be associated with elevations of the St. Joe River (TAT n.d.). The river flows to the west at the site, and groundwater flow direction is generally to the south and west (see Section 3.2 and Figure 3-3). As discussed in Section 3, START-3 primarily observed sand with silt and gravel in the subsurface soils. The presence of silt and the slow recharge rates observed during monitoring well development (Section 3.1.3) suggests that groundwater on site may flow at relatively slow rates (i.e., at rates slower than would be observed in pure sand).

2.2 SITE HISTORY AND OWNERSHIP

The site was used as a switching and maintenance facility for the CMSPR from 1909 until 1977. The facility included a turntable, roundhouse, machine shop, fan house, engine house, boiler house, storehouses, coal dock, oil tanks, and a pump house. Activities performed by the railroad at the facility included train refueling, the use of solvents to clean engine parts, cleaning of locomotives by hosing them down, and equipment maintenance. The facility was located at the end of an electric rail line from the east, and at the Avery facility trains switched to fuel oil and/or diesel locomotives. The facility reportedly included on-site storage of transformer oil, although the use of transformer oil containing polychlorinated biphenyls (PCBs) has not been documented. As a refueling station, fuel oil was stored on site, including the use of a 500,000-gallon above ground fuel oil tank. (URS 1993).

CMSPR filed bankruptcy (presumably in the late 1970s) and then reorganized under the name CMC Real Estate Company (CMC). Under CMC, the properties were sold and otherwise divested. The western portion of the property (Figure 2-3) was sold to Potlatch in 1980 (TAT n.d.). The eastern portion of the property reverted back to the family of the previous owner, before CMSPR began operations, and this family sold the property to David Thierault. In 1996, Mr. Thierault sold the property to Mr. Larry Bentcik, who currently owns the property (Bentcik 2007). Another portion of the property was acquired by the Federal Highway Administration for use in the construction/expansion of State Highway 50. The site has been used by Potlatch since 1980 for parking, staging, and temporary log storage (URS 1993).

2.3 SUMMARY OF PREVIOUS INVESTIGATIONS AND CLEANUPS

2.3.1 Free Product Recovery

In the late 1980s, the State of Idaho Division of Environmental Quality (now Department of Environmental Quality [DEQ]) began to investigate the site because of the presence of visible petroleum product seeps to the St. Joe River from the riverbank on the site. The investigation included the installation of several monitoring wells and test pits installed in the late 1980s and early 1990s. As a result of these investigations, it was determined that free product was a mixture of diesel and heavy oil and was present on the groundwater table throughout the site, with product thicknesses exceeding four feet in some locations.

In 1994, Potlatch installed a product recovery system at the site, pursuant to an DEQ Consent Decree. The system included several trenches installed along the bank of the river. Groundwater and product were pumped from these trenches and then sent through an oil/water separator. Recovered product was stored in an on-site AST for later off-site disposal. Recovered groundwater was pumped across Highway 50 and re-injected into the ground through a re-infiltration trench installed north of the road. The system operated until approximately 2000 and recovered a total of 1290 gallons of product. (Farallon 2006)

By 2000, despite the operation of the product recovery system, product seeps were still observed on the banks of the St. Joe River from the site. To address this ongoing issue, Potlatch, under direction from DEQ, installed a restraining barrier along the bench to act as a further barrier to prevent free product from reaching the river. In 2000, Potlatch excavated material away from the bank, installed a PVC liner to act as a barrier wall to product, and backfilled with sand, gravel, and riprap along the bank. Potlatch also installed a series of product recovery trenches and wells to recover any free product that may collect against the barrier (Farallon 2006). With the new restraining barrier, Potlatch proposed to recover additional free product if product was present in site recovery wells at a thickness of 0.05 feet (0.6 inches) or greater. Potlatch continued to monitor the monitoring wells on site for free product, although they never operated the recovery system again (Cundy 2007). Figure 2-4 illustrates the estimated extent of the free product plume in 2000 (Hart Crowser 2000b) and the highest product thickness levels observed for each well.

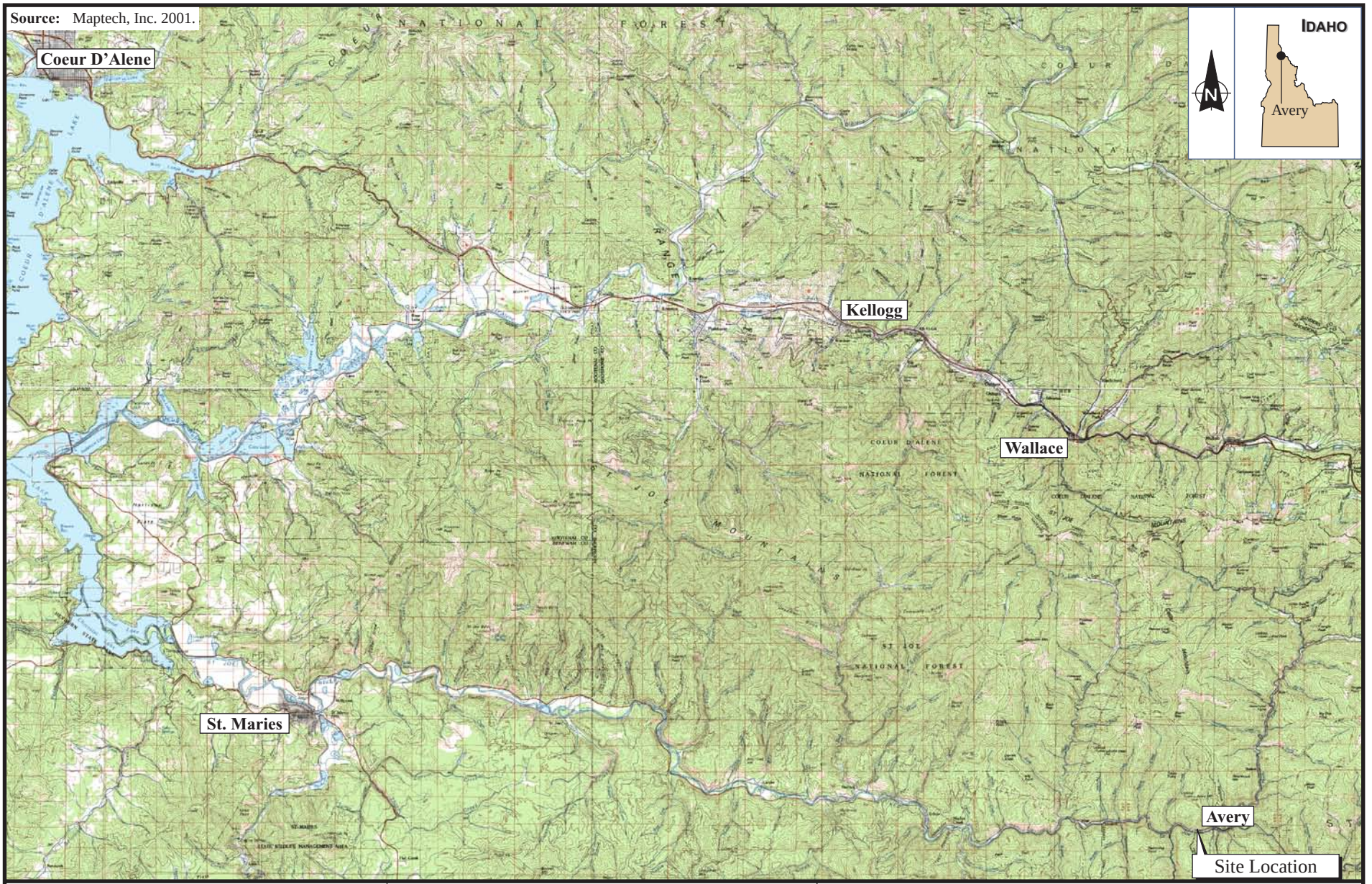
DEQ continued to provide oversight for the site, and in 2005 and 2006, DEQ continued to observe product seeps in the bank of the St. Joe River.

2.3.2 EPA Site Inspection

In 1992, URS Consultants, Inc. (URS), as a contractor to EPA, performed a site investigation at the site. URS collected soil, groundwater, and surface water samples from the site and vicinity for

laboratory analysis. The results indicated the presence of contaminants, including volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals, and PCBs at the site. Benzene, arsenic, and lead were detected in an on-site monitoring well (HC-3[1]) at concentrations that exceeded the federal Maximum Contaminant Levels (MCLs; URS 1993).

[1] Monitoring well HC-3 is no longer present on site. It was presumably closed during the installation of the product recover system.



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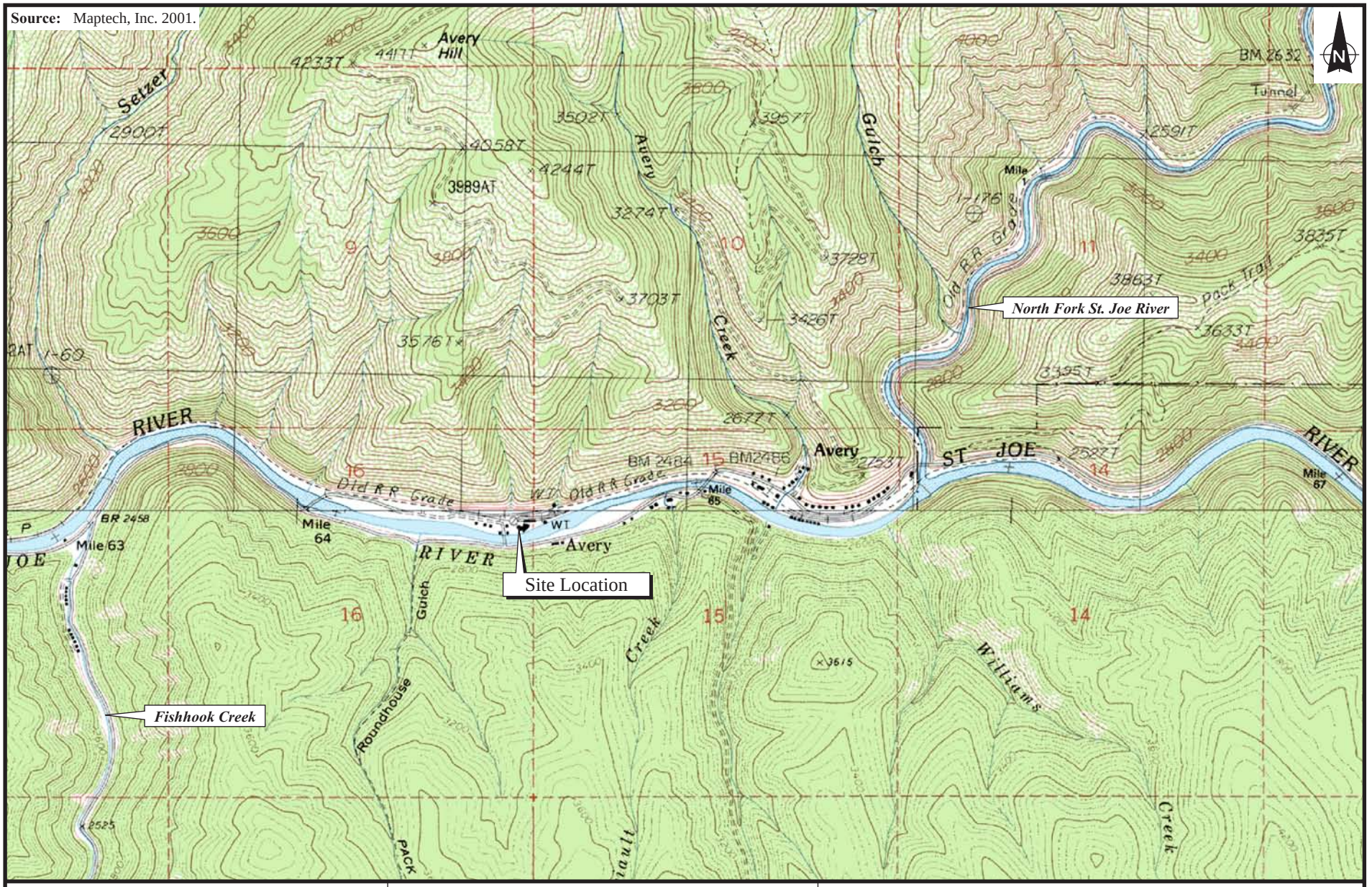
AVERY LANDING SITE
Avery, Idaho

0 4 8
Approximate Scale in Miles

Figure 2-1
SITE LOCATION MAP

Date:	Drawn by:	
7/25/07	AES	10:START-3\07030004\fig 2-1



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AVERY LANDING SITE
Avery, Idaho

0 1000 2000
Approximate Scale in Feet

Figure 2-2
SITE VICINITY MAP

Date:	Drawn by:	
6/25/07	AES	10:START-3\07030004\fig 2-2

N
W E
S
0 25 50 100 150 200
Feet
Scale 1:1,200

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AVERY LANDING SITE

Avery, Idaho

Figure 2-3
Site Layout Map

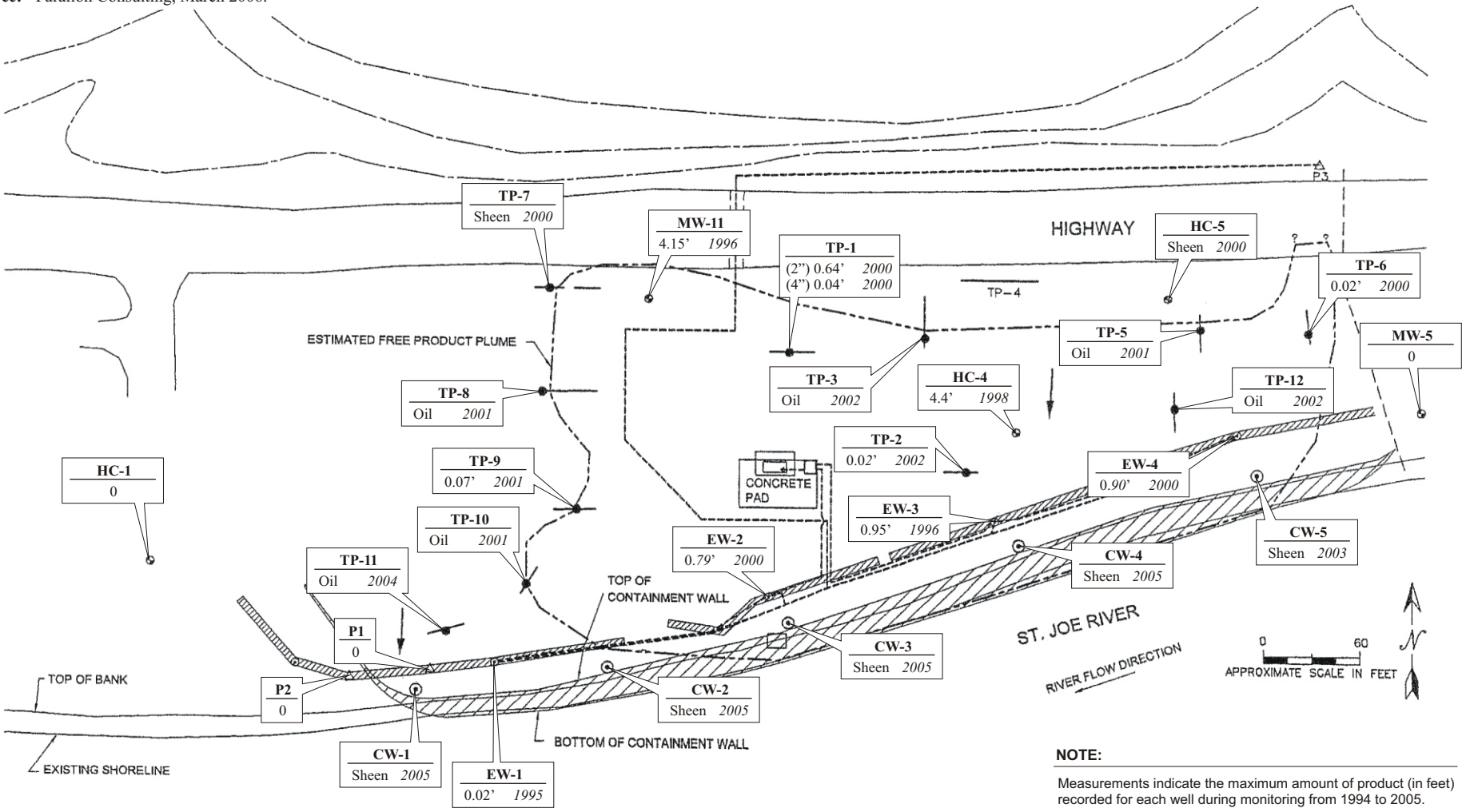
Map Source Information:
Terraserver, USGS Aerial Photo

Date: 6/22/2007	GIS Analyst: avh

Project ID:
002233.0193.01SF

\edms-projects\avery_landing\figure 2-3 site layout map.mxd

Source: Farallon Consulting, March 2006.



EXPLORATION LOCATION AND NUMBER

- MW-4 MONITORING WELL
- EW1 EXTRACTION WELL
- P1 PIEZOMETER
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- EXISTING EXTRACTION TRENCH
- FREE PRODUCT PLUME AREA
- TP-1 TEST PIT LOCATION AND NUMBER
- TP-1 TEST PIT MONITORING WELL LOCATION AND NUMBER
- CW-1 COLLECTION WELL LOCATION AND NUMBER

BASED ON HART CROWSER FIGURE 4 CORRECTIVE ACTION PLAN 7/00

NOTE:

Measurements indicate the maximum amount of product (in feet) recorded for each well during monitoring from 1994 to 2005.

The date indicates the latest year the maximum observation was recorded.

"0" indicates that no product or sheen was recorded in the available data from 1994 to 2005.

"Sheen" indicates that a sheen was observed, but no measurable product was observed.

"Oil" indicates that free product was present, but the thickness could not be determined.

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Avery, Idaho

Figure 2-4
ESTIMATED FREE PRODUCT PLUME IN 2000 AND HISTORIC MAXIMUM PRODUCT THICKNESSES

Date:	Drawn by:	
7/25/07	AES	10:START-3\06090001\fig 2-4

3.0 FIELD SAMPLING EVENT

From April 16 through 21, 2007, START-3 performed the field work associated with the removal assessment, including the installation of monitoring wells and additional soil borings and the collection of soil, groundwater, and surface water samples. START-3 also planned to collect sediment samples from the bank of the St. Joe River, although sediment samples could not be collected because of the presence of riprap on the bank (see Section 4.4). Specific details about sampling activities are provided in this section.

3.1 SOIL BORING AND MONITORING WELL INSTALLATION

3.1.1 Drilling Methods

START-3, through a drilling subcontractor, installed a total of 13 soil borings to collect subsurface soil samples from the site. Additionally, six of the borings were completed into monitoring wells. The drilling subcontractor was Environmental West Exploration, Inc., of Spokane, Washington, a State of Idaho-certified driller.

Drilling was performed with a 6-inch hollow-stem auger (HSA). In general, the borings were advanced until at least groundwater was encountered. For each boring, soil samples were generally collected at discrete 2-foot intervals with a 2-inch diameter split spoon sampler. Discrete interval samples were generally collected beginning at 1 foot bgs and continued with periodic samples until groundwater was encountered. For some borings, split-spoon samples were collected at less frequent intervals below groundwater. The soil was characterized by a START-3 geologist, who recorded the data on drilling logs. In general, most of the subsurface soil was characterized as sand with silt and gravel.

The borings are described in Table 3-1, and the drilling logs are included in Appendix B. The six soil borings that were converted to monitoring wells were labeled EMW-01 through EMW-06. The seven additional soil borings that were not converted to monitoring wells were labeled ESB-01 through ESB-07. START-3 recorded the lateral position of each boring and monitoring well with Global Positioning System (GPS), and the locations are illustrated in Figure 3-1. EMW-01 was intended to be a background soil boring / monitoring well, as is it is located upriver and therefore upgradient from the site. To the extent possible, soil borings and monitoring wells were placed in locations to evaluate the potential environmental impact from the site's past use as a railroad maintenance and refueling station. For example, after referring to a historical site diagram of the railroad facility, soil boring ESB-02 was placed near the former location of the machine shop, and EMW-02 and ESB-04 were placed near the locations of fuel lines.

The monitoring wells were constructed out of 2-inch PVC pipe with a 0.020-foot (20 slot) V-wire screen. Each well was constructed with a 10-foot section of screen, and the screen was placed at an approximate depth designed to represent the historic maximum and minimum groundwater elevations at those locations. Each screened section was surrounded by 10/20 filter sand, and then sealed at the top with bentonite and concrete. Each monitoring well was completed as a flush-mounted steel monument set in concrete.

While collecting the discrete intervals for geological logging, START-3 also collected soil samples for analytical testing. More details about sample collection and analytical testing are provided in Section 4.

3.1.2 Free Product Observations

While advancing the soil borings, START-3 also recorded observations about any free product that was encountered in the subsurface soil or groundwater. Details are included in the drilling logs, and a summary of the observations is presented in Table 3-2. START-3 observed evidence of free product in subsurface soil and/or groundwater from 10 of the 13 soil borings advanced at the site. The presence of free product was determined by the observation of any of the following characteristics:

- A noticeable petroleum hydrocarbon odor;
- Oily or oil-stained soils;
- Free product mixed with soil;
- A visible sheen in groundwater; and/or
- Drops of oil in groundwater.

The locations where free product was detected are illustrated in Figure 3-2. Free product was not detected in the upgradient monitoring well EMW-01, which was considered the background soil boring / monitoring well. Additionally, free product was not detected in EMW-03, which was the northwestern-most soil boring, or ESB-02, where drilling refusal occurred between 2 and 3 feet bgs. Figure 3-2 includes the estimated areas of the free product plume in 2000 (Hart Crowser 2000b), and the current area of free product, based on START-3's observations of free product on groundwater and in soil borings. As can be seen from Figure 3-2, the area of the free product plume has grown larger, and it has extended downgradient to the west and southwest.

3.1.3 Monitoring Well Development

After the monitoring wells were installed, they were developed to remove solids remaining in the well and sand pack and to improve access to representative aquifer water. Well development was

performed by the drillers under the supervision of the START-3 geologist. The wells were developed with a pump inserted into the well that pumped out the water until water clarity improved. While pumping the water, the well inlet was moved up and down in the well column so that the entire screened interval was developed. With the exception of EMW-01, the background well, development water was pumped into drums for storage.

Some of the monitoring wells ran dry during development, and the groundwater was slow to recharge. For these wells, START-3 and the driller allowed water to recharge before continuing the development. The fact that water was generally slow to recharge during well development indicates that subsurface soil supports relatively slow groundwater flow rates.

3.2 MONITORING WELL SURVEY

Following the installation of the six new monitoring wells, START-3 collected groundwater elevations from the wells. The elevations were collected at least one day following well development and before groundwater samples were collected, so that static groundwater levels were allowed to equilibrate. Groundwater elevations were recorded with a water level indicator and/or an oil/water interface probe, depending on whether free product was present in the monitoring well. Each instrument was decontaminated with Alconox and water after testing each well. In addition to the newly installed monitoring wells, START also attempted to collect information, including groundwater elevations and product thickness levels, from as many of the existing site monitoring wells as possible.

Groundwater and product thickness levels are summarized in Table 3-3. As indicated in the table, free product was observed in existing wells HC-4, MW-11, TP-2, and EW-3 and EW-4. Note that of the extraction wells EW-1 through EW-4, START-3 only examined EW-3 and EW-4, so data is not available for EW-1 and EW-2.

START-3 did not observe any free product in the newly installed monitoring wells (EMW-01 through EMW-06). However, note that these monitoring wells had just been installed and developed, and these activities likely pushed away free product present on groundwater. Typically, a minimum period of equilibration time is required following installation and development of a new monitoring well before free product will be observed in a well. As indicated in Section 3.1.2 and Table 3-2, evidence of free product was observed in four of the soil borings that became monitoring wells, including EMW-02, EMW-04, EMW-05, and EMW-06. It may require a longer period of time, perhaps several weeks or months, before free product, if present, will collect in these wells.

In some of the wells, the thickness of the free product could not be determined because the product was too viscous and sticky. When the oil/water interface probe reached the product level, the

thick, viscous, sticky product coated the probe and continued to give the signal for product even after the product had entered water. Therefore, the thickness of the free product could not be accurately measured in these wells. In some of these wells, START-3 verified that a distinct product level floating on groundwater was present with a clear plastic bailer. After lowering the bailer into the well and then raising it back to the surface, a distinct product layer on the groundwater was observed. The product thickness layer was measurable in two of the wells; HC-4 contained 0.88 feet of product, and TP-2 contained 0.72 feet of product.

The depths to groundwater for the existing wells and the newly installed monitoring wells are also included in Table 3-3. While in the field, START-3 surveyed the elevations of newly installed wells relative to one of the existing wells, MW-5, and these groundwater elevations and contours are indicated on Figure 3-3. Groundwater flow direction is to the west-southwest, generally parallel to the direction of the flow of the river.

3.3 SURFACE WATER OBSERVATIONS

The OSC and START-3 inspected the river bank for any evidence of product seeping to the St. Joe River. Product seeps were observed in several areas. There was evidence of past seeps, indicated by oil stains on rocks, along a stretch of the river bank approximately 200 feet long. This section of seep activity is roughly centered on the property boundary, as indicated on Figure 3-2. In some areas, active seeps were observed. In these areas, a heavy petroleum sheen was observed on the surface water, and blooms of oil could be seen floating up from the bottom of the submerged river bank approximately three to five feet from the shoreline. Surface water samples SW-02 and SW-03 were collected from the two active seep areas, while SW-01 was collected upstream as a background sample.

3.4 INVESTIGATION-DERIVED WASTE

Throughout the field activities, START-3 collected soil cuttings and development water as investigation-derived waste. The waste was stored in 55-gallon drums and left on site for future disposal, pending the results of analytical testing. There were a total of 20 drums, including nine of soil cuttings and 11 of development and purge water.

Table 3-1

Summary of Borings and Monitoring Wells
2007 EPA Removal Assessment
Avery Landing Site
Avery, Idaho

EPA Boring ID	Installation Date	Total Depth (feet bgs)	Well Diameter (inches)	Screened Interval (feet bgs)
EMW-01	4/16/2007	12.6	2	2.5 - 12.5
EMW-02	4/17/2007	16.0	2	5.5 - 15.5
EMW-03	4/17/2007	19.5	2	9 - 19
EMW-04	4/17/2007	17	2	7 - 17
EMW-05	4/18/2007	19.5	2	9 - 19
EMW-06	4/18/2007	18.8	2	8.5 - 18.5
ESB-01	4/18/2007	9.0	N/A	N/A
ESB-02 (1)	4/18/2007	3, 5, 3 (1)	N/A	N/A
ESB-03	4/18/2007	13.0	N/A	N/A
ESB-04	4/18/2007	9.0	N/A	N/A
ESB-05	4/19/2007	25.0	N/A	N/A
ESB-06	4/19/2007	13.0	N/A	N/A
ESB-07	4/19/2007	17.0	N/A	N/A

Note: (1) ESB-02 met refusal after three attempts.

Key:
bgs = below ground surface
EMW = EPA monitoring well
EPA = U.S. Environmental Protection Agency
ESB = EPA soil boring
ID = identification
N/A = not applicable
START = Superfund Technical Assessment and Response Team

Table 3-2

Summary of Free Product Observations in Soil Borings
2007 EPA Removal Assessment
Avery Landing Site
Avery, Idaho

EPA Boring ID	Installation Date	Total Depth (feet bgs)	Free Product Observations	
			Depth Interval (feet bgs)	Observation
EMW-01	4/16/2007	12.6	All	None.
EMW-02	4/17/2007	16.0	5 - 7	Moderately strong hydrocarbon odor.
			7 - 9	Hydrocarbon product.
EMW-03	4/17/2007	19.5	All	None.
EMW-04	4/17/2007	17	11 - 13	Hydrocarbon sheen on groundwater.
			13 - 17	Oily hydrocarbon product present on downhole tools (poor recovery in sampling tool).
EMW-05	4/18/2007	19.5	9 - 11	Strong hydrocarbon odor.
			11 - 13	Strong hydrocarbon odor and sheen.
			13 - 15	Strong hydrocarbon odor; sheen and drops of black product in groundwater.
EMW-06	4/18/2007	18.8	7 - 9	Hydrocarbon odor and sheen.
			9 - 11	Hydrocarbon odor and black oily liquid.
			11 - 13	Sand and gravel are stained black with an oily liquid.
			13 - 18	Soil cuttings contain an oily liquid.
ESB-01	4/18/2007	9.0	7 - 9	Hydrocarbon sheen and odor on groundwater.
ESB-02 (1)	4/18/2007	3, 5, 3 (1)	All	None.
ESB-03	4/18/2007	13.0	9 - 11	Slight hydrocarbon odor.
			11 - 13	Strong hydrocarbon odor, product.
ESB-04	4/18/2007	9.0	3 - 5	Hydrocarbon odor and sheen.
			5 - 7	Hydrocarbon odor.
			7 - 9	Strong hydrocarbon odor and product.
ESB-05	4/19/2007	25.0	3 - 5	Hydrocarbon odor and sheen.
			7 - 9	Strong hydrocarbon odor, light sheen.
			11 - 13	Very dense, black oily liquid with strong hydrocarbon odor.
			15 - 17	Hydrocarbon odor.
ESB-06	4/19/2007	13.0	7 - 9	Hydrocarbon odor.
			11 - 13	Strong hydrocarbon odor and oily liquid.
ESB-07	4/19/2007	17.0	5 - 7	Hydrocarbon odor.
			9 - 11	Increased hydrocarbon odor and sheen.
			13 - 15	Hydrocarbon odor and heavy sheen/product.
			15 - 17	Hydrocarbon odor and heavy sheen/product.

Note: (1) ESB-02 met refusal after three attempts.

Key:
bgs = below ground surface
EMW = EPA monitoring well
EPA = U.S. Environmental Protection Agency
ESB = EPA soil boring
ID = identification

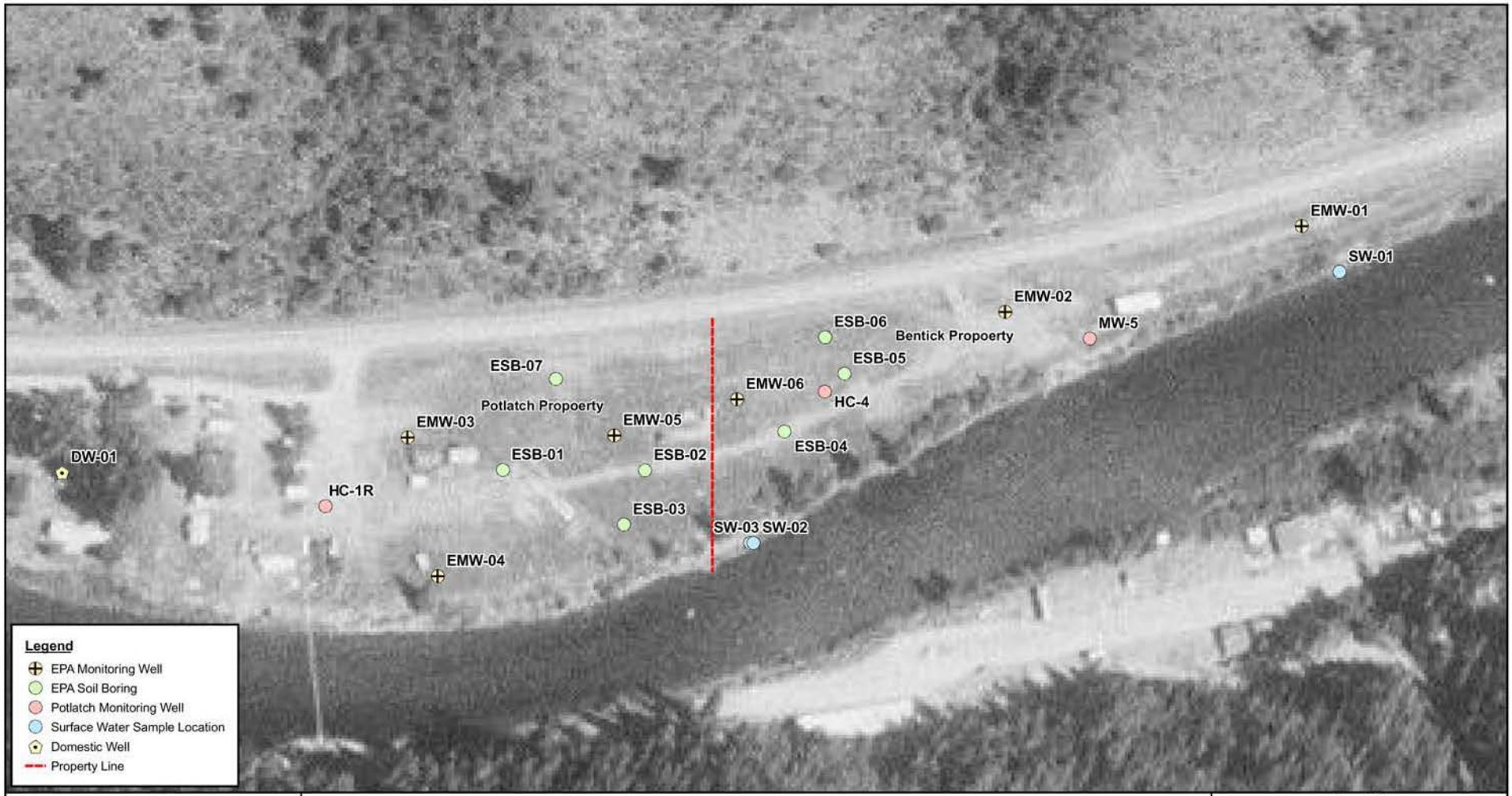
Table 3-3

Summary of Groundwater and Free Product Level Data
2007 EPA Removal Assessment
Avery Landing Site
Avery, Idaho

Monitoring Well	Measurement Date	Reference Elevation	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Water Level Elevation
EMW-01	4/21/2007	97.81	--	7.88	0.00	89.93
EMW-02	4/21/2007	97.52	--	8.22	0.00	89.30
EMW-03	4/21/2007	97.90	--	10.79	0.00	87.11
EMW-04	4/21/2007	98.14	--	11.31	0.00	86.83
EMW-05	4/21/2007	100.02	--	11.89	0.00	88.13
EMW-06	4/21/2007	99.15	--	10.79	0.00	88.36
HC-1R	4/21/2007	n/a	--	10.92	0.00	n/a
HC-4	4/17/2007	n/a	10.32	11.20	0.88	n/a
HC-5	4/21/2007	n/a	--	15.18	0.00	n/a
MW-5	4/21/2007	97.76	--	7.89	0.00	89.87
MW-11	4/21/2007	n/a	Present (1)	NA	Present (1)	n/a
TP-1 (2")	4/21/2007	n/a	--	16.80	0.00	n/a
TP-1 (4")	4/21/2007	n/a	--	16.61	0.00	n/a
TP-2	4/21/2007	n/a	12.48	13.20	0.72	n/a
TP-3	4/21/2007	n/a	--	19.92	0.00	n/a
TP-5	4/21/2007	n/a	--	13.57	0.00	n/a
TP-6	4/21/2007	n/a	--	12.57	0.00	n/a
TP-7	4/21/2007	n/a	--	14.17	0.00	n/a
TP-8	4/21/2007	n/a	--	14.84	0.00	n/a
TP-9	4/21/2007	n/a	--	15.58	0.00	n/a
TP-10	4/21/2007	n/a	--	5.42	0.00	n/a
TP-11	4/21/2007	n/a	--	5.41	0.00	n/a
TP-12	4/21/2007	n/a	--	12.54	0.00	n/a
EW-3	4/17/2007	n/a	Present (1)	NA	Present (1)	n/a
EW-4	4/17/2007	n/a	Present (1)	NA	Present (1)	n/a

Notes: (1) A very viscous and sticky product was present; depths and thickness were not determined.

Key:
MSL = mean sea level
n/a = not available
NM = not measured



N W E S

0 25 50 100 150 200
Feet

Scale 1:1,200

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Avery, Idaho

Figure 3-1

EPA Sample Location Map

Map Source Information:
Terraserver, USGS Aerial Photo

Date: 6/18/2007	GIS Analyst: avh

Project ID:
002233.0193.01SF

\edms-projects\avery_landing\figure 3-1 samp loc map.mxd

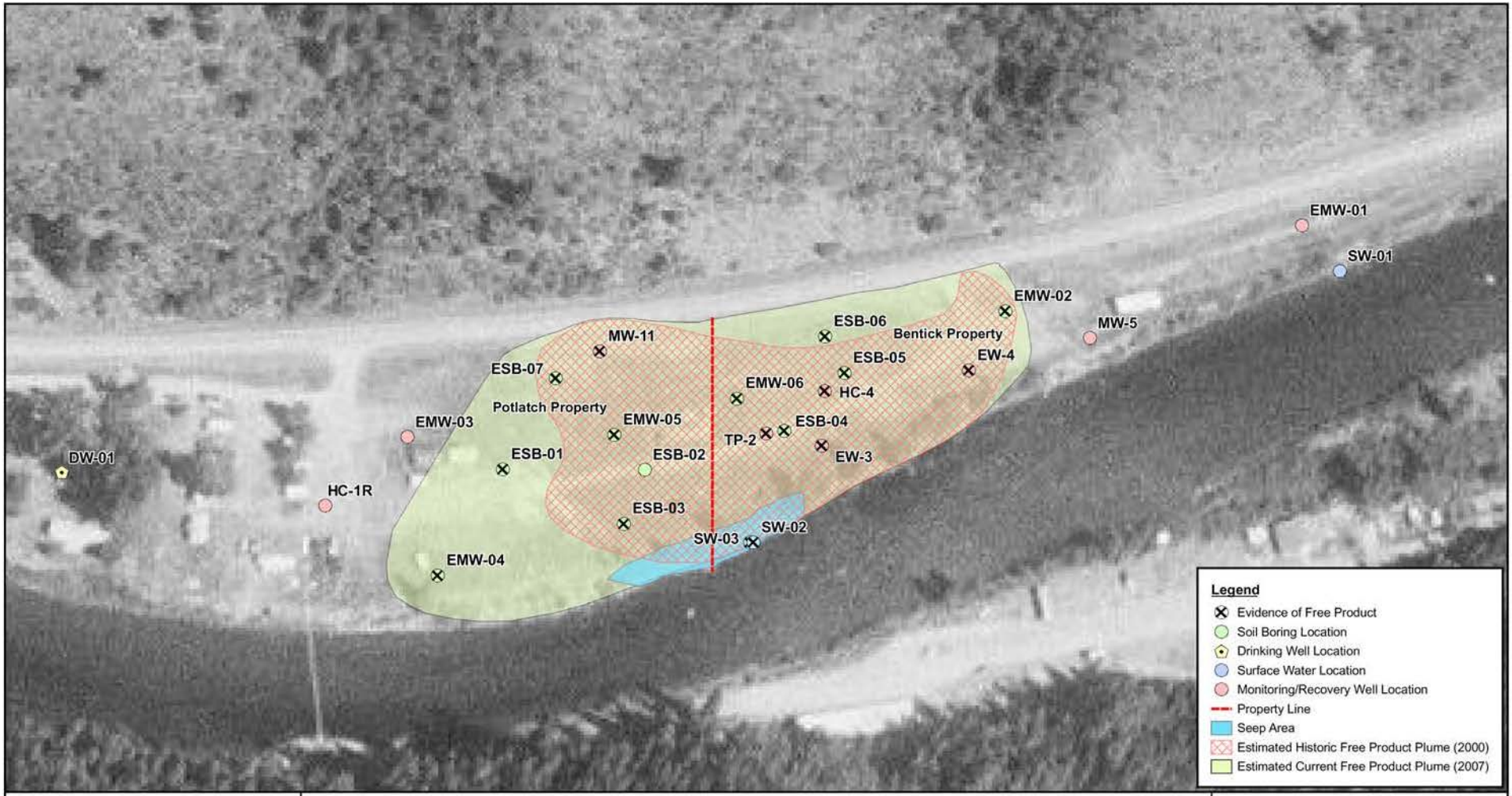

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Figure 3-2

Borings and Monitoring Wells with Observed Free Product April 16-21, 2007

Map Source Information:
Terraserver, USGS Aerial Photo

Date: 6/18/2007	GIS Analyst: avh

Project ID:
002233.0193.01SF

\edms-projects\avery_landing\figure 3-2 borings and mw obs free product.mxd

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Feet
Scale 1:1,200

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Avery, Idaho

Figure 3-3

Groundwater Elevations
April 21, 2007

Map Source Information:
Terraserver, USGS Aerial Photo

Date:
5/30/2007

GIS Analyst:
avh

Project ID:
002233.0193.01SF

\edms-projects\avery_landing\figure 3-3 gw elevations.mxd

4.0 SAMPLE COLLECTION AND ANALYSIS

For the removal assessment, START-3 collected samples of several different environmental media, including subsurface soil, groundwater, surface water, and product. All samples were collected and analyzed in accordance with the START-3 site-specific sampling plan (SSSP; E & E 2007). Samples were analyzed for VOCs, SVOCs, PCBs, Northwest Total Petroleum Hydrocarbons, Diesel Range Extended (NWTPH-Dx), and target analyte list (TAL) metals at commercial laboratories. Table 4-1 describes the samples collected by START-3, including the sample date, location, event, matrix, and analysis. Sample collection procedures and the results of analyses are described in this section.

4.1 SAMPLE COLLECTION METHODS

4.1.1 Subsurface Soil Samples

Subsurface soil samples were collected from split spoon samplers while the driller performed each boring. In general, one sample for each analytical parameter was collected from each boring. The depth selected for sampling typically depended on visual observations; in general, samples were collected from depth intervals that either were close to the groundwater interface or which exhibited evidence of free product. Sample collection was also performed on those depth intervals that provided good sample recovery. For some of the borings (e.g., ESB-04 and ESB-05), START collected two samples for specific analytes, depending on visual observations or other field conditions. For example, ESB-04 contained product at two distinct levels, so separate samples for SVOCs, PCBs, NWTPH-Dx, and TAL metals were collected at the different depth intervals from this boring.

After the geological information from each split spoon sample was recorded, START-3 placed it in a re-sealable plastic bags until the boring was complete. Once the boring was completed, START-3 selected the depth interval to be sampled for each parameter. Samples for SVOCs, PCBs, NWTPH-Dx, and TAL metals were then collected using dedicated, pre-cleaned stainless steel sampling tools into pre-cleaned glass sample containers provided by the laboratories.

Samples for VOC analyses were collected using SW-846 method 5035 to ensure that undisturbed samples were collected. START-3 used Lock N' Load™ handles and syringes, which collect an approximate 1-gram core of soil for analysis. Each sampling tip was dedicated, pre-cleaned, and used only once to prevent cross-contamination. In order to comply with method 5035, the samples were collected from undisturbed sample cores in the split spoon sampler. For some soil borings (e.g., EMW-04 and ESB-02), there were no undisturbed sample cores, so VOC samples were not collected for these borings.

The soil samples were collected from stainless steel split spoon samplers provided by the driller. The split spoon samplers were decontaminated between each use with hot, high-pressure water. Because the spilt spoon samplers were not dedicated, START-3 collected a rinsate blank sample (RB-01). The rinsate blank was collected by pouring deionized water over a decontaminated split spoon sampler and collecting the water into pre-cleaned sample containers. The rinsate blank was collected for all five analytical parameters, including VOCs, SVOCs, PCBs, NWTPH-Dx, and TAL metals.

4.1.2 Groundwater Samples

Groundwater samples were collected from the six new EPA monitoring wells, two existing monitoring wells (HC-1R and MW-5), and the on-site domestic well. For all but two monitoring wells, the samples were collected using a peristaltic pump and a low flow technique. Dedicated polyethylene tubing and the peristaltic pump was used to pump water from the well at a target flow rate of approximately 1 liter per minute (L/min). During low flow sampling, START-3 monitored the groundwater for certain water quality parameters, including temperature, pH, conductivity, turbidity, dissolved oxygen, and salinity. The well was considered to have been purged and the sample was collected after the readings stabilized.

For most wells, START-3 was unable to achieve a flow rate of 1 L/min, which is attributed to a combination of the depths to groundwater and the elevation at the site (approximately 2,500 feet above mean sea level). The sample flow rates were much slower than 1 L/min, which increased the time required to purge and collect the samples. Therefore, for the final two monitoring wells, (EMW-02 and EMW-06), START-3 used dedicated bailers to purge water from the well and collect the samples. A minimum of three well volumes was bailed from each well prior to sampling, and START-3 did not monitor the bailed wells for water quality parameters.

After each monitoring well was properly purged, sample collection was performed by pouring water from either the polyethylene tubing or the bailer directly into the pre-cleaned sample bottles.

4.1.3 Surface Water Samples

Surface water samples were collected by dipping a pre-cleaned glass sample bottle into the St. Joe River. At the SW-01 location, the river was deep enough that all of various sample bottle sizes could be dipped into the river. However, for those analytical parameters that required preservative (VOCs, NWTPH-Dx, and TAL metals), a glass bottle without preservative was used to collect the water sample and then pour it into the appropriate pre-preserved sample bottle. At the SW-02 and S-03 location, the surface of the water was just above riprap, and there was not enough depth in the water to use every type of sample bottle. Therefore, a pre-cleaned 8-ounce jar was used to collect the water and then pour it into the appropriate sample bottles.

4.1.4 Product Sample

The product sample from existing monitoring well HC-4 was collected with a dedicated, pre-cleaned polyethylene bailer. Because the sample was product and not groundwater, the well was not purged prior to sampling. The sample was collected directly from the bailer to the appropriate, pre-cleaned sample jars.

4.1.5 Sample Preservation and Storage

Water samples for certain analytical parameters required preservation. Water samples for VOCs and NWTPH-Dx were preserved with hydrochloric acid, and water samples for TAL metals were preserved with nitric acid. In both cases, sufficient acid preservative was added to adjust the pH of the water sample to below a target of 2 standard units. All samples were stored in coolers with ice and maintained at a temperature of approximately 4 degrees Celsius (˚C) until START-3 personnel delivered them to the laboratories. Additionally, one trip blank sample (TB-01) was collected for VOC analysis. The trip blank (prepared with deionized water) was provided by the laboratory and was designed to detect any potential cross-contamination of VOCs during sample storage and transfer.

4.1.6 Analytical Parameters

The samples were submitted by START-3 personnel to the analytical laboratories under proper chain of custody. Copies of the chains of custody are presented in Appendix C. Samples were submitted to both STL-Seattle, Inc. (STL) in Tacoma, Washington, and Laucks Testing Laboratories, Inc. (Laucks) in Seattle, Washington. The samples were submitted for the following parameters at the two laboratories:

STL	SVOCs, PCBs[2]
Laucks	VOCs, NWTPH-DX, TAL Metals

4.2 SUMMARY OF RESULTS

The analytical results for the samples from the Avery Landing Site are summarized in Tables 4-2 through 4-17. Copies of the analytical data reports and associated data validation memoranda are included in Appendix D. In addition to a presentation of the analytical results, the samples have been compared to applicable or relevant and appropriate requirements (ARARs), which are discussed in the next section.

[2] Note also that samples were submitted to STL for low-level mercury analyses, in the event that lower detection limits for mercury were required. The low-level mercury analyses were not performed.

4.2.1 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

For the Avery Landing removal assessment, START-3 compared the analytical results to several federal and state guidelines or standards. Federal ARARs include the National Primary and Secondary Drinking Water Regulations (MCLs; EPA 2003); the EPA Region 6 Human Health Medium-Specific Screening Levels (HHMSSL) for residential soil, industrial soil, and tap water (groundwater and the domestic well sample; EPA 2007a); and the Ambient Water Quality Criteria (AWQC) for fresh surface water (Buchman 1999). State ARARs or criteria to be considered (TBCs) included the Primary and Secondary Constituent Standards for Groundwater[3] (IDAPA 58.01.11) and the Idaho Risk Evaluation Manual (REM; DEQ 2004) for soil, groundwater, and surface water. The data summary tables include these ARARs and indicates any compounds that exceed them. Compounds that exceed ARARs are discussed briefly in the following sections, while a more thorough discussion of the sample results compared to the ARARs is presented in Section 4.3.1.

In addition to the ARARs which list specific action levels or cleanup guidelines for specific contaminants, the state of Idaho also regulates petroleum hydrocarbons through the Water Quality Standards (IDAPA 58.01.02) and the Land Remediation Rules (IDAPA 58.01.18). The results of the free product observations will be compared to these standards in Section 4.3.2.

4.2.2 Soil Sample Results

The results of VOC analyses are summarized in Table 4-2. Detected compounds included 2-butanone, with a maximum concentration of 54 J micrograms per kilogram (μg/kg); carbon disulfide with a maximum concentration of 3.1 μg/kg; chlorobenzene with a maximum concentration of 31 J μg/kg; ethylbenzene with a maximum concentration of 540 J μg/kg; and xylenes with a maximum concentration of 25 J μg/kg. Additional compounds detected included benzene (5.9 J μg/kg) and toluene (17 J μg/kg), which were both detected in one boring (EMW-01; the background well). In general, most VOC detections in soils were relatively low, and many detections were flagged with a “J” qualifier indicating the result was less than the reporting limit. None of the results exceeded any of the state or federal ARARs.

The results of SVOC analyses are summarized in Table 4-3. Several SVOCs were detected in some of the site samples at concentrations higher than 1,000 μg/kg, including 1-methylnaphthalene, with a maximum concentration of 30,000 μg/kg (boring EMW-06); acenaphthene, with a maximum concentration of 3,200 μg/kg (boring EMW-06); 2-methylnapthalene with a maximum concentration of 44,000 μg/kg (boring EMW-06); fluorene with a maximum concentration of 4,900 μg/kg (boring EMW-06); naphthalene with a maximum concentration of 6,000 J μg/kg (boring ESB-03); and phenanthrene

[3] Note that for most compounds, the state groundwater standard is the same as the federal drinking water standard.

with a maximum concentration of 5,800 μg/kg (boring EMW-05). Other SVOCs detected at lower concentrations in the site soil samples include 2-chloronaphthalene, 4-nitoaniline, acenaphthylene, anthracene, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[g,h,i]perylene, benzo[k]fluoranthene, bis(2-chloroethoxy)methane, bis(2-ethylhexyl)phthalate, carbazole, chrysene, dibenz[a,h]anthracene, dibenzofuran, di-n-butyl phthalate, fluoranthene, indeno[1,2,3-cd]pyrene, and pyrene. Most of the detected compounds are polynuclear aromatic hydrocarbons (PAHs)[4], and many exceeded state and/or federal ARARs in most of the site samples.

Table 4-4 includes the results of PCB and NWTPH-Dx analyses. Aroclor-1260 was detected in nine of the 13 soil borings, with a maximum concentration of 130 μg/kg in boring EMW-03. Aroclor-1260 was also detected in the background well EMW-01 at a concentration of 9.8 J μg/kg. No other Aroclor was detected, and none of the PCB detections exceeded any of the state or federal ARARs.

The results of the NWTPH-Dx analyses are also in Table 4-4. The results indicate that all of the samples contained diesel-range organics (DRO), and all but one contained oil-range organics (ORO). Ten of the 13 samples contained DRO at concentrations greater then 1,000 milligrams per kilogram (mg/kg), and three were detected at concentrations greater than 10,000 mg/kg[5]. The highest DRO concentration detected was 17,000 mg/kg in ESB-03. ORO was detected in 11 samples at concentrations greater than 1,000 mg/kg and in one sample greater than 10,000 mg/kg. ORO was detected at a maximum concentration of 12,000 mg/kg in EMW-01 (the background boring).

The results of the TAL metals analyses for soil samples are summarized in Table 4-5. Most of the TAL metals were detected in nearly all of the soil samples, and the soil samples were generally similar in the concentrations of metals that they contained. For example, all soil samples contained the following metals at similar concentrations: aluminum ranged from 7,760 to 19,500 mg/kg; arsenic ranged from 4.2 J to 17 J mg/kg; and iron ranged from 15,000 to 24,600 mg/kg. Notable exceptions included lead and mercury. For most samples, lead ranged from approximately 2.3 to 17.3 mg/kg, but it was present in two samples at concentrations of 145 mg/kg (EMW-04 SB 03) and 159 mg/kg (ESB-02 SB 03). Mercury ranged from not detected to 0.0553 J mg/kg in most samples, but it was present in one sample at a concentration of 0.117 mg/kg (ESB-02 SB 03). Several metals were present at concentrations that exceeded ARARs, including arsenic, iron, lead, manganese, and mercury.

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[4] PAHs are a class of over 100 similar compounds that are typically associated with petroleum products. Common PAHs include acenaphthene, acenaphthylene, anthracene, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[g,h,i]perylene, benzo[k]fluoranthene, chrysene, dibenz[a,h]anthracene, fluoranthene, fluorene, indeno[1,2,3-cd]pyrene, naphthalene, phenanthrene, and pyrene.

[5] 10,000 mg/kg is the equivalent of 1% by weight.

4.2.3 Groundwater Sample Results

The VOC results for groundwater samples are summarized in Table 4-6. Only two VOCs were detected, including acetone and chlorobenzene. Acetone was detected in three samples (EMW-03, EMW-04, and HC-1R) at concentrations ranging from 1.6 J to 3.2 J micrograms per liter (μg/L). Note, however, that acetone is a common laboratory contaminant. Chlorobenzene was detected in two samples, including EMW-05 at a concentration of 1.4 μg/L and EMW-06 at a concentration of 3.6 μg/L. No VOC exceeded any of the state or federal ARARs.

The results of SVOC analyses on groundwater are in Table 4-7. Several PAH and related compounds were detected in several of the site samples. For example, 1-methylnaphthalene was detected in several site samples with a maximum concentration of 210 μg/L (EMW-06), and 2-methylnapthalene was detected in several samples with a maximum concentration of 270 μg/L (EMW-06). Most of the PAH compounds, including naphthalene, fluorene, acenaphthene, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[g,h,i,]perylene, chrysene, fluorene, fluoranthene, naphthalene, phenanthrene, and pyrene, were also detected in several of the site samples. Several non-PAH compounds were also detected; for example, the chlorinated compound 1,2-dichlorobenzene was detected in several samples at low concentrations (maximum concentration of 0.53 J μg/L in EMW-06), and 1,4-dichlorobenzene was also detected at trace levels (0.051 J μg/L) in EMW-06. N-Nitrosodiphenylamine was also detected in EMW-06 at a concentration of 12 μg/L. Bis(2-ethylhexyl) phthalate was detected in several of the site samples, but note that phthalates are components of plastic; they are often present in plastic well casing materials, and they are also common laboratory contaminants. In general, monitoring well EMW-06 contained the highest concentrations of those compounds that were detected, and several of the compounds in EMW-06 and other site wells exceeded state and federal ARARs. The background well EMW-01 did contain a few of the PAH compounds at trace concentrations. The domestic well DW-01 contained a trace amount of anthracene (0.0026 J μg/L) and some phthalates.

Table 4-8 presents the results of PCBs and NWTPH-Dx for groundwater samples. PCBs were detected in only one well; EMW-06 contained Aroclor 1260 at a concentration of 0.028 J μg/L, and this concentration exceeded the Idaho REM guideline. DRO was detected in all of the wells except MW-05, and ORO was detected in all wells but EMW-01 and the domestic well DW-01. EMW-06 contained the highest concentrations of both, with DRO at a concentration of 110,000 μg/L and ORO at a concentration of 45,000 μg/L. Six of the nine wells on site contained both DRO and ORO. Note also that the upgradient well EMW-01 contained DRO at a concentration of 83 μg/L, and the domestic well DW-01 contained DRO at a concentration of 79 μg/L.

Table 4-9 summarizes the results of TAL metals for groundwater samples. Aluminum was detected at a maximum concentration of 32,200 μg/L in EMW-06. Arsenic was detected in all of the samples, and it was detected at concentrations higher than 10 μg/L (the Idaho REM guideline) in six of the samples. Arsenic was detected at a maximum concentration of 88.6 μg/L in EMW-02. Iron was detected in several samples at concentrations greater than most of the ARARs, with a maximum concentration of 80,500 μg/L in EMW-06. Lead was detected in one sample (EMW-06) at a concentration of 39.8 μg/L, which exceeds state and federal ARARs. Manganese was detected at elevated concentrations (above state and federal ARARs) in several site samples, with a maximum concentration of 5,630 μg/L in HC-1R. In general, concentrations of metals were lower in EMW-01, MW-5, and the domestic well DW-01.

4.2.4 Surface Water Sample Results

The results for VOC analyses performed on the surface water samples are presented in Table 4-10. No VOCs were detected in any of the surface water samples.

Table 4-11 presents the SVOC results for the surface water samples. The upstream/background sample (SW-01) did not contain any SVOCs. The two samples located near active seep areas (SW-02 and SW-03) did contain relatively low concentrations of SVOCs, including 1-methylnaphthalene (0.041 and 0.34 μg/L, respectively), 2-methylnaphthalene (0.014 J and 0.11 μg/L), and other PAHs. All concentrations were less than 1.0 μg/L , and concentrations in SW-03 were generally higher than those in SW-02. SW-03 also contained a few PAH compounds that were not present in SW-02, including benzo[a]anthracene at 0.011 J μg/L , benzo[a]pyrene at 0.027 μg/L, benzo[b]fluoranthene at 0.023 J μg/L, and chrysene at 0.016 J μg/L. All three of these PAHs were present at concentrations in SW-03 that exceeded the Idaho REM guideline for surface water. Additionally, benzo[a]pyrene exceeded the federal AWQC.

Table 4-12 presents the results of PCBs and NWTPH-Dx for surface water. PCBs were not detected in any of the surface water samples. The upstream sample (SW-01) did not contain either DRO and ORO. DRO was present in both SW-02 (320 μg/L) and SW-03 (2,300 μg/L), and ORO was present in SW-03 (1,200 μg/L).

The TAL metals results for surface water are presented in Table 4-13. Generally, the results indicate that metals concentrations in the three samples were very similar. Arsenic, barium, calcium, iron, magnesium, manganese, potassium, and sodium were all detected in the three samples, including the upstream sample (SW-01), at very similar concentrations. Barium exceeded the federal AWQC (4.0 μg/L) in all three samples (results ranged from 4.71 J to 5.11 J μg/L).

4.2.5 Product Sample Results

Table 4-14 presents the results of VOC analysis on the product sample from HC-4. The sample contained bromodichloromethane at a concentration of 1,500 J µg/L, chlorobenzene at a concentration of 1,600 J µg/L, and methylene chloride[6] at a concentration of 2,700 µg/L. No other VOC was detected, and none of the ARARs identified for the site applies to the product sample.

Table 4-15 presents the results of the SVOC analyses of the product sample. The SVOCs with the highest concentrations included 1-methylnaphthalene at 1,700,000 µg/kg and 2-methylnaphthalene at 2,400,000 µg/kg. Other SVOCs detected at lower concentrations included the PAHs acenaphthene, anthracene, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, chrysene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene. None of the site ARARs applies to the product sample.

The results of the PCB and NWTPH-Dx analyses are presented in Table 4-16. The product sample contained Aroclor-1260 at a concentration of 330 J µg/kg. No other Aroclor was detected. The product sample contained DRO at a concentration of 1,100,000 mg/kg. Note that the reported concentration is greater than 100%. This is a common occurrence with product analysis, and it is an artifact of the analytical process whereby a small aliquot of sample is diluted for analysis and then the diluted concentration is multiplied by the dilution factor to obtain the sample concentration. Effectively, the sample is primarily diesel, with a smaller concentration of ORO (260,000 mg/kg).

Table 4-17 presents the results of the TAL metals analysis of the product sample. The results indicate that many of the TAL metals were detected in the product sample, including aluminum at a concentration of 71.2 mg/kg, arsenic at a concentration of 3.1 mg/kg, chromium at a concentration of 3.4 mg/kg, and lead at a concentration of 1.6 mg/kg.

4.3 SUMMARY OF ARAR EXCEEDENCES

4.3.1 Analytical Data

Tables 4-18 through 4-21 have been prepared to further summarize the analytical data relative to the site ARARs. These tables present only those compounds that were present in any of the site samples in concentrations greater than any of the state or federal standards or guidelines that were determined to be ARARs or TBCs for the site. Additionally, these tables present the samples separated by property (e.g., Bentcik and Potlatch properties). Figures 4-1 through 4-4 also present this data graphically.

Table 4-18 and Figure 4-1 present those compounds in the subsurface soil samples that exceeded the EPA Region 6 HHMSSL for residential soil. Of the SVOCs, benzo[a]pyrene exceeded the HHMSSL of 15 µg/kg in most of the site samples, benzo[a]anthracene exceeded the HHMSSL of 150 µg/kg in two

[6] Note that methylene chloride is also a common laboratory contaminant.

of the site samples, and benzo[b]fluoranthene exceeded the HHMSSL of 150 μg/kg in one site sample. Arsenic also exceeded the HHMSSL of 0.39 mg/kg in all of the site samples. However, note that the upper limit of background soil concentrations for arsenic in the nearby Coeur d'Alene and Spokane River basins is 22 mg/kg (URS Greiner 2001). Also, all of the arsenic results are estimated values, because the matrix spike results were biased high (i.e., arsenic concentrations were likely over-estimated.) With the exception of benzo[b]fluoranthene, the exceedences were evenly distributed over the two properties. There were no federal exceedences in soil for VOCs or PCBs, and there are no regulatory standards for DRO/ORO.

Table 4-19 and Figure 4-2 present state exceedences for the soil samples. Because many of the State of Idaho REM guidelines are lower than EPA's HHMSSL guidelines, there are more exceedences listed in this table. For SVOCs, 2-methylnaphthalene, benzo[a]pyrene, and naphthalene exceeded the applicable REM guideline in many of the site samples on both properties. Additionally, 4-nitroaniline, benzo[a]anthracene, and benzo[b]fluoranthene each exceeded the applicable guidelines in only one sample, all on the Bentcik property. The metals arsenic, iron, lead, manganese, and mercury exceeded applicable guidelines, and the distribution between the two properties was fairly even. For the arsenic results, though, the same qualifiers discussed in the preceding paragraph apply. For mercury, note that with the exception of the result for ESB-02 (0.117 mg/kg), the results are estimated values less than the reporting limit. There were no state exceedences in soil for VOCs or PCBs, and there are no regulatory standards for DRO/ORO.

Federal exceedences in water samples are presented in Table 4-20 and Figure 4-3. For SVOCs in groundwater, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthrene, benzo[g,h,i]perylene, chrysene, and naphthalene all exceeded the EPA HHMSSL for tap water. Most of these SVOC exceedences (with the exception of two) occurred on the Bentcik property (in EMW-02 and EMW-06, only). For metals in groundwater, aluminum, arsenic, iron, lead, and manganese exceeded either the HHMSSL for tap water and/or the drinking water MCL in the site samples. With the exception of aluminum and lead, which exceeded the MCL in more samples and/or at higher concentrations on the Bentcik property, the metals exceedences in groundwater was fairly evenly distributed across the two properties. There were no federal exceedences in groundwater for VOCs or PCBs, and there are no regulatory standards for DRO/ORO. For surface water, only one SVOC (benzo[a]pyrene) exceeded the federal AWQC. There were no federal exceedences in surface water for VOCs, PCBs, or TAL metals[7], and there are no regulatory standards for DRO/ORO.

[7] Not including barium, which was detected at similar concentrations above the federal AWQC in all three surface water samples, including the upstream/background sample SW-01.

Table 4-21 and Figure 4-4 present state exceedences for water samples. For SVOCs, 2-methyl naphthalene, benzo[a]anthracene, benzo[a]pyrene, benzo[a]fluoranthene, and N-nitrosodiphenyl amine exceeded the applicable Idaho REM guidelines in two site samples (EMW-02 and EMW-06), both of which are located on the Bentcik property. Additionally, benzo[a]pyrene exceeded the state groundwater standard of 0.20 μg/L in EMW-02 and EMW-06. For metals, aluminum, arsenic, iron, lead[8], and manganese exceeded the state groundwater standards in EMW-02 and/or EMW-06 on the Bentcik property, and arsenic, iron, and manganese exceed the state groundwater standards in EMW-03, EMW-04, EMW-05, and HC-1R on the Potlatch property. Aluminum also exceeded the state groundwater standard in EMW-05 on the Potlatch property. Additionally, arsenic, iron, and manganese exceeded the Idaho REM guidelines in several wells on both properties, and lead exceeded the REM guideline in EMW-06 on the Bentcik property. The PCB Arcolor-1260 exceeded the Idaho REM guideline in EMW-06 on the Bentcik property. No VOC state exceedences occurred in groundwater samples, and there are no regulatory standards for DRO/ORO. For surface water, four SVOC compounds (benzo[a]anthracene, benzo[a]pyrene, benzo[a]fluoranthrene, and chrysene) exceeded the applicable Idaho REM guideline in SW-03.

4.3.2 Free Product Observations

Although there are no state regulatory standards for DRO and ORO, petroleum hydrocarbons are still regulated by the state of Idaho. Idaho Water Quality Standards (IDAPA 58.01.02) defines free product as a petroleum product that is present as a non-aqueous phase liquid on surface water or the water table at greater than one-tenth (0.1) inch (IDAPA 58.01.02.010.38). The Water Quality Standards also require owners and operators of a site with free product to "remove free product to the maximum extent practicable" (IDAPA 58.01.02.852.04). Additionally, the presence of free product or a sheen on surface water subjects the owner/operator to notification and/or cleanup requirements (IDAPA 58.01.02 851.04 and 58.01.02.852.05). START-3 observed free product in two existing site wells at thicknesses of 0.88 and 0.72 feet, which are greater than 0.1 inch, and in three other existing wells where the thickness could not be determined. Free product will also likely be observed in the newly installed monitoring wells after site groundwater conditions are able to equilibrate. START-3 also observed free product and sheens in the St. Joe River.

The Idaho Land Remediation Rules (IDAPA 58.01.18) also address petroleum contamination in soil and require that petroleum contamination be addressed through remediation to appropriate remediation standards, which include attainment of natural background levels (IDAPA 58.01.18.023). As

[8] Lead exceeded the state groundwater standard in EMW-06, only.

discussed in Section 3.1.2, START-3 observed evidence of free product in soil samples from 10 of the 13 soil borings.

The results of the NWTPH-Dx analyses confirm the presence of petroleum hydrocarbons in soil, groundwater, and surface water samples from the site. These results and the visual observations made by START-3 during the site investigation document that free product is present at the site on groundwater, on surface water, and in the subsurface soil at levels that exceed applicable state regulatory standards.

Although the state of Idaho does not use DRO or ORO action levels to regulate petroleum, the state of Washington does. The Model Toxics Control Act (MTCA) Method A soil cleanup level for unrestricted use (i.e., residential) is 2,000 mg/kg for DRO and 2,000 mg/kg for heavy oils (ORO). The MTCA Method A cleanup level for groundwater is 500 μg/L for DRO and 500 μg/L for heavy oils (ORO). Although these cleanup levels are not ARARs for the Avery Landing site, they are being included as TBCs to identify potential cleanup guidelines for the site. Of the 13 soil samples analyzed for NWTPH-Dx, 11 contained either DRO, ORO, or both at concentrations that exceeded 2,000 mg/kg. In the site soil samples, DRO was detected at a maximum concentration of 17,000 mg/kg, and ORO was detected at a maximum concentration of 12,000 mg/kg. Of the nine groundwater samples, six contained both DRO and ORO at concentrations that exceeded 500 μg/L, with DRO detected at a maximum concentration of 110,000 μg/L, and ORO detected at a maximum concentration of 45,000 μg/L.

4.4 COMPARISON OF SOIL RESULTS TO SEDIMENT GUIDELINES

Because of the active seeps of petroleum product to the river and the presence of free product on the groundwater directly adjacent to the river, there is a potential impact to river sediments. However, START-3 was unable to collect sediment samples from the site because of the large riprap that covered the bank of the St. Joe River. To assess potential impacts to sediment, the soil results have been compared to the consensus-based freshwater sediment quality guidelines (SQGs; MacDonald et al. 2000). Because sediment samples were not collected, the SQGs were not included in the data summary tables and they were not included in the ARAR discussions in Section 4.3. However, there is a potential relationship between soil and sediment; some zones of the river bank may be submerged for part of the year and be considered sediment, while they may be considered soil at times of lower river stage. Additionally, erosion or earthwork performed on the bank may lead to exposed subsurface soil that may then be considered as sediment. To evaluate the potential impacts if site sediments contained the types and levels of contamination similar to that found in the soil, the soil results have been compared to the sediment SQGs.

Table 4-22 presents a comparison of soil results to applicable SQGs. For this comparison, the consensus-based threshold effect concentrations (TECs) were used. TECs were available for PAHs (subset of SVOCs), PCBs, and metals. For clarity, Table 4-22 only includes those compounds with an associated TEC. The comparison indicates that many of the compounds detected in the soil samples exceeded the sediment TECs. All but one of the PAH compounds with a TEC value were present in the site soil samples at concentrations that exceeded the applicable sediment TEC. Aroclor-1260 was detected in one sample at a concentration that exceeded the sediment TEC for total PCBs. Of the metals, arsenic, copper, lead, and nickel were all present at concentrations in the soil that exceeded the applicable sediment TEC.

Table 4-1

Summary of START-3 Samples
Avery Landing Site
Avery, Idaho

EPA Sample ID	Location ID	Sample Date	Sample Time	Matrix	Analyses
07040101	EMW-01 SB 06	4/16/2007	15:00	Soil	VOCs
07040102	EMW-01 SB 02	4/16/2007	15:15	Soil	SVOCs, PCBs, TAL Metals, and NWTPH-Dx
07040103	EMW-02 SB 05	4/17/2007	8:15	Soil	VOCs
07040104	EMW-02 SB 07	4/17/2007	8:25	Soil	SVOCs and PCBs
07040105	EMW-02 SB 05	4/17/2007	8:40	Soil	TAL Metals and NWTPH-Dx
07040106	EMW-03 SB 11	4/17/2007	11:45	Soil	SVOCs, PCBs, TAL Metals, and NWTPH-Dx
07040107	EMW-03 SB 11	4/17/2007	11:45	Soil	VOCs
07040108	EMW-04 SB 03	4/17/2007	14:50	Soil	SVOCs, PCBs, TAL Metals, and NWTPH-Dx
07040109	EMW-05 SB 09	4/18/2007	7:51	Soil	VOCs
07040110	EMW-05 SB 09	4/18/2007	8:00	Soil	SVOCs, PCBs, TAL Metals, and NWTPH-Dx
07040111	RB-01 (Rinse Blank)	4/18/2007	9:00	Water	SVOCs, VOCs, PCBs, TAL Metals, and NWTPH-Dx
07040112	EMW-06 SB 07	4/18/2007	10:40	Soil	VOCs
07040113	EMW-06 SB 07	4/18/2007	10:50	Soil	TAL Metals
07040114	EMW-06 SB 09	4/18/2007	10:50	Soil	SVOCs, PCBs, and NWTPH-Dx
07040115	ESB-01 SB 07	4/18/2007	13:45	Soil	VOCs
07040116	ESB-01 SB 07	4/18/2007	13:45	Soil	SVOCs, PCBs, TAL Metals, and NWTPH-Dx
07040117	ESB-02 SB 03	4/18/2007	14:45	Soil	SVOCs, PCBs, and TAL Metals
07040118	ESB-03 SB 09	4/18/2007	15:45	Soil	VOCs
07040119	ESB-03 SB 11	4/18/2007	15:55	Soil	SVOCs, PCBs, TAL Metals, and NWTPH-Dx
07040120	ESB-04 SB 03	4/18/2007	16:50	Soil	SVOCs, PCBs, TAL Metals, and NWTPH-Dx
07040121	ESB-04 SB 07	4/18/2007	16:50	Soil	VOCs
07040122	ESB-04 SB 07	4/18/2007	16:50	Soil	SVOCs, PCBs, TAL Metals, and NWTPH-Dx
07040123	ESB-05 SB 09	4/19/2007	7:50	Soil	VOCs
07040124	ESB-05 SB 15	4/19/2007	8:08	Soil	SVOCs, PCBs, TAL Metals, and NWTPH-Dx
07040125	ESB-05 SB 23	4/19/2007	9:15	Soil	SVOCs and PCBs
07040126	ESB-06 SB 09	4/19/2007	11:04	Soil	VOCs
07040127	ESB-06 SB 11	4/19/2007	11:11	Soil	SVOCs, PCBs, TAL Metals, and NWTPH-Dx
07040128	ESB-07 SB 07	4/19/2007	12:07	Soil	VOCs
07040129	ESB-07 SB 13	4/19/2007	12:29	Soil	SVOCs, PCBs, TAL Metals, and NWTPH-Dx
07040130	TB-01 (Trip Blank)	4/20/2007	15:00	Water	VOCs
07040131	HC-4	4/20/2007	9:50	Product	SVOCs, VOCs, PCBs, TAL Metals, and NWTPH-Dx
07040132	SW-01	4/20/2007	10:45	Surface Water	SVOCs, VOCs, PCBs, TAL Metals, and NWTPH-Dx
07040133	SW-02	4/20/2007	11:20	Surface Water	SVOCs, VOCs, PCBs, TAL Metals, and NWTPH-Dx
07040134	SW-03	4/20/2007	12:00	Surface Water	SVOCs, VOCs, PCBs, TAL Metals, and NWTPH-Dx
07040135	EMW-01	4/21/2007	9:15	Ground Water	SVOCs, VOCs, PCBs, TAL Metals, and NWTPH-Dx
07040136	EMW-02	4/21/2007	17:50	Ground Water	SVOCs, VOCs, PCBs, TAL Metals, and NWTPH-Dx
07040137	EMW-03	4/21/2007	12:00	Ground Water	SVOCs, VOCs, PCBs, TAL Metals, and NWTPH-Dx
07040138	EMW-04	4/21/2007	14:16	Ground Water	SVOCs, VOCs, PCBs, TAL Metals, and NWTPH-Dx
07040139	EMW-05	4/21/2007	15:47	Ground Water	SVOCs, VOCs, PCBs, TAL Metals, and NWTPH-Dx
07040140	EMW-06	4/21/2007	17:45	Ground Water	SVOCs, VOCs, PCBs, TAL Metals, and NWTPH-Dx
07040141	HC-1	4/21/2007	13:10	Ground Water	SVOCs, VOCs, PCBs, TAL Metals, and NWTPH-Dx
07040142	MW-5	4/21/2007	10:53	Ground Water	SVOCs, VOCs, PCBs, TAL Metals, and NWTPH-Dx
07040143	DW-01	4/21/2007	14:20	Ground Water	SVOCs, VOCs, PCBs, TAL Metals, and NWTPH-Dx

Note: The two digits at the end of the soil sample Location ID indicates the depth, in feet below ground surface, where the sample was collected.

Key:
DW = domestic well
EMW = EPA monitoring well
EPA = U.S. Environmental Protection Agency
ESB = EPA soil boring
HC = Hart Crowser
ID = identification
MW = monitoring well
NWTPH-Dx = Northwest Total Petroleum Hydrocarbons, Diesel-Range Extended
PCBs = polychlorinated biphenyls
RB = rinse blank
SB = soil boring
START = Superfund Technical Assessment and Response Team
SVOCs = semivolatile organic compounds
SW = surface water
TAL = Target Analyte List (Metals)
TB = trip blank

Table 4-2

Summary of Volatile Organic Compund Results in Soil Samples
Avery Landing Site
Avery, Idaho

Sample Number:	07040101	07040103	07040107	07040109	07040112	07040115	07040118	07040121	07040123	07040126	07040128	07040111	ARARs		
Sample Location:	EMW-01 SB 06	EMW-02 SB 05	EMW-03 SB 11	EMW-05 SB 09	EMW-06 SB 07	ESB-01 SB 07	ESB-03 SB 09	ESB-04 SB 07	ESB-05 SB 09	ESB-06 SB 09	ESB-07 SB 07	RB-01 (Rinsate Blank)	Idaho REM (1)	EPA Region 6 Residential (2)	EPA Region 6 Industrial (2)
VOCs (µg/kg)												(µg/L)			
1,1,1-Trichloroethane	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	2,000	1,385,378	1,385,378
1,1,2,2-Tetrachloroethane	*3.3 UJ*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 UJ*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	0.92	384	970
1,1,2-Trichloroethane	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	14	844	2,078
1,1-Dichloroethane	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	3,479	845,964	2,332,719
1,1-Dichloroethene	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	39	280,000	470,000
1,2-Dichloroethane	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	7.7	350	840
cis-1,2-Dichloroethene	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	193	43,000	160,000
trans-1,2-Dichloroethene	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	365	120,000	200,000
1,2-Dichloropropane	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	8.9	351	847
cis-1,3-Dichloropropene	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	2.4	700	1,700
trans-1,3-Dichloropropene	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	2.4	700	1,700
2-Butanone	24 J	21	17	29	39 J	*9.6 U*	*10 U*	31 J	26 J	54 J	19 J	*5.0 U*	11,800	32,000,000	32,000,000
2-Hexanone	6 J	*13 U*	*13 U*	*8.5 U*	*12 UJ*	*9.6 U*	*10 U*	*11 UJ*	*11 U*	*12 U*	*9 UJ*	*5.0 U*	n.a.	n.a.	n.a.
4-Methyl-2-pentanone	*11 U*	*13 U*	*13 U*	*8.5 U*	*12 UJ*	*9.6 U*	*10 U*	*11 UJ*	*11 U*	*12 U*	*9 UJ*	*5.0 U*	n.a.	n.a.	n.a.
Acetone	85 J	130	93	160	190 J	16 J	6.1 J	230 J	110 J	150 J	78	2.0 J	17,405	14,150,596	60,479,805
Benzene	5.9 J	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	18	656	1,598
Bromodichloromethane	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	2.7	1,026	2,559
Bromoform	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	29	62,000	240,000
Bromomethane	*3.3 UJ*	*3.9 UJ*	*3.9 UJ*	*2.6 UJ*	*3.5 UJ*	*2.9 UJ*	*3.1 UJ*	*3.4 UJ*	*3.4 UJ*	*3.6 UJ*	*2.7 UJ*	*1.0 U*	50	3,905	14,561
Carbon disulfide	*3.3 U*	*3.9 U*	*3.9 U*	3.1	2.3 J	*2.9 U*	*3.1 U*	2.0 J	2.1 J	*3.6 U*	*2.7 UJ*	*1.0 U*	5,971	721,254	721,254
Carbon tetrachloride	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	11	240	582
Chlorobenzene	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	13 J	*2.9 U*	*3.1 U*	13 J	31 J	*3.6 U*	*2.7 UJ*	*1.0 U*	618	273,175	503,436
Chloroethane	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	53	n.a.	n.a.
Chloroform	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	5.6	245	580
Chloromethane	*3.3 U*	*3.9 U*	*3.9 UJ*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	23	1,261	2,982
Dibromochloromethane	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	n.a.	n.a.	n.a.
Dichlorodifluoromethane	*3.3 UJ*	*3.9 UJ*	*3.9 UJ*	*2.6 UJ*	*3.5 UJ*	*2.9 UJ*	*3.1 UJ*	*3.4 UJ*	*3.4 UJ*	*3.6 UJ*	*2.7 UJ*	*1.0 U*	2,957	94,077	339,733
Ethylbenzene	2.7 J	3.8 J	*3.9 U*	56	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	540 J	13 J	1.8 J	*1.0 U*	10,200	233,948	233,948
Methylene chloride	*3.3 U*	*5.1 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*7.9 U*	*2.7 UJ*	3.7	17	8,898	22,254
Styrene	2.8 J	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	1,830	1,733,844	1,733,844
Tetrachloroethene	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*24 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	29	550	1,700
Toluene	17 J	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	4,885	521,170	521,170
Trichloroethene	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	2.9	43	100
Trichlorofluoromethane	*3.3 U*	*3.9 U*	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	10,376	386,624	1,420,861
Vinyl chloride	*3.3 U*	*3.9 U*	*3.9 UJ*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	*3.4 U*	*3.6 U*	*2.7 UJ*	*1.0 U*	10	43	863
m,p-Xylene	7.1 J	*7.8 U*	*7.7 U*	6.4	*7.1 UJ*	*5.8 U*	*6.2 U*	*6.7 UJ*	25 J	*7.2 U*	2 J	*2.0 U*	1,666 (3)	210,000 (3)	210,000 (3)
o-Xylene	4.0 J	3.5 J	*3.9 U*	*2.6 U*	*3.5 UJ*	*2.9 U*	*3.1 U*	*3.4 UJ*	15 J	7.8 J	4.1 J	*1.0 U*	1,666 (3)	210,000 (3)	210,000 (3)

Notes:
Italics indicates the compound was not detected.
Bold type indicates the compound exceeded the Idaho REM value.
Underline type indicates the compound exceeded the EPA Region 6 residential guideline.
Highlighted cell indicates the compound exceeded the EPA Region 6 industrial guideline.
(1) Idaho Risk Evaluation Manual (DEQ 2004).
(2) EPA Region 6 Medium-Specific Human Health Screening Levels (EPA 2007a).
(3) Xylene standards are for total xylene.

Key:
ARAR = applicable or relevant and relevant requirement
ID = identification
J = estimated value
µg/kg = micrograms per kilogram
µg/L = micrograms per liter
REM = Risk Evaluation Manual
U = not detected (at the indicated reporting limit)
UJ = not detected (estimated reporting limit)

Table 4-3

Summary of Semivolatile Organic Compund Results in Soil Samples
Avery Landing Site
Avery, Idaho

Sample ID:	07040102	07040104	07040106	07040108	07040110	07040114	07040116	07040117	ARARs		
Sample Location:	EMW-01 SB 02	EMW-02 SB 07	EMW-03 SB 11	EMW-04 SB 03	EMW-05 SB 09	EMW-06 SB 09	ESB-01 SB 07	ESB-02 SB 03	Idaho REM Residential (1)	EPA Region 6 Residential (2)	EPA Region 6 Industrial (2)
SVOCs (µg/kg)											
1,2,4-Trichlorobenzene	*55 U*	*59 U*	*6.9 U*	*54 U*	*63 U*	*66 U*	*56 U*	*55 U*	692	142,520	264,776
1,2-Dichlorobenzene	*55 U*	*59 U*	*6.9 U*	*54 U*	*63 U*	*66 U*	*56 U*	*55 U*	5,253	278,923	372,612
1,3-Dichlorobenzene	*55 U*	*59 U*	*6.9 U*	*54 U*	*63 U*	*66 U*	*56 U*	*55 U*	229	68,534	144,219
1,4-Dichlorobenzene	*55 U*	*59 U*	*6.9 U*	*54 U*	*63 U*	*66 U*	*56 U*	*55 U*	76	3,197	8,067
1-Methylnaphthalene	*33 U*	400	*4.1 U*	*33 U*	16,000	30,000	*33 U*	130	n.a.	n.a.	n.a.
2,4,5-Trichlorophenol	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 UJ*	n.a.	n.a.	n.a.
2,4,6-Trichlorophenol	*160 U*	*180 U*	*21 U*	*160 UJ*	*190 U*	*200 U*	*170 U*	*170 UJ*	n.a.	n.a.	n.a.
2,4-Dichlorophenol	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 UJ*	98	183,309	2,052,021
2,4-Dimethylphenol	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 UJ*	n.a.	n.a.	n.a.
2,4-Dinitrophenol	*1,100 UJ*	*1,200 UJ*	*140 UJ*	*1,100 UJ*	*1,300 UJ*	*1,300 UJ*	*1,100 UJ*	*1100 UJ*	n.a.	n.a.	n.a.
2,4-Dinitrotoluene	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	n.a.	n.a.	n.a.
2,6-Dinitrotoluene	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	n.a.	n.a.	n.a.
2-Chloronaphthalene	*22 U*	*24 U*	*2.7 U*	*22 U*	*25 U*	*26 U*	*22 U*	*22 U*	n.a.	n.a.	n.a.
2-Chlorophenol	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 UJ*	365	63,511	262,495
2-Methylnaphthalene	*22 U*	210	*2.7 U*	36	**23,000**	**44,000**	22 J	210	3,310	n.a.	n.a.
2-Methylphenol	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 UJ*	n.a.	n.a.	n.a.
2-Nitroaniline	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	n.a.	n.a.	n.a.
2-Nitrophenol	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 UJ*	n.a.	n.a.	n.a.
3 & 4 Methylphenol	*220 U*	*240 U*	*27 U*	*220 U*	*250 U*	*260 U*	*220 U*	*220 UJ*	n.a.	n.a.	n.a.
3,3'-Dichlorobenzidine	*220 UJ*	*240 U*	*27 U*	R	*250 U*	*260 U*	*220 U*	*220 U*	n.a.	n.a.	n.a.
3-Nitroaniline	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	n.a.	n.a.	n.a.
4,6-Dinitro-2-methylphenol	*1,100 U*	*1,200 U*	*140 U*	R	*1,300 U*	*1,300 U*	*1,100 U*	*1,100 UJ*	n.a.	n.a.	n.a.
4-Bromophenyl phenyl ether	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	n.a.	n.a.	n.a.
4-Chloro-3-methylphenol	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 UJ*	n.a.	n.a.	n.a.
4-Chloroaniline	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	126	244,412	2,736,028
4-Chlorophenyl phenyl ether	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	n.a.	n.a.	n.a.
4-Nitroaniline	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	3.0	n.a.	n.a.
4-Nitrophenol	*1,100 U*	*1,200 U*	*140 U*	*1,100 U*	*1,300 U*	*1,300 U*	*1,100 U*	*1100 UJ*	n.a.	n.a.	n.a.
Acenaphthene	*22 U*	160	6.3	*22 U*	1,500	3,200	*22 U*	22 *U*	52,264	3,683,396	32,502,818
Acenaphthylene	*22 U*	*24 U*	*2.7 U*	5.7 J	*25 U*	*26 U*	*22 U*	22 *U*	78,017	n.a.	n.a.
Anthracene	14 J	91	*2.7 U*	7.1 J	700	250	*22 U*	6.5 J	1,040,119	21,899,672	100,000,000
Benzo[a]anthracene	*27 UJ*	120	*3.4 U*	38 J	210	53	*28 U*	29	422	150	2,300
Benzo[a]pyrene	*33 UJ*	**85**	*4.1 U*	**58**	**110**	*39 U*	*33 U*	**43**	42	15	230
Benzo[b]fluoranthene	*22 UJ*	52	*2.7 U*	59	110	*26 U*	*22 U*	52	422	150	2,300
Benzo[g,h,i]perylene	*27 UJ*	57	*3.4 U*	59	57	*33 U*	*28 U*	57	1,177,982	n.a.	n.a.
Benzo[k]fluoranthene	*27 UJ*	*30 U*	*3.4 U*	27 J	*31 U*	*33 U*	*28 U*	11 J	4,218	1,500	23,000
Benzoic acid	*2,700 U*	*3,000 U*	*340 U*	R	*3,100 U*	*3,300 U*	*2,800 U*	*2,800 UJ*	77,150	100,000,000	100,000,000
Benzyl alcohol	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 UJ*	n.a.	n.a.	n.a.
Bis(2-chloroethoxy)methane	*110 U*	*120 U*	*14 U*	*110 U*	77 J	*130 U*	*110 U*	*110 U*	n.a.	n.a.	n.a.
Bis(2-chloroethyl)ether	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	0	211	616
Bis(2-chloroisopropyl) ether	*160 U*	*180 U*	*21 U*	*160 U*	*190 U*	*200 U*	*170 U*	*170 U*	n.a.	n.a.	n.a.
Bis(2-ethylhexyl) phthalate	*1,600 UJ*	*1,800 U*	44 J	*1,600 U*	*1,900 U*	*2,000 U*	*1,700 U*	*1,700 U*	11,836	35,000	140,000
Butyl benzyl phthalate	*38 UJ*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	511,168	240,477	240,477
Carbazole	*160 U*	*180 U*	*21 U*	*160 U*	*190 U*	*200 U*	*170 U*	*170 U*	n.a.	n.a.	n.a.
Chrysene	*27 UJ*	180	*3.4 U*	48	360	120	*28 U*	37	33,366	14,762	234,414
Dibenz[a,h]anthracene	*44 UJ*	*47 U*	*5.5 U*	36 J	*50 U*	*53 U*	*45 U*	40 J	42	15	230
Dibenzofuran	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	38 J	6,099	145,284	1,737,888
Diethyl phthalate	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	27,531	49,000,000	100,000,000
Dimethyl phthalate	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	270,813	100,000,000	100,000,000
Di-n-butyl phthalate	*220 U*	*69 UJ*	*9.8 U*	74 J	*250 U*	*260 U*	*220 U*	*58 U*	30,989	n.a.	n.a.
Di-n-octyl phthalate	*220 UJ*	*240 U*	*27 U*	*220 U*	*250 U*	*260 U*	*220 U*	*220 U*	1,828,814	n.a.	n.a.
Fluoranthene	26	65	*2.7 U*	61 J	460	99	*22 U*	33	363,512	2,293,610	24,444,837
Fluorene	*22 U*	180	9.7	*22 U*	2,800	4,900	*22 U*	*22 U*	54,836	2,644,486	26,221,983
Hexachlorobenzene	*55 U*	*59 U*	*6.9 U*	*54 U*	*63 U*	*66 U*	*56 U*	*55 U*	43	304	1,197
Hexachlorobutadiene	*55 U*	*59 U*	*6.9 U*	*54 U*	*63 U*	*66 U*	*56 U*	*55 U*	38	6,236	24,554
Hexachlorocyclopentadiene	*110 U*	*120 U*	*14 U*	*110 UJ*	*130 U*	*130 U*	*110 U*	*110 U*	12	365,487	4,065,241
Hexachloroethane	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	138	34,741	136,801
Indeno[1,2,3-cd]pyrene	*44 UJ*	51 J	*5.5 U*	75 J	*50 U*	*53 U*	*45 U*	55 J	422	150	7,800
Isophorone	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	n.a.	n.a.	n.a.
Naphthalene	*22 U*	81	*2.7 U*	19 J	**3,600**	**4,700**	*22 U*	100	1,144	124,798	208,984
Nitrobenzene	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	n.a.	n.a.	n.a.
N-Nitrosodi-n-propylamine	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 U*	n.a.	n.a.	n.a.
N-Nitrosodiphenylamine	*55 U*	*59 U*	*6.9 U*	*54 U*	*63 U*	*66 U*	*56 U*	*55 U*	0.002	99,261	390,861
Pentachlorophenol	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	*110 UJ*	9.1	2,979	9,998
Phenanthrene	*22 U*	420	*2.7 U*	43	5,800	3,800	*22 U*	89	79,042	n.a.	n.a.
Phenol	*110 U*	*120 U*	*14 U*	*110 U*	*130 U*	*130 U*	*110 U*	110 UJ	7,358	18,331,473	100,000,000
Pyrene	44	370	*2.7 U*	65	840	240	*22 U*	43	359,215	2,308,756	31,979,385

Key is on last page.

Table 4-3 (Continued)

Summary of Semivolatile Organic Compund Results in Soil Samples
Avery Landing Site
Avery, Idaho

Sample ID:	07040119	07040120	07040122	07040124	07040125	07040127	07040129	07040111	ARARs		
Sample Location:	ESB-03 SB 11	ESB-04 SB 03	ESB-04 SB 07	ESB-05 SB 15	ESB-05 SB 23	ESB-06 SB 11	ESB-07 SB 13	RB-01 (Rinsate Blank)	Idaho REM Residential (1)	EPA Region 6 Residential (2)	EPA Region 6 Industrial (2)
SVOCs (µg/kg)								(µg/L)			
1,2,4-Trichlorobenzene	*65 UJ*	*550 U*	*63 U*	*56 U*	*5.4 U*	*61 UJ*	*54 U*	*0.22 U*	690	142,520	264,776
1,2-Dichlorobenzene	*65 UJ*	*550 U*	*63 U*	*56 U*	*5.4 U*	*61 UJ*	*54 U*	*0.22 U*	5,253	278,923	372,612
1,3-Dichlorobenzene	*65 UJ*	*550 U*	*63 U*	*56 U*	*5.4 U*	*61 UJ*	*54 U*	*0.22 U*	229	68,534	144,219
1,4-Dichlorobenzene	*65 UJ*	*550 U*	*63 U*	*56 U*	*5.4 U*	*61 UJ*	*54 U*	*0.22 U*	76	3,197	8,067
1-Methylnaphthalene	10,000	1,000	12,000	2,200	79	8,300	2,800	0.012 J	n.a.	n.a.	n.a.
2,4,5-Trichlorophenol	*130 U*	R	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.22 U*	n.a.	n.a.	n.a.
2,4,6-Trichlorophenol	*190 U*	R	*190 U*	*170 U*	*16 U*	*180 UJ*	R	*0.33 U*	n.a.	n.a.	n.a.
2,4-Dichlorophenol	*130 UJ*	R	*130 U*	*110 U*	*11 U*	*120 UJ*	R	*0.22 U*	98	183,309	2,052,021
2,4-Dimethylphenol	*130 UJ*	R	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*1.1 U*	n.a.	n.a.	n.a.
2,4-Dinitrophenol	*1,300 UJ*	R	*1,300 UJ*	*1,100 UJ*	*110 UJ*	*1,200 UJ*	R	*2.8 U*	n.a.	n.a.	n.a.
2,4-Dinitrotoluene	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.22 U*	n.a.	n.a.	n.a.
2,6-Dinitrotoluene	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.22 U*	n.a.	n.a.	n.a.
2-Chloronaphthalene	*26 UJ*	**170 J**	*25 U*	*22 U*	*2.2 U*	*24 UJ*	*22 U*	*0.033 U*	n.a.	n.a.	n.a.
2-Chlorophenol	*130 UJ*	R	*130 U*	*110 U*	*11 U*	*120 UJ*	R	*0.22 U*	365	63,511	262,495
2-Methylnaphthalene	**15,000**	1,400	**18,000**	2,900	110	**9,800**	2,900	0.016 J	3,310	n.a.	n.a.
2-Methylphenol	*130 UJ*	R	*130 U*	*110 U*	*11 U*	*120 UJ*	R	*0.22 U*	n.a.	n.a.	n.a.
2-Nitroaniline	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.22 U*	n.a.	n.a.	n.a.
2-Nitrophenol	*130 UJ*	R	*130 U*	*110 U*	*11 U*	*120 UJ*	R	*0.22 U*	n.a.	n.a.	n.a.
3 & 4 Methylphenol	*260 UJ*	R	*250 U*	*220 U*	*22 U*	*240 UJ*	R	*0.44 U*	n.a.	n.a.	n.a.
3,3'-Dichlorobenzidine	*260 UJ*	*2,200 U*	*250 U*	*220 U*	*22 U*	*240 UJ*	*220 U*	*1.1 U*	n.a.	n.a.	n.a.
3-Nitroaniline	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.22 U*	n.a.	n.a.	n.a.
4,6-Dinitro-2-methylphenol	*1,300 U*	R	*1,300 U*	*1100 U*	*110 U*	*1,200 UJ*	R	*2.2 U*	n.a.	n.a.	n.a.
4-Bromophenyl phenyl ether	*130 UJ*	*1100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.22 U*	n.a.	n.a.	n.a.
4-Chloro-3-methylphenol	*130 UJ*	R	*130 U*	*110 U*	*11 U*	*120 UJ*	R	*0.22 U*	n.a.	n.a.	n.a.
4-Chloroaniline	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.22 U*	126	244,412	2,736,028
4-Chlorophenyl phenyl ether	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.22 U*	n.a.	n.a.	n.a.
4-Nitroaniline	*130 UJ*	*1,100 U*	*130 U*	*110 U*	**5.4 J**	*120 UJ*	*110 U*	*0.33 U*	3.0	n.a.	n.a.
4-Nitrophenol	*1,300 U*	R	*1,300 U*	*1,100 U*	*110 U*	*1,200 UJ*	R	*1.1 U*	n.a.	n.a.	n.a.
Acenaphthene	*26 UJ*	900	*25 U*	350	10	*24 UJ*	620	*0.055 U*	52,264	3,683,396	32,502,818
Acenaphthylene	*26 UJ*	*220 U*	*25 U*	*22 U*	*2.2 U*	*24 UJ*	*22 U*	*0.044 U*	78,017	n.a.	n.a.
Anthracene	180 J	480	530	120	3.7	510 J	220	*0.022 U*	1,040,119	21,899,672	100,000,000
Benzo[a]anthracene	120 J	**860**	190	38	1.3 J	130 J	84	*0.033 U*	422	150	2,300
Benzo[a]pyrene	**81 J**	**650**	**110**	**37**	*3.3 U*	**62 J**	**44**	*0.022 U*	42	15	230
Benzo[b]fluoranthene	80 J	**490**	85	30	*2.2 U*	59 J	48	*0.044 U*	422	150	2,300
Benzo[g,h,i]perylene	85 J	480	61	29	*2.7 U*	43 J	37	*0.033 U*	1,177,982	n.a.	n.a.
Benzo[k]fluoranthene	*32 UJ*	*280 U*	*31 U*	*28 U*	*2.7 U*	10 J	9.8 J	*0.033 U*	4,218	1,500	23,000
Benzoic acid	*3,200 UJ*	R	*3,100 U*	*2,800 U*	*270 U*	*3,000 UJ*	R	*1.1 U*	77,150	100,000,000	100,000,000
Benzyl alcohol	*130 UJ*	R	*130 U*	*110 U*	*11 U*	*120 UJ*	R	0.015 J	n.a.	n.a.	n.a.
Bis(2-chloroethoxy)methane	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.22 U*	n.a.	n.a.	n.a.
Bis(2-chloroethyl)ether	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.22 U*	0	211	616
Bis(2-chloroisopropyl) ether	*190 UJ*	*1,700 U*	*190 U*	*170 U*	*16 U*	*180 UJ*	*160 U*	*0.22 U*	n.a.	n.a.	n.a.
Bis(2-ethylhexyl) phthalate	*1,900 UJ*	*17,000 U*	*1,900 U*	*1,700 U*	*160 U*	*1,800 UJ*	*1,600 U*	*1.7 U*	11,836	35,000	140,000
Butyl benzyl phthalate	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.33 U*	511,168	240,477	240,477
Carbazole	*190 UJ*	950 J	*190 U*	*170 U*	*16 U*	*180 UJ*	*160 U*	*0.22 U*	n.a.	n.a.	n.a.
Chrysene	290 J	1,400	370	53	1.7 J	180 J	120	*0.022 U*	33,366	14,762	234,414
Dibenz[a,h]anthracene	*52 UJ*	*440 U*	*50 U*	*44 U*	*4.3 U*	*49 UJ*	*43 U*	*0.033 U*	42	15	230
Dibenzofuran	*130 UJ*	200 J	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.22 U*	6,099	145,284	1,737,888
Diethyl phthalate	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	0.06 J	27,531	49,000,000	100,000,000
Dimethyl phthalate	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	0.029 J	270,813	100,000,000	100,000,000
Di-n-butyl phthalate	*260 UJ*	*2,200 U*	*250 U*	*220 U*	*22 U*	*240 UJ*	*220 U*	*0.22 U*	30,989	n.a.	n.a.
Di-n-octyl phthalate	*260 UJ*	*2,200 U*	*250 U*	*220 U*	*22 U*	*240 UJ*	*220 U*	*0.22 U*	1,828,814	n.a.	n.a.
Fluoranthene	170 J	1,400	310	70	2.4	520 J	340	*0.028 U*	363,512	2,293,610	24,444,837
Fluorene	2,300 J	1,000	2,900	600	21	1,400 J	1,700	0.0076 J	54,836	2,644,486	26,221,983
Hexachlorobenzene	*65 UJ*	*550 U*	*63 U*	*56 U*	*5.4 U*	*61 UJ*	*54 U*	*0.22 U*	43	304	1,197
Hexachlorobutadiene	*65 UJ*	*550 U*	*63 U*	*56 U*	*5.4 U*	*61 UJ*	*54 U*	*0.33 U*	38	6,236	24,554
Hexachlorocyclopentadiene	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*1.1 U*	12	365,487	4,065,241
Hexachloroethane	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.33 U*	138	34,741	136,801
Indeno[1,2,3-cd]pyrene	*52 UJ*	*440 U*	*50 U*	*44 U*	*4.3 U*	43 J	*43 U*	*0.033 U*	422	150	7,800
Isophorone	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.22 U*	n.a.	n.a.	n.a.
Naphthalene	**6,000 J**	240	**3,100**	410	15	**2,600 J**	1,000	0.0079 J	1,144	124,798	208,984
Nitrobenzene	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.22 U*	n.a.	n.a.	n.a.
N-Nitrosodi-n-propylamine	*130 UJ*	*1,100 U*	*130 U*	*110 U*	*11 U*	*120 UJ*	*110 U*	*0.22 U*	n.a.	n.a.	n.a.
N-Nitrosodiphenylamine	*65 UJ*	*550 U*	*63 U*	*56 U*	*5.4 U*	*61 UJ*	*54 U*	*0.22 U*	0	99,261	390,861
Pentachlorophenol	*130 UJ*	R	*130 U*	*110 U*	*11 U*	*120 UJ*	R	*0.39 U*	9.1	2,979	9,998
Phenanthrene	3,600 J	3,300	4,400	960	37	4,600 J	2,500	0.0093 J	79,042	n.a.	n.a.
Phenol	*130 UJ*	R	*130 U*	*110 U*	*11 U*	*120 UJ*	R	*0.33 U*	7,358	18,331,473	100,000,000
Pyrene	510 J	3,200	690	140	4.7	770 J	430	*0.033 U*	359,215	2,308,756	31,979,385

Notes: Italics indicates that the compound was not detected.
Bold type indicates that the compound exceeds the Idaho REM.
Underline type indicates that the compound exceeds the EPA Human Health Medium-Specific Screening Level for Residential Properties
Highlighted type indicates that the compound exceeds the EPA Human Health Medium-Specific Screening Level for Industial Properties
(1) Idaho Risk Evaluation Manual (DEQ 2004).
(2) EPA Region 6 Human Health Medium-Specific Screening Levels (EPA 2007a).

Key:
ARAR =applicable or relevant and appropriate requirement
EPA =Environmental Protection Agency
ID = identification
J = estimated value
µg/kg = microgram per kilogram
µg/L = microgram per liter
n.a. =not available
R = rejected value
REM =Risk Evaluation Manual
SVOC = semivolatile organic compound
U = not detected (at the indicated reporting limit)
UJ = not detected (estimated reporting limit)

Table 4-4

Summary of PCB and NWTPH-Dx Results in Soil Samples
Avery Landing Site
Avery, Idaho

Sample ID:	07040102	07040104	07040106	07040108	07040110	07040114	07040116	07040117	ARARs		
Sample Location:	EMW-01 SB 02	EMW-02 SB 07	EMW-03 SB 11	EMW-04 SB 03	EMW-05 SB 09	EMW-06 SB 09	ESB-01 SB 07	ESB-02 SB 03	Idaho REM Residential (1)	EPA Region 6 Residential (2)	EPA Region 6 Industrial (2)
PCBs (µg/kg)											
Aroclor-1016	*11 U*	*12 U*	*13 U*	*10 U*	*13 U*	*13 U*	*11 U*	*11 U*	2,334	3,933	23,606
Aroclor-1221	*11 U*	*12 U*	*13 U*	*10 U*	*13 U*	*13 U*	*11 U*	*11 U*	2.9	222	826
Aroclor-1232	*11 U*	*12 U*	*13 U*	*10 U*	*13 U*	*13 U*	*11 U*	*11 U*	n.a.	n.a.	n.a.
Aroclor-1242	*11 U*	*12 U*	*13 U*	*10 U*	*13 U*	*13 U*	*11 U*	*11 U*	3.2	222	826
Aroclor-1248	*11 U*	*12 U*	*13 U*	*10 U*	*13 U*	*13 U*	*11 U*	*11 U*	137	222	826
Aroclor-1254	*11 U*	*12 U*	*13 U*	*10 U*	*13 U*	*13 U*	*11 U*	*11 U*	740	222	826
Aroclor-1260	9.8 J	*12 U*	130	19	20 J	9.2 J	*11 U*	4.4 J	147	222	826
NWTPH-Dx (mg/kg)											
Sample ID:	07040102	07040105	07040106	07040108	07040110	07040114	07040116	07040117	ARARs		
Sample Location:	EMW-01 SB 02	EMW-02 SB 05	EMW-03 SB 11	EMW-04 SB 03	EMW-05 SB 09	EMW-06 SB 09	ESB-01 SB 07	ESB-02 SB 03	Idaho REM Residential (1)	EPA Region 6 Residential (2)	EPA Region 6 Industrial (2)
Diesel-Range Organics	1,500	7,200	40	160	12,000	6,900	650	Not Analyzed	n.a.	n.a.	n.a.
Oil-Range Organics	12,000	5,200	*140 U*	890	2,000	3,600	2,500	Not Analyzed	n.a.	n.a.	n.a.

Key is on last page.

Table 4-4 (continued)

Summary of PCB and NWTPH-Dx Results in Soil Samples
Avery Landing Site
Avery, Idaho

Sample ID:	07040119	07040120	07040122	07040124	07040125	07040127	07040129	07040111	ARARs		
Sample Location:	ESB-03 SB 11	ESB-04 SB 03	ESB-04 SB 07	ESB-05 SB 15	ESB-05 SB 23	ESB-06 SB 11	ESB-07 SB 13	RB-01 (Rinsate Blank)	Idaho REM Residential (1)	EPA Region 6 Residential (2)	EPA Region 6 Industrial (2)
PCBs (µg/kg)								(µg/L)			
Aroclor-1016	*13 U*	*10 U*	*13 U*	*11 U*	*10 U*	*12 U*	*11 U*	*0.055 UJ*	2,334	3,933	23,606
Aroclor-1221	*13 U*	*10 U*	*13 U*	*11 U*	*10 U*	*12 U*	*11 U*	*0.055 UJ*	2.9	222	826
Aroclor-1232	*13 U*	*10 U*	*13 U*	*11 U*	*10 U*	*12 U*	*11 U*	*0.055 UJ*	n.a.	n.a.	n.a.
Aroclor-1242	*13 U*	*10 U*	*13 U*	*11 U*	*10 U*	*12 U*	*11 U*	*0.055 UJ*	3.2	222	826
Aroclor-1248	*13 U*	*10 U*	*13 U*	*11 U*	*10 U*	*12 U*	*11 U*	*0.055 UJ*	137	222	826
Aroclor-1254	*13 U*	*10 U*	*13 U*	*11 U*	*10 U*	*12 U*	*11 U*	*0.055 UJ*	740	222	826
Aroclor-1260	*13 U*	22	*13 U*	*11 U*	*10 U*	6.8 J	6.5 J	*0.055 UJ*	147	222	826
NWTPH-Dx (mg/kg)								(µg/L)			
Sample ID:	07040119	07040120	07040122	07040124	07040125	07040127	07040129	07040111	ARARs		
Sample Location:	ESB-03 SB 11	ESB-04 SB 03	ESB-04 SB 07	ESB-05 SB 15	ESB-05 SB 23	ESB-06 SB 11	ESB-07 SB 13	RB-01	Idaho REM Residential (1)	EPA Region 6 Residential (2)	EPA Region 6 Industrial (2)
Diesel-Range Organics	17,000	3,700	13,000	3,100	Not Analyzed	7,800	6,600	*48 U*	n.a.	n.a.	n.a.
Oil-Range Organics	6,700	3,300	7,000	1,500	Not Analyzed	3,100	1,900	*190 U*	n.a.	n.a.	n.a.

Notes: Italics indicate Bold type indicates a detected compound.
Bold type indicates that the compound exceeds the Idaho REM.
Underline type indicates that the compound exceeds the EPA Human Health Medium-Specific Screening Level for Residential Properties
Highlighted type indicates that the compound exceeds the EPA Human Health Medium-Specific Screening Level for Industial Properties
(1) Idaho Risk Evaluation Manual (DEQ 2004).
(2) EPA Region 6 Medium-Specific Human Health Screening Levels (EPA 2007a).

Key:

ARAR	= applicable or relavant and appropriate requirement
ID	= identification
J	= estimated value
µg/kg	= microgram per kilogram
µg/L	= microgram per liter
mg/kg	= milligrams per kilogram
NWTPH-Dx	= Northwest Total Petroleum Hydrocarbon, Diesel Range Extended
PCBs	= polychlorinated biphenyls
U	= not detected (at the indicated reporting limit)
UJ	= not detected (estimated reporting limit)

Table 4-5

Summary of TAL Metal Results in Soil Samples
Avery Landing Site
Avery, Idaho

Sample ID:	07040102	07040105	07040106	07040108	07040110	07040113	07040116	07040117	ARARs		
Sample Location:	EMW-01 SB 02	EMW-02 SB 05	EMW-03 SB 11	EMW-04 SB 03	EMW-05 SB 09	EMW-06 SB 07	ESB-01 SB 07	ESB-02 SB 03	Idaho REM Residential (1)	EPA Region 6 Residential (2)	EPA Region 6 Industrial (3)
TAL Metals (mg/kg)											
Aluminum	11,200	19,500	14,900	11,200	13,500	15,800	14,100	12,100	n.a.	76,188	100,000
Antimony	*0.2 UJ*	0.074 J	0.1 J	1.3 J	0.21 J	0.12 J	0.17 J	1.1 J	4.8	31	450
Arsenic [(4)]	**17.3 J**	**8.6 J**	**7.3 J**	**12 J**	**5.7 J**	**7.5 J**	**15.7 J**	**16.9 J**	0.39	0.39	1.8
Barium	63.2	113	92.8	193	76.3	96	125	174	896	16,000	100,000
Beryllium	0.4 J	0.67 J	0.47 J	0.62 J	0.57 J	0.54 J	0.46	0.46 J	1.6	150	2,200
Cadmium	0.47 J	0.52 J	0.45 J	0.81 J	0.39 J	0.43 J	0.53 J	0.78 J	1.4	39	560
Calcium	862 J	2,720 J	1,480 J	6,390 J	2,310 J	1,910 J	1,620 J	4,370 J	n.a.	n.a.	n.a.
Chromium	18.8	18.4	11.9	15.1	13.2	12.8	12.1	12.3	2,135 [(4)]	210	500
Cobalt	8.8	8.4	6.2	6.5	6.9	8.5	7.1	19.2	n.a.	n.a.	n.a.
Copper	23.7	21.5	20.8	101	25.1	20.7	20.5	71.6	921	2,900	42,000
Iron	**24,600**	**20,000**	**15,100**	**19,700**	**18,000**	**16,900**	**18,900**	**19,300**	5.8	54,750	100,000
Lead	11	9.5	9.3	**145**	6.1	8.3	17.3	**159**	50	400	800
Magnesium	3,420 J	7,760 J	5,830 J	8,060 J	6,190 J	6,570 J	7,460 J	6,590 J	n.a.	n.a.	n.a.
Manganese	**403 J**	**260 J**	188 J	**354 J**	**271 J**	**319 J**	200 J	**288 J**	223	3,200	47,000
Mercury	**0.0199 J**	**0.0124 J**	**0.0114 J**	**0.0553 J**	**0.0119 J**	**0.0105 J**	*0.0064 UJ*	**0.117**	0.0051	23	340
Nickel	16.5	16.3	13.3	24.9	13.1	13.4	16.1	32.3	59	1,600	23,000
Potassium	1,600 J	2,940 J	1,980 J	3,250 J	2,460 J	1,720 J	3,500 J	2,740 J	n.a.	n.a.	n.a.
Selenium	0.13 J	0.28 J	0.36 J	0.22 J	0.38 J	0.39 J	0.23 J	0.21 J	2.0	390	5,700
Silver	0.14 J	0.15 J	0.11 J	0.16 J	0.1 J	0.11 J	0.12 J	0.17 J	0.19	390	5,700
Sodium	*52.2 U*	477	*86.3 U*	292	*113 U*	*106 U*	*70.4 U*	*139 U*	n.a.	n.a.	n.a.
Thallium	0.11 J	0.2 J	0.15 J	0.16 J	0.16 J	0.16 J	0.17 J	0.14 J	1.6	5.5	79
Vanadium	11.9	25.4	20.5	30.2	25.6	23	22.1	21.9	n.a.	n.a.	n.a.
Zinc	48.7	47.3	42.2	101	34.9	42.5	26	72.3	886	23,000	100,000

Key is at end of table.

Table 4-5 (continued)

Summary of TAL Metal Results in Soil Samples
Avery Landing Site
Avery, Idaho

Sample ID:	07040119	07040120	07040122	07040124	07040127	07040129	07040111	ARARs		
Sample Location:	ESB-03 SB 11	ESB-04 SB 03	ESB-04 SB 07	ESB-05 SB 15	ESB-06 SB 11	ESB-07 SB 13	RB-01 (Rinsate Blank)	Idaho REM Residential (1)	EPA Region 6 Residential (2)	EPA Region 6 Industrial (2)
TAL Metals (mg/kg)							(µg/L)			
Aluminum	13,100	10,200	13,000	11,100	12,700	7,760	*32 U*	n.a.	76,188	100,000
Antimony	0.099 J	0.49 J	0.063 J	0.059 J	0.07 J	0.066 J	*0.626 U*	4.8	31	450
Arsenic (4)	**4.2 J**	**16.1 J**	**5.4 J**	**17 J**	**6.1 J**	**5.1 J**	*0.1 U*	0.39	0.39	1.8
Barium	65.6	175	65.8	62.4	69.2	44.3	*0.4 U*	896	16,000	100,000
Beryllium	0.46 J	0.42 J	0.49	0.4 J	0.39 J	0.24 J	*0.043 U*	1.6	150	2,200
Cadmium	0.36 J	0.86	0.36 J	0.29 J	0.41 J	0.23 J	*0.094 U*	1.4	39	560
Calcium	1,930 J	3,110 J	1,530 J	1,740 J	1,290 J	1,580 J	*116 U*	n.a.	n.a.	n.a.
Chromium	10.9	12	11.2	10.8	10.7	7.7	*0.569 U*	2,135 (3)	210	500
Cobalt	5.5	6.3	7.1	7.9	6.9	5.6	*0.028 U*	n.a.	n.a.	n.a.
Copper	18.7	44.7	18.1	21.3	20.2	43	*0.52 U*	921	2,900	42,000
Iron	**15,000**	**16,300**	**16,800**	**18,400**	**17,100**	**15,100**	28.1 J	5.8	54,750	100,000
Lead	7.7	**69.1**	4.3	2.3	6.3	4.7	*0.075 U*	50	400	800
Magnesium	5,750 J	4,180 J	5,320 J	6,670 J	5,290 J	4,170 J	4.54 J	n.a.	n.a.	n.a.
Manganese	98.3 J	**315 J**	**240 J**	201 J	221 J	120 J	0.464 J	223	3,200	47,000
Mercury	*0.00713 UJ*	**0.0312 J**	*0.00697 UJ*	*0.00625 UJ*	*0.00691 UJ*	*0.00609 UJ*	*0.018 UJ*	0.0051	23	340
Nickel	12.9	17.8	12.9	15	12.1	8.7	*0.11 U*	59	1,600	23,000
Potassium	2,060 J	1,920 J	1,960 J	3,240 J	1,940 J	1,960 J	*11 U*	n.a.	n.a.	n.a.
Selenium	0.3 J	0.31 J	0.21 J	0.19 J	0.26 J	0.16 J	*0.229 UJ*	2.0	390	5,700
Silver	0.078 J	0.14 J	0.081 J	0.07 J	0.086 J	0.055 J	*0.085 U*	0.19	390	5,700
Sodium	*89.5 U*	*203 U*	*101 U*	*89.7 U*	*89.5 U*	*108 U*	203 J	n.a.	n.a.	n.a.
Thallium	0.13 J	0.12 J	0.16 J	0.26 J	0.15 J	0.094 J	*0.044 UJ*	1.6	5.5	79
Vanadium	23.5	29.9	22.3	19.5	21	28.3	0.116 J	n.a.	n.a.	n.a.
Zinc	34.4	111	29.5	18.4	33.4	20.7	1.87 J	886	23,000	100,000

Notes: Italics indicates the compound was not detected.
Bold type indicates the compound exceeds the Idaho REM guideline.
Underline type indicates the compound exceeds the EPA Region 6 residential guideline.
Highlighted type indicates the compound exceeds the EPA Region 6 industrial guideline.
(1) Idaho Risk Evaluation Manual (DEQ 2004).
(2) EPA Region 6 Medium-Specific Human Health Screening Levels (EPA 2007a).
(3) The Idaho REM standard for chromium is for chromium (III).
(4) The upper limit of background soil concentrations for arsenic in the nearby Coeur d'Alene and Spokane River basins is 22 mg/kg (URS Greiner 2001).

Key:
ARAR = applicable or relevant and appriopriate requirement
ID = identification
J = estimated value
µg/L = microgram per liter
mg/kg = milligrams per kilogram
n.a. = not available
REM = Risk Evaluation Manual
TAL = target analyte list
U = not detected (at the indicated reporting limit)
UJ = not detected (estimated reporting limit)

Table 4-6

Summary of Volatile Organic Compund Results in Groundwater and Domestic Well Samples
Avery Landing Site
Avery, Idaho

Sample Number:	07040135	07040136	07040137	07040138	07040139	07040140	07040141	07040142	07040143	ARARs		
Sample Location:	EMW-01	EMW-02	EMW-03	EMW-04	EMW-05	EMW-06	HC-1R	MW-5	DW-01	Groundwater Standard (MCL) (1)	Idaho REM (2)	EPA Region 6 Tap Water (3)
VOCs (µg/L)												
1,1,1-Trichloroethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	200	200	836
1,1,2,2-Tetrachloroethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	0.3	0.3
1,1,2-Trichloroethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	5.0	5.0	1.2
1,1-Dichloroethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	1,040	1,217
1,1-Dichloroethene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	7.0	7.0	340
1,2-Dichloroethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	5.0	5.0	0.7
cis-1,2-Dichloroethene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	70	70	61
trans-1,2-Dichloroethene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	100	0.6	110
1,2-Dichloropropane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	5.0	5.0	1.0
cis-1,3-Dichloropropene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	0.6	0.7
trans-1,3-Dichloropropene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	n.a.	0.7
2-Butanone	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	n.a.	6,260	7,100
2-Hexanone	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	n.a.	n.a.	n.a.
4-Methyl-2-pentanone	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	n.a.	n.a.	n.a.
Acetone	*5.0 U*	*5.0 U*	2.8 J	3.2 J	*5.0 U*	*5.0 U*	1.6 J	*5.0 U*	*5.0 U*	n.a.	9,390	5,475
Benzene	*1.0 UJ*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	5.0	5.0	1.2
Bromodichloromethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	0.9	1.1
Bromoform	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	100 (4)	7.1	8.5
Bromomethane	*1.0 UJ*	*1.0 UJ*	*1.0 UJ*	*1.0 UJ*	*1.0 UJ*	*1.0 UJ*	*1.0 UJ*	*1.0 UJ*	*1.0 U*	n.a.	15	8.7
Carbon disulfide	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	1,040	1,043
Carbon tetrachloride	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	5.0	5.0	0.5
Chlorobenzene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	1.4	3.6	*1.0 U*	*1.0 U*	*1.0 U*	100 (5)	100	91
Chloroethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	19	n.a.
Chloroform	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	100 (4)	1.8	0.2
Chloromethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	4.3	2.1
Dibromochloromethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	n.a.	n.a.
Dichlorodifluoromethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	2,090	395
Ethylbenzene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	700	700	1,340
Methylene chloride	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	7.5	8.9
Styrene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	100	100	1,641
Tetrachloroethene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	5.0	5.0	0.1
Toluene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	1,000	1,000	2,281
Trichloroethene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	5.0	5.0	0.2
Trichlorofluoromethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	3,130	1,288
Vinyl chloride	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	2.0	2.0	0.0
m,p-Xylene	*2.0 U*	*2.0 U*	*2.0 U*	*2.0 U*	*2.0 U*	*2.0 U*	*2.0 U*	*2.0 U*	*2.0 U*	10,000 (6)	10,000 (6)	200 (6)
o-Xylene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	10,000 (6)	10,000 (6)	200 (6)

Note:
Italics indicates the compound was not detected.
Bold type indicates the compound exceeded the Idaho REM guideline.
Underline type indicates that the compound exceeds the groundwater standard (MCL).
Highlighted type indicates that the compound exceeds the EPA Region 6 tap water guideline.

(1) Groundwater Standards include the National Primary and Seconday Drinking Water Regulations, which include the federal MCLs (EPA 2003), and the state Primary and Secondary Constituent Standards for Groundwater (IDAPA 2006). Unless otherwise indicated, the state and federal standards are the same.
(2) Idaho Risk Evaluation Manual (DEQ 2004).
(3) EPA Region 6 Medium-Specific Human Health Screening Levels (EPA 2007a).
(4) The bromoform and chloroform standards are from the state regulations, only.
(5) The chlorobenzene standard is from the federal regulations, only.
(6) Xylene standards are for total xylene.

Key:
ARAR = applicable or relevant and appropriate requirement
ID = identification
J = estimated value
µg/L = microgram per liter
REM = Risk Evaluation Manual
U = not detected (at the indicated reporting limit)
UJ = not detected (estimated reporting limit)

Table 4-7

Summary of Semivolatile Organic Compund Results in Groundwater and Domestic Well Samples
Avery Landing Site
Avery, Idaho

Sample ID:	07040135	07040136	07040137	07040138	07040139	07040140	07040141	07040142	07040143	ARARs		
Sample Location:	EMW-01	EMW-02	EMW-03	EMW-04	EMW-05	EMW-06	HC-1R	MW-5	DW-01	Groundwater Standard (MCL) (1)	Idaho REM (2)	EPA Region 6 Tap Water (3)
SVOCs (µg/L)												
1,2,4-Trichlorobenzene	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	70	70	8.2
1,2-Dichlorobenzene	*0.2 U*	*0.2 U*	0.037 J	*0.21 U*	0.21	0.53 J	0.048 J	*0.21 U*	*0.2 U*	n.a.	600	49
1,3-Dichlorobenzene	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	9.4	14
1,4-Dichlorobenzene	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	0.051 J	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	75	2.8
1-Methylnaphthalene	0.0081 J	20	*0.03 U*	*0.031 U*	29	210	*0.03 U*	*0.031 U*	*0.03 U*	n.a.	n.a.	n.a.
2,4,5-Trichlorophenol	*0.2 U*	R	R	*0.21 U*	R	R	R	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
2,4,6-Trichlorophenol	*0.3 U*	R	R	*0.31 U*	R	R	R	*0.31 U*	*0.3 U*	n.a.	n.a.	n.a.
2,4-Dichlorophenol	*0.2 U*	R	R	*0.21 U*	R	R	R	*0.21 U*	*0.2 U*	n.a.	31	110
2,4-Dimethylphenol	*1.0 U*	R	R	*1.0 U*	R	R	R	*1.0 U*	*1.0 U*	n.a.	n.a.	n.a.
2,4-Dinitrophenol	*2.5 U*	R	R	*2.6 U*	R	R	R	*2.6 U*	*2.5 U*	n.a.	n.a.	n.a.
2,4-Dinitrotoluene	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
2,6-Dinitrotoluene	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
2-Chloronaphthalene	*0.03 U*	*0.029 U*	*0.03 U*	*0.031 U*	*0.03 U*	*0.28 U*	*0.03 U*	*0.031 U*	*0.03 U*	n.a.	n.a.	n.a.
2-Chlorophenol	*0.2 U*	R	R	*0.21 U*	R	R	R	*0.21 U*	*0.2 U*	n.a.	52	30
2-Methylnaphthalene	0.0095 J	4.7	*0.1 U*	*0.1 U*	34	**270**	*0.1 U*	*0.1 U*	*0.1 U*	n.a.	42	n.a.
2-Methylphenol	*0.2 U*	R	R	*0.21 U*	R	R	R	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
2-Nitroaniline	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
2-Nitrophenol	*0.2 U*	R	R	*0.21 U*	R	R	R	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
3 & 4 Methylphenol	*0.4 U*	R	R	*0.41 U*	R	R	R	*0.41 U*	*0.4 U*	n.a.	n.a.	n.a.
3,3'-Dichlorobenzidine	*1.0 U*	*0.98 U*	*1.0 U*	*1.0 U*	*1.0 U*	*9.5 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	n.a.	n.a.
3-Nitroaniline	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
4,6-Dinitro-2-methylphenol	*2 U*	R	R	*2.1 U*	R	19 J	R	*2.1 U*	*2.0 U*	n.a.	n.a.	n.a.
4-Bromophenyl phenyl ether	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
4-Chloro-3-methylphenol	*0.2 U*	R	R	*0.21 U*	R	R	R	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
4-Chloroaniline	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	42	146
4-Chlorophenyl phenyl ether	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
4-Nitroaniline	*0.3 U*	*0.29 U*	*0.3 U*	*0.31 U*	*0.3 U*	*2.8 U*	*0.3 U*	*0.31 U*	*0.3 U*	n.a.	1.5	n.a.
4-Nitrophenol	R	R	R	*1.0 U*	R	R	R	*1.0 U*	*1.0 U*	n.a.	n.a.	n.a.
Acenaphthene	0.015 J	2.4	0.11	0.17	2.9	9.3	0.6	*0.052 U*	*0.05 U*	n.a.	626	365
Acenaphthylene	*0.04 U*	*0.039 U*	*0.041 U*	*0.041 U*	*0.04 U*	*0.38 U*	*0.04 U*	*0.041 U*	*0.04 U*	n.a.	626	n.a.
Anthracene	*0.02 U*	0.73	0.012 J	*0.021 U*	0.12	4.4	0.019 J	*0.021 U*	0.0026 J	n.a.	3,130	1,825
Benzo[a]anthracene	*0.03 U*	**0.37**	*0.03 U*	0.017 J	*0.03 U*	**1.6**	*0.03 U*	*0.031 U*	*0.03 U*	n.a.	0.077	0.029
Benzo[a]pyrene	*0.02 U*	**0.20**	*0.02 U*	*0.021 U*	*0.02 U*	**0.85**	*0.02 U*	*0.021 U*	*0.02 U*	0.20	0.20	0.0029
Benzo[b]fluoranthene	*0.04 U*	**0.12**	*0.041 U*	0.038 J	*0.04 U*	**0.84**	*0.04 U*	*0.041 U*	*0.04 U*	n.a.	0.077	0.15
Benzo[g,h,i]perylene	*0.03 U*	0.11	*0.03 U*	0.037	*0.03 U*	0.51	*0.03 U*	*0.031 U*	*0.03 U*	n.a.	313	0.029
Benzo[k]fluoranthene	*0.03 U*	0.021 J	*0.03 U*	*0.031 U*	*0.03 U*	*0.28 U*	*0.03 U*	*0.031 U*	*0.03 U*	n.a.	0.77	1.5
Benzoic acid	*1.0 U*	R	R	*1.0 U*	R	R	R	*1.0 U*	*1.0 U*	n.a.	41,700	146,000
Benzyl alcohol	*0.2 U*	R	R	*0.21 U*	R	R	R	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
Bis(2-chloroethoxy)methane	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
Bis(2-chloroethyl)ether	*0.2 U*	*0.2 U*	0.028 J	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	0.05	0.060
Bis(2-chloroisopropyl) ether	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
Bis(2-ethylhexyl) phthalate	**16**	*1.5 U*	**120**	**85**	**390**	*14 U*	**210**	**71**	*1.5 U*	6.0	6.0	4.8
Butyl benzyl phthalate	*0.3 U*	*0.29 U*	*0.3 U*	*0.31 U*	*0.3 U*	*2.8 U*	*0.3 U*	*0.31 U*	*0.3 U*	n.a.	2,090	7,300
Carbazole	*0.2 U*	0.48	*0.2 U*	0.022 J	0.13 J	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
Chrysene	*0.02 U*	0.51	*0.02 U*	0.067	*0.02 U*	3.0	*0.02 U*	*0.021 U*	*0.02 U*	n.a.	7.7	2.9
Dibenz[a,h]anthracene	*0.03 U*	*0.029 U*	*0.03 U*	*0.031 U*	*0.03 U*	*0.28 U*	*0.03 U*	*0.031 U*	*0.03 U*	n.a.	0.008	0.00
Dibenzofuran	*0.2 U*	*0.2 U*	*0.2 U*	0.02 J	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	42	12
Diethyl phthalate	0.014 J	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	0.018 J	n.a.	8,340	29,000
Dimethyl phthalate	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	104,000	370,000
Di-n-butyl phthalate	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	2.5	n.a.	1,040	n.a.
Di-n-octyl phthalate	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	0.08 J	*0.21 U*	*0.2 U*	n.a.	417	n.a.
Fluoranthene	0.0097 J	0.26	*0.025 U*	0.034	0.037	4.2	*0.025 U*	*0.026 U*	*0.025 U*	n.a.	417	1,460
Fluorene	0.0068 J	2.1	0.14	0.4	3.9	34	0.4	*0.031 U*	*0.03 U*	n.a.	417	243
Hexachlorobenzene	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	1.0	1.0	0.042
Hexachlorobutadiene	*0.3 U*	*0.29 U*	*0.3 U*	*0.31 U*	*0.3 U*	*2.8 U*	*0.3 U*	*0.31 U*	*0.3 U*	n.a.	1.0	0.86
Hexachlorocyclopentadiene	*1.0 U*	*0.98 U*	*1.0 U*	*1.0 U*	*1.0 U*	*9.5 U*	*1.0 U*	*1.0 U*	*1.0 U*	50	50	219
Hexachloroethane	*0.3 U*	*0.29 U*	*0.3 U*	*0.31 U*	*0.3 U*	*2.8 U*	*0.3 U*	*0.31 U*	*0.3 U*	n.a.	4.0	4.8
Indeno[1,2,3-cd]pyrene	*0.03 U*	*0.029 U*	*0.03 U*	*0.031 U*	*0.03 U*	*0.28 U*	*0.03 U*	*0.031 U*	*0.03 U*	n.a.	0.077	0.029
Isophorone	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
Naphthalene	0.01 J	5.0	*0.2 U*	*0.21 U*	7.1	63	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	209	6.2
Nitrobenzene	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
N-Nitrosodi-n-propylamine	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	*1.9 U*	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	n.a.	n.a.
N-Nitrosodiphenylamine	*0.2 U*	*0.2 U*	*0.2 U*	*0.21 U*	*0.2 U*	**12**	*0.2 U*	*0.21 U*	*0.2 U*	n.a.	11	14
Pentachlorophenol	*0.35 U*	R	*R*	*0.36 U*	R	*3.3 U*	R	*0.36 U*	*0.35 U*	1.0	1.0	0.56
Phenanthrene	0.0046 J	4.0	0.021 J	0.078	2.3	59	0.026 J	*0.041 U*	*0.04 U*	n.a.	313	n.a.
Phenol	*0.3 U*	R	R	*0.31 U*	R	R	R	*0.31 U*	*0.3 U*	n.a.	3,130	10,950
Pyrene	0.015 J	1.2	*0.03 U*	0.071	0.041	8.6	*0.03 U*	*0.031 U*	*0.03 U*	n.a.	313	183

Notes: Italics indicates that the compound was not detected.
Bold type indicates that the compound exceeds the Idaho REM.
Underline type indicates that the compound exceeds the groundwater standard (MCL).
Highlighted type indicates that the compound exceeds the EPA Region 6 tap water guideline.
(1) Groundwater Standards include the National Primary and Seconday Drinking Water Regulations, which include the federal MCLs (EPA 2003), and the state Primary and Secondary Constituent Standards for Groundwater (IDAPA 2006). Unless otherwise indicated, the state and federal standards are the same.
(2) Idaho Risk Evaluation Manual (DEQ 2004).
(3) EPA Region 6 Medium-Specific Human Health Screening Levels (EPA 2007a).

Key:
ARAR =applicable or relevant and appropriate requirement
EPA =Environmental Protection Agency
ID = identification
J = estimated value
µg/L = microgram per liter
R = rejected value
REM = Risk Evaluation Memo
SVOC = semivolatile organic compound
U = not detected (at the indicated reporting limit)
UJ = not detected (estimated reporting limit)

Table 4-8

Summary of PCB and NWTPH-Dx Results in Groundwater and Domestic Well Samples
Avery Landing Site
Avery, Idaho

Sample ID:	07040135	07040136	07040137	07040138	07040139	07040140	07040141	07040142	07040143	ARARs		
Sample Location:	EMW-01	EMW-02	EMW-03	EMW-04	EMW-05	EMW-06	HC-1R	MW-5	DW-01	Groundwater Standard (MCL) (1)	Idaho REM (2)	EPA Region 6 Tap Water (3)
PCBs (µg/L)												
Aroclor-1016	*0.058 U*	*0.051 UJ*	*0.051 U*	*0.05 UJ*	*0.051 UJ*	*0.053 U*	*0.051 UJ*	*0.05 U*	*0.05 U*	0.5	0.73	0.96
Aroclor-1221	*0.058 U*	*0.051 UJ*	*0.051 U*	*0.05 UJ*	*0.051 UJ*	*0.053 U*	*0.051 UJ*	*0.05 U*	*0.05 U*	0.5	0.0279	0.0336
Aroclor-1232	*0.058 U*	*0.051 UJ*	*0.051 U*	*0.05 UJ*	*0.051 UJ*	*0.053 U*	*0.051 UJ*	*0.05 U*	*0.05 U*	0.5	n.a.	n.a.
Aroclor-1242	*0.058 U*	*0.051 UJ*	*0.051 U*	*0.05 UJ*	*0.051 UJ*	*0.053 U*	*0.051 UJ*	*0.05 U*	*0.05 U*	0.5	0.0279	0.0336
Aroclor-1248	*0.058 U*	*0.051 UJ*	*0.051 U*	*0.05 UJ*	*0.051 UJ*	*0.053 U*	*0.051 UJ*	*0.05 U*	*0.05 U*	0.5	0.0279	0.0336
Aroclor-1254	*0.058 U*	*0.051 UJ*	*0.051 U*	*0.05 UJ*	*0.051 UJ*	*0.053 U*	*0.051 UJ*	*0.05 U*	*0.05 U*	0.5	0.2090	0.0336
Aroclor-1260	*0.058 U*	*0.051 UJ*	*0.051 U*	*0.05 UJ*	*0.051 UJ*	**0.028 J**	*0.051 UJ*	*0.05 U*	*0.05 U*	0.5	0.0279	0.0336
NWTPH-Dx (µg/L)												
Sample ID:	07040135	07040136	07040137	07040138	07040139	07040140	07040141	07040142	07040143	ARARs		
Sample Location:	EMW-01	EMW-02	EMW-03	EMW-04	EMW-05	EMW-06	HC-1R	MW-5	DW-01	MCL (1)	Idaho REM (2)	EPA Region 6 Tap Water (3)
Diesel-Range Organics	83	5,500	780	3,900	2,000	110,000	1,300	*50 U*	79	n.a.	n.a.	n.a.
Oil-Range Organics	*210 U*	3,800	1,000	4,100	780	45,000	720	260	*190 U*	n.a.	n.a.	n.a.

Notes: Italics indicates that the compound was not detected.
Bold type indicates that the compound exceeds the Idaho REM.
Underline type indicates that the compound exceeds the groundwater standard (MCL).
Highlighted type indicates that the compound exceeds the EPA Region 6 tap water guideline.
(1) Groundwater Standards include the National Primary and Seconday Drinking Water Regulations, which include the federal MCLs (EPA 2003), and the state Primary and Secondary Constituent Standards for Groundwater (IDAPA 2006). Unless otherwise indicated, the state and federal standards are the same.
(2) Idaho Risk Evaluation Manual (DEQ 2004).
(3) EPA Region 6 Medium-Specific Human Health Screening Levels (EPA 2007a).

Key:

ARAR	= applicable or relevant and appropriate requirement
ID	= identification
J	= estimated value
µg/L	= microgram per liter
n.a.	= not available
NWTPH-Dx	= Northwest Total Petroleum Hydrocarbon, Diesel Range Extended
PCBs	= polychlorinated biphenyls
REM	= Risk Evaluation Manual
U	= not detected (at the indicated reporting limit)
UJ	= not detected (estimated reporting limit)

Table 4-9

Summary of TAL Metal Results in Groundwater and Domestic Well Samples
Avery Landing Site
Avery, Idaho

Sample ID:	07040135	07040136	07040137	07040138	07040139	07040140	07040141	07040142	07040143	ARARs		
Sample Location:	EMW-01	EMW-02	EMW-03	EMW-04	EMW-05	EMW-06	HC-1R	MW-5	DW-01	Groundwater Standard (MCL) (1)	Idaho REM (2)	EPA Region 6 Tap Water (3)
TAL Metals (µg/L)												
Aluminum	*32 U*	2,050	74.9	121	634	32,200	*32 U*	79.7	*32 U*	200 (4)	n.a.	36,500
Antimony	*0.218 UJ*	*0.537 U*	*0.219 UJ*	*0.452 U*	*0.0949 UJ*	*1.87 U*	*0.465 U*	*0.222 UJ*	*0.0574 U*	6.0	6.0	15
Arsenic	0.303 J	**88.6**	**30.7**	**13.7**	**51.4**	**58.6**	**46.6**	0.655 J	1.06	50 / 10 (5)	10	0.045
Barium	12	61.1	84.4	113	72.1	305	109	9.3	21.1 J	2,000	2,000	7,300
Beryllium	*0.043 U*	0.106 J	*0.043 U*	*0.043 U*	*0.043 U*	1.84 J	*0.043 U*	*0.043 U*	*0.043 U*	4.0	4.0	73
Cadmium	*0.094 U*	0.142 J	*0.094 U*	*0.094 U*	*0.094 U*	1.07	*0.094 U*	*0.094 U*	*0.094 U*	5.0	5.0	18
Calcium	21,800	56,600	59,400	82,300	44,300	67,300	81,700	22,700	46,600	n.a.	n.a.	n.a.
Chromium	*0.359 U*	3.91	*0.502 U*	*0.465 U*	1.46	35.6	*0.537 U*	*0.608 U*	*0.763 U*	100	100	55,000 (6)
Cobalt	1.89	6.15	12.9	3.39	1.24	22.9	2.63	0.0826 J	0.0637 J	n.a.	n.a.	n.a.
Copper	*0.52 U*	8.43	*0.52 U*	0.689 J	2.35	132	*0.52 U*	0.746 J	1.41 J	1,300	1,300	1,400
Iron	82	**26,100**	**30,800**	**31,300**	**23,000**	**80,500**	**50,600**	183	141 J	300	3,130	25,550
Lead	*0.075 U*	2.17	0.105 J	0.615 J	0.583 J	**39.8**	*0.075 U*	0.178 J	*0.075 UJ*	15	15	15
Magnesium	6,370 J	8,280 J	7,660 J	14,000 J	7,760 J	26,400 J	9,900 J	6,460 J	13,200 J	n.a.	n.a.	n.a.
Manganese	120	**3,300**	**5,510**	**3,430**	**2,980**	**3,920**	**5,630**	0.946 J	2.87 J	50	250	1,700
Mercury	*0.018 UJ*	*0.018 UJ*	*0.018 UJ*	*0.018 UJ*	*0.018 UJ*	*0.018 UJ*	*0.018 UJ*	*0.018 UJ*	*0.018 UJ*	2.0	2.0	11
Nickel	1.31	6.05	5.8	3.51	2.53	37.8	3.55	0.902 J	1.5	n.a.	209	730
Potassium	1,040	2,950	3,150	4,160	2,070	8,130	2,680	808	1,510	n.a.	n.a.	n.a.
Selenium	*0.11 UJ*	*0.289 UJ*	*0.123 UJ*	*0.11 UJ*	*0.268 UJ*	1.18	*0.272 UJ*	*0.115 UJ*	*0.11 UJ*	50	50	180
Silver	*0.085 U*	*0.085 U*	*0.085 U*	*0.085 U*	*0.085 U*	0.532 J	*0.085 U*	*0.085 U*	*0.085 U*	100	52.1	180
Sodium	2,000 J	3,330 J	2,150 J	4,360 J	2,670 J	5,350 J	2,710 J	1,950 J	2,860	n.a.	n.a.	n.a.
Thallium	*0.044 UJ*	*0.044 UJ*	*0.044 UJ*	*0.044 UJ*	*0.044 UJ*	0.356 J	*0.044 UJ*	*0.044 UJ*	*0.044 U*	2.0	2.0	2.6
Vanadium	0.135 J	5.41	0.871 J	0.668 J	1.71 J	53.2	1.24 J	0.268 J	*0.19 U*	n.a.	n.a.	n.a.
Zinc	3.43 J	7.68 J	4.48 J	8.01 J	7.94 J	68.3 J	5.03 J	5.04 J	*6.44 UJ*	5,000	3130	11,000

Notes: Italics indicates that the compound was not detected.
Bold type indicates that the compound exceeds the Idaho REM.
Underline type indicates that the compound exceeds the groundwater standard (MCL).
Highlighted type indicates that the compound exceeds the EPA Region 6 tap water guideline.

(1) Groundwater Standards include the National Primary and Seconday Drinking Water Regulations, which include the federal MCLs (EPA 2003), and the state Primary and Secondary Constituent Standards for Groundwater (IDAPA 2006). Unless otherwise indicated, the standards are the same.
(2) Idaho Risk Evaluation Manual (DEQ 2004).
(3) EPA Region 6 Medium-Specific Human Health Screening Levels (EPA 2007a).
(4) For aluminum, the federal regulation specifies a range of 50 to 200 µg/L, and the state of Idaho has set the standard at 200 µg/L.
(5) For arsenic, the state standard is 50 µg/L, and the federal standard is 10 µg/L.
(6) Region 6 Tap Water value is for chromium (III)

Key:
ARARs = applicable or relevant and appropriate requirements
ID = identification
J = estimated value
µg/L = microgram per liter
n.a. = not available
TAL = target analyte list
U = not detected (at the indicated reporting limit)
UJ = not detected (estimated reporting limit)

Table 4-10

Summary of Volatile Organic Compund Results in Surface Water Samples
Avery Landing Site
Avery, Idaho

Sample Number:	7040132	7040133	7040134	7040130	ARARs	
Sample Location:	SW-01	SW-02	SW-03	TB-01	Idaho REM (1)	Federal AWQC (2)
VOCs (µg/L)						
1,1,1-Trichloroethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	11
1,1,2,2-Tetrachloroethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	0.2	2,400
1,1,2-Trichloroethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	0.6	9,400
1,1-Dichloroethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	n.a.
1,1-Dichloroethene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	n.a.
1,2-Dichloroethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	0.4	20,000
cis-1,2-Dichloroethene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	11,600
trans-1,2-Dichloroethene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	11,600
1,2-Dichloropropane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	n.a.
cis-1,3-Dichloropropene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	n.a.
trans-1,3-Dichloropropene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	n.a.
2-Butanone	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	n.a.	n.a.
2-Hexanone	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	n.a.	n.a.
4-Methyl-2-pentanone	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	n.a.	n.a.
Acetone	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	n.a.	n.a.
Benzene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	1.2	130
Bromodichloromethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	n.a.
Bromoform	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	4.3	n.a.
Bromomethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 UJ*	n.a.	n.a.
Carbon disulfide	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	n.a.
Carbon tetrachloride	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	0.3	9.8
Chlorobenzene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	680	50
Chloroethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	n.a.
Chloroform	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	5.7	1,240
Chloromethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	n.a.
Dibromochloromethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	n.a.
Dichlorodifluoromethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	11,000
Ethylbenzene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	3,100	7.3
Methylene chloride	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	4.7	2,200
Styrene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	n.a.
Tetrachloroethene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	840
Toluene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	6,800	9.8
Trichloroethene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	2.7	21,900
Trichlorofluoromethane	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	n.a.
Vinyl chloride	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	2.0	11,600
m,p-Xylene	*2.0 U*	*2.0 U*	*2.0 U*	*2.0 U*	n.a.	13 (3)
o-Xylene	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	n.a.	13 (3)

Note: Italics indicates the compound was not detected.
Bold type indicates the compound exceeded the Idaho REM guideline.
Underline type indicates the compound exceeded a federal guideline or standard.
(1) Idaho Risk Evaluation Manual (DEQ 2004).
(2) Ambient Water Quality Criteria (Buchman 1999).
(3) Xylene standards are for total xylene.

Key:
ARAR = applicable or relevant and appropriate requirement
AWQC = Ambient Water Quality Criteria
ID = identification
J = estimated value
µg/L = microgram per liter
U = not detected (at the indicated reporting limit)
UJ = not detected (estimated reporting limit)

Table 4-11

Summary of Semivolatile Organic Compund Results in Surface Water Samples
Avery Landing Site
Avery, Idaho

Sample ID:	07040132	07040133	07040134	ARARs	
Sample Location:	SW-01	SW-02	SW-03	Idaho REM (1)	Federal AWQC (2)
SVOCs (µg/L)					
1,2,4-Trichlorobenzene	*0.19 U*	*0.19 U*	*0.19 U*	960	50
1,2-Dichlorobenzene	*0.19 U*	*0.19 U*	*0.19 U*	2,700	n.a.
1,3-Dichlorobenzene	*0.19 U*	*0.19 U*	*0.19 U*	400	n.a.
1,4-Dichlorobenzene	*0.19 U*	*0.19 U*	*0.19 U*	400	763
1-Methylnaphthalene	*0.029 U*	0.041	0.34	n.a.	n.a.
2,4,5-Trichlorophenol	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
2,4,6-Trichlorophenol	*0.29 U*	*0.29 U*	*0.29 U*	n.a.	n.a.
2,4-Dichlorophenol	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	365
2,4-Dimethylphenol	*0.96 U*	*0.96 U*	*0.95 U*	n.a.	n.a.
2,4-Dinitrophenol	*2.4 U*	*2.4 U*	*2.4 U*	n.a.	n.a.
2,4-Dinitrotoluene	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
2,6-Dinitrotoluene	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
2-Chloronaphthalene	*0.029 U*	*0.029 U*	*0.029 U*	n.a.	n.a.
2-Chlorophenol	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	4,380
2-Methylnaphthalene	*0.096 U*	0.014 J	0.11	n.a.	n.a.
2-Methylphenol	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
2-Nitroaniline	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
2-Nitrophenol	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
3 & 4 Methylphenol	*0.38 U*	*0.38 U*	*0.38 U*	n.a.	n.a.
3,3'-Dichlorobenzidine	*0.96 U*	*0.96 U*	*0.95 U*	n.a.	n.a.
3-Nitroaniline	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
4,6-Dinitro-2-methylphenol	*1.9 U*	*1.9 U*	*1.9 U*	n.a.	n.a.
4-Bromophenyl phenyl ether	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
4-Chloro-3-methylphenol	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
4-Chloroaniline	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	50
4-Chlorophenyl phenyl ether	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
4-Nitroaniline	*0.29 U*	*0.29 U*	*0.29 U*	n.a.	n.a.
4-Nitrophenol	*0.96 U*	*0.96 U*	*0.95 U*	n.a.	n.a.
Acenaphthene	*0.048 U*	0.025 J	0.084	n.a.	520
Acenaphthylene	*0.038 U*	*0.038 U*	*0.038 U*	n.a.	n.a.
Anthracene	*0.019 U*	0.0088 J	0.015 J	9,600	0.73
Benzo[a]anthracene	*0.029 U*	*0.029 U*	**0.011 J**	0.0028	n.a.
Benzo[a]pyrene	*0.019 U*	*0.019 U*	**0.027**	0.0028	0.014
Benzo[b]fluoranthene	*0.038 U*	*0.038 U*	**0.023 J**	0.0028	n.a.
Benzo[g,h,i]perylene	*0.029 U*	*0.029 U*	*0.029 U*	n.a.	n.a.
Benzo[k]fluoranthene	*0.029 U*	*0.029 U*	*0.029 U*	0.0028	n.a.
Benzoic acid	*0.96 U*	*0.96 U*	*0.95 U*	n.a.	42
Benzyl alcohol	*0.19 U*	*0.19 U*	0.013 J	n.a.	n.a.

Key is at end of table.

Table 4-11 (continued)

Summary of Semivolatile Organic Compund Results in Surface Water Samples
Avery Landing Site
Avery, Idaho

Sample ID:	07040132	07040133	07040134	ARARs	
Sample Location:	SW-01	SW-02	SW-03	Idaho REM (1)	Federal AWQC (2)
SVOCs (µg/L)					
Bis(2-chloroethoxy)methane	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
Bis(2-chloroethyl)ether	*0.19 U*	*0.19 U*	*0.19 U*	0.031	n.a.
Bis(2-chloroisopropyl) ether	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
Bis(2-ethylhexyl) phthalate	*1.4 U*	*1.4 U*	*1.4 U*	1.8	360
Butyl benzyl phthalate	*0.29 U*	*0.29 U*	*0.29 U*	n.a.	3.0
Carbazole	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
Chrysene	*0.019 U*	*0.019 U*	**0.016 J**	0.0028	0.027
Dibenz[a,h]anthracene	*0.029 U*	*0.029 U*	*0.029 U*	0.0028	n.a.
Dibenzofuran	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	0.0037
Diethyl phthalate	*0.19 U*	0.011 J	*0.19 U*	23,000	3.0
Dimethyl phthalate	*0.19 U*	*0.19 U*	*0.19 U*	313,000	3.0
Di-n-butyl phthalate	*0.19 U*	*0.19 U*	*0.19 U*	2,700	3.0
Di-n-octyl phthalate	*0.19 U*	*0.19 U*	0.073 J	n.a.	3.0
Fluoranthene	*0.024 U*	0.0095 J	0.013 J	300	3,980
Fluorene	*0.029 U*	0.047	0.2	1,300	3.9
Hexachlorobenzene	*0.19 U*	*0.19 U*	*0.19 U*	0.00075	3.68
Hexachlorobutadiene	*0.29 U*	*0.29 U*	*0.29 U*	0.44	9.3
Hexachlorocyclopentadiene	*0.96 U*	*0.96 U*	*0.95 U*	240	5.2
Hexachloroethane	*0.29 U*	*0.29 U*	*0.29 U*	1.9	540
Indeno[1,2,3-cd]pyrene	*0.029 U*	*0.029 U*	*0.029 U*	0.0028	n.a.
Isophorone	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
Naphthalene	*0.19 U*	*0.19 U*	0.032 J	n.a.	620
Nitrobenzene	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
N-Nitrosodi-n-propylamine	*0.19 U*	*0.19 U*	*0.19 U*	n.a.	n.a.
N-Nitrosodiphenylamine	*0.19 U*	*0.19 U*	*0.19 U*	5.0	n.a.
Pentachlorophenol	*0.33 U*	*0.34 U*	*0.33 U*	0.27	15
Phenanthrene	*0.038 U*	0.12	0.21	n.a.	6.3 (proposed)
Phenol	*0.29 U*	*0.29 U*	*0.29 U*	n.a.	2,560
Pyrene	*0.029 U*	0.025 J	0.046	960	n.a.

Notes: Italics indicates the compound was not detected.
Bold indicates the compound exceeded the Idaho REM.
Underlined text indicates the compound exceeded a federal standard.
(1) Idaho Risk Evaluation Manual (DEQ 2004).
(2) Ambient Water Quality Criteria (Buchman 1999).

Key:

ARAR = applicable or relevant and appropriate requirement
AWQC = Ambient Water Quality Criteria
ID = identification
J = estimated value
µg/L = microgram per liter
REM = Risk Evaluation Manual
SVOC = semivolatile organic compound
U = not detected (at the indicated reporting limit)
UJ = not detected (estimated reporting limit)

Table 4-12

Summary of PCBs and NWTPH-Dx Results in Surface Water Samples
Avery Landing Site
Avery, Idaho

Sample ID:	07040132	07040133	07040134	ARARs	
Sample Location:	SW-01	SW-02	SW-03	Idaho REM (1)	Federal AWQC (2)
PCBs (µg/L)					
Aroclor-1016	*0.048 U*	*0.048 U*	*0.056 U*	n.a.	n.a.
Aroclor-1221	*0.048 U*	*0.048 U*	*0.056 U*	n.a.	n.a.
Aroclor-1232	*0.048 U*	*0.048 U*	*0.056 U*	n.a.	n.a.
Aroclor-1242	*0.048 U*	*0.048 U*	*0.056 U*	n.a.	n.a.
Aroclor-1248	*0.048 U*	*0.048 U*	*0.056 U*	n.a.	n.a.
Aroclor-1254	*0.048 U*	*0.048 U*	*0.056 U*	n.a.	n.a.
Aroclor-1260	*0.048 U*	*0.048 U*	*0.056 U*	n.a.	n.a.
NWTPH-Dx (µg/L)					
Sample ID:	07040132	07040133	07040134	ARARs	
Sample Location:	SW-01	SW-02	SW-03	Idaho REM (1)	Federal AWQC (2)
Diesel-Range Organics	*48 U*	320	2,300	n.a.	n.a.
Oil-Range Organics	*190 U*	*190 U*	1,200	n.a.	n.a.

Notes: Italics indicates the compound was not detected.
Bold indicates the compound exceeded the Idaho REM.
Underlined text indicates the compound exceeded a federal standard.
(1) Idaho Risk Evaluation Manual (DEQ 2004).
(2) Ambient Water Quality Criteria (Buchman 1999).

Key:

ARAR	= applicable or relevant and appropriate requirement
AWQC	= Ambient Water Quality Criteria
ID	= identification
J	= estimated value
µg/L	= microgram per liter
n.a.	=not available
NWTPH-Dx	= Northwest Total Petroleum Hydrocarbon, Diesel Range Extended
PCBs	= polychlorinated biphenyls
U	= not detected (at the indicated reporting limit)
UJ	= not detected (estimated reporting limit)

Table 4-13

Summary of TAL Metal Results in Surface Waters Samples
Avery Landing Site
Avery, Idaho

Sample ID:	07040132	07040133	07040134	ARARs	
Sample Location:	SW-01	SW-02	SW-03	Idaho REM (1)	Federal AWQC (2)
TAL Metals (µg/L)					
Aluminum	*32 U*	*32 U*	*32 U*	n.a.	n.a.
Antimony	*0.203 U*	*0.0903 U*	*0.056 U*	14	50 (proposed)
Arsenic	0.209 J	0.248 J	0.296 J	50	150
Barium	4.76 J	5.11 J	4.71 J	n.a.	4.0
Beryllium	*0.043 U*	*0.043 U*	*0.043 U*	n.a.	5.3
Cadmium	*0.094 U*	*0.094 U*	*0.094 U*	1.0	0.25 H
Calcium	8,270	8,700	7,920	n.a.	n.a.
Chromium	*0.364 U*	*0.326 U*	*0.263 U*	178	74 H (3)
Cobalt	0.029 J	0.0327 J	*0.028 U*	n.a.	n.a.
Copper	*0.52 UJ*	*0.52 UJ*	*0.52 UJ*	11	9 H
Iron	53.2 J	53.6 J	48.7 J	n.a.	1000
Lead	*0.075 UJ*	*0.075 UJ*	*0.075 UJ*	2.5	2.5 H
Magnesium	1,830 J	1,930 J	1,770 J	n.a.	n.a.
Manganese	1.07 J	1.31 J	1.37 J	n.a.	120
Mercury	*0.018 UJ*	*0.018 UJ*	*0.018 UJ*	0.012	0.77
Nickel	*0.364 U*	*0.32 U*	*0.282 U*	157	52 H
Potassium	455	488	431	n.a.	n.a.
Selenium	*0.11 UJ*	*0.11 UJ*	*0.11 UJ*	5.0	5.0
Silver	*0.085 U*	*0.085 U*	*0.085 U*	3.4	1.6 H
Sodium	1,030	1,020	971	n.a.	n.a.
Thallium	*0.044 U*	*0.044 U*	*0.044 U*	1.7	40
Vanadium	*0.173 U*	*0.231 U*	*0.342 U*	n.a.	n.a.
Zinc	*9.55 UJ*	*1.8 UJ*	*2.48 UJ*	105	120 H

Notes: Italics indicates that the compound was not detected.
Bold type indicates that the compound exceeds the Idaho REM.
Underline type indicates that the compound exceeds the Federal AWQC.
(1) Idaho Risk Evaluation Manual (DEQ 2004).
(2) Ambient Water Quality Criteria (Buchman 1999).
(3) Chromium value is for chromium (III).

Key:
ARAR = applicable or relevant and appropriate requirement
AWQC = Ambient Water Quality Criteria
H = value is hardness dependent; a hardness of 100 mg/L is assumed.
ID = identification
J = estimated value
mg/L = milligrams per liter
µg/L = microgram per liter
TAL = target analyte list
U = not detected (at the indicated reporting limit)
UJ = not detected (estimated reporting limit)

Table 4-14

Summary of Volatile Organic Compund Results in Product Sample
Avery Landing Site
Avery, Idaho

Sample Number:	7040131
Sample Location:	HC-4
VOCs (µg/L)	
1,1,1-Trichloroethane	*2,000 U*
1,1,2,2-Tetrachloroethane	*2,000 U*
1,1,2-Trichloroethane	*2,000 U*
1,1-Dichloroethane	*2,000 U*
1,1-Dichloroethene	*2,000 U*
1,2-Dichloroethane	*2,000 U*
cis-1,2-Dichloroethene	*2,000 U*
trans-1,2-Dichloroethene	*2,000 U*
1,2-Dichloropropane	*2,000 U*
cis-1,3-Dichloropropene	*2,000 U*
trans-1,3-Dichloropropene	*2,000 U*
2-Butanone	*10,000 U*
2-Hexanone	*10,000 U*
4-Methyl-2-pentanone	*10,000 U*
Acetone	*10,000 U*
Benzene	*2,000 U*
Bromodichloromethane	1,500 J
Bromoform	*2,000 U*
Bromomethane	*2,000 U*
Carbon disulfide	*2,000 U*
Carbon tetrachloride	*2,000 U*
Chlorobenzene	1,600 J
Chloroethane	*2,000 U*
Chloroform	*2,000 U*
Chloromethane	*2,000 U*
Dibromochloromethane	*2,000 U*
Dichlorodifluoromethane	*2,000 U*
Ethylbenzene	*2,000 U*
Methylene chloride	2,700
Styrene	*2,000 U*
Tetrachloroethene	*2,000 U*
Toluene	*2,000 U*
Trichloroethene	*2,000 U*
Trichlorofluoromethane	*2,000 U*
Vinyl chloride	*2,000 U*
m,p-Xylene	*4,000 U*
o-Xylene	*2,000 U*

Note: Italics indicates that the compound was not detected.

Key:

ID	= identification
J	= estimated value
µg/L	= microgram per liter
U	= not detected (at the indicated reporting limit)
UJ	= not detected (estimated reporting limit)

Table 4-15

Summary of Semivolatile Organic Compund Results in Product Sample
Avery Landing Site
Avery, Idaho

Sample ID:	07040131
Sample Location:	HC-4
SVOCs (µg/kg)	
1,2,4-Trichlorobenzene	*43,000 U*
1,2-Dichlorobenzene	*43,000 U*
1,3-Dichlorobenzene	*43,000 U*
1,4-Dichlorobenzene	*43,000 U*
1-Methylnaphthalene	1,700,000
2,4,5-Trichlorophenol	*85,000 U*
2,4,6-Trichlorophenol	*130,000 U*
2,4-Dichlorophenol	*85,000 U*
2,4-Dimethylphenol	*85,000 U*
2,4-Dinitrophenol	*850,000 U*
2,4-Dinitrotoluene	*85,000 U*
2,6-Dinitrotoluene	*85,000 U*
2-Chloronaphthalene	*17,000 U*
2-Chlorophenol	*85,000 U*
2-Methylnaphthalene	2,400,000
2-Methylphenol	*85,000 U*
2-Nitroaniline	*85,000 U*
2-Nitrophenol	*85,000 U*
3 & 4 Methylphenol	*170,000 U*
3,3'-Dichlorobenzidine	*170,000 U*
3-Nitroaniline	*85,000 U*
4,6-Dinitro-2-methylphenol	*850,000 U*
4-Bromophenyl phenyl ether	*85,000 U*
4-Chloro-3-methylphenol	*85,000 U*
4-Chloroaniline	*85,000 U*
4-Chlorophenyl phenyl ether	*85,000 U*
4-Nitroaniline	*85,000 U*
4-Nitrophenol	*850,000 U*
Acenaphthene	130,000
Acenaphthylene	*17,000 U*
Anthracene	63,000
Benzo[a]anthracene	17,000 J
Benzo[a]pyrene	24,000 J
Benzo[b]fluoranthene	21,000
Benzo[g,h,i]perylene	*21,000 U*
Benzo[k]fluoranthene	*21,000 U*
Benzoic acid	*2,100,000 U*

Key is on last page.

Table 4-15

Summary of Semivolatile Organic Compund Results in Product Sample
Avery Landing Site
Avery, Idaho

Sample ID:	07040131
Sample Location:	HC-4
SVOCs (µg/kg)	
Benzyl alcohol	*85,000 U*
Bis(2-chloroethoxy)methane	*85,000 U*
Bis(2-chloroethyl)ether	*85,000 U*
Bis(2-chloroisopropyl) ether	*130,000 U*
Bis(2-ethylhexyl) phthalate	*1,300,000 U*
Butyl benzyl phthalate	*85,000 U*
Carbazole	*130,000 UJ*
Chrysene	29,000
Dibenz[a,h]anthracene	*34,000 U*
Dibenzofuran	*85,000 U*
Diethyl phthalate	*85,000 U*
Dimethyl phthalate	*85,000 U*
Di-n-butyl phthalate	*170,000 U*
Di-n-octyl phthalate	*170,000 U*
Fluoranthene	37,000
Fluorene	360,000
Hexachlorobenzene	*43,000 U*
Hexachlorobutadiene	*43,000 U*
Hexachlorocyclopentadiene	*85,000 U*
Hexachloroethane	*85,000 U*
Indeno[1,2,3-cd]pyrene	*34,000 UJ*
Isophorone	*85,000 U*
Naphthalene	320,000
Nitrobenzene	*85,000 U*
N-Nitrosodi-n-propylamine	*85,000 U*
N-Nitrosodiphenylamine	*43,000 UJ*
Pentachlorophenol	*85,000 U*
Phenanthrene	700,000
Phenol	*85,000 U*
Pyrene	69,000

Note: Italics indicates that the compound was not detected.

Key:

ID	= identification
J	= estimated value
µg/kg	= microgram per kilogram
SVOC	= semivolatile organic compound
U	= not detected (at the indicated reporting limit)
UJ	= not detected (estimated reporting limit)

Table 4-16

Summary of PCB and NWTPH-Dx Results in Product Sample
Avery Landing Site
Avery, Idaho

Sample ID:	07040131
Sample Location:	HC-4
PCBs (µg/kg)	
Aroclor-1016	*470 U*
Aroclor-1221	*470 U*
Aroclor-1232	*470 U*
Aroclor-1242	*470 U*
Aroclor-1248	*470 U*
Aroclor-1254	*470 U*
Aroclor-1260	330 J
NWTPH-Dx (mg/kg)	
Sample ID:	07040131
Sample Location:	HC-4
Diesel-Range Organics	1,100,000
Oil-Range Organics	260,000

Note: Italics indicates that the compound was not detected.

Key:

ID	= identification
J	= estimated value
µg/kg	= microgram per kilogram
mg/kg	= milligrams per kilogram
NWTPH-Dx	= Northwest Total Petroleum Hydrocarbon, Diesel Range Extended
PCBs	= polychlorinated biphenyls
U	= not detected (at the indicated reporting limit)
UJ	= not detected (estimated reporting limit)

Table 4-17

Summary of TAL Metals Results in Product Sample
Avery Landing Site
Avery, Idaho

Sample ID:	07040131
Sample Location:	HC-4
TAL Metals (mg/kg)	
Aluminum	71.2
Antimony	0.28 J
Arsenic	3.1
Barium	2.3
Beryllium	*0.013 U*
Cadmium	0.061 J
Calcium	55.9 J
Chromium	3.4
Cobalt	0.38
Copper	10.9
Iron	35.9
Lead	1.6
Magnesium	*1.3 U*
Manganese	0.74 J
Mercury	*0.00546 U*
Nickel	21.8
Potassium	7.6 J
Selenium	0.23 J
Silver	0.038 J
Sodium	5.5 J
Thallium	*0.0091 U*
Vanadium	21.9
Zinc	*1.5 U*

Note: Italics indicates that the compound was not detected.

Key:
- ID = identification
- J = estimated value
- mg/kg = milligrams per kilogram
- TAL = target analyte list
- U = not detected (at the indicated reporting limit)

Table 4-18

Summary of Exceedences of Federal Action Levels in Soil
Avery Landing Site
Avery, Idaho

Property	Sample ID	Benzo[a] anthracene µg/kg	Benzo[a] pyrene µg/kg	Benzo[b] fluoranthrene µg/kg	Dibenz[a,h] anthracene µg/kg	Arsenic (1) mg/kg
EPA Region 6 HHMSSL - Residential Soil		150	15	150	15	0.39
Bentcik	EMW-01	n.d.	n.d.	n.d.	n.d.	17.3 J
	EMW-02	n.e.	85	n.e.	n.d.	8.6 J
	EMW-06	n.e.	n.d.	n.d.	n.d.	7.5 J
	ESB-04	860 / 190	650 / 110	490	n.d.	16.1 J / 5.4 J
	ESB-05	n.e.	37	n.e.	n.d.	17 J
	ESB-06	n.e.	62 J	n.e.	n.d.	6.1 J
Potlatch	EMW-03	n.d.	n.d.	n.d.	n.d.	7.3 J
	EMW-04	n.e.	58	n.e.	n.e.	12 J
	EMW-05	210	110	n.e.	n.d.	5.7 J
	ESB-01	n.d.	n.d.	n.d.	n.d.	15.7 J
	ESB-02	n.e.	43	n.e.	40 J	16.9 J
	ESB-03	n.e.	81 J	n.e.	n.d.	4.2 J
	ESB-07	n.e.	44	n.e.	n.d.	5.1 J

Note: (1) The upper limit of background soil concentrations for arsenic in the nearby Coeur d'Alene and Spokane River basins is 22 mg/kg (URS Greiner 2001).

Key:
HHMSSL = Human Health Medium-Specific Screening Level
n.d. = not detected
n.e. = no exceedence of EPA HHMSSL.

Table 4-19

Summary of Exceedences of State Action Levels in Soil
Avery Landing Site
Avery, Idaho

Property	Sample ID	2-Methyl naphthalene	4-Nitro aniline	Benzo[a] anthracene	Benzo[a] pyrene	Benzo[b] fluoranthrene	Naphthalene	Arsenic[(1)]	Iron	Lead	Manganese	Mercury
		ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Idaho Risk Evaluation Manual		3,310	3	422	42	422	1,144	0.39	5.8	50	223	0.0051
Bentcik	EMW-01	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	17.3 J	24,600	n.e.	403 J	0.0199 J
	EMW-02	n.e.	n.d.	n.e.	85	n.e.	n.e.	8.6 J	20,000	n.e.	260 J	0.0124 J
	EMW-06	44,000	n.d.	n.e.	n.d.	n.d.	4,700	7.5 J	16,900	n.e.	319 J	0.0105 J
	ESB-04	18,000	n.d.	860	650 / 110	490	3,100	16.1 J / 5.4 J	16,800 / 16,300	69.1	315 J / 240 J	0.0312 J
	ESB-05	n.e.	5.4 J	n.e.	37	n.e.	n.e.	17 J	18,400	n.e.	n.e.	n.d.
	ESB-06	9,800	n.d.	n.e.	62 J	n.e.	2,600 J	6.1 J	17,100	n.e.	n.e.	n.d.
Potlatch	EMW-03	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	7.3 J	15,100	n.e.	n.e.	0.0114 J
	EMW-04	n.e.	n.d.	n.e.	58	n.e.	n.e.	12 J	19,700	145	354 J	0.0553 J
	EMW-05	23,000	n.d.	n.e.	110	n.e.	3,600	5.7 J	18,000	n.e.	271 J	0.0119 J
	ESB-01	n.e.	n.d.	n.d.	n.d.	n.d.	n.d.	15.7 J	18,900	n.e.	n.e.	n.d.
	ESB-02	n.e.	n.d.	n.e.	43	n.e.	n.e.	16.9 J	19,300	159	288 J	0.117
	ESB-03	15,000	n.d.	n.e.	81 J	n.e.	6,000 J	4.2 J	15,000	n.e.	n.e.	n.d.
	ESB-07	n.e.	n.d.	n.e.	44	n.e.	n.e.	5.1 J	15,100	n.e.	n.e.	n.d.

Note: (1) The upper limit of background soil concentrations for arsenic in the nearby Coeur d'Alene and Spokane River basins is 22 mg/kg (URS Greiner 2001).

Key:
n.d. = not detected
n.e. = no exceedence of Idaho Risk Evaluation Manual

Table 4-20

Summary of Exceedences of Federal Action Levels in Water
Avery Landing Site
Avery, Idaho

Property	Sample ID	Benzo[a] anthracene ug/L	Benzo[a] pyrene ug/L	Benzo[b] fluoranthrene ug/L	Benzo[g,h,i] perylene ug/L	Chrysene ug/L	Naphthalene ug/L	Aluminum ug/L	Arsenic ug/L	Iron ug/L	Lead ug/L	Manganese ug/L
Groundwater												
Drinking Water Standard (MCL)		**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**200 (1)**	**10 (2)**	**300**	**15**	**50**
EPA Region 6 HHMSSL - Tap Water		**0.029**	**0.0029**	**0.15**	**0.029**	**2.9**	**6.2**	**36,500**	**0.045**	**25,550**	**15**	**1,700**
Bentcik	EMW-01	n.d.	n.d.	n.d.	n.d.	n.d.	n.e.	n.d.	0.303 J	n.e.	n.d.	120
	EMW-02	0.37	0.20	n.e.	0.11	n.e.	n.e.	2,050	**88.6**	**26,100**	n.e.	**3,300**
	EMW-06	1.6	0.85	0.84	0.51	3.0	63	32,200	**58.6**	**80,500**	**39.8**	**3,920**
	MW-5	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.e.	0.655 J	n.e.	n.e.	n.e.
Potlatch	EMW-03	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.e.	**30.7**	**30,800**	n.e.	**5,510**
	EMW-04	n.e.	n.d.	n.e.	0.037	n.e.	n.d.	n.e.	**13.7**	**31,300**	n.e.	**3,430**
	EMW-05	n.d.	n.d.	n.d.	n.d.	n.d.	7.1	634	**51.4**	23,000	n.e.	**2,980**
	HC-1R	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	**46.6**	**50,600**	n.d.	**5,630**
	DW-01	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	1.06	n.e.	n.d.	n.e.
Surface Water												
Federal AWQC		**n.a.**	**0.014**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**150**	**n.a.**	**2.5**	**120**
Bentcik	SW-03	n.e.	0.027	n.e.	n.d.	n.e.	n.e.	n.d.	n.e.	n.e.	n.d.	n.e.

Notes: Bis(2-ethyl hexyl) phthalate is not included because it is a common laboratory contaminant and it was present in the background well.
Barium is not included for surface water because the concentrations exceeded the Federal AWQC in all three samples, including the upstream/background sample.
A bold sample result indicates that the sample exceeds both the MCL and the Region 6 tap water guideline.
(1) For aluminum, the federal regulation specifies a range of 50 to 200 µg/L, and the state of Idaho has set the standard at 200 µg/L.
(2) For arsenic, the state standard is 50 µg/L, and the federal standard is 10 µg/L.

Key:
AWQC = Ambient Water Quality Criteria
HHMSSL = Human Health Medium-Specific Screening Level
MCL = Maximum Contaminant Level
n.a. = not applicable
n.d. = not detected
n.e. = no exceedence of applicable standard or guideline

Table 4-21

Summary of Exceedences of State Action Levels in Water
Avery Landing Site
Avery, Idaho

Property	Sample ID	2-Methyl naphthalene ug/L	Benzo[a] anthracene ug/L	Benzo[a] pyrene ug/L	Benzo[a] fluoranthrene ug/L	Chrysene ug/L	N-Nitro sodiphenyl amine ug/L	Aluminum ug/L	Arsenic ug/L	Iron ug/L	Lead ug/L	Manganese ug/L	PCBs (Aroclor 1260) ug/L
Groundwater													
Groundwater Standard (MCL)		**n.a.**	**n.a.**	**0.20**	**n.a.**	**n.a.**	**n.a.**	**200 (1)**	**50 (2)**	**300**	**15**	**50**	**0.5**
Idaho Risk Evaluation Manual		**42**	**0.077**	**0.20**	**0.077**	**7.7**	**11**	**n.a.**	**10**	**3,130**	**15**	**250**	**0.0279**
Bentcik	EMW-01	n.e.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.e.	n.e.	n.d.	n.e.	n.d.
	EMW-02	n.e.	0.37	0.20	0.12	n.e.	n.d.	2,050	**88.6**	26,100	n.e.	3,300	n.d.
	EMW-06	270	1.6	0.85	0.84	n.e.	12	32,200	**58.6**	80,500	39.8	3,920	0.028
	MW-5	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.e.	n.e.	n.e.	n.e.	n.e.	n.d.
Potlatch	EMW-03	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.e.	30.7	30,800	n.e.	5,510	n.d.
	EMW-04	n.d.	n.e.	n.d.	n.e.	n.e.	n.d.	n.e.	13.7	31,300	n.e.	3,430	n.d.
	EMW-05	n.e.	n.d.	n.d.	n.d.	n.d.	n.d.	634	**51.4**	23,000	n.e.	2,980	n.d.
	HC-1R	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	46.6	50,600	n.d.	5,630	n.d.
	DW-01	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.e.	n.e.	n.d.	n.e.	n.d.
Surface Water													
Idaho Risk Evaluation Manual		**n.a.**	**0.0028**	**0.0028**	**0.0028**	**0.0028**	**n.a.**	**n.a.**	**50**	**n.a.**	**2.5**	**n.a.**	**n.a.**
Bentcik	SW-03	n.d.	0.011 J	0.027	0.023 J	0.016 J	n.d.	n.d.	n.e.	n.e.	n.d.	n.e.	n.d.

Note: Bis(2-ethyl hexyl) phthalate is not included because it is a common laboratory contaminant and it was present in the background well.
A bold sample result indicates that the sample exceeds both the groundwater standard and the Idaho Risk Evaluation Manual guideline.
(1) For aluminum, the federal regulation specifies a range of 50 to 200 µg/L, and the state of Idaho has set the standard at 200 µg/L.
(2) For arsenic, the state standard is 50 µg/L, and the federal standard is 10 µg/L.

Key:
n.a. = not applicable
n.d. = not detected
n.e. = no exceedence of Idaho Risk Evaluation Manual

Table 4-22

Comparison of Soil Sample Results to Consensus-Based Sediment Threshold Effect Concentrations
Avery Landing Site
Avery, Idaho

Sample ID:	07040102	07040104	07040106	07040108	07040110	07040114	07040116	07040117	**Consensus-Based Sediment TEC [1]**
Sample Location:	EMW-01 SB 02	EMW-02 SB 07	EMW-03 SB 11	EMW-04 SB 03	EMW-05 SB 09	EMW-06 SB 09	ESB-01 SB 07	ESB-02 SB 03	
PAHs (µg/kg)									
Anthracene	14 J	**91**	*2.7 U*	7.1 J	**700**	**250**	*22 U*	6.5 J	**57.2**
Benzo[a]anthracene	*27 UJ*	**120**	*3.4 U*	38 J	**210**	53	*28 U*	29	**108**
Benzo[a]pyrene	*33 UJ*	85	*4.1 U*	58	110	*39 U*	*33 U*	43	**150**
Chrysene	*27 UJ*	**180**	*3.4 U*	48	**360**	120	*28 U*	37	**166**
Dibenz[a,h]anthracene	*44 UJ*	*47 U*	*5.5 U*	**36 J**	*50 U*	*53 U*	*45 U*	**40 J**	**33.0**
Fluoranthene	26	65	*2.7 U*	61 J	**460**	99	*22 U*	33	**423**
Fluorene	*22 U*	**180**	9.7	*22 U*	**2,800**	**4,900**	*22 U*	*22 U*	**77.4**
Naphthalene	*22 U*	81	*2.7 U*	19 J	**3,600**	**4,700**	*22 U*	100	**176**
Phenanthrene	*22 U*	**420**	*2.7 U*	43	**5,800**	**3,800**	*22 U*	89	**204**
Pyrene	44	**370**	*2.7 U*	65	**840**	**240**	*22 U*	43	**195**
PCBs (µg/kg)									
Aroclor-1260	9.8 J	*12 U*	**130**	19	20 J	9.2 J	*11 U*	4.4 J	**59.8 [2]**
TAL Metals (mg/kg)									
Sample ID:	07040102	07040105	07040106	07040108	07040110	07040113	07040116	07040117	**Consensus-Based Sediment TEC [1]**
Sample Location:	EMW-01 SB 02	EMW-02 SB 05	EMW-03 SB 11	EMW-04 SB 03	EMW-05 SB 09	EMW-06 SB 07	ESB-01 SB 07	ESB-02 SB 03	
Arsenic	**17.3 J**	8.6 J	7.3 J	**12 J**	5.7 J	7.5 J	**15.7 J**	**16.9 J**	**9.79**
Cadmium	0.47 J	0.52 J	0.45 J	0.81 J	0.39 J	0.43 J	0.53 J	0.78 J	**0.99**
Chromium	18.8	18.4	11.9	15.1	13.2	12.8	12.1	12.3	**43.4**
Copper	23.7	21.5	20.8	**101**	25.1	20.7	20.5	**71.6**	**31.6**
Lead	11	9.5	9.3	**145**	6.1	8.3	17.3	**159**	**35.8**
Mercury	0.0199 J	0.0124 J	0.0114 J	0.0553 J	0.0119 J	0.0105 J	*0.0064 UJ*	0.117	**0.18**
Nickel	16.5	16.3	13.3	**24.9**	13.1	13.4	16.1	**32.3**	**22.7**
Zinc	48.7	47.3	42.2	101	34.9	42.5	26	72.3	**121**

Key is on last page.

Table 4-22 (Continued)

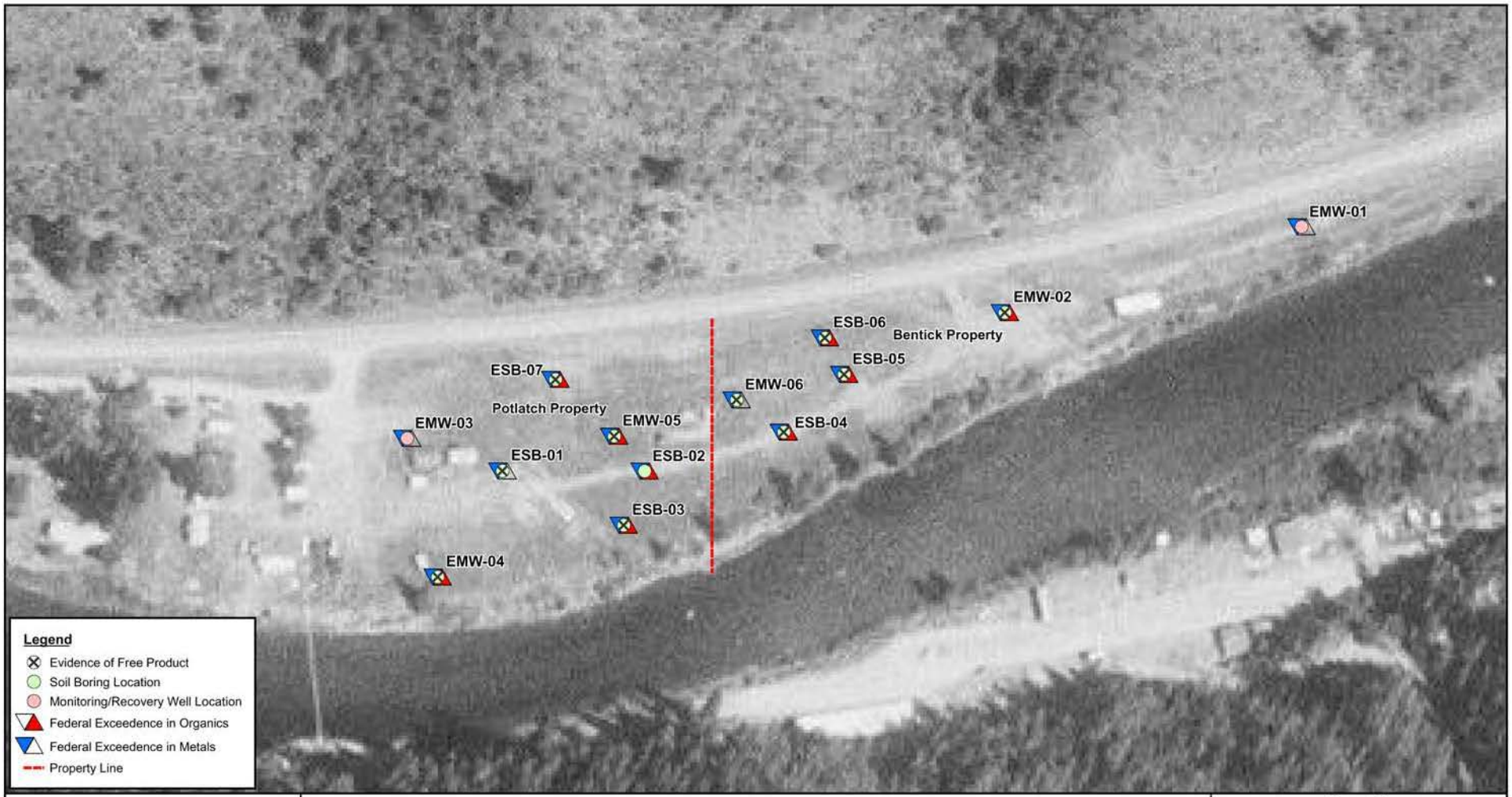
Comparison of Soil Sample Results to Consensus-Based Sediment Threshold Effect Concentrations
Avery Landing Site
Avery, Idaho

Sample ID:	07040119	07040120	07040122	07040124	07040125	07040127	07040129	**Consensus-Based Sediment TEC (1)**
Sample Location:	ESB-03 SB 11	ESB-04 SB 03	ESB-04 SB 07	ESB-05 SB 15	ESB-05 SB 23	ESB-06 SB 11	ESB-07 SB 13	
PAHs (µg/kg)								
Anthracene	**180 J**	**480**	**530**	**120**	3.7	**510 J**	**220**	**57.2**
Benzo[a]anthracene	**120 J**	**860**	**190**	38	1.3 J	**130 J**	84	**108**
Benzo[a]pyrene	81 J	**650**	**110**	37	*3.3 U*	62 J	44	**150**
Chrysene	**290 J**	**1,400**	**370**	53	1.7 J	**180 J**	120	**166**
Dibenz(a,h)anthracene	*52 UJ*	*440 U*	*50 U*	*44 U*	*4.3 U*	*49 UJ*	*43 U*	**33.0**
Fluoranthene	170 J	**1,400**	310	70	2.4	**520 J**	340	**423**
Fluorene	**2,300 J**	**1,000**	**2,900**	**600**	21	**1,400 J**	**1,700**	**77.4**
Naphthalene	**6,000 J**	**240**	**3,100**	**410**	15	**2,600 J**	**1,000**	**176**
Phenanthrene	**3,600 J**	**3,300**	**4,400**	**960**	37	**4,600 J**	**2,500**	**204**
Pyrene	**510 J**	**3,200**	**690**	140	4.7	**770 J**	**430**	**195**
PCBs (µg/kg)								
Aroclor-1260	*13 U*	22	*13 U*	*11 U*	*10 U*	6.8 J	6.5 J	**59.8 (2)**
TAL Metals (mg/kg)								
Sample ID:	07040119	07040120	07040122	07040124	07040125	07040127	07040129	**Consensus-Based Sediment TEC (1)**
Sample Location:	ESB-03 SB 11	ESB-04 SB 03	ESB-04 SB 07	ESB-05 SB 15	ESB-05 SB 23	ESB-06 SB 11	ESB-07 SB 13	
Arsenic	4.2 J	**16.1 J**	5.4 J	**17 J**	Not Analyzed	6.1 J	5.1 J	**9.79**
Cadmium	0.36 J	0.86	0.36 J	0.29 J	Not Analyzed	0.41 J	0.23 J	**0.99**
Chromium	10.9	12	11.2	10.8	Not Analyzed	10.7	7.7	**43.4**
Copper	18.7	**44.7**	18.1	21.3	Not Analyzed	20.2	**43**	**31.6**
Lead	7.7	**69.1**	4.3	2.3	Not Analyzed	6.3	4.7	**35.8**
Mercury	*0.00713 UJ*	0.0312 J	*0.00697 UJ*	*0.00625 UJ*	Not Analyzed	*0.00691 UJ*	*0.00609 UJ*	**0.18**
Nickel	12.9	17.8	12.9	15	Not Analyzed	12.1	8.7	**22.7**
Zinc	34.4	111	29.5	18.4	Not Analyzed	33.4	20.7	**121**

Notes: Italics indicates that the compound was not detected.
Bold type indicates that the compound exceeds the Sediment TEC.
(1) Consensus-Based Sediment Threshold Effects Concentrations (MacDonald et al. 2000)
(2) The PCB Sediment TEC is for total PCBs.

Key:

ID	= identification
J	= estimated value
µg/kg	= microgram per kilogram
PAH	= polycyclic aromatic hydrocarbon
TEC	= Threshold Effects Concentration
U	= not detected (at the indicated reporting limit)
UJ	= not detected (estimated reporting limit)



N W E S

0 25 50 100 150 200
Feet

Scale 1:1,200

ecology and environment, inc.
International Specialists in the Environment
Seattle, Washington

AVERY LANDING SITE

Avery, Idaho

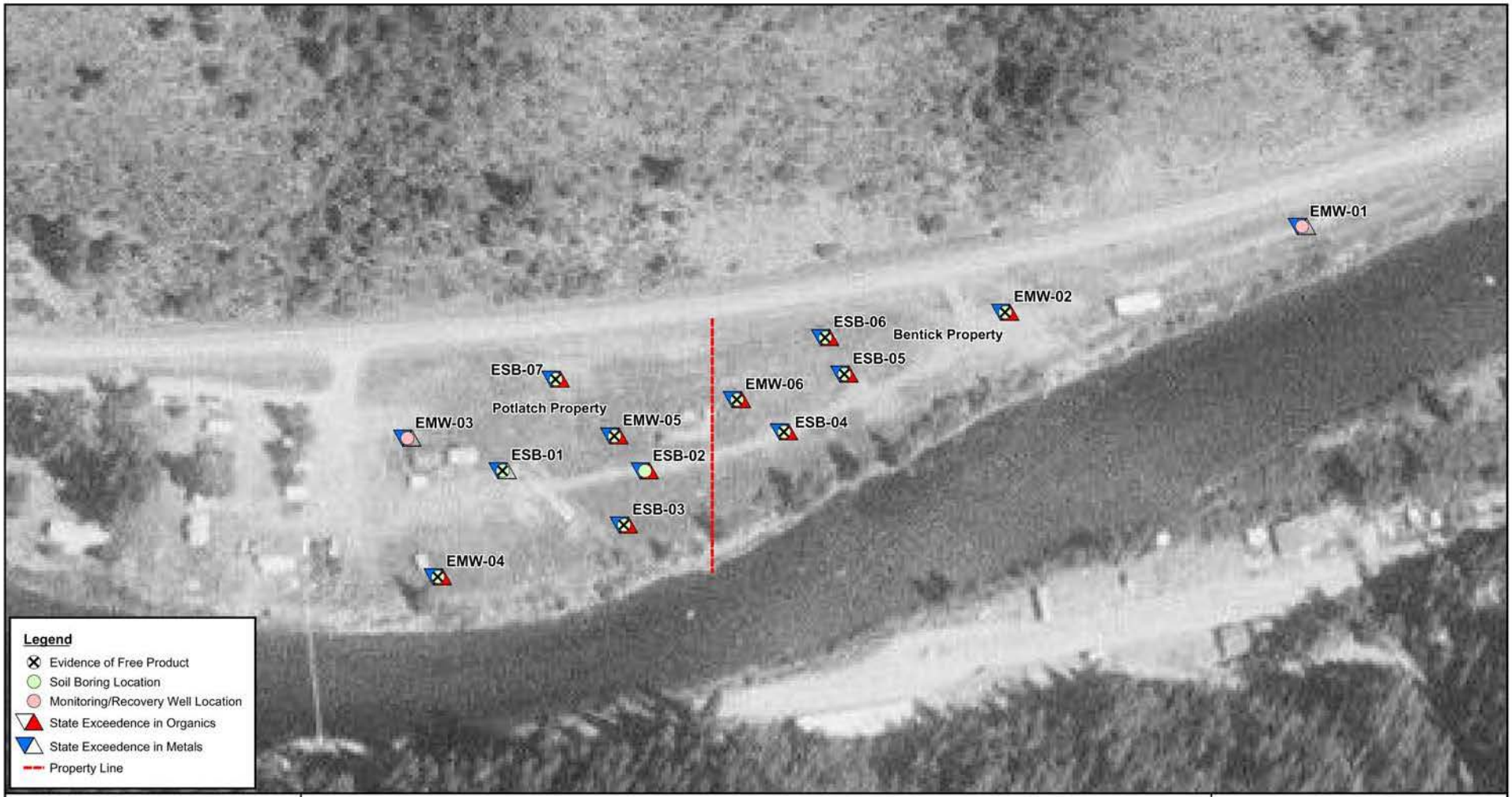
Figure 4-1
Soil Borings with Exceedences of Federal Action Levels in Soil
April 16-21, 2007

Map Source Information:
Terraserver, USGS Aerial Photo

Date:	GIS Analyst:
7/3/2007	avh

Project ID:
002233.0193.01SF

\edms-projects\avery_landing\figure 4-1 federal soil.mxd



N W E S

0 25 50 100 150 200
Feet

Scale 1:1,200

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International Specialists in the Environment
Seattle, Washington

AVERY LANDING SITE

Avery, Idaho

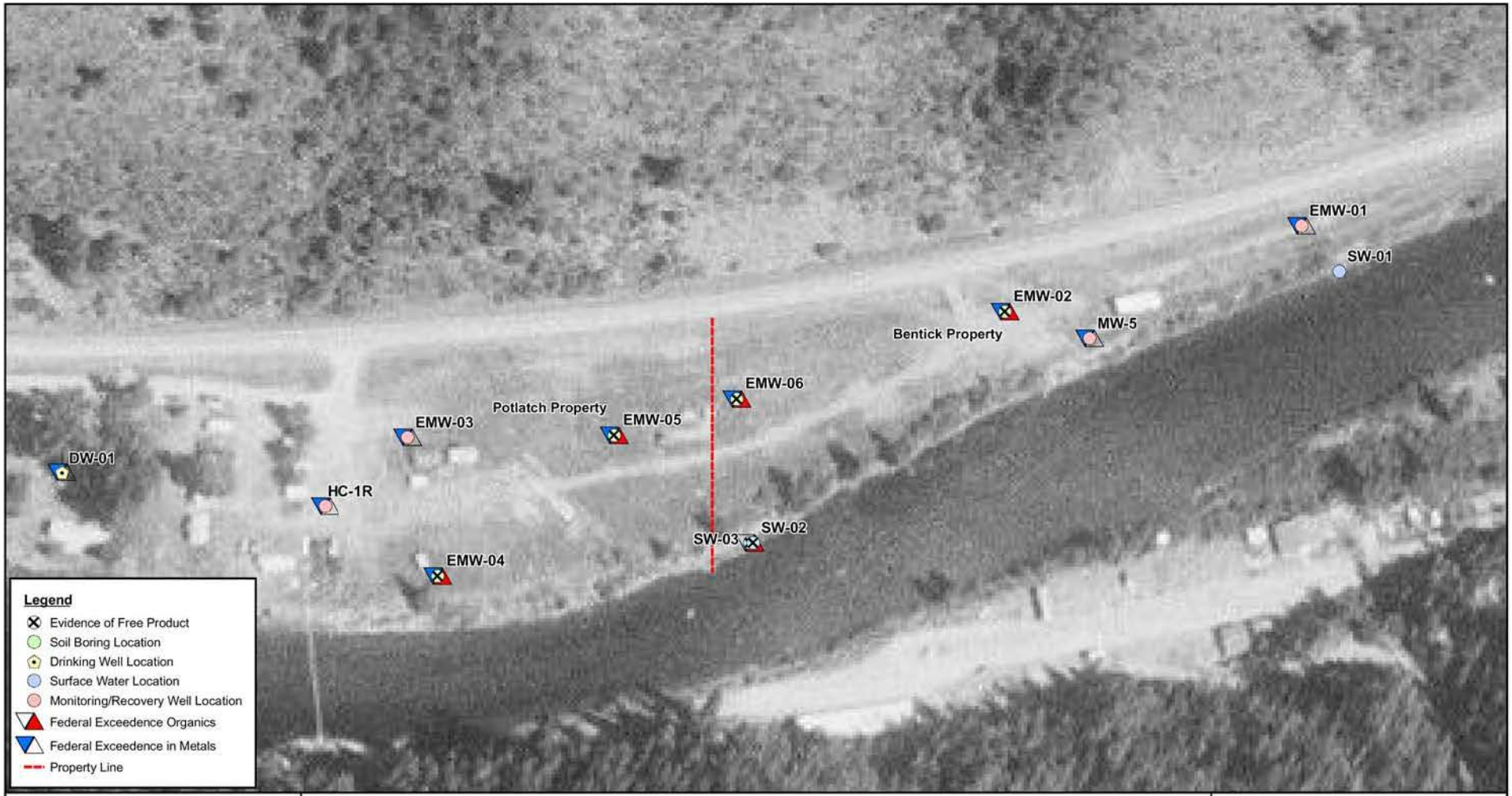
Figure 4-2
Soil Borings with Exceedences of State Action Levels in Soil
April 16-21, 2007

Map Source Information:
Terraserver, USGS Aerial Photo

Date:	GIS Analyst:
7/3/2007	avh

Project ID:
002233.0193.01SF

\adms-projects\avery_landing\figure 4-2 state soil.mxd



N W E S

0 25 50 100 150 200
Feet

Scale 1:1,200

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Seattle, Washington

AVERY LANDING SITE

Avery, Idaho

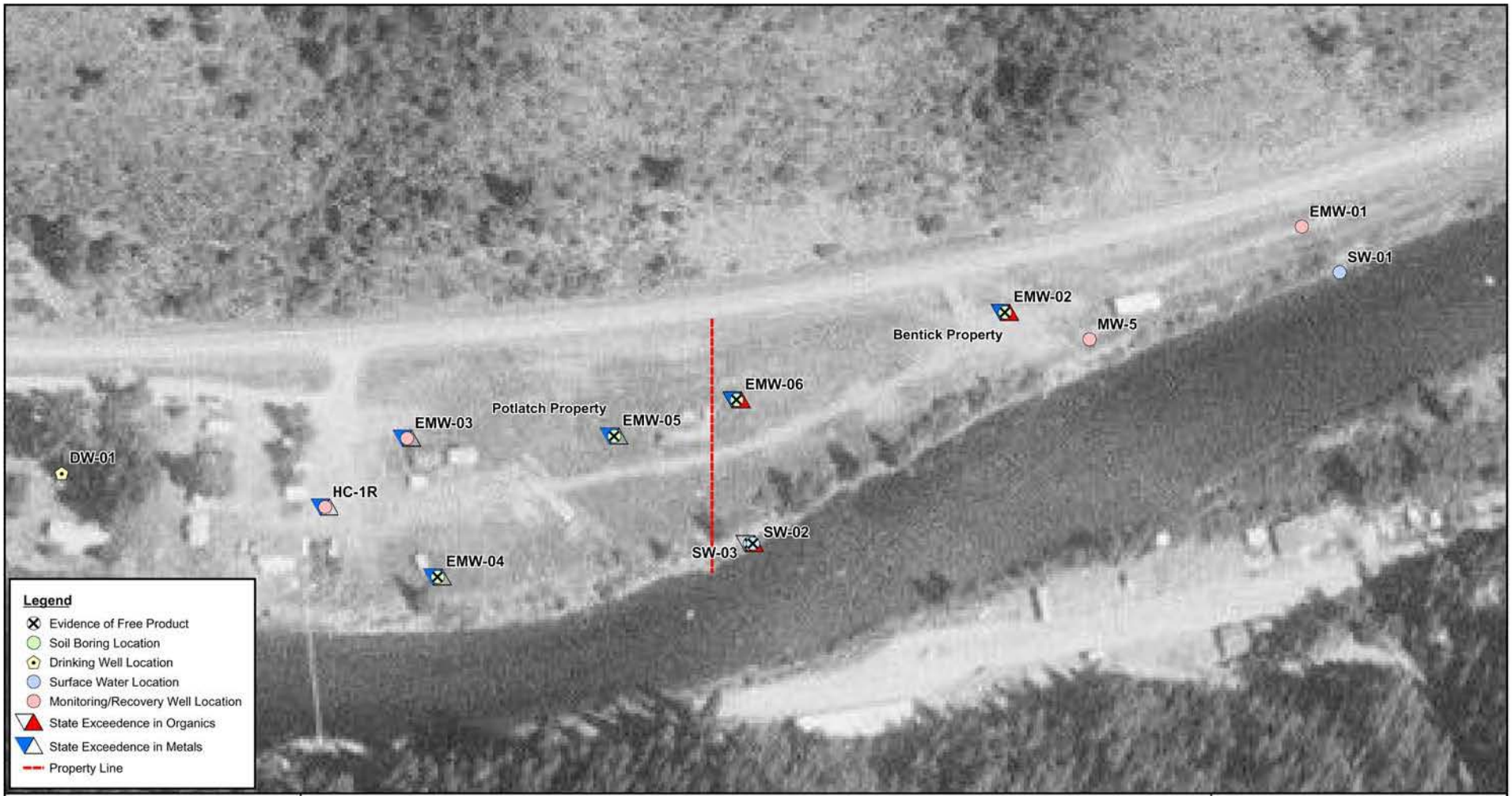
Figure 4-3
Monitoring Wells with Exceedences of Federal Action Levels in Water April 16-21, 2007

Map Source Information:
Terraserver, USGS Aerial Photo

Date: 7/5/2007	GIS Analyst: avh

Project ID:
002233.0193.01SF

\edms-projects\avery_landing\figure 4-3 federal water .mxd



N W E S

0 25 50 100 150 200
Feet

Scale 1:1,200

ecology and environment, inc.
International Specialists in the Environment
Seattle, Washington

AVERY LANDING SITE

Avery, Idaho

Figure 4-4
Monitoring Wells with Exceedences of State Action Levels in Water
April 16-21, 2007

Map Source Information:
Terraserver, USGS Aerial Photo

Date: 7/5/2007	GIS Analyst: avh

Project ID:
002233.0193.01SF

\edms-projects\avery_landing\figure 4-4 state water .mxd

5.0 QUALITY ASSURANCE / QUALITY CONTROL

Quality assurance / quality control (QA/QC) data are necessary to determine precision and accuracy and to demonstrate the absence of interferences and/or contamination of sampling equipment, glassware and reagents. Specific QC requirements for laboratory analyses are incorporated in the Contract Laboratory Program Statement of Work for Inorganic Analyses (EPA 2007b) and the Contract Laboratory Program Statement of Work for Organic Analyses (EPA 2005). These QC requirements or equivalent requirements found in the analytical methods were followed for analytical work on the project. This section describes the QA/QC measures taken for the project and provides an evaluation of the usability of data presented in this report.

All samples were collected following the guidance of the SSSP (E & E 2007) for the field activities. Target analyte list (TAL) metals analyses following EPA SW-846 methods 6010, 6020, and 7471, total petroleum hydrocarbon extended diesel-range analyses following Washington Department of Ecology (Ecology) methods NWTPH-Dx, and semivolatile organic compound (SVOC) analyses following EPA SW-846 method 8270 were performed by Laucks Testing Laboratories, Inc., a commercial laboratory located in Seattle, Washington, and polychlorinated biphenyls (PCBs) analyses following EPA SW-846 method 8082 and volatile organic compound (VOC) analyses following EPA SW-846 method 8260 were performed by STL-Seattle, Inc., a commercial laboratory located in Tacoma, Washington.

Commercial laboratory data validation was conducted by a START chemist. Data qualifiers were applied as necessary according to the following guidance:

- USEPA (2004a) Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Methods Data Review.
- USEPA (2004b) Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review.

In the absence of other QC guidance, method-specific QC limits were also utilized to apply qualifiers to the data.

5.1 SATISFACTION OF DATA QUALITY OBJECTIVES

The following EPA (EPA 2000) guidance document was used to establish data quality objectives (DQOs) for this project:

- Guidance for the Data Quality Objectives Process (EPA QA/G-4), EPA/600/R-96/055.

The OSC determined that definitive data without error and bias determination would be used for the sampling and analyses conducted during the field activities. The data quality achieved during the field work produced sufficient data that met the DQOs stated in the SSSP (E & E 2007). A detailed discussion of accomplished project objectives is presented in the following subsections.

5.2 QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

QA samples included rinsate blank and trip blank samples. One rinsate blank sample and one trip blank sample were collected during the START field event, therefore meeting the frequency criteria of one rinsate blank sample per 20 samples collected using non-dedicated sampling equipment and one trip blank sample per VOC sample cooler. The rinsate blank is discussed in subsection 4.4.3 and the trip blank is discussed in subsection 4.4.4. QC samples included matrix spike (MS)/matrix spike duplicate (MSD) samples for organic analyses at a rate of one MS/MSD per 20 samples per matrix per analysis.

5.3 PROJECT-SPECIFIC DATA QUALITY OBJECTIVES

The commercial laboratory data were reviewed to ensure that DQOs for the project were met. The following describes the laboratories' ability to meet project DQOs for precision, accuracy and completeness and the field team's ability to meet project DQOs for representativeness and comparability. The laboratory and the field team were able to meet DQOs for the project.

5.3.1 Precision

Precision measures the reproducibility of the sampling and analytical methodology. Laboratory and field precision is defined as the relative percent difference (RPD) between duplicate sample analyses. The laboratory duplicate samples or MS/MSD samples measure the precision of the analytical method.

The RPD values were reviewed for all laboratory analyses. A total of 21 sample results (approximately 0.55% of the data) were qualified as estimated quantities (J of UJ) based on laboratory duplicate QC outliers. The DQO for precision of 85% was met.

5.3.2 Accuracy

Accuracy measures the reproducibility of the sampling and analytical methodology. Laboratory accuracy is defined as the surrogate spike or the MS percent recoveries. The surrogate percent recovery values were reviewed for all appropriate sample analyses. A total of 83 sample results (approximately 2.2% of the data) were qualified as estimated quantities (J or UJ) based on surrogate outliers. The MS percent recovery values were reviewed for all MS/MSD analyses. A total of 94 sample results

(approximately 2.5% of the data) were qualified as estimated quantities (J or UJ) based on matrix spike outliers. The project DQO for accuracy of 85% was met.

5.3.3 Completeness

Data completeness is defined as the percentage of usable data (usable data divided by the total possible data). All data were reviewed for usability. A total of 17 sample results (approximately 0.45% of the data) were rejected (R), therefore the project DQO for completeness of 90% was met.

5.3.4 Representativeness

Data representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point or environmental condition. The number and selection of samples were determined in the field to account accurately for site variations and sample matrices. The DQO for representativeness of 85% was met.

5.3.5 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared to another. Data produced for this site followed applicable field sampling techniques and specific analytical methodology. The DQO for comparability was met.

5.4 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL PARAMETERS

The laboratory data also were reviewed for holding times/temperatures, laboratory method blank samples, rinsate blank samples, trip blank samples, and serial dilution analyses. These QA/QC parameters are summarized below. In general, the laboratory and field QA/QC parameters were considered acceptable.

5.4.1 Holding Times/Temperatures

All samples were maintained and received within QC temperature limits and all samples were analyzed within QC holding time limits.

5.4.2 Laboratory Blanks

The laboratory method blanks met the frequency criteria. The following potential contaminants of concern were detected in laboratory blanks and affected sample results:

SVOCs:	bis(2-ethylhexyl)phthalate, butylbenzyl phthalate, di-n-butyl phthalate;
TAL Metals:	antimony, calcium, chromium, lead, mercury, selenium, thallium; and
VOCs:	acetone, methylene chloride, and 4-methyl-2-pentanone.

Associated sample results less than 5 times the positive laboratory blank results (ten times for common contaminants) were qualified as not detected (U).

5.4.3 Rinsate Blanks

One rinsate blank sample was analyzed for each 20 samples collected using non-dedicated sampling equipment, meeting the frequency criteria. The following contaminants of concern were detected in the rinsate blank sample and resulted in sample qualifications:

SVOCs:	2-methylnaphthalene, dimethyl phthalate, diethyl phthalate, phenanthrene;
TAL Metals:	sodium; and
VOCs:	methylene chloride.

For rinsate blank results greater than the quantitation limits, sample results less than five times the rinsate blank concentration (10 times for common contaminants) were qualified as not detected (U).

5.4.4 Trip Blanks

One trip blank sample was collected during the START-3 field event, therefore meeting the frequency criteria of one trip blank sample per VOC sample cooler. The trip blank was collected from a distilled, deionized water source and was maintained with the sample containers. No contaminants of concern were detected in the trip blank sample.

5.4.5 Serial Dilution

A serial dilution analysis was performed for every 20 samples per matrix. A total of 42 sample results (approximately 1.1 % of the data) were qualified as estimated quantities (J or UJ) based on serial dilution outliers.

6.0 SUMMARY AND CONCLUSIONS

START-3 performed a removal assessment at the Avery Landing site in Avery, Idaho, to investigate the potential release of CERCLA hazardous substances and environmental impacts related to the site's past use as a railroad roundhouse, maintenance, and refueling facility. The site is located on the St. Joe River, which is designated a special resource water. The St. Joe River is an important resource for wildlife habitat and recreation, and it is also used for drinking water.

START-3 performed a field sampling event to observe site conditions and to collect representative samples of various media for analytical testing. During the field sampling event, a licensed driller installed 13 soil borings, of which six were completed as monitoring wells. START-3 collected a total of 43 environmental samples of subsurface soil, groundwater (including one domestic well), surface water, and product, and the samples were analyzed for VOCs, SVOCs, PCBs, NWTPH-Dx, and TAL metals. The investigation did not address the entire site; no drilling was performed to the west of monitoring well HC-1R, where the seasonal and permanent residents live, because of concerns about underground utility lines and septic tanks.

During the field sampling event, START-3 observed free petroleum product throughout the site at levels that exceeded applicable state regulatory standards. Free product was observed floating on the groundwater in monitoring and recovery wells, saturated in subsurface soils collected from soil borings, and seeping from the site into the St. Joe River. In two monitoring wells (HC-4 and TP-2), the product layer was nearly a foot thick (0.88 and 0.72 feet, respectively). In other wells, product was present but the thickness could not be determined because it was too sticky and viscous. Historic documents indicate that free product released at the site was a mixture of diesel fuel and heavy oil (bunker C), and the results of analytical testing confirmed the presence of both diesel and heavy oil. The estimated area of the free product plume has grown since 2000, especially toward the west and southwest, which is downgradient of the source area.

START-3 observed a 200-foot stretch of the site's river bank that contained evidence of past product seep activity, including the presence of oil on riprap at the water level. START-3 also observed several areas of actives seeps within this zone, in which free product was seeping from underneath the riprap at the bank and floating to the surface.

Site subsurface soils were determined to contain a significant amount of silt, and the newly installed monitoring wells recharged slowly during well development. These observations indicate that groundwater at the site may flow relatively slowly compared to flow rates expected for a subsurface geology composed of pure sand. It is clear that the free product plume is moving through the subsurface formation, as product continues to seep to the river and the estimated area has grown downgradient to the

west and southwest. However, it is also seems that much of the remaining free product has remained in the source area, which may be attributed to the relatively lower transmissivity of the silty-sand formation and the lack of sufficient hydraulic pressure from groundwater and rain to flush out the product.

The results of the analytical testing indicated that organic and inorganic CERCLA hazardous substances were detected in most of the site samples. Particularly, many PAH compounds were present in subsurface soil and groundwater samples at concentrations that exceeded applicable state and federal risk-based guidelines. The source of the PAH contamination is likely the petroleum product that is present throughout the site, and it has been documented that the petroleum product was released to soils and groundwater through the site's historic use as a railroad maintenance and refueling facility.

The PCB Aroclor-1260 was detected in several site soil samples and in a sample of the petroleum product, and Aroclor-1260 exceeded the state guideline in one groundwater sample. Aroclor-1260 may be present because the railroad facility serviced electric locomotives, and it was believed that transformer oils were used and stored in the facility.

Several metals were also present at concentrations above applicable guidelines. Arsenic, iron, lead, and manganese exceeded state guidelines in soil and state and federal guidelines in groundwater, and mercury exceeded the state soil guidelines. It is not clear if the metals contamination is present because of site activities. In northern Idaho, many of these metals occur naturally at elevated background concentrations, and many of the metals detected at the Avery Landing Site were present at similar concentrations in many site samples (e.g., arsenic, iron, and manganese in groundwater; and arsenic and iron in soil). However, the lead and mercury samples that exceeded ARARs were detected in a limited number of samples, which may be more indicative of a site-related source. For example, the highest detections of lead and mercury in soil occurred in soil boring ESB-02, which was advanced in the approximate vicinity of the facility's former machine shop. Additionally, the single detection of lead in groundwater that exceeded state and federal ARARs was in monitoring well EMW-06, which was located in the middle of the product-contaminated area.

The upgradient/background well EMW-01 contained trace levels of some VOCs, some PAHs, and Aroclor-1260 in soil. It also contained DRO at a concentration of 1,500 mg/kg and ORO at a concentration of 12,000 mg/kg, which was the highest concentration of ORO detected in soil. The groundwater from this sample also contained trace levels of PAHs and DROs. For metals, the soil sample from EMW-01 contained elevated levels of arsenic, while the groundwater sample contained lower concentrations of some metals than many of the downgradient site samples. In general, these results indicate that historic site activities may have extended as far to the east as EMW-01.

Most of the organic contaminants detected at the site, and the corresponding exceedences of ARARs, were PAHs that are usually associated with petroleum. There were also a few detections of

chlorinated VOCs and SVOCs in soil and groundwater, although none of them exceeded applicable ARARs. Trace levels of the VOC chlorobenzene were detected in soil (EMW-06, ESB-04, and ESB-05), groundwater (EMW-05 and EMW-06), and the product sample (HC-4). Additionally, trace levels of the SVOCs 1,2-dichlorobenzene and 1,4-dichlorobenzene were detected in groundwater. The presence of VOC chlorobenzene and other chlorinated compounds suggests that chlorinated solvents may have been used in the past at the site, and the relatively low concentrations may be a result of the time that has elapsed since their release and/or their volatility and mobility.

The on-site domestic well (DW-01) is downgradient of the site and the petroleum product source area. The domestic well is reportedly screened in a lower aquifer than the groundwater that was sample on site, but it contained concentrations of site contaminants. Groundwater from the domestic well contained the PAH anthracene (0.0026 J μg/L) and DRO (79 μg/L) at relatively low concentrations, and it also contained arsenic at a concentration (1.06 μg/L) above the EPA Region 6 HHMSSL for tap water (0.045 μg/L). While the arsenic may be naturally occurring, the presence of the anthracene and the DRO in the samples suggest that the contaminant plume at the site has the potential to impact the domestic well.

In addition to the visible petroleum product seeps to the river, surface water sample SW-03 contained four PAHs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, and chrysene) at concentrations that exceeded Idaho REM guidelines. Benzo[a]pyrene also exceeded the federal AWQC. When compared to sediment guidelines, PAH compounds detected in the soil samples exceeded several consensus-based SQGs.

The results of the removal assessment indicate that there is a large zone of free petroleum product contamination on the groundwater and in subsurface soils at the site at levels that exceed state of Idaho regulatory standards. The petroleum product contains PCBs and other chlorinated compounds, and it is actively seeping to the St. Joe River. Subsurface soil and groundwater samples collected from the site contained several CERCLA hazardous substances (PAHs and metals) that exceeded applicable state and federal guidelines, and a surface water sample also contained PAHs in excess of state and federal guidelines. As long as the petroleum product remains at the site, it will be a continued source for the release of petroleum hydrocarbons to the river and to the domestic well located on site, and it will continue to have a potentially negative impact to surface and groundwater quality in the area.

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Appendix A

Photographic Documentation

Avery Landing Site
Avery, Idaho

Taken by: Steve Hall (SH), Josie Clark (JC), Earl Liverman (EL)

Photo 1 Eastern portion of the site, with AST in foreground and Bentcik cabin in background.

Direction: East *Date: 4/17/07* *Taken by: JC*

Photo 2 Western portion of the site, with remnants of railroad roundhouse and residences.

Direction: West *Date: 4/17/07* *Taken by: JC*

Photo 3 Bank of St. Joe River with boom around seep area.

Direction: Southeast *Date: 10/26/06* *Taken by: SH*

Photo 4 View of the St. Joe River and boom along the on-site bank.

Direction: East *Date: 10/26/06* *Taken by: SH*

Taken by: Steve Hall (SH), Josie Clark (JC), Earl Liverman (EL)

Photo 5 Close-up of petroleum product on rocks and surface water.

Direction: Down *Date: 10/26/06* *Taken by: SH*

Photo 6 Close-up of sheen on surface water.

Direction: Southwest *Date: 10/26/06* *Taken by: SH*

Photo 7 Close-up of petroleum product on rocks and sheen in water.

Direction: Down *Date: 4/20/07* *Taken by: JC*

Photo 8 Close-up of petroleum products on rocks and vegetation.

Direction: Down *Date: 4/20/07* *Taken by: SH*

Taken by: Steve Hall (SH), Josie Clark (JC), Earl Liverman (EL)

Photo 9 Driller at location of monitoring well EMW-06.

Direction: Southwest *Date: 4/18/07* *Taken by: JC*

Photo 10 Drillers advance soil boring ESB-05.

Direction: Northeast *Date: 4/19/07* *Taken by: JC*

Photo 11 Construction of monitoring well vault for EMW-02.

Direction: Down *Date: 4/17/07* *Taken by: JC*

Photo 12 Completion of monitoring well vault for EMW-02.

Direction: Down *Date: 4/17/07* *Taken by: JC*

Taken by: Steve Hall (SH), Josie Clark (JC), Earl Liverman (EL)

Photo 13 START-3 collects analytical samples from soil core.

Direction: West *Date: 4/17/07* *Taken by: SH*

Photo 14 Petroleum product on oil/water interface probe at monitoring well HC-4.

Direction: West *Date: 4/17/07*
Taken by: SH

Photo 15 START-3 collects a sample of product from monitoring well HC-4.

Direction: East *Date: 4/20/07* *Taken by: EL*

Taken by: Steve Hall (SH), Josie Clark (JC), Earl Liverman (EL)

Photo 16 START-3 collects a surface water sample from St. Joe River at SW-03 location.

Direction: Down *Date: 4/20/07* *Taken by: JC*

Photo 17 START-3 collects a sample from the domestic well on the Potlatch property.

Direction: Northwest *Date: 4/21/07* *Taken by: SH*

Photo 18 START-3 prepares samples to send to the analytical laboratory.

Direction: West *Date: 4/21/07* *Taken by: JC*

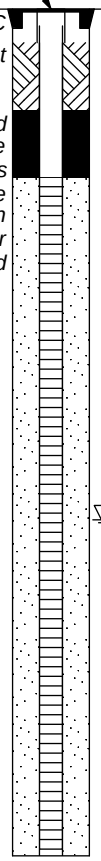
Appendix B

Drilling Logs

DRILLING LOG OF WELL/BORING NO. EMW 01

DATE DRILLED:	4/16/2007	PROJECT NAME:	Avery Landing
LOGGED BY:	Jeff Fowlow	PROJECT LOCATION:	Avery, Idaho
CHECKED BY:	S. Hall	SSID #:	10ZZ
DRILLING CONTRACTOR:	Environmental West Exploration, Inc.		
DRILLED BY:	Randy Wilder	EPA TASK MANAGER:	Earl Liverman
DRILLING METHOD:	Hollow Stem Auger	TDD #:	07-03-0004
VERTICAL DATUM:	Arbitrary Site Datum	START PROJECT #:	002233.0193.01SF
LOCATION:	Avery, ID	START PROJ MGR:	Steve Hall

ELEVATION	DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
Ground Surface Elevation 97.81 ft		*Heavy Gauged Steel Protective Casing*			*ground surface (gs)*				This log is part of the report prepared for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.
		2" PVC			Not Sampled				
	1	*Cement*							
	2	*Hydrated Bentonite chips*			2.0				
95	3	*20-slot V-wire screen*		FILL	WELL GRADED SAND WITH GRAVEL. Moderate brown, dry, medium dense, fine to medium grained, with fractured fine to coarse gravel.		20 48 23 25	1.2	
	4	*10/20 Filter sand*			4.0				
	5			FILL	POORLY GRADED SAND WITH GRAVEL AND SILT. Moderate brown with flecks of red, black, and tan, dry, dense, fine grained sand with lesser coarse sand. Fractured fine to coarse gravel with moist silt.		15 10 8 7	1.0	
	6				6.0				
	7			FILL	POORLY GRADED SAND WITH GRAVEL AND SILT. Moderate brown, dry to moist (at 7.5'), dense, fine to medium grained sand, with fractured fine to medium gravel.		5 6 7 8	0.5	
90	8				8.0				
	9				Not Sampled				
	10				10.0				
	11				Not Sampled				
	12				12.0				
85	13				Not Sampled				
	14				12.6				
	15								



EN E START WELL LOG B (AVERY) START_AVERY1.GPJ E&E PORTLAND.GDT 7/31/07

PROJECT NAME: Avery Landing
WELL NO.: EMW 01

ecology and environment, inc.

DRILLING LOG OF WELL/BORING NO. EMW 02

DATE DRILLED:	4/17/2007	PROJECT NAME:	Avery Landing
LOGGED BY:	Jeff Fowlow	PROJECT LOCATION:	Avery, Idaho
CHECKED BY:	S. Hall	SSID #:	10ZZ
DRILLING CONTRACTOR:	Environmental West Exploration, Inc.		
DRILLED BY:	Randy Wilder	EPA TASK MANAGER:	Earl Liverman
DRILLING METHOD:	Hollow Stem Auger	TDD #:	07-03-0004
VERTICAL DATUM:	Arbitrary Site Datum	START PROJECT #:	002233.0193.01SF
LOCATION:	Avery, ID	START PROJ MGR:	Steve Hall

ELEVATION	DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
Ground Surface Elevation 97.52 ft		*Heavy Gauged Steel Protective Casing*			*ground surface (gs)*				This log is part of the report prepared for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.
		2" PVC			Not Sampled				
		Cement							
	1	*Hydrated Bentonite Chips*							
	2								
95					3.0				
	3			FILL	WELL GRADED SAND WITH GRAVEL. Moderate brown, dry, medium dense, fine to coarse grained with fractured fine to coarse angular gravel and some silt.		15 15 9 12	1.3	
	4								
	5	*10/20 Filter Sand*			5.0				
	6	*20-slot V-wire screen*		MLS	SANDY SILT(MLS) Black, moist, soft, slightly plastic silt with roots and casts.		1 1 4 5	1.5	Moderate hydrocarbon odor.
	7								
90							3 3 12 17	0.3	Hydrocarbon product. Sample blocked by cobble, low recovery.
	8				8.0				
				SM	SILTY SAND (SM) Black, moist to wet, medium dense, fine to coarse grained sand.				
	9				9.0				
					Not Sampled. Likely fractured rock.				
	10								
	11								
	12								
85									
	13								
	14								
	15								
	16				16.0				
	17								

EN E START WELL LOG B (AVERY) START_AVERY1.GPJ E&E PORTLAND.GDT 7/31/07

PROJECT NAME: Avery Landing
WELL NO.: EMW 02

ecology and environment, inc.

DRILLING LOG OF WELL/BORING NO. EMW 03

DATE DRILLED:	4/17/2007	PROJECT NAME:	Avery Landing
LOGGED BY:	Jeff Fowlow	PROJECT LOCATION:	Avery, Idaho
CHECKED BY:	S. Hall	SSID #:	10ZZ
DRILLING CONTRACTOR:	Environmental West Exploration, Inc.		
DRILLED BY:	Randy Wilder	EPA TASK MANAGER:	Earl Liverman
DRILLING METHOD:	Hollow Stem Auger	TDD #:	07-03-0004
VERTICAL DATUM:	Arbitrary Site Datum	START PROJECT #:	002233.0193.01SF
LOCATION:	Avery, ID	START PROJ MGR:	Steve Hall

ELEVATION	DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
Ground Surface Elevation 97.9 ft		*Heavy Gauged Steel Protective Casing*			*ground surface (gs)*				This log is part of the report prepared for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.
		2" PVC Cement Hydrated Bentonite Chips			Not Sampled.				
	3.0				Not Sampled. Slough.		5 3 3 2	0.3	
	5.0				Not Sampled. Woody Debris			0.3	
	9.0	*10/20 Filter Sand* *20-slot V-wire screen*						0.3	
	11.0				Not Sampled.				
	13.0			MLS	SANDY SILT WITH CLAY (MLS) Dark Brown, moist to wet, medium stiff, slight plasticity, with fine sand and clay.		3 5 6 8	2.0	
	15.0			GWS	SANDY GRAVEL WITH SILT (GWS) Dark gray, wet, medium dense, fine to coarse, rounded gravel with coarse sand and some silt packed tightly in pore spaces.		8 10 13 13	1.2	
					Not Sampled.				
	19.0								Refusal

EN E START WELL LOG B (AVERY) START_AVERY1.GPJ E&E PORTLAND.GDT 7/31/07

PROJECT NAME: Avery Landing
WELL NO.: EMW 03

ecology and environment, inc.

DRILLING LOG OF WELL/BORING NO. EMW 04

DATE DRILLED:	4/17/2007	PROJECT NAME:	Avery Landing
LOGGED BY:	Jeff Fowlow	PROJECT LOCATION:	Avery, Idaho
CHECKED BY:	S. Hall	SSID #:	10ZZ
DRILLING CONTRACTOR:	Environmental West Exploration, Inc.		
DRILLED BY:	Randy Wilder	EPA TASK MANAGER:	Earl Liverman
DRILLING METHOD:	Hollow Stem Auger	TDD #:	07-03-0004
VERTICAL DATUM:	Arbitrary Site Datum	START PROJECT #:	002233.0193.01SF
LOCATION:	Avery, ID	START PROJ MGR:	Steve Hall

ELEVATION	DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
Ground Surface Elevation 98.14 ft		*Heavy Gauged Steel Protective Casing*			*ground surface (gs)*				This log is part of the report prepared for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.
		2" PVC Cement			Not Sampled.				
	1	*Hydrated Bentonite Chips*							
	2								
					3.0				
95	3				SANDY GRAVEL (GPS) Coarse, fractured gravel with sand.		4 4 4 2	IR <.3	Difficult drilling. Lithology based on drill cuttings. Insufficient recovery.
	4								
	5	*10/20 Filter Sand*					4 5 8 12	IR <.3	Insufficient recovery.
	6								
	7	*20-slot V-wire screen*					15 14 14 15	IR <.3	Insufficient recovery.
90	8			GPS					
	9						9 7 6 6	IR <.3	Insufficient recovery.
	10								
	11						8 9 12 14	IR <.3	Sampler saturated: Hydocarbon sheen on groundwater. Insufficient recovery.
	12								
					13.0				
85	13				SANDY GRAVEL (GPS) Coarse, fractured gravel with sand.			IR <.3	Oily hydrocarbon product evident on downhole tools. Cuttings adhering to auger upon removal due to high silt content. Insufficient recovery.
	14			GPS					
					15.0				
	15				Not Sampled.				
	16								
					17.0				
	17								
	18								

EN E START WELL LOG B (AVERY) START_AVERY1.GPJ E&E PORTLAND.GDT 7/31/07

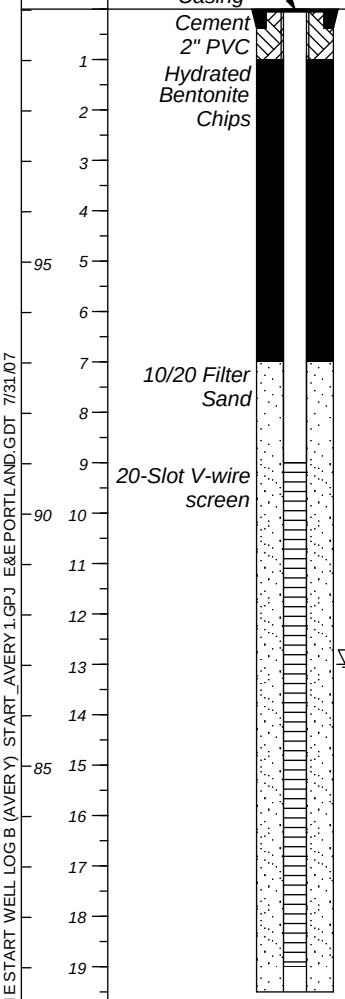
PROJECT NAME: Avery Landing
WELL NO.: EMW 04

ecology and environment, inc.

DRILLING LOG OF WELL/BORING NO. EMW 05

DATE DRILLED:	4/18/2007	PROJECT NAME:	Avery Landing
LOGGED BY:	Jeff Fowlow	PROJECT LOCATION:	Avery, Idaho
CHECKED BY:	S. Hall	SSID #:	10ZZ
DRILLING CONTRACTOR:	Environmental West Exploration, Inc.		
DRILLED BY:	Randy Wilder	EPA TASK MANAGER:	Earl Liverman
DRILLING METHOD:	Hollow Stem Auger	TDD #:	07-03-0004
VERTICAL DATUM:	Arbitrary Site Datum	START PROJECT #:	002233.0193.01SF
LOCATION:	Avery, ID	START PROJ MGR:	Steve Hall

ELEVATION	DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
Ground Surface Elevation 100.02 ft									This log is part of the report prepared for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.
		Heavy Gauged Steel Protective Casing			*ground surface (gs)*				
	1	*Cement*			Not Sampled.				
	1	*2" PVC*							
	2	*Hydrated Bentonite Chips*							
	3				3.0				
	3			SWG	WELL GRADED SAND WITH GRAVEL (SWG) Moderate brown, dry, medium dense to dense, medium to very coarse sand with some silt and fractured gravel. Increasing silt and moisture with depth.		4 6 14 16	0.7	
95	5						6 4 4 5	0.8	
	6								
	7	*10/20 Filter Sand*					5 6 5 6	0.4	
	8								
	9	*20-Slot V-wire screen*			9.5				
90	10			MLS	SANDY SILT (MLS) Black, moist, moderate plasticity, fine grained sand with silt and roots. Increasing rounded gravel with depth.		2 3 6 7	1.5	Strong hydrocarbon odor
	11								
	12				12.5		4 6 6 8	1.5	Strong hydrocarbon odor
	13			SWG	WELL GRADED SAND WITH GRAVEL (SWG) Dark gray, wet, very dense, very fine to coarse grained sand with rounded fine to coarse gravel and some silt.		17 22 30 38	1.2	Strong hydrocarbon odor and rainbow sheen with drops of black product
	14								
85	15				15.0				Difficult drilling
	16				Not Sampled. Gravel in drill cuttings.				
	17								
	18								
	19				19.5				
	20								Refusal



EN E START WELL LOG B (AVERY) START_AVERY1.GPJ E&E PORTLAND.GDT 7/31/07

PROJECT NAME: Avery Landing
WELL NO.: EMW 05

ecology and environment, inc.

DRILLING LOG OF WELL/BORING NO. EMW 06

DATE DRILLED:	4/18/2007	PROJECT NAME:	Avery Landing
LOGGED BY:	Jeff Fowlow	PROJECT LOCATION:	Avery, Idaho
CHECKED BY:	S. Hall	SSID #:	10ZZ
DRILLING CONTRACTOR:	Environmental West Exploration, Inc.		
DRILLED BY:	Randy Wilder	EPA TASK MANAGER:	Earl Liverman
DRILLING METHOD:	Hollow Stem Auger	TDD #:	07-03-0004
VERTICAL DATUM:	Arbitrary Site Datum	START PROJECT #:	002233.0193.01SF
LOCATION:	Avery, ID	START PROJ MGR:	Steve Hall

ELEVATION	DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
Ground Surface Elevation 99.15 ft		*Heavy Gauged Steel Protective Casing*			*ground surface (gs)*				This log is part of the report prepared for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.
		Cement 2" PVC			Not Sampled. Black glassy sand/gravel/cinder				
	1	*Hydrated Bentonite Chips*							
	2								
	3				3.0				
	4			SWG	WELL GRADED SAND WITH GRAVEL (SWG) Moderate brown, dry, dense, medium to very coarse grained sand with fractured gravel and some silt.		8 6 8 9	1.0	
95									
	5						10 8 6 9	0.5	
	6								
	7	*10/20 Filter Sand*			7.5				
	8			MLS	SANDY SILT (MLS) Black, moist, soft, slight plasticity silt with fine sand and roots.		3 1 1 1	1.2	Hydrocarbon odor and sheen.
	9	*20-slot V-wire screen*			9.5				
90									
	10			SWG	WELL GRADED SAND WITH GRAVEL (SWG) Black, moist to wet, medium dense, fine to very coarse grained sand with decreasing silt and increasing gravel content with depth.		3 3 8 15	1.3	Hydrocarbon odor and oily liquid present.
	11				11.0				
	12			GWS	WELL GRADED GRAVEL WITH SAND (GWS) Gray, wet, dense, fine to coarse grained gravel with medium to coarse sand and some silt present.		13 15 28 36	IR	Sample stained black with oily liquid. Insufficient recovery.
	13				13.0				
	14			GWS					

EN E START WELL LOG B (AVERY) START_AVERY1.GPJ E&E PORTLAND.GDT 7/31/07

ecology and environment, inc.

PROJECT NAME: Avery Landing
WELL NO.: EMW 06

ELEVATION	DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
85				GWS	WELL GRADED GRAVEL WITH SAND (GWS) Gray, wet, dense fine to coarse grained gravel with medium to coarse sand and some silt and cobbles present. *(continued)*			IR	Insufficient recovery.
	15.0								
	15								
	16			GWS	WELL GRADED GRAVEL WITH SAND (GWS) Gray, wet, dense, fine to coarse grained gravel with medium to coarse sand and some silt. Increased sand/fine gravel content from last sample.			IR	Cuttings show oily liquid. Easier drilling. Insufficient recovery.
	17.0								
	17								
	18			GWS				IR	Difficult drilling. Insufficient recovery.
	18.5								
80	19				WELL GRADED GRAVEL WITH SAND (GWS) Gray, wet, dense, fine to coarse grained gravel with medium to coarse sand. Increased coarse gravel from last sample.				
	20								
	21								
	22								
	23								
75	24								
	25								
	26								
	27								
	28								
70	29								
	30								
	31								
	32								
	33								

ENE START WELL LOG B (AVERY) START_AVERY 1.GPJ E&E PORTLAND.GDT 7/31/07

DRILLING LOG OF WELL/BORING NO. ESB 01

DATE DRILLED:	4/18/2007	PROJECT NAME:	Avery Landing
LOGGED BY:	Jeff Fowlow	PROJECT LOCATION:	Avery, Idaho
CHECKED BY:	S. Hall	SSID #:	10ZZ
DRILLING CONTRACTOR:	Environmental West Exploration, Inc.		
DRILLED BY:	Randy Wilder	EPA TASK MANAGER:	Earl Liverman
DRILLING METHOD:	Hollow Stem Auger	TDD #:	07-03-0004
VERTICAL DATUM:	N/A	START PROJECT #:	002233.0193.01SF
LOCATION:	Avery, ID	START PROJ MGR:	Steve Hall

ELEVATION / DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
Ground Surface Elevation				*ground surface (gs)*				This log is part of the report prepared for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.
				Not Sampled.				
5.0								
			FILL	WELL GRADED SAND WITH GRAVEL. Moderate brown, dry, dense, medium to very coarse grained sand with fractured gravel and some silt.		4 5 5 7	0.5	
						12 15 9 14	1.4	
9.0								Hydrocarbon odor and sheen on groundwater

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

ENE START WELL LOG B (AVERY) START_AVERY 3.GPJ E&E PORTLAND.GDT 7/31/07

PROJECT NAME: Avery Landing
WELL NO.: ESB 01

ecology and environment, inc.

DRILLING LOG OF WELL/BORING NO. ESB 02

DATE DRILLED:	4/18/2007	PROJECT NAME:	Avery Landing
LOGGED BY:	Jeff Fowlow	PROJECT LOCATION:	Avery, Idaho
CHECKED BY:	S. Hall	SSID #:	10ZZ
DRILLING CONTRACTOR:	Environmental West Exploration, Inc.		
DRILLED BY:	Randy Wilder	EPA TASK MANAGER:	Earl Liverman
DRILLING METHOD:	Hollow Stem Auger	TDD #:	07-03-0004
VERTICAL DATUM:	N/A	START PROJECT #:	002233.0193.01SF
LOCATION:	Avery, ID	START PROJ MGR:	Steve Hall

ELEVATION / DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
Ground Surface Elevation				*ground surface (gs)*				This log is part of the report prepared for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.
				Not Sampled.				
1.0								
1			SPG	WELL GRADED GRAVELLY SAND (SPG) Medium brown, dry, dense, medium to very coarse grained sand with gravel, cobbles and burnt wood fragments.			1.0	Began drilling at 2:05:00 PM. Auger was refused at the first location at a depth of 3.0 feet. Relocated 3.0' to the East. Auger was refused at 5.0'. A third attempt was refused at 3.0'
2								
3.0								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

EN E START WELL LOG B (AVERY) START_AVERY 3.GPJ E&E PORTLAND.GDT 7/31/07

ecology and environment, inc.

PROJECT NAME: Avery Landing
WELL NO.: ESB 02

DRILLING LOG OF WELL/BORING NO. ESB 03

DATE DRILLED:	4/18/2007	PROJECT NAME:	Avery Landing
LOGGED BY:	Jeff Fowlow	PROJECT LOCATION:	Avery, Idaho
CHECKED BY:	S. Hall	SSID #:	10ZZ
DRILLING CONTRACTOR:	Environmental West Exploration, Inc.		
DRILLED BY:	Randy Wilder	EPA TASK MANAGER:	Earl Liverman
DRILLING METHOD:	Hollow Stem Auger	TDD #:	07-03-0004
VERTICAL DATUM:	N/A	START PROJECT #:	002233.0193.01SF
LOCATION:	Avery, ID	START PROJ MGR:	Steve Hall

ELEVATION / DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
Ground Surface Elevation				*ground surface (gs)*				This log is part of the report prepared for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.
				Not Sampled.				
3.0								
			FILL	WELL GRADED SAND WITH GRAVEL. Medium brown, dry, very dense, medium to coarse grained sand with fractured gravel.			1.0	
						12 13 31 18	0.7	
						10 13 20 Ref	IR <0.3'	Insufficient recovery.
10.0								
			SP	POORLY GRADED SAND (SP) Tan to gray, dry to moist (wet at depths greater than 11.5'), dense, medium grained sand with laminae of silt, increasing silt with depth.		12 13 16 18	IR <0.3'	Slight hydrocarbon odor. Insufficient recovery.
						1 2 5 9	IR <0.3'	Strong hydrocarbon odor. Product present. Insufficient recovery.
13.0								

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

EN E START WELL LOG B (AVERY) START_AVERY 3.GPJ E&E PORTLAND.GDT 7/31/07

ecology and environment, inc.

PROJECT NAME: Avery Landing
WELL NO.: ESB 03

DRILLING LOG OF WELL/BORING NO. ESB 04

DATE DRILLED:	4/18/2007	PROJECT NAME:	Avery Landing
LOGGED BY:	Jeff Fowlow	PROJECT LOCATION:	Avery, Idaho
CHECKED BY:	S. Hall	SSID #:	10ZZ
DRILLING CONTRACTOR:	Environmental West Exploration, Inc.		
DRILLED BY:	Randy Wilder	EPA TASK MANAGER:	Earl Liverman
DRILLING METHOD:	Hollow Stem Auger	TDD #:	07-03-0004
VERTICAL DATUM:	N/A	START PROJECT #:	002233.0193.01SF
LOCATION:	Avery, ID	START PROJ MGR:	Steve Hall

ELEVATION / DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
Ground Surface Elevation				*ground surface (gs)*				This log is part of the report prepared for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.
				Not Sampled.				
3.0			SW	WELL GRADED SAND (SW) Medium brown, dry, very dense, medium to very coarse grained sand with fractured medium grained gravel.		15 17 40 35	1.0	Hydrocarbon odor and sheen.
4.0			SW-SM					
4.5			SWG	WELL GRADED SAND AND SILTY SAND (SW-SM) Gray, moist, fine grained sand with silty interbeds		10 13 15 20	1.0	Hydrocarbon odor, no sheen.
5.5			SP	WELL GRADED SAND WITH GRAVEL (SWG) Dry, very dense, medium to very coarse sand with fractured gravel		6 8 16 10	2.0	Strong hydrocarbon odor.
8.5			SM	POORLY GRADED SAND (SP) Gray, dry, medium dense, medium grained sand.				Strong hydrocarbon odor, product present.
9.0				SILTY SAND (SM) Dark gray, stiff, slight plasticity silt with fine sand.				

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

EN E START WELL LOG B (AVERY) START_AVERY 3.GPJ E&E PORTLAND.GDT 7/31/07

PROJECT NAME: Avery Landing
WELL NO.: ESB 04

ecology and environment, inc.

DRILLING LOG OF WELL/BORING NO. ESB 05

DATE DRILLED:	4/19/2007	PROJECT NAME:	Avery Landing
LOGGED BY:	Jeff Fowlow	PROJECT LOCATION:	Avery, Idaho
CHECKED BY:	S. Hall	SSID #:	10ZZ
DRILLING CONTRACTOR:	Environmental West Exploration, Inc.		
DRILLED BY:	Randy Wilder	EPA TASK MANAGER:	Earl Liverman
DRILLING METHOD:	Hollow Stem Auger	TDD #:	07-03-0004
VERTICAL DATUM:	N/A	START PROJECT #:	002233.0193.01SF
LOCATION:	Avery, ID	START PROJ MGR:	Steve Hall

ELEVATION / DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
Ground Surface Elevation				*ground surface (gs)*				This log is part of the report prepared for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.
				Not Sampled.				
3.0			SWG	WELL GRADED SAND WITH GRAVEL (SWG) Black to gray, moist, dense, medium to very coarse grained sand with fractured gravel.		6 6 12 22	0.7	Hydrocarbon odor and sheen.
						15 9 8 10	0.8	
7.5			MLS	SANDY SILT (MLS) Gray, moist, medium stiff, moderate plasticity, silt with fine grained sand.		6 4 2 2	1.5	Strong hydrocarbon odor and slight sheen.
9.5			SW	WELL GRADED SAND (SW) Brown to black, wet, very dense, medium to very coarse sand. Increasing gravel with depth.		2 5 13 16	1.7	
11.0			SWG	WELL GRADED GRAVELLY SAND (SWG) Brown to black, wet, very dense, medium to very coarse sand with gravel.		17 15 25 50	1.5	Black oily liquid with strong hydrocarbon odor.
						10 4 17 18	1.2	

EN E START WELL LOG B (AVERY) START_AVERY 3.GPJ E&E PORTLAND.GDT 7/31/07

PROJECT NAME: Avery Landing
WELL NO.: ESB 05

ecology and environment, inc.

DRILLING LOG OF WELL/BORING NO. ESB 05

ELEVATION / DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
16			SWG	16.0 WELL GRADED GRAVELLY SAND WITH SILT (SWG) Light to dark gray, dry to moist, dense, fine to coarse silty sand with fine gravel and rounded cobbles.		5 13 17 15	1.2	
17, 18			SWG			8 18 17 5	1.0	Hydrocarbon odor with no product due to increased silt content.
19			MLS	18.5 19.0 SANDY SILT (MLS) Yellowish orange, moist, medium stiff, sandy silt.				No hydrocarbon sheen or odor.
20, 21			SW-SM	WELL GRADED SILTY SAND WITH GRAVEL (SW-SM) Light brown, dry to moist, dense, fine to mostly coarse sand with rounded gravel and silt.		15 19 22 17	1.3	No hydrocarbon sheen or odor.
22, 23						11 19 25 20	1.0	No hydrocarbon sheen or odor.
24, 25				25.0		13 18 23 25	1.1	
26, 27, 28, 29, 30, 31, 32, 33, 34, 35								

EN E START WELL LOG B (AVERY) START_AVERY 3.GPJ E&E PORTLAND.GDT 7/31/07

PROJECT NAME: Avery Landing
WELL NO.: ESB 05

ecology and environment, inc.

DRILLING LOG OF WELL/BORING NO. ESB 06

DATE DRILLED:	4/19/2007	PROJECT NAME:	Avery Landing
LOGGED BY:	Jeff Fowlow	PROJECT LOCATION:	Avery, Idaho
CHECKED BY:	S. Hall	SSID #:	10ZZ
DRILLING CONTRACTOR:	Environmental West Exploration, Inc.		
DRILLED BY:	Randy Wilder	EPA TASK MANAGER:	Earl Liverman
DRILLING METHOD:	Hollow Stem Auger	TDD #:	07-03-0004
VERTICAL DATUM:	N/A	START PROJECT #:	002233.0193.01SF
LOCATION:	Avery, ID	START PROJ MGR:	Steve Hall

ELEVATION / DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
Ground Surface Elevation				*ground surface (gs)*				This log is part of the report prepared for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.
				Not Sampled.				
3.0								
			FILL	SILTY SAND WITH GRAVEL. Light brown, dry, medium dense, fine sand to silt with fractured gravel and fragments of cinder and brick.		30 18 5 20	1.0	
			FILL			18 9 22 32	1.0	
7.5								
			MLS	SANDY SILT (MLS) Olive gray, moist, medium stiff, moderate plasticity, sandy silt.		8 12 14 15	0.4	Hydocarbon odor.
			MLS			7 7 5 6	1.2	
11.5								
			SW	WELL GRADED SAND (SW) Dark gray, wet, medium dense, fine to coarse sand.		2 3 6 16	1.5	Strong hydrocarbon odor. Oily liquid present.
13.0								

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

EN E START WELL LOG B (AVERY) START_AVERY 3.GPJ E&E PORTLAND.GDT 7/31/07

PROJECT NAME: Avery Landing
WELL NO.: ESB 06

ecology and environment, inc.

DRILLING LOG OF WELL/BORING NO. ESB 07

DATE DRILLED:	4/19/2007	PROJECT NAME:	Avery Landing
LOGGED BY:	Jeff Fowlow	PROJECT LOCATION:	Avery, Idaho
CHECKED BY:	S. Hall	SSID #:	10ZZ
DRILLING CONTRACTOR:	Environmental West Exploration, Inc.		
DRILLED BY:	Randy Wilder	EPA TASK MANAGER:	Earl Liverman
DRILLING METHOD:	Hollow Stem Auger	TDD #:	07-03-0004
VERTICAL DATUM:	N/A	START PROJECT #:	002233.0193.01SF
LOCATION:	Avery, ID	START PROJ MGR:	Steve Hall

ELEVATION / DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
Ground Surface Elevation				*ground surface (gs)*				This log is part of the report prepared for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.
				Not Sampled.				
3.0			FILL	POORLY GRADED SAND. Black, dry, medium dense, very coarse grained sand and cinder.		8 12 13 9	1.2	
5.5			MLS	SANDY SILT (MLS) Olive gray, moist to dry, stiff, medium plasticity, fine sand and silt with occasional gravel.		8 20 12 10	1.1	Hydrocarbon odor.
						7 7 5 7	1.2	
9.0				*** Sampler blocked by wood Fragments ***		4 6 12 17	0.8	Hydrocarbon odor and sheen.
						7 7 5 6	?	Black wood fragments possibly stained by hydrocarbons.
14.0			GW			9 12 13 12	0.8	Hydrocarbon odor and heavy sheen.

EN E START WELL LOG B (AVERY) START_AVERY 3.GPJ E&E PORTLAND.GDT 7/31/07

ecology and environment, inc.

PROJECT NAME: Avery Landing
WELL NO.: ESB 07

ELEVATION	DEPTH (feet)	WELL COMPLETION DIAGRAM	GRAPHIC LOG	USCS	SOIL/ROCK DESCRIPTION	SAMPLE INTERVAL	BLOW COUNTS	RECOVERY (FT)	COMMENTS
	16			GW	WELL GRADED GRAVEL (GW) Light to dark gray, moist to wet, medium dense, fine to coarse fractured gravel with silt and fine sand. *(continued)*			1.0	Hydrocarbon odor and product present.
	17				17.0				
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								
	26								
	27								
	28								
	29								
	30								
	31								
	32								
	33								
	34								
	35								

ENE START WELL LOG B (AVERY) START_AVERY 3.GPJ E&E PORTLAND.GDT 7/31/07

Appendix C
Chains of Custody

1777 IDA02

Removal Program
START III, Seattle, WA
EPA Contract Number: EP-S7-06-02

CHAIN OF CUSTODY RECORD
Site #: 10ZZ
Contact Name: Steven Hall
Contact Phone: (206) 920-1738

No: 10ZZ-04/22/07-0002
Cooler #: 5 coolers
Lab: Laucks testing Laboratories, Inc.
Lab Phone: (206) 767-5060

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD	Samp_Concentration
11	07040101	EMW-01 SB 06	VOCs	Soil	4/16/2007	4	40 mL Vial	4 C		should be clean
	07040101	EMW-01 SB 06	Moisture	Soil	4/16/2007	1	2 oz jar	4 C		should be clean
22	07040102	EMW-01 SB 02	TAL Metals (ICP-MS)	Soil	4/16/2007	1	4 oz jar	4 C		should be clean
	07040102	EMW-01 SB 02	TPH-DRO	Soil	4/16/2007	1	8 oz jar	4 C		should be clean
12	07040103	EMW- 02 SB 05	VOCs	Soil	4/17/2007	4	40 mL Vial	4 C		contaminated
	07040103	EMW- 02 SB 05	Moisture	Soil	4/17/2007	1	2 oz jar	4 C		contaminated
23	07040105	EMW- 02 SB 05	TPH-DRO	Soil	4/17/2007	1	8 oz jar	4 C		contaminated
	07040105	EMW- 02 SB 05	TAL Metals (ICP-MS	Soil	4/17/2007	1	4 oz jar	4 C		contaminated
24	07040106	EMW- 03 SB 11	TPH-DRO	Soil	4/17/2007	1	8 oz jar	4 C		
	07040106	EMW- 03 SB 11	TAL Metals (ICP-MS)	Soil	4/17/2007	1	4 oz jar	4 C		
13	07040107	EMW- 03 SB 11	VOCs	Soil	4/17/2007	9	40 mL Vial	4 C	Y	
	07040107	EMW- 03 SB 11	Moisture	Soil	4/17/2007	1	2 oz jar	4 C		
25	07040108	EMW- 04 SB 03	TPH-DRO	Soil	4/17/2007	1	8 oz jar	4 C	Y	contaminated
	07040108	EMW- 04 SB 03	TAL Metals (ICP-MS)	Soil	4/17/2007	1	4 oz jar	4 C	Y	contaminated
	07040108	EMW- 04 SB 03	TAL Metals (ICP-MS)	Soil	4/17/2007	1	2 oz jar	4 C	Y	contaminated
14	07040109	EMW- 05 SB 09	VOCs	Soil	4/18/2007	4	40 mL Vial	4 C		contaminated
26	07040110	EMW- 05 SB 09	Moisture	Soil	4/18/2007	1	2 oz jar	4 C		contaminated
	07040110	EMW- 05 SB 09	TPH-DRO	Soil	4/18/2007	1	8 oz jar	4 C		contaminated
	07040110	EMW- 05 SB 09	TAL Metals (ICP-MS)	Soil	4/18/2007	1	4 oz jar	4 C		contaminated

Special Instructions: Rush TAT (Friday, April 27) for 07040132, 07040133, 07040134, and 07040143 (all analyses).
Note that many samples are contaminated with TPH, as indicated.
STD TAT for remaining samples.
Stage 2 SEDD and CLP-equivalent deliverable.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	[signature]	4-23-07	[signature]	4/23/07	1135						

 IDAO2

Removal Program
START III, Seattle, WA
EPA Contract Number: EP-S7-06-02

CHAIN OF CUSTODY RECORD
Site #: 10ZZ
Contact Name: Steven Hall
Contact Phone: (206) 920-1739

No: 10ZZ-04/22/07-0002
Cooler #: 5 coolers
Lab: Laucks testing Laboratories, Inc.
Lab Phone: (206) 767-5060

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD	Samp_Concentration
7	07040111	RB-01	TAL Metals (ICP-MS)	Water	4/18/2007	1	500 mL poly	4 C and HNO3		should be clean
	07040111	RB-01	TPH-DRO	Water	4/18/2007	2	1 liter	4 C and HCl		should be clean
	07040111	RB-01	VOCs	Water	4/18/2007	3	40 mL Vial	4 C and HCl		should be clean
15	07040112	EMW- 06 SB 07	VOCs	Soil	4/18/2007	4	40 mL Vial	4 C		contaminated
	07040112	EMW- 06 SB 07	Moisture	Soil	4/18/2007	1	2 oz jar	4 C		contaminated
27	07040113	EMW- 06 SB 07	TAL Metals (ICP-MS)	Soil	4/18/2007	1	4 oz jar	4 C		contaminated
28	07040114	EMW- 06 SB 09	TPH-DRO	Soil	4/18/2007	1	8 oz jar	4 C		contaminated
16	07040115	ESE-01 SB 07	VOCs	Soil	4/18/2007	4	40 mL Vial	4 C		contaminated
	07040115	ESE-01 SB 07	Moisture	Soil	4/18/2007	1	2 oz jar	4 C		contaminated
29	07040116	ESE-01 SB 07	TAL Metals (ICP-MS)	Soil	4/18/2007	1	4 oz jar	4 C		contaminated
	07040116	ESE-01 SB 07	TPH-DRO	Soil	4/18/2007	1	4 oz jar	4 C		contaminated
30	07040117	ESE-02 SB 03	TAL Metals (ICP-MS)	Soil	4/18/2007	1	4 oz jar	4 C		contaminated
17	07040118	ESE-03 SB 09	VOCs	Soil	4/18/2007	4	40 mL Vial	4 C		
	07040118	ESE-03 SB 09	Moisture	Soil	4/18/2007	1	2 oz jar	4 C		
31	07040119	ESE-03 SB 11	TAL Metals (ICP-MS)	Soil	4/18/2007	1	4 oz jar	4 C		
	07040119	ESE-03 SB 11	TPH-DRO	Soil	4/18/2007	1	8 oz jar	4 C		
32	07040120	ESE-04 SB 03	TPH-DRO	Soil	4/18/2007	1	8 oz jar	4 C		contaminated
	07040120	ESE-04 SB 03	TAL Metals (ICP-MS)	Soil	4/18/2007	1	4 oz jar	4 C		contaminated

Special Instructions: Rush TAT (Friday April 27) for 07040132, 07040133, 07040134, and 07040143 (all analyses).
Note that many samples are contaminated with TPH, as indicated.
STD TAT for remaining samples.
Stage 2 SEDD and CLP-equivalent deliverable.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	[signature]	4-23-07	[signature]	4/23/07	1135						

Removal Program
START III, Seattle, WA
EPA Contract Number: EP-S7-06-02

CHAIN OF CUSTODY RECORD
Site #: 10ZZ
Contact Name: Steven Hall
Contact Phone: (206) 920-1739

No: 10ZZ-04/22/07-0002
Cooler #: 5 coolers
Lab: Laucks testing Laboratories, Inc.
Lab Phone: (206) 767-5060

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD	Samp_Concentration
18	07040121	ESE-04 SB 07	VOCs	Soil	4/18/2007	4	40 mL Vial	4 C		contaminated
	07040121	ESE-04 SB 07	Moisture	Soil	4/18/2007	1	2 oz jar	4 C		contaminated
33	07040122	ESE-04 SB 07	TAL Metals (ICP-MS)	Soil	4/18/2007	1	4 oz jar	4 C		contaminated
	07040122	ESE-04 SB 07	TPH-DRO	Soil	4/18/2007	1	8 oz jar	4 C		contaminated
19	07040123	ESE-05 SB 09	VOCs	Soil	4/19/2007	4	40 mL Vial	4 C		contaminated
	07040123	ESE-05 SB 09	Moisture	Soil	4/19/2007	1	2 oz jar	4 C		contaminated
34	07040124	ESE-05 SB 15	TPH-DRO	Soil	4/19/2007	1	8 oz jar	4 C		contaminated
	07040124	ESE-05 SB 15	TAL Metals (ICP-MS)	Soil	4/19/2007	1	4 oz jar	4 C		contaminated
20	07040126	ESE-06 SB 09	VOCs	Soil	4/19/2007	4	40 mL Vial	4 C		contaminated
	07040126	ESE-06 SB 09	Moisture	Soil	4/19/2007	1	2 oz jar	4 C		contaminated
35	07040127	ESE-06 SB 11	TAL Metals (ICP-MS)	Soil	4/19/2007	1	4 oz jar	4 C		contaminated
	07040127	ESE-06 SB 11	TPH-DRO	Soil	4/19/2007	1	8 oz jar	4 C		contaminated
21	07040128	ESE-07 SB 07	VOCs	Soil	4/19/2007	4	40 mL Vial	4 C		contaminated
	07040128	ESE-07 SB 07	Moisture	Soil	4/19/2007	1	2 oz jar	4 C		contaminated
36	07040129	ESE-07 SB 13	TAL Metals (ICP-MS)	Soil	4/19/2007	1	4 oz jar	4 C		contaminated
	07040129	ESE-07 SB 13	TPH-DRO	Soil	4/19/2007	1	8 oz jar	4 C		contaminated
10	07040130	TB-01	VOCs	Water	4/20/2007	2	40 mL Vial	4 C		
37	07040131	HC-4	TAL Metals (ICP-MS)	Waste	4/20/2007	1	2 oz jar	None		product
	07040131	HC-4	TPH-DRO	Waste	4/20/2007	1	2 oz jar	None		product

Special Instructions: Rush TAT (Friday, April 27) for 07040132, 07040133, 07040134, and 07040143 (all analyses).
Note that many samples are contaminated with TPH, as indicated.
STD TAT for remaining samples.
Stage 2 SEDD and CLP-equivalent deliverable.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished By	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	[signature]	4-23-07	[signature]	4/23/07	1135						

Removal Program
START III, Seattle, WA
EPA Contract Number: EP-S7-06-02

CHAIN OF CUSTODY RECORD
Site #: 10ZZ
Contact Name: Steven Hall
Contact Phone: (206) 920-1739

No: 10ZZ-04/22/07-0002
Cooler #: 5 coolers
Lab: Laucks testing Laboratories, Inc.
Lab Phone: (206) 767-5060

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD	Samp_Concentration
1	07040135	EMW-01	TAL Metals (ICP-MS)	Ground Water	4/21/2007	3	500 mL HDPE	4 C and HNO3	Y	should be clean
	07040135	EMW-01	TPH-DRO	Ground Water	4/21/2007	6	1 liter amber	4 C and HCl	Y	should be clean
2	07040136	EMW-02	VOCs	Ground Water	4/21/2007	3	40 ml VOA	4 C and HCl		contaminated
	07040136	EMW-02	TAL Metals (ICP-MS)	Ground Water	4/21/2007	1	500 mL HDPE	4 C and HNO3		contaminated
	07040136	EMW-02	TPH-DRO	Ground Water	4/21/2007	2	1 liter amber	4 C and HCl		contaminated
3	07040137	EMW-03	VOCs	Ground Water	4/21/2007	3	40 ml VOA	4 C and HCl		contaminated
	07040137	EMW-03	TAL Metals (ICP-MS)	Ground Water	4/21/2007	1	500 mL HDPE	4 C and HNO3		contaminated
	07040137	EMW-03	TPH-DRO	Ground Water	4/21/2007	2	1 liter amber	4 C and HCl		contaminated
4	07040138	EMW-04	VOCs	Ground Water	4/21/2007	3	40 ml VOA	4 C and HCl		contaminated
	07040138	EMW-04	TAL Metals (ICP-MS)	Ground Water	4/21/2007	1	500 mL HDPE	4 C and HNO3		contaminated
	07040138	EMW-04	TPH-DRO	Ground Water	4/21/2007	2	1 liter amber	4 C and HCl		contaminated

Special Instructions: Rush TAT (Friday, April 27) for 07040132, 07040133 07040134, and 07040143 (all analyses).
Note that many samples are contaminated with TPH, as indicated.
STD TAT for remaining samples.
Stage 2 SEDD and CLP-equivalent deliverable.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	[signature]	4-23-07	[signature]	4/23/07	1135						

IPA02

Removal Program
START III, Seattle, WA
EPA Contract Number: EP-S7-06-02

CHAIN OF CUSTODY RECORD
Site #: 10ZZ
Contact Name: Steven Hall
Contact Phone: (206) 920-1739

No: 10ZZ-04/22/07-0002
Cooler #: 5 coolers
Lab: Laucks testing Laboratories, Inc.
Lab Phone: (206) 767-5060

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD	Samp_Concentration
5	07040139	EMW-05	VOCs	Ground Water	4/21/2007	3	40 ml VOA	4 C and HCl		contaminated
	07040139	EMW-05	TAL Metals (ICP-MS)	Ground Water	4/21/2007	1	500 mL HDPE	4 C and HNO3		contaminated
	07040139	EMW-05	TPH-DRO	Ground Water	4/21/2007	2	1 liter amber	4 C and HCl		contaminated
6	07040140	EMW-06	VOCs	Ground Water	4/21/2007	3	40 ml VOA	4 C and HCl		contaminated
	07040140	EMW-06	TAL Metals (ICP-MS)	Ground Water	4/21/2007	1	500 mL HDPE	4 C and HNO3		contaminated
	07040140	EMW-06	TPH-DRO	Ground Water	4/21/2007	2	1 liter amber	4 C and HCl		contaminated
8	07040141	HC-1	VOCs	Ground Water	4/21/2007	3	40 ml VOA	4 C and HCl		
	07040141	HC-1	TAL Metals (ICP-MS)	Ground Water	4/21/2007	1	500 mL HDPE	4 C and HNO3		
	07040141	HC-1	TPH-DRO	Ground Water	4/21/2007	2	1 liter amber	4 C and HCl		
9	07040142	MW-5	VOCs	Ground Water	4/21/2007	3	40 ml VOA	4 C and HCl		
	07040142	MW-5	TAL Metals (ICP-MS)	Ground Water	4/21/2007	1	500 mL HDPE	4 C and HNO3		

Special Instructions: Rush TAT (Friday, April 27) for 07040132, 07040133, 07040134, and 07040143 (all analyses).
Note that many samples are contaminated with TPH, as indicated.
STD TAT for remaining samples.
Stage 2 SEDD and CLP-equivalent deliverable.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	[signature]	4-23-07	[signature]	4/23/07	1135						

Removal Program
START III, Seattle, WA
EPA Contract Number: EP-S7-06-02

CHAIN OF CUSTODY RECORD
Site #: 10ZZ
Contact Name: Steven Hall
Contact Phone: (206) 920-1739

No: 10ZZ-04/22/07-0001
Cooler #: 6 coolers
Lab: STL-Seattle
Lab Phone: (253) 922-2310

	Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD	Samp_Concentration
1		07040102	EMW-01 SB 02	Mercury Low Level (Hold)	Soil	4/16/2007	1	4 oz jar	4 C		should be clean
		07040102	EMW-01 SB 02	PCBs (low level), SVOC	Soil	4/16/2007	1	8 oz jar	4 C		should be clean
2		07040104	EMW- 02 SB 07	PCBs (low level), SVOC	Soil	4/17/2007	1	8 oz jar	4 C		contaminated
3		07040105	EMW- 02 SB 05	Mercury Low Level (Hold)	Soil	4/17/2007	1	4 oz jar	4 C		contaminated
4		07040106	EMW- 03 SB 11	PCBs (low level), SVOC	Soil	4/17/2007	1	8 oz jar	4 C		
		07040106	EMW- 03 SB 11	Mercury Low Level (Hold)	Soil	4/17/2007	1	4 oz jar	4 C		
5		07040108	EMW- 04 SB 03	Mercury Low Level (Hold)	Soil	4/17/2007	1	4 oz jar	4 C		contaminated
		07040108	EMW- 04 SB 03	PCBs (low level), SVOC	Soil	4/17/2007	2	8 oz jar	4 C	Y	contaminated
6		07040110	EMW- 05 SB 09	PCBs (low level), SVOC	Soil	4/18/2007	1	8 oz jar	4 C		contaminated
		07040110	EMW- 05 SB 09	Mercury Low Level (Hold)	Soil	4/18/2007	1	4 oz jar	4 C		contaminated
7		07040111	RB-01	PCBs (low level)	Water	4/18/2007	2	1 liter	4 C		should be clean
		07040111	RB-01	SVOC (low level)	Water	4/18/2007	2	1 liter	4 C		should be clean
8		07040113	EMW- 06 SB 07	Mercury Low Level (Hold)	Soil	4/18/2007	1	4 oz jar	4 C		contaminated
9		07040114	EMW- 06 SB 09	PCBs (low level), SVOC	Soil	4/18/2007	1	8 oz jar	4 C		contaminated
10		07040116	ESB-01 SB 07	PCBs (low level), SVOC	Soil	4/18/2007	1	8 oz jar	4 C		contaminated
		07040116	ESB-01 SB 07	Mercury Low Level (Hold)	Soil	4/18/2007	1	4 oz jar	4 C		contaminated
11		07040117	ESB-02 SB 03	PCBs (low level), SVOC	Soil	4/18/2007	1	8 oz jar	4 C		contaminated
		07040119	ESB-03 SB 11	Mercury Low Level (Hold)	Soil	4/18/2007	1	4 oz jar	4 C		
12		07040119	ESB-03 SB 11	PCBs (low level), SVOC	Soil	4/18/2007	1	8 oz jar	4 C		

Special Instructions: Rush TAT (Friday, April 27) for 07040132, 07040133, 07040134, and 07040143 (all analyses).
Asking for low level PCBs (soil and water) and SVOCs (waters only), but note that many of these samples are contaminated with TPH, as indicated.
Please hold low level mercury pending further notice.
STD TAT for remaining samples.
Stage 2 SEDD and CLP-equivalent deliverable.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	[signature]	4-23-07	K Hosley	4/23/07	1050						

Removal Program
START III, Seattle, WA
EPA Contract Number: EP-S7-06-02

CHAIN OF CUSTODY RECORD
Site #: 10ZZ
Contact Name: Steven Hall
Contact Phone: (206) 920-1739

No: 10ZZ-04/22/07-0001
Cooler #: 6 coolers
Lab: STL-Seattle
Lab Phone: (253) 922-2310

	Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD	Samp_Concentration
13		07040120	ESB-04 SB 03	Mercury Low Level (Hold)	Soil	4/18/2007	1	4 oz jar	4 C		contaminated
		07040120	ESB-04 SB 03	PCBs (low level), SVOC	Soil	4/18/2007	1	8 oz jar	4 C		contaminated
14		07040122	ESB-04 SB 07	Mercury Low Level (Hold)	Soil	4/18/2007	1	4 oz jar	4 C		contaminated
		07040122	ESB-04 SB 07	PCBs (low level), SVOC	Soil	4/18/2007	1	8 oz jar	4 C		contaminated
15		07040124	ESB-05 SB 15	PCBs (low level), SVOC	Soil	4/19/2007	1	8 oz jar	4 C		contaminated
		07040124	ESB-05 SB 15	Mercury Low Level (Hold)	Soil	4/19/2007	1	4 oz jar	4 C		contaminated
16		07040125	ESB-05 SB 23	PCBs (low level), SVOC	Soil	4/19/2007	1	8 oz jar	4 C		contaminated
17		07040127	ESB-06 SB 11	PCBs (low level), SVOC	Soil	4/19/2007	1	8 oz jar	4 C		contaminated
		07040127	ESB-06 SB 11	Mercury Low Level (Hold)	Soil	4/19/2007	1	4 oz jar	4 C		contaminated
18		07040129	ESB-07 SB 13	PCBs (low level), SVOC	Soil	4/19/2007	1	8 oz jar	4 C		contaminated
		07040129	ESB-07 SB 13	Mercury Low Level (Hold)	Soil	4/19/2007	1	4 oz jar	4 C		contaminated
19		07040131	HC-4	PCBs (low level), SVOC	Waste	4/20/2007	1	4 oz jar	None		product
20		07040132	SW-01	PCBs (low level)	Surface Water	4/20/2007	2	1 liter amber	4 C		should be clean
		07040132	SW-01	SVOC (low level)	Surface Water	4/20/2007	2	1 liter amber	4 C		should be clean
		07040132	SW-01	Mercury Low Level (Hold)	Surface Water	4/20/2007	4	40 mL jar	4 C		should be clean
21		07040133	SW-02	Mercury Low Level (Hold)	Surface Water	4/20/2007	4	40 mL jar	4 C		contaminated

Special Instructions: Rush TAT (Friday, April 27) for 07040132, 07040133, 07040134, and 07040143 (all analyses).
Asking for low level PCBs (soil and water) and SVOCs (waters only), but note that many of these samples are contaminated with TPH, as indicated.
Please hold low level mercury pending further notice.
STD TAT for remaining samples.
Stage 2 SEDD and CLP-equivalent deliverable.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	[signature]	4-23-07	[signature]	4/23/07	1050A						

Removal Program
START III, Seattle, WA
EPA Contract Number: EP-S7-06-02

CHAIN OF CUSTODY RECORD
Site #: 10ZZ
Contact Name: Steven Hall
Contact Phone: (206) 920-1739

No: 10ZZ-04/22/07-0001
Cooler #: 6 coolers
Lab: STL-Seattle
Lab Phone: (253) 922-2310

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD	Samp_Concentration
	07040133	SW-02	PCBs (low level)	Surface Water	4/20/2007	2	1 liter amber	4 C		contaminated
21	07040133	SW-02	SVOC (low level)	Surface Water	4/20/2007	2	1 liter amber	4 C		contaminated
22	07040134	SW-03	Mercury Low Level (Hold)	Surface Water	4/20/2007	4	40 mL jar	4 C		contaminated
	07040134	SW-03	PCBs (low level)	Surface Water	4/20/2007	2	1 liter amber	4 C		contaminated
	07040134	SW-03	SVOC (low level)	Surface Water	4/20/2007	2	1 liter amber	4 C		contaminated
	07040135	EMW-01	PCBs (low level)	Ground Water	4/21/2007	6	1 liter amber	4 C	Y	should be clean
23	07040135	EMW-01	SVOC (low level)	Ground Water	4/21/2007	6	1 liter amber	4 C	Y	should be clean
	07040136	EMW-02	SVOC (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		contaminated
24	07040136	EMW-02	PCBs (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		contaminated
	07040137	EMW-03	PCBs (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		contaminated
25	07040137	EMW-03	SVOC (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		contaminated

Special Instructions: Rush TAT (Friday, April 27) for 07040132, 07040133, 07040134, and 07040143 (all analyses).
Asking for low level PCBs (soil and water) and SVOCs (waters only), but note that many of these samples are contaminated with TPH, as indicated.
Please hold low level mercury pending further notice.
STD TAT for remaining samples.
Stage 2 SEDD and CLP-equivalent deliverable.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	[signature]	4-23-07	K Hesley	4/23/07	1050A						

Removal Program
START III, Seattle, WA
EPA Contract Number: EP-S7-06-02

CHAIN OF CUSTODY RECORD
Site #: 10ZZ
Contact Name: Steven Hall
Contact Phone: (206) 920-1739

No: 10ZZ-04/22/07-0001
Cooler #: 6 coolers
Lab: STL-Seattle
Lab Phone: (253) 922-2310

	Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD	Samp_Concentration
		07040138	EMW-04	SVOC (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		contaminated
26		07040138	EMW-04	PCBs (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		contaminated
		07040139	EMW-05	PCBs (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		contaminated
27		07040139	EMW-05	SVOC (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		contaminated
		07040140	EMW-06	PCBs (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		contaminated
28		07040140	EMW-06	SVOC (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		contaminated
		07040141	HC-1	PCBs (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		
29		07040141	HC-1	SVOC (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		
		07040142	MW-5	PCBs (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		
30		07040142	MW-5	SVOC (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		
		07040143	DW-01	SVOC (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		should be clean
31											

Special Instructions: Rush TAT (Friday, April 27) for 07040132, 07040133, 07040134, and 07040143 (all analyses).
Asking for low level PCBs (soil and water) and SVOCs (waters only), but note that many of these samples are contaminated with TPH, as indicated.
Please hold low level mercury pending further notice.
STD TAT for remaining samples.
Stage 2 SEDD and CLP-equivalent deliverable.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	[signature]	4-23-07	[signature]	4/23/07	1050a						

Removal Program
START III, Seattle, WA
EPA Contract Number: EP-S7-06-02

CHAIN OF CUSTODY RECORD
Site #: 10ZZ
Contact Name: Steven Hall
Contact Phone: (206) 920-1739

No: 10ZZ-04/22/07-0001
Cooler #: 6 coolers
Lab: STL-Seattle
Lab Phone: (253) 922-2310

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD	Samp_Concentration
	07040143	DW-01	PCBs (low level)	Ground Water	4/21/2007	2	1 liter amber	4 C		should be clean

Special Instructions: Rush TAT (Friday, April 27) for 07040132, 07040133, 07040134, and 07040143 (all analyses).
Asking for low level PCBs (soil and water) and SVOCs (waters only), but note that many of these samples are contaminated with TPH, as indicated.
Please hold low level mercury pending further notice.
STD TAT for remaining samples.
Stage 2 SEDD and CLP-equivalent deliverable.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	[signature]	4-23-07	K Wesley	4/23/07	1050						

Appendix D
Analytical Data Reports

ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: May 26, 2007

TO: Steve Hall, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho**

REF: TDD: 07-03-0004 PAN: 002233.0193.01SF

The data quality assurance review of 4 water samples collected from the Avery Landing site in Avery, Idaho, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Laucks Testing Services, Seattle, Washington.

The samples were numbered:

07040132 07040133 07040134 07040143

Data Qualifications:

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

The samples were maintained and received within the QC limits of 4°C ± 2°C. The samples were collected on April 20, 2007, and were analyzed on April 25, 2005, therefore meeting QC criteria of less than 14 days between collection and analysis for preserved water samples.

2. **Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

3. **Initial Calibration: Acceptable.**

All average Relative Response Factors (RRFs) were greater than the QC limit of 0.050. All water Relative Standard Deviations (RSDs) were less than the QC limits of 30% or had a correlation coefficient > 0.995.

4. **Continuing Calibration: Acceptable.**

All RRFs were greater than the QC limit of 0.050. All % differences were less than the QC limit of 25% or had a drift < 15%.

5. **Blanks: Acceptable.**

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

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

All SMC recoveries were within QC limits.

7. **Blank Spike (BS) Analysis: Acceptable.**

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

8. **Internal Standards: Acceptable.**

All internal standards were within ± 30 seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

9. **Precision and Bias Determination: Not Performed.**

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

10. **Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

11. **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.

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040132

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA01

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA01-001

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425012.D

Level: (LOW/MED)

Date Collected: 04/20/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 11:19

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
78-93-3	2-Butanone	5.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
10061-01-	cis-1,3-Dichloropropene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
591-78-6	2-Hexanone	5.0	U

MW 5-26-07

VOA - 10

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040132

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA01

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA01-001

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: X0425012.D

Level: (LOW/MED)

Date Collected: 04/20/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 11:19

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
124-48-1	Dibromochloromethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
179601-23	m,p-Xylene	2.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U

Comments:

MW 5-26-07

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040133

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA01

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA01-002

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425013.D

Level: (LOW/MED)

Date Collected: 04/20/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 11:43

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
78-93-3	2-Butanone	5.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
10061-01-	cis-1,3-Dichloropropene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
591-78-6	2-Hexanone	5.0	U

MW 5260B

VOA - 17

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040133

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA01

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA01-002

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425013.D

Level: (LOW/MED)

Date Collected: 04/20/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 11:43

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
124-48-1	Dibromochloromethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
179601-23	m,p-Xylene	2.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U

Comments:

MW 5/2007

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040134

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA01

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA01-003

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425014.D

Level: (LOW/MED)

Date Collected: 04/20/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 12:07

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
78-93-3	2-Butanone	5.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
10061-01-	cis-1,3-Dichloropropene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
591-78-6	2-Hexanone	5.0	U

MW 5-28-08

VOA - 24

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040134

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA01

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA01-003

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425014.D

Level: (LOW/MED)

Date Collected: 04/20/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 12:07

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
124-48-1	Dibromochloromethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
179601-23	m,p-Xylene	2.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U

Comments:

MW 52609

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040143

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA01

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA01-004

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425015.D

Level: (LOW/MED)

Date Collected: 04/20/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 12:32

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
78-93-3	2-Butanone	5.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
10061-01-	cis-1,3-Dichloropropene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
591-78-6	2-Hexanone	5.0	U

8260B

FORM I VOA

MW 5/28/07

VOA - 31

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040143

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA01

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA01-004

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425015.D

Level: (LOW/MED)

Date Collected: 04/20/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 12:32

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
124-48-1	Dibromochloromethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
179601-23	m,p-Xylene	2.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U

Comments:

MW
5-26-07

ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: May 28, 2007

TO: Steve Hall, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho**

REF: TDD: 07-03-0004 PAN: 002233.0193.01SF

The data quality assurance review of 1 waste, 10 water, and 11 soil samples collected from the Avery Landing site in Avery, Idaho, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Laucks Testing Services, Seattle, Washington.

The samples were numbered:

Water	07040111	07040136	07040137	07040138	07040139
	07040135	07040140	07040141	07040142	07040130
Soil	07040101	07040103	07040107	07040109	07040112
	07040115	07040118	07040121	07040123	07040126
	07040128				
Waste	07040131				

Data Qualifications:

1. Sample Holding Times: Acceptable.

The samples were maintained at 4°C (± 2°C) except one cooler which was received at 7.2 °C; no action was taken based on this slight outlier. The samples were collected on April 20, 2007, and were analyzed on April 25, 2005, therefore meeting QC criteria of less than 14 days between collection and analysis for preserved water samples. There are no holding times for waste samples.

2. Tuning: Satisfactory.

Tuning was performed at the beginning of each 12-hour analysis sequence except for the matrix spike analyses for sample 07040135; these spike analyses were used for sample qualification as the spike reanalyses had more QC outliers due to internal standard outliers. All results were within QC limits.

3. Initial Calibration: Acceptable.

All average Relative Response Factors (RRFs) were greater than the QC limit of 0.050. All water Relative Standard Deviations (RSDs) were less than the QC limits of 30% or had a correlation coefficient > 0.995.

4. Continuing Calibration: Satisfactory.

All RRFs were greater than the QC limit of 0.050. All % differences were less than the QC limit of 25% or had a drift < 15% except bromomethane with a low % drift and 2-hexanone with a high % recovery in the April 26, 2007 calibration, carbon disulfide with a high recovery in the May 1, 2007 (1050) calibration, dichlorodifluoromethane with a high recovery in the May 2, 2007 (1428) calibration, and dichlorodifluoromethane with a low recovery and cis-1,3-dichloropropane and 4-methyl-2-phenol with high recoveries in the May 8, 2007 calibration. Positive sample results associated with the high recovery outliers were qualified as estimated quantities (J) and positive results and sample quantitation limits associated with the low recovery outliers were qualified as estimated quantities (J or UJ).

5. Blanks: Satisfactory.

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank except acetone (3.1 micrograms per kilogram [µg/kg]) and 4-methyl-2-pentanone (1.3 µg/kg) in the May 1, 2007 soil blank, acetone (2.1 µg/kg) and methylene chloride (2.6 µg/kg) in the May 2, 2007 (batch R017408) soil blank, methylene chloride (280 µg/kg) in the May 1, 2007 (batch R017522) soil blank, and acetone (3.4 µg/kg) in the May 8, 2007 soil blank. Associated sample results less than five times the blank results (10 times for the common laboratory contaminants methylene chloride and acetone) were qualified as not detected (U).

6. System Monitoring Compounds (SMCs): Satisfactory.

All SMC recoveries were within QC limits except one SMC in the matrix spike and matrix spike duplicate samples (no action was taken based on these outliers), one or more SMCs with high recoveries in samples 07040128 (and rerun), 07040135 (and spike), 07040126, 07040123, 07040115 (and rerun), 07040101 (and rerun), 07040112 dilution, 07040109, and 07040126 dilution (associated positive results were qualified as estimated quantities [J]), and one low SMC and one high SMC in samples 07040121, 07040112, 07040123 dilution, and 07040109 dilution (associated sample results were qualified as estimated quantities [J or UJ]).

7. Blank Spike (BS) and Matrix Spike (MS) Analysis: Satisfactory.

BS and MS analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All BS recoveries were within QC limits except dichlorodifluoromethane with a low recovery and cis-1,3-dichloropropane with a high recovery in the soil BS and cis-1,3-dichloropropene and o-xylene with high recoveries in the soil BS. Associated positive sample results for high recovery outliers were qualified as estimated quantities (J) and associated positive results and sample quantitation limits for low recovery outliers were qualified as estimated quantities (J or UJ). All MS recoveries were within QC limits except the water benzene MS (low recovery) in sample 07040135, dichlorodifluoromethane, chloromethane, and vinyl chloride in MS of sample 07040107 (all low recoveries, therefore associated sample results [sample 07040107] were qualified as estimated quantities [J or UJ]) and methylene chloride with a relative percent difference outlier (the methylene chloride result in sample 07040107 was qualified as an estimated quantity {J or UJ]).

8. Internal Standards: Satisfactory.

All internal standards were within ± 30 seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts except the following with low area counts: chlorobenzene in sample 07040128 rerun, dichlorobenzene in the method blank (no action taken), the dilutions for samples 07040126, 07040121, and 07040123, the reruns for samples 07040101, 07040128, and 07040115, and samples 07040101, 07040109, and 07040115, and fluorobenzene in the rerun of sample 07040128 and the dilution of sample 07040126; and the following with high area counts: chlorobenzene in samples 07040109, 07040112, 07040121, and the dilutions of samples 07040109 and 07040123. Positive sample results associated with high area count outliers were qualified as estimated quantities (J). Positive sample results and sample quantitation limits associated with low area count outliers were qualified as estimated quantities (J or UJ).

9. Precision and Bias Determination: Not Performed.

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

10. Performance Evaluation Sample Analysis: Not Provided.

Performance evaluation samples were not provided to the laboratory.

11. Overall Assessment of Data for Use

Diluted results were hand-transcribed by the data reviewer onto the original Form I's.

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 was not detected. The associated numerical value is the estimated sample quantitation limit.

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040111

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017320

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-001

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: M0501025.D

Level: (LOW/MED)

Date Collected: 04/18/2007

% Moisture: not dec.

Date/Time Analyzed: 05/01/2007 19:12

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
67-64-1	Acetone	2.0	J
75-15-0	Carbon disulfide	1.0	U
75-09-2	Methylene chloride	3.7	
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
78-93-3	2-Butanone	5.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
10061-01-	cis-1,3-Dichloropropene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
591-78-6	2-Hexanone	5.0	U

8260B

MN 5-28-07

FORM I VOA

VOA - 65

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040111

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017320

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-001

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: M0501025.D

Level: (LOW/MED)

Date Collected: 04/18/2007

% Moisture: not dec.

Date/Time Analyzed: 05/01/2007 19:12

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
124-48-1	Dibromochloromethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
179601-23	m,p-Xylene	2.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U

Comments:

MW 5/8/07

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040136

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-002

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425016.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 12:56

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U J
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
78-93-3	2-Butanone	5.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
10061-01-	cis-1,3-Dichloropropene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
591-78-6	2-Hexanone	5.0	U

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FORM I VOA

VOA-72

MN 5/28/07

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040136

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-002

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425016.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 12:56

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
124-48-1	Dibromochloromethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
179601-23	m,p-Xylene	2.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U

Comments:

MN 5/28/07

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040137

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-003

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425017.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 13:21

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U J
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
67-64-1	Acetone	2.8	J
75-15-0	Carbon disulfide	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
78-93-3	2-Butanone	5.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
10061-01-	cis-1,3-Dichloropropene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
591-78-6	2-Hexanone	5.0	U

8260B

MW 5/28/07

FORM I VOA

VOA - 81

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040137

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-003

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425017.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 13:21

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
124-48-1	Dibromochloromethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
179601-23	m,p-Xylene	2.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U

Comments:

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VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040138

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-004

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425018.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 13:46

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U J
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
67-64-1	Acetone	3.2	J
75-15-0	Carbon disulfide	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
78-93-3	2-Butanone	5.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
10061-01-	cis-1,3-Dichloropropene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
591-78-6	2-Hexanone	5.0	U

8260B

MW 5/28/07

FORM I VOA

VOA-88

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040138

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-004

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425018.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 13:46

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
124-48-1	Dibromochloromethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
179601-23	m,p-Xylene	2.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U

Comments:

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5/28/07

8260B

FORM I VOA

VOA - 89

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040139

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-005

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425019.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 14:10

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U J
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
78-93-3	2-Butanone	5.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
10061-01-	cis-1,3-Dichloropropene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
591-78-6	2-Hexanone	5.0	U

8260B

MW 5/8/07

FORM I VOA

VOA - 95

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040139

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-005

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425019.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 14:10

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
124-48-1	Dibromochloromethane	1.0	U
108-90-7	Chlorobenzene	1.4	
100-41-4	Ethylbenzene	1.0	U
179601-23	m,p-Xylene	2.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U

Comments:

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5/28/07

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040135

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-007

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425020.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 14:35

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U J
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
78-93-3	2-Butanone	5.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U J
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
10061-01-	cis-1,3-Dichloropropene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
591-78-6	2-Hexanone	5.0	U

8260B

MW 5-8-07

FORM I VOA

VOA-115

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040135

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-007

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425020.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 14:35

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
124-48-1	Dibromochloromethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
179601-23	m,p-Xylene	2.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U

Comments:

MW
5/8/07

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040140

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-006

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425023.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 15:49

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U J
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
78-93-3	2-Butanone	5.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
10061-01-	cis-1,3-Dichloropropene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
591-78-6	2-Hexanone	5.0	U

8260B

FORM I VOA

VOA-105

5-28-07

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040140

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-006

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425023.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 15:49

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
124-48-1	Dibromochloromethane	1.0	U
108-90-7	Chlorobenzene	3.6	
100-41-4	Ethylbenzene	1.0	U
179601-23	m,p-Xylene	2.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U

Comments:

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040141

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-008

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425021.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 15:00

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U J
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
67-64-1	Acetone	1.6	J
75-15-0	Carbon disulfide	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
78-93-3	2-Butanone	5.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
10061-01-	cis-1,3-Dichloropropene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
591-78-6	2-Hexanone	5.0	U

MW 5/8/07

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040141

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-008

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425021.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 15:00

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
124-48-1	Dibromochloromethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
179601-23	m,p-Xylene	2.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U

Comments:

MW
5-28-07

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040142

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-009

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425022.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 15:24

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U J
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
78-93-3	2-Butanone	5.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
10061-01-	cis-1,3-Dichloropropene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
591-78-6	2-Hexanone	5.0	U

8260B

FORM I VOA

VOA - 128

MW 5-28-07

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040142

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-009

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425022.D

Level: (LOW/MED)

Date Collected: 04/21/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 15:24

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
124-48-1	Dibromochloromethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
179601-23	m,p-Xylene	2.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U

Comments:

MN
5-28-07

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040130

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-010

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425010.D

Level: (LOW/MED)

Date Collected: 04/20/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 10:30

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U J
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
78-93-3	2-Butanone	5.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
10061-01-	cis-1,3-Dichloropropene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
591-78-6	2-Hexanone	5.0	U

8260B

FORM I VOA

VOA-134

MW 52807

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040130

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017155

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: IDA02-010

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: Y0425010.D

Level: (LOW/MED)

Date Collected: 04/20/2007

% Moisture: not dec.

Date/Time Analyzed: 04/25/2007 10:30

GC Column: DB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
124-48-1	Dibromochloromethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
179601-23	m,p-Xylene	2.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U

Comments:

AMW
5/8/07

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040101

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-011

Sample wt/vol: 5.14 (g/mL) gm

Lab File ID: Y0426022.D

Level: (LOW/MED)

Date Collected: 04/16/2007

% Moisture: not dec. 10.4

Date/Time Analyzed: 04/26/2007 16:42

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	3.3	U J
74-87-3	Chloromethane	3.3	U
75-01-4	Vinyl chloride	3.3	U
74-83-9	Bromomethane	3.3	U J
75-00-3	Chloroethane	3.3	U
75-69-4	Trichlorofluoromethane	3.3	U
75-35-4	1,1-Dichloroethene	3.3	U
67-64-1	Acetone	85	J BRU
75-15-0	Carbon disulfide	3.3	U
75-09-2	Methylene chloride	3.3	U
156-60-5	trans-1,2-Dichloroethene	3.3	U
75-34-3	1,1-Dichloroethane	3.3	U
156-59-2	cis-1,2-Dichloroethene	3.3	U
78-93-3	2-Butanone	24	J
67-66-3	Chloroform	3.3	U
71-55-6	1,1,1-Trichloroethane	3.3	U
56-23-5	Carbon tetrachloride	3.3	U
71-43-2	Benzene	5.9	J
107-06-2	1,2-Dichloroethane	3.3	U
79-01-6	Trichloroethene	3.3	U
78-87-5	1,2-Dichloropropane	3.3	U
75-27-4	Bromodichloromethane	3.3	U
10061-01-	cis-1,3-Dichloropropene	3.3	U
108-10-1	4-Methyl-2-pentanone	11	U
108-88-3	Toluene	17	J
10061-02-	trans-1,3-Dichloropropene	3.3	U
79-00-5	1,1,2-Trichloroethane	3.3	U
127-18-4	Tetrachloroethene	3.3	U
591-78-6	2-Hexanone	6.0	J

8260B

FORM I VOA

VOA - 140

MN 5-28-07

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040101

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-011

Sample wt/vol: 5.14 (g/mL) gm

Lab File ID: Y0426022.D

Level: (LOW/MED)

Date Collected: 04/16/2007

% Moisture: not dec. 10.4

Date/Time Analyzed: 04/26/2007 16:42

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
124-48-1	Dibromochloromethane	3.3	U
108-90-7	Chlorobenzene	3.3	U
100-41-4	Ethylbenzene	2.7	J
179601-23	m,p-Xylene	7.1	J
95-47-6	o-Xylene	4.0	J
100-42-5	Styrene	2.8	J
75-25-2	Bromoform	3.3	U
79-34-5	1,1,2,2-Tetrachloroethane	3.3	U J

Comments:

MW 5/8/07

8260B

FORM I VOA

VOA-141

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040103

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-012

Sample wt/vol: 5.76 (g/mL) gm

Lab File ID: Y0426023.D

Level: (LOW/MED)

Date Collected: 04/17/2007

% Moisture: not dec. 33.2

Date/Time Analyzed: 04/26/2007 17:08

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	3.9	U J
74-87-3	Chloromethane	3.9	U
75-01-4	Vinyl chloride	3.9	U
74-83-9	Bromomethane	3.9	U J
75-00-3	Chloroethane	3.9	U
75-69-4	Trichlorofluoromethane	3.9	U
75-35-4	1,1-Dichloroethene	3.9	U
67-64-1	Acetone	130	~~B~~
75-15-0	Carbon disulfide	3.9	U
75-09-2	Methylene chloride	5.1	
156-60-5	trans-1,2-Dichloroethene	3.9	U
75-34-3	1,1-Dichloroethane	3.9	U
156-59-2	cis-1,2-Dichloroethene	3.9	U
78-93-3	2-Butanone	21	
67-66-3	Chloroform	3.9	U
71-55-6	1,1,1-Trichloroethane	3.9	U
56-23-5	Carbon tetrachloride	3.9	U
71-43-2	Benzene	3.9	U
107-06-2	1,2-Dichloroethane	3.9	U
79-01-6	Trichloroethene	3.9	U
78-87-5	1,2-Dichloropropane	3.9	U
75-27-4	Bromodichloromethane	3.9	U
10061-01-	cis-1,3-Dichloropropene	3.9	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	3.9	U
10061-02-	trans-1,3-Dichloropropene	3.9	U
79-00-5	1,1,2-Trichloroethane	3.9	U
127-18-4	Tetrachloroethene	3.9	U
591-78-6	2-Hexanone	13	U

VOA-170

MW 5287

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040103

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-012

Sample wt/vol: 5.76 (g/mL) gm

Lab File ID: Y0426023.D

Level: (LOW/MED)

Date Collected: 04/17/2007

% Moisture: not dec. 33.2

Date/Time Analyzed: 04/26/2007 17:08

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
124-48-1	Dibromochloromethane	3.9	U
108-90-7	Chlorobenzene	3.9	U
100-41-4	Ethylbenzene	3.8	J
179601-23	m,p-Xylene	7.8	U
95-47-6	o-Xylene	3.5	J
100-42-5	Styrene	3.9	U
75-25-2	Bromoform	3.9	U
79-34-5	1,1,2,2-Tetrachloroethane	3.9	U

Comments:

5/28/07

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040107

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-013

Sample wt/vol: 5.68 (g/mL) gm

Lab File ID: Y0426024.D

Level: (LOW/MED)

Date Collected: 04/17/2007

% Moisture: not dec. 31.8

Date/Time Analyzed: 04/26/2007 17:33

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	3.9	U J
74-87-3	Chloromethane	3.9	U J
75-01-4	Vinyl chloride	3.9	U J
74-83-9	Bromomethane	3.9	U J
75-00-3	Chloroethane	3.9	U
75-69-4	Trichlorofluoromethane	3.9	U
75-35-4	1,1-Dichloroethene	3.9	U
67-64-1	Acetone	93	~~B~~
75-15-0	Carbon disulfide	3.9	U
75-09-2	Methylene chloride	3.5	J
156-60-5	trans-1,2-Dichloroethene	3.9	U
75-34-3	1,1-Dichloroethane	3.9	U
156-59-2	cis-1,2-Dichloroethene	3.9	U
78-93-3	2-Butanone	17	
67-66-3	Chloroform	3.9	U
71-55-6	1,1,1-Trichloroethane	3.9	U
56-23-5	Carbon tetrachloride	3.9	U
71-43-2	Benzene	3.9	U
107-06-2	1,2-Dichloroethane	3.9	U
79-01-6	Trichloroethene	3.9	U
78-87-5	1,2-Dichloropropane	3.9	U
75-27-4	Bromodichloromethane	3.9	U
10061-01-	cis-1,3-Dichloropropene	3.9	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	3.9	U
10061-02-	trans-1,3-Dichloropropene	3.9	U
79-00-5	1,1,2-Trichloroethane	3.9	U
127-18-4	Tetrachloroethene	3.9	U
591-78-6	2-Hexanone	13	U

8260B

FORM I VOA

VOA-182

MW 5/28/07

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040107

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-013

Sample wt/vol: 5.68 (g/mL) gm

Lab File ID: Y0426024.D

Level: (LOW/MED)

Date Collected: 04/17/2007

% Moisture: not dec. 31.8

Date/Time Analyzed: 04/26/2007 17:33

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
124-48-1	Dibromochloromethane	3.9	U
108-90-7	Chlorobenzene	3.9	U
100-41-4	Ethylbenzene	3.9	U
179601-23	m,p-Xylene	7.7	U
95-47-6	o-Xylene	3.9	U
100-42-5	Styrene	3.9	U
75-25-2	Bromoform	3.9	U
79-34-5	1,1,2,2-Tetrachloroethane	3.9	U

Comments:

MW
5/8/07

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040109

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-014

Sample wt/vol: 5.88 (g/mL) gm

Lab File ID: Y0426025.D

Level: (LOW/MED)

Date Collected: 04/18/2007

% Moisture: not dec. 0.0

Date/Time Analyzed: 04/26/2007 17:59

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	2.6	U J
74-87-3	Chloromethane	2.6	U
75-01-4	Vinyl chloride	2.6	U
74-83-9	Bromomethane	2.6	U J
75-00-3	Chloroethane	2.6	U
75-69-4	Trichlorofluoromethane	2.6	U
75-35-4	1,1-Dichloroethene	2.6	U
67-64-1	Acetone	~~130~~ 160	~~B~~
75-15-0	Carbon disulfide	3.1	
75-09-2	Methylene chloride	2.6	U
156-60-5	trans-1,2-Dichloroethene	2.6	U
75-34-3	1,1-Dichloroethane	2.6	U
156-59-2	cis-1,2-Dichloroethene	2.6	U
78-93-3	2-Butanone	29	
67-66-3	Chloroform	2.6	U
71-55-6	1,1,1-Trichloroethane	2.6	U
56-23-5	Carbon tetrachloride	2.6	U
71-43-2	Benzene	2.6	U
107-06-2	1,2-Dichloroethane	2.6	U
79-01-6	Trichloroethene	2.6	U
78-87-5	1,2-Dichloropropane	2.6	U
75-27-4	Bromodichloromethane	2.6	U
10061-01-	cis-1,3-Dichloropropene	2.6	U
108-10-1	4-Methyl-2-pentanone	8.5	U
108-88-3	Toluene	2.6	U
10061-02-	trans-1,3-Dichloropropene	2.6	U
79-00-5	1,1,2-Trichloroethane	2.6	U
127-18-4	Tetrachloroethene	2.6	U
591-78-6	2-Hexanone	8.5	U

8260B

FORM I VOA

VOA - 190

MW 5-28-07

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040109

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-014

Sample wt/vol: 5.88 (g/mL) gm

Lab File ID: Y0426025.D

Level: (LOW/MED)

Date Collected: 04/18/2007

% Moisture: not dec. 0.0

Date/Time Analyzed: 04/26/2007 17:59

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
124-48-1	Dibromochloromethane	2.6	U
108-90-7	Chlorobenzene	2.6	U
100-41-4	Ethylbenzene	56	
179601-23	m,p-Xylene	6.4	
95-47-6	o-Xylene	2.6	U
100-42-5	Styrene	2.6	U
75-25-2	Bromoform	2.6	U
79-34-5	1,1,2,2-Tetrachloroethane	2.6	U

Comments:

MN
5-28-07

VOA-191

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040112

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-015

Sample wt/vol: 5.84 (g/mL) gm

Lab File ID: Y0426026.D

Level: (LOW/MED)

Date Collected: 04/18/2007

% Moisture: not dec. 27.3

Date/Time Analyzed: 04/26/2007 18:25

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	3.5	U
74-87-3	Chloromethane	3.5	U
75-01-4	Vinyl chloride	3.5	U
74-83-9	Bromomethane	3.5	U
75-00-3	Chloroethane	3.5	U
75-69-4	Trichlorofluoromethane	3.5	U
75-35-4	1,1-Dichloroethene	3.5	U
67-64-1	Acetone	~~160~~ m 190	J ~~B~~
75-15-0	Carbon disulfide	2.3	J
75-09-2	Methylene chloride	3.5	U
156-60-5	trans-1,2-Dichloroethene	3.5	U
75-34-3	1,1-Dichloroethane	3.5	U
156-59-2	cis-1,2-Dichloroethene	3.5	U
78-93-3	2-Butanone	39	J
67-66-3	Chloroform	3.5	U
71-55-6	1,1,1-Trichloroethane	3.5	U
56-23-5	Carbon tetrachloride	3.5	U
71-43-2	Benzene	3.5	U
107-06-2	1,2-Dichloroethane	3.5	U
79-01-6	Trichloroethene	3.5	U
78-87-5	1,2-Dichloropropane	3.5	U
75-27-4	Bromodichloromethane	3.5	U
10061-01-	cis-1,3-Dichloropropene	3.5	U
108-10-1	4-Methyl-2-pentanone	12	U
108-88-3	Toluene	3.5	U
10061-02-	trans-1,3-Dichloropropene	3.5	U
79-00-5	1,1,2-Trichloroethane	3.5	U
127-18-4	Tetrachloroethene	3.5	U
591-78-6	2-Hexanone	12	U

MW 5-28-07

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040112

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-015

Sample wt/vol: 5.84 (g/mL) gm

Lab File ID: Y0426026.D

Level: (LOW/MED)

Date Collected: 04/18/2007

% Moisture: not dec. 27.3

Date/Time Analyzed: 04/26/2007 18:25

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
124-48-1	Dibromochloromethane	3.5	U
108-90-7	Chlorobenzene	13	
100-41-4	Ethylbenzene	3.5	U
179601-23	m,p-Xylene	7.1	U
95-47-6	o-Xylene	3.5	U
100-42-5	Styrene	3.5	U
75-25-2	Bromoform	3.5	U
79-34-5	1,1,2,2-Tetrachloroethane	3.5	U

Comments:

MM 5/28/07

8260B

FORM I VOA

VOA - 241

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040115

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-016

Sample wt/vol: 6.10 (g/mL) gm

Lab File ID: Y0426027.D

Level: (LOW/MED)

Date Collected: 04/18/2007

% Moisture: not dec. 14.5

Date/Time Analyzed: 04/26/2007 18:50

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	2.9	U J
74-87-3	Chloromethane	2.9	U
75-01-4	Vinyl chloride	2.9	U
74-83-9	Bromomethane	2.9	U J
75-00-3	Chloroethane	2.9	U
75-69-4	Trichlorofluoromethane	2.9	U
75-35-4	1,1-Dichloroethene	2.9	U
67-64-1	Acetone	16	J
75-15-0	Carbon disulfide	2.9	U
75-09-2	Methylene chloride	2.9	U
156-60-5	trans-1,2-Dichloroethene	2.9	U
75-34-3	1,1-Dichloroethane	2.9	U
156-59-2	cis-1,2-Dichloroethene	2.9	U
78-93-3	2-Butanone	9.6	U
67-66-3	Chloroform	2.9	U
71-55-6	1,1,1-Trichloroethane	2.9	U
56-23-5	Carbon tetrachloride	2.9	U
71-43-2	Benzene	2.9	U
107-06-2	1,2-Dichloroethane	2.9	U
79-01-6	Trichloroethene	2.9	U
78-87-5	1,2-Dichloropropane	2.9	U
75-27-4	Bromodichloromethane	2.9	U
10061-01-	cis-1,3-Dichloropropene	2.9	U
108-10-1	4-Methyl-2-pentanone	9.6	U
108-88-3	Toluene	2.9	U
10061-02-	trans-1,3-Dichloropropene	2.9	U
79-00-5	1,1,2-Trichloroethane	2.9	U
127-18-4	Tetrachloroethene	2.9	U
591-78-6	2-Hexanone	9.6	U

8260B

FORM I VOA

VOA-270

MW 5/28/07

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040115

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-016

Sample wt/vol: 6.10 (g/mL) gm

Lab File ID: Y0426027.D

Level: (LOW/MED)

Date Collected: 04/18/2007

% Moisture: not dec. 14.5

Date/Time Analyzed: 04/26/2007 18:50

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
124-48-1	Dibromochloromethane	2.9	U
108-90-7	Chlorobenzene	2.9	U
100-41-4	Ethylbenzene	2.9	U
179601-23	m,p-Xylene	5.8	U
95-47-6	o-Xylene	2.9	U
100-42-5	Styrene	2.9	U
75-25-2	Bromoform	2.9	U
79-34-5	1,1,2,2-Tetrachloroethane	2.9	U

Comments:

MW 5-28-07

8260B

FORM I VOA

VOA-271

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040118

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-017

Sample wt/vol: 6.42 (g/mL) gm

Lab File ID: Y0426028.D

Level: (LOW/MED)

Date Collected: 04/18/2007

% Moisture: not dec. 24.7

Date/Time Analyzed: 04/26/2007 19:15

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	3.1	U J
74-87-3	Chloromethane	3.1	U
75-01-4	Vinyl chloride	3.1	U
74-83-9	Bromomethane	3.1	U J
75-00-3	Chloroethane	3.1	U
75-69-4	Trichlorofluoromethane	3.1	U
75-35-4	1,1-Dichloroethene	3.1	U
67-64-1	Acetone	6.1	J MW
75-15-0	Carbon disulfide	3.1	U
75-09-2	Methylene chloride	3.1	U
156-60-5	trans-1,2-Dichloroethene	3.1	U
75-34-3	1,1-Dichloroethane	3.1	U
156-59-2	cis-1,2-Dichloroethene	3.1	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	3.1	U
71-55-6	1,1,1-Trichloroethane	3.1	U
56-23-5	Carbon tetrachloride	3.1	U
71-43-2	Benzene	3.1	U
107-06-2	1,2-Dichloroethane	3.1	U
79-01-6	Trichloroethene	3.1	U
78-87-5	1,2-Dichloropropane	3.1	U
75-27-4	Bromodichloromethane	3.1	U
10061-01-	cis-1,3-Dichloropropene	3.1	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	3.1	U
10061-02-	trans-1,3-Dichloropropene	3.1	U
79-00-5	1,1,2-Trichloroethane	3.1	U
127-18-4	Tetrachloroethene	3.1	U
591-78-6	2-Hexanone	10	U

8260B

FORM 5 VOA

VOA-291

MW 5-28-07

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040118

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-017

Sample wt/vol: 6.42 (g/mL) gm

Lab File ID: Y0426028.D

Level: (LOW/MED)

Date Collected: 04/18/2007

% Moisture: not dec. 24.7

Date/Time Analyzed: 04/26/2007 19:15

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
124-48-1	Dibromochloromethane	3.1	U
108-90-7	Chlorobenzene	3.1	U
100-41-4	Ethylbenzene	3.1	U
179601-23	m,p-Xylene	6.2	U
95-47-6	o-Xylene	3.1	U
100-42-5	Styrene	3.1	U
75-25-2	Bromoform	3.1	U
79-34-5	1,1,2,2-Tetrachloroethane	3.1	U

Comments:

5-28-07

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040121

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-018

Sample wt/vol: 5.83 (g/mL) gm

Lab File ID: Y0426029.D

Level: (LOW/MED)

Date Collected: 04/18/2007

% Moisture: not dec. 23.6

Date/Time Analyzed: 04/26/2007 19:41

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	3.4	U
74-87-3	Chloromethane	3.4	U
75-01-4	Vinyl chloride	3.4	U
74-83-9	Bromomethane	3.4	U
75-00-3	Chloroethane	3.4	U
75-69-4	Trichlorofluoromethane	3.4	U
75-35-4	1,1-Dichloroethene	3.4	U
67-64-1	Acetone	~~120~~ 230	J ~~BMV~~
75-15-0	Carbon disulfide	2.0	J
75-09-2	Methylene chloride	3.4	U
156-60-5	trans-1,2-Dichloroethene	3.4	U
75-34-3	1,1-Dichloroethane	3.4	U
156-59-2	cis-1,2-Dichloroethene	3.4	U
78-93-3	2-Butanone	31	J
67-66-3	Chloroform	3.4	U
71-55-6	1,1,1-Trichloroethane	3.4	U
56-23-5	Carbon tetrachloride	3.4	U
71-43-2	Benzene	3.4	U
107-06-2	1,2-Dichloroethane	3.4	U
79-01-6	Trichloroethene	3.4	U
78-87-5	1,2-Dichloropropane	3.4	U
75-27-4	Bromodichloromethane	3.4	U
10061-01-	cis-1,3-Dichloropropene	3.4	U
108-10-1	4-Methyl-2-pentanone	11	U
108-88-3	Toluene	3.4	U
10061-02-	trans-1,3-Dichloropropene	3.4	U
79-00-5	1,1,2-Trichloroethane	3.4	U
127-18-4	Tetrachloroethene	3.4	U
591-78-6	2-Hexanone	11	U

8260B

FORM I VOA

VOA-299

MW 5/28/07

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040121

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-018

Sample wt/vol: 5.83 (g/mL) gm

Lab File ID: Y0426029.D

Level: (LOW/MED)

Date Collected: 04/18/2007

% Moisture: not dec. 23.6

Date/Time Analyzed: 04/26/2007 19:41

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
124-48-1	Dibromochloromethane	3.4	U J
108-90-7	Chlorobenzene	13	J
100-41-4	Ethylbenzene	3.4	U J
179601-23	m,p-Xylene	6.7	U
95-47-6	o-Xylene	3.4	U
100-42-5	Styrene	3.4	U
75-25-2	Bromoform	3.4	U
79-34-5	1,1,2,2-Tetrachloroethane	3.4	U

Comments:

MW 5/8/07

8260B

FORM I VOA

VOA - 300

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040123

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-019

Sample wt/vol: 5.96 (g/mL) gm

Lab File ID: Y0426030.D

Level: (LOW/MED)

Date Collected: 04/19/2007

% Moisture: not dec. 26.2

Date/Time Analyzed: 04/26/2007 20:07

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	3.4	U J
74-87-3	Chloromethane	3.4	U
75-01-4	Vinyl chloride	3.4	U
74-83-9	Bromomethane	3.4	U J
75-00-3	Chloroethane	3.4	U
75-69-4	Trichlorofluoromethane	3.4	U
75-35-4	1,1-Dichloroethene	3.4	U
67-64-1	Acetone	~~110~~ 110	J
75-15-0	Carbon disulfide	2.1	J
75-09-2	Methylene chloride	3.4	U
156-60-5	trans-1,2-Dichloroethene	3.4	U
75-34-3	1,1-Dichloroethane	3.4	U
156-59-2	cis-1,2-Dichloroethene	3.4	U
78-93-3	2-Butanone	26	J
67-66-3	Chloroform	3.4	U
71-55-6	1,1,1-Trichloroethane	3.4	U
56-23-5	Carbon tetrachloride	3.4	U
71-43-2	Benzene	3.4	U
107-06-2	1,2-Dichloroethane	3.4	U
79-01-6	Trichloroethene	3.4	U
78-87-5	1,2-Dichloropropane	3.4	U
75-27-4	Bromodichloromethane	3.4	U
10061-01-	cis-1,3-Dichloropropene	3.4	U
108-10-1	4-Methyl-2-pentanone	11	U
108-88-3	Toluene	3.4	U
10061-02-	trans-1,3-Dichloropropene	3.4	U
79-00-5	1,1,2-Trichloroethane	3.4	U
127-18-4	Tetrachloroethene	3.4	U
591-78-6	2-Hexanone	11	U

8260B

FORM I VOA

VOA-326

MW 5-28-07

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040123

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-019

Sample wt/vol: 5.96 (g/mL) gm

Lab File ID: Y0426030.D

Level: (LOW/MED)

Date Collected: 04/19/2007

% Moisture: not dec. 26.2

Date/Time Analyzed: 04/26/2007 20:07

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
124-48-1	Dibromochloromethane	3.4	U
108-90-7	Chlorobenzene	31	J
100-41-4	Ethylbenzene	~~310~~ 540	J
179601-23	m,p-Xylene	25	J
95-47-6	o-Xylene	15	J
100-42-5	Styrene	3.4	U
75-25-2	Bromoform	3.4	U
79-34-5	1,1,2,2-Tetrachloroethane	3.4	U

Comments:

8260B

FORM I VOA

VOA - 327

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040126

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-020

Sample wt/vol: 5.58 (g/mL) gm

Lab File ID: Y0426031.D

Level: (LOW/MED)

Date Collected: 04/19/2007

% Moisture: not dec. 25.8

Date/Time Analyzed: 04/26/2007 20:32

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	3.6	U J
74-87-3	Chloromethane	3.6	U
75-01-4	Vinyl chloride	3.6	U
74-83-9	Bromomethane	3.6	U J
75-00-3	Chloroethane	3.6	U
75-69-4	Trichlorofluoromethane	3.6	U
75-35-4	1,1-Dichloroethene	3.6	U
67-64-1	Acetone	~~220~~ gm 150	J gm
75-15-0	Carbon disulfide	3.6	U
75-09-2	Methylene chloride	7.9	J
156-60-5	trans-1,2-Dichloroethene	3.6	U
75-34-3	1,1-Dichloroethane	3.6	U
156-59-2	cis-1,2-Dichloroethene	3.6	U
78-93-3	2-Butanone	54	J
67-66-3	Chloroform	3.6	U
71-55-6	1,1,1-Trichloroethane	3.6	U
56-23-5	Carbon tetrachloride	3.6	U
71-43-2	Benzene	3.6	U
107-06-2	1,2-Dichloroethane	3.6	U
79-01-6	Trichloroethene	3.6	U
78-87-5	1,2-Dichloropropane	3.6	U
75-27-4	Bromodichloromethane	3.6	U
10061-01-	cis-1,3-Dichloropropene	3.6	U
108-10-1	4-Methyl-2-pentanone	12	U
108-88-3	Toluene	3.6	U
10061-02-	trans-1,3-Dichloropropene	3.6	U
79-00-5	1,1,2-Trichloroethane	3.6	U
127-18-4	Tetrachloroethene	3.6	U
591-78-6	2-Hexanone	12	U

MW 5/28/07

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040126

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-020

Sample wt/vol: 5.58 (g/mL) gm

Lab File ID: Y0426031.D

Level: (LOW/MED)

Date Collected: 04/19/2007

% Moisture: not dec. 25.8

Date/Time Analyzed: 04/26/2007 20:32

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
124-48-1	Dibromochloromethane	3.6	U
108-90-7	Chlorobenzene	3.6	U
100-41-4	Ethylbenzene	13	J
179601-23	m,p-Xylene	7.2	U
95-47-6	o-Xylene	7.8	J
100-42-5	Styrene	3.6	U
75-25-2	Bromoform	3.6	U
79-34-5	1,1,2,2-Tetrachloroethane	3.6	U

Comments:

MW
5-28-07

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VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040128

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-021

Sample wt/vol: 6.62 (g/mL) gm

Lab File ID: Y0426032.D

Level: (LOW/MED)

Date Collected: 04/19/2007

% Moisture: not dec. 16.5

Date/Time Analyzed: 04/26/2007 20:58

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	2.7	U
74-87-3	Chloromethane	2.7	U
75-01-4	Vinyl chloride	2.7	U
74-83-9	Bromomethane	2.7	U
75-00-3	Chloroethane	2.7	U
75-69-4	Trichlorofluoromethane	2.7	U
75-35-4	1,1-Dichloroethene	2.7	U
67-64-1	Acetone	78	B
75-15-0	Carbon disulfide	2.7	U
75-09-2	Methylene chloride	2.7	U
156-60-5	trans-1,2-Dichloroethene	2.7	U
75-34-3	1,1-Dichloroethane	2.7	U
156-59-2	cis-1,2-Dichloroethene	2.7	U
78-93-3	2-Butanone	19	J
67-66-3	Chloroform	2.7	U
71-55-6	1,1,1-Trichloroethane	2.7	U
56-23-5	Carbon tetrachloride	2.7	U
71-43-2	Benzene	2.7	U
107-06-2	1,2-Dichloroethane	2.7	U
79-01-6	Trichloroethene	2.7	U
78-87-5	1,2-Dichloropropane	2.7	U
75-27-4	Bromodichloromethane	2.7	U
10061-01-	cis-1,3-Dichloropropene	2.7	U
108-10-1	4-Methyl-2-pentanone	9.0	U
108-88-3	Toluene	2.7	U
10061-02-	trans-1,3-Dichloropropene	2.7	U
79-00-5	1,1,2-Trichloroethane	2.7	U
127-18-4	Tetrachloroethene	2.7	U
591-78-6	2-Hexanone	9.0	U

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FORM I VOA

MW 5-28-07

VOA - 390

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040128

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017229

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-021

Sample wt/vol: 6.62 (g/mL) gm

Lab File ID: Y0426032.D

Level: (LOW/MED)

Date Collected: 04/19/2007

% Moisture: not dec. 16.5

Date/Time Analyzed: 04/26/2007 20:58

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Heated Purge: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
124-48-1	Dibromochloromethane	2.7	U J
108-90-7	Chlorobenzene	2.7	U
100-41-4	Ethylbenzene	1.8	~~U~~
179601-23	m,p-Xylene	2.0	J
95-47-6	o-Xylene	4.1	J
100-42-5	Styrene	2.7	U J
75-25-2	Bromoform	2.7	U J
79-34-5	1,1,2,2-Tetrachloroethane	2.7	U J

Comments:

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040131

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017481

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-037

Sample wt/vol: 1.00 (g/mL) mL

Lab File ID: M0507012.D

Level: (LOW/MED)

Date Collected: 04/20/2007

% Moisture: not dec. 0.0

Date/Time Analyzed: 05/07/2007 13:02

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL)

Soil Aliquot Volume: 25 (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	2000	U
74-87-3	Chloromethane	2000	U
75-01-4	Vinyl chloride	2000	U
74-83-9	Bromomethane	2000	U
75-00-3	Chloroethane	2000	U
75-69-4	Trichlorofluoromethane	2000	U
75-35-4	1,1-Dichloroethene	2000	U
67-64-1	Acetone	10000	U
75-15-0	Carbon disulfide	2000	U
75-09-2	Methylene chloride	2700	B
156-60-5	trans-1,2-Dichloroethene	2000	U
75-34-3	1,1-Dichloroethane	2000	U
156-59-2	cis-1,2-Dichloroethene	2000	U
78-93-3	2-Butanone	10000	U
67-66-3	Chloroform	2000	U
71-55-6	1,1,1-Trichloroethane	2000	U
56-23-5	Carbon tetrachloride	2000	U
71-43-2	Benzene	2000	U
107-06-2	1,2-Dichloroethane	2000	U
79-01-6	Trichloroethene	2000	U
78-87-5	1,2-Dichloropropane	2000	U
75-27-4	Bromodichloromethane	1500	J
10061-01-	cis-1,3-Dichloropropene	2000	U
108-10-1	4-Methyl-2-pentanone	10000	U
108-88-3	Toluene	2000	U
10061-02-	trans-1,3-Dichloropropene	2000	U
79-00-5	1,1,2-Trichloroethane	2000	U
127-18-4	Tetrachloroethene	2000	U
591-78-6	2-Hexanone	10000	U

1

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040131

Lab Name: Laucks Testing Laboratories, Inc.

Contract:

SDG No.: IDA02

Run Sequence: R017481

Matrix: (SOIL/SED/WATER) Soil

Lab Sample ID: IDA02-037

Sample wt/vol: 1.00 (g/mL) mL

Lab File ID: M0507012.D

Level: (LOW/MED)

Date Collected: 04/20/2007

% Moisture: not dec. 0.0

Date/Time Analyzed: 05/07/2007 13:02

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL)

Soil Aliquot Volume: 25 (uL)

Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
124-48-1	Dibromochloromethane	2000	U
108-90-7	Chlorobenzene	1600	J
100-41-4	Ethylbenzene	2000	U
179601-23	m,p-Xylene	4000	U
95-47-6	o-Xylene	2000	U
100-42-5	Styrene	2000	U
75-25-2	Bromoform	2000	U
79-34-5	1,1,2,2-Tetrachloroethane	2000	U

Comments:

MW 5/8/07

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MEMORANDUM

DATE: May 24, 2007

TO: Steve Hall, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho**

REF: TDD: 07-03-0004 PAN: 002233.0193.01SF

The data quality assurance review of 15 solid, 1 waste, and 13 water samples collected from the Avery Landing site in Avery, Idaho, has been completed. Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by STL-Seattle, Tacoma, Washington.

The samples were numbered:

Solid	07040102	07040104	07040106	07040108	07040110
	07040114	07040116	07040117	07040119	07040120
	07040122	07040124	07040125	07040127	07040129
Waste	07040131				
Water	07040111	07040132	07040133	07040134	07040135
	07040136	07040137	07040138	07040139	07040140
	07040141	07040142	07040143		

Data Qualifications:

1. Sample Holding Times: Acceptable.

Sample receipt temperature was not provided; the laboratory narrative indicated that sample temperature was acceptable. The samples were collected between April 16 and 21, 2007, were extracted between April 24 and 26, 2007, and were analyzed by May 2, 2007, therefore meeting holding time criteria of less than 7 days between collection and extraction (14 days for soil and waste) and less than 40 days between extraction and analysis.

2. Tuning: Acceptable.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

3. Initial Calibration: Satisfactory.

All average Relative Response Factors (RRFs) were greater than the QC limit of 0.050. All Relative Standard Deviations (RSDs) were less than the QC limit of 30% except benzoic acid, 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, indeno(1,2,3-cd)pyrene, and dibenz(a,h)anthracene in the April 12, 2007 calibration and benzoic acid, 2,4-dinitrophenol, 4-nitrophenol, and 4,6-dinitro-2-methylphenol in the May 3, 2007 calibration. Associated positive results were qualified as estimated quantities (J).

4. Continuing Calibration: Satisfactory.

All RRFs were greater than the QC limit of 0.050. All % differences were less than the QC limit of 25% except di-n-octylphthalate (increasing response factor) in the April 26, 2007 calibration, benzoic acid, 3-nitroaniline, 2,4-dinitrophenol, 2,4-dinitrophenol, 4-nitrophenol, 4-nitroaniline, 4,6-dinitro-2-methylphenol, pentachlorophenol, and benzo(g,h,i)perylene (all with increasing response factors) in the April 27, 2007 calibration, 4-chloroaniline and 4-nitrophenol (both with decreasing response factors) in the May 1, 2007 calibration, 3,3'-dichlorobenzidine, indeno(1,2,3-cd)pyrene, and dibenz(a,h)anthracene (all with increasing response factors) in the May 2, 2007 calibration, and benzoic acid (decreasing response factor) and 4-nitroaniline (increasing response factor) in the May 3, 2007 calibration. Analytes associated with decreasing response factors were qualified as estimated quantities (J or UJ) and positive results for analytes associated with increasing response factors were qualified as estimated quantities (J).

5. Blanks: Satisfactory.

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank except di-n-butylphthalate (7 µg/kg) and butyl benzyl phthalate (7.3 µg/kg) in the April 24, 2007 soil blank, di-n-butylphthalate (0.059 µg/L), butyl benzyl phthalate (0.082 µg/L), and bis(2-ethylhexyl)phthalate (0.16 µg/L) in the April 25, 2007 water blank, and di-n-butylphthalate (4,900 µg/kg) in the April 26, 2007 waste blank. Associated sample results less than 10 times the blank contamination for these common laboratory contaminants were qualified as not detected (U).

6. System Monitoring Compounds (SMCs): Satisfactory.

All SMC recoveries were within QC limits except 2,4,6-tribromophenol with a high recovery in samples 07040102, 07040104, 07040108, 07040116, and 07040124 (no action based on one outlier per fraction per sample), nitrobenzene and 2,4,6-tribromophenol with high recoveries in samples 07040110 and 07040122 (no action based on one outlier per fraction per sample), 2-fluorophenol, nitrobenzene, and 2,4,6-tribromophenol with high recoveries in sample 07040114 (positive acid-fraction results were qualified as estimated quantities [J]), 2-fluorophenol and phenol with low recoveries and 2,4,6-tribromophenol with a high recovery in sample 07040117 (all acid-fraction results were qualified as estimated quantities [J or UJ]), 2-fluorophenol, nitrobenzene, and 2,4,6-tribromophenol with high recoveries and 2-fluorophenol with a low recovery in sample 07040119 (all acid-fraction results and all positive base/neutral fraction results were qualified as estimated quantities [J or UJ]), 2,4,6-tribromophenol and phenol with 0% recoveries, 2-fluorobiphenyl with a low recovery and nitrobenzene with a high recovery in sample 07040120 (positive acid-fraction results were qualified as estimated quantities [J] and sample quantitation limits were rejected [R] and base/neutral fraction results were qualified as estimated quantities [J or UJ]), 2-fluorophenol and 2-fluorobiphenyl with low recoveries and nitrobenzene and 2,4,6-tribromophenol with high recoveries in sample 07040127 (all results were qualified as estimated quantities [J or UJ]), 2-fluorophenol with <10% recovery and nitrobenzene and 2,4,6-tribromophenol with high recoveries in sample 07040129 (positive acid-fraction results were qualified as estimated quantities [J] and sample quantitation limits were rejected [R]), phenol with <10% recovery in samples 07040136,

07040139, and 07040141 (positive acid-fraction results were qualified as estimated quantities [J] and sample quantitation limits were rejected [R]), 2-fluorophenol and phenol with <10% recoveries in sample 07040137 (positive acid-fraction results were qualified as estimated quantities [J] and sample quantitation limits were rejected [R]), and 2-fluorophenol and phenol with <10% recoveries and nitrobenzene with a high recovery in sample 07040140 (positive acid-fraction results were qualified as estimated quantities [J] and sample quantitation limits were rejected [R]).

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

Spike analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within the QC limits except n-nitrosodiphenylamine and carbazole with low BS and BSD recoveries associated with the waste sample, isophorone and di-n-butylphthalate with high BS recoveries and 2,4-dinitrophenol with low BS and BSD recoveries associated with the solid samples, di-n-octylphthalate with a high BS recovery associated with the water samples, bis(2-chloroethyl)ether and di-n-octylphthalate with high MS recoveries and 4-nitrophenol with low MS and MSD recoveries (the MSD recovery was less than 10%) associated with sample 07040135, and 2-nitrophenol, 2,4-dichlorophenol, 4-chloro-3-methylphenol, 2-nitroaniline, 2,6-dinitrotoluene, 2,4-dinitrotoluene, pentachlorophenol, butyl benzyl phthalate, benzo(a)anthracene, bis(2-ethylhexyl)phthalate, indeno(1,2,3-cd)pyrene, and dibenz(a,h)anthracene (all with one or more high recoveries), hexachlorocyclopentadiene, 2,4,5-trichlorophenol, fluoranthene, and benzo(k)fluoranthene (all with one or more low recoveries), benzoic acid and 4,6-dinitro-2-methylphenol (one high recovery and one 0% recovery), hexachlorocyclopentadiene (two low recoveries), and 3,3'-dichlorobenzidine (two 0% recoveries) in the MS/MSD associated with sample 07040108. Associated positive sample results for analytes with high recoveries were qualified as estimated quantities (J), associated positive results and sample quantitation limits for analytes with low recoveries (but > 10%) were qualified as estimated quantities (J or UJ), and associated positive results were qualified as estimated quantities (J) and sample quantitation limits were rejected (R) for analytes with < 10% recovery.

8. Duplicate Analysis: Satisfactory.

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 indeno(1,2,3-cd)pyrene associated with the waste sample and benzoic acid and 4,6-dinitro-2-methylphenol associated with sample 07040108. Associated sample results were qualified as estimated quantities (J or UJ).

9. Internal Standards: Satisfactory.

All internal standards (IS) were within ± 30 seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts except chrysene and perylene (both with low recoveries) in sample 07040102, 1,4-dichlorobenzene and chrysene (both with low recoveries) in sample 07040119, and perylene with high recoveries in samples 07040122 (1:100 dilution) and 07040127 (1:100 dilution). Positive sample results and sample quantitation limits associated with the low area count outliers were qualified as estimated quantities (J or UJ). Positive sample results associated with high area count outliers were qualified as estimated quantities (J).

10. Precision and Bias Determination: Not Performed.

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

11. Performance Evaluation Sample Analysis: Not Provided.

Performance evaluation samples were not provided to the laboratory.

12. 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 Superfund Organic Methods 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.

R - The sample results are rejected (analyte may or may not be present) due to gross deficiencies in quality control criteria. Any reported value is unusable. Resampling and/or reanalysis is necessary for verification.

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.

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: **07040102**

Lab Sample ID: 580-5689-1 Date Sampled: 04/16/2007 0000
Client Matrix: Solid % Moisture: 10.5 Date Received: 04/23/2007 1235

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

Method: 8270C Analysis Batch: 580-18161 Instrument ID: SEA040
Preparation: 3550B Prep Batch: 580-17981 Lab File ID: ak009412.D
Dilution: 10 Initial Weight/Volume: 20.3507 g
Date Analyzed: 05/04/2007 0801 Final Weight/Volume: 2 mL
Date Prepared: 04/24/2007 0833 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		ND		30	110
Bis(2-chloroethyl)ether		ND		33	110
2-Chlorophenol		ND		25	110
1,3-Dichlorobenzene		ND		13	55
1,4-Dichlorobenzene		ND		8.3	55
Benzyl alcohol		ND		33	110
1,2-Dichlorobenzene		ND		19	55
2-Methylphenol		ND		31	110
Bis(2-chloroisopropyl) ether		ND		37	160
3 & 4 Methylphenol		ND		58	220
N-Nitrosodi-n-propylamine		ND		29	110
Hexachloroethane		ND		23	110
Nitrobenzene		ND		16	110
Isophorone		ND		29	110
2-Nitrophenol		ND		25	110
2,4-Dimethylphenol		ND		21	110
Benzoic acid		ND		910	2700
Bis(2-chloroethoxy)methane		ND		27	110
2,4-Dichlorophenol		ND		21	110
1,2,4-Trichlorobenzene		ND		11	55
Naphthalene		ND		6.3	22
4-Chloroaniline		ND		30	110
Hexachlorobutadiene		ND		14	55
4-Chloro-3-methylphenol		ND		24	110
2-Methylnaphthalene		4.5	J	3.4	22
Hexachlorocyclopentadiene		ND		27	110
2,4,6-Trichlorophenol		ND		36	160
2,4,5-Trichlorophenol		ND		25	110
2-Chloronaphthalene		ND		2.1	22
2-Nitroaniline		ND		21	110
Dimethyl phthalate		ND		8.5	110
Acenaphthylene		ND		2.5	22
2,6-Dinitrotoluene		ND		21	110
3-Nitroaniline		ND		32	110
Acenaphthene		ND		6.3	22
2,4-Dinitrophenol		ND		230	1100
4-Nitrophenol		ND		290	1100
Dibenzofuran		ND		19	110
2,4-Dinitrotoluene		ND		15	110
Diethyl phthalate		ND		7.9	110
4-Chlorophenyl phenyl ether		ND		18	110
Fluorene		ND		2.9	22
4-Nitroaniline		ND		21	110

MV 5-24-07

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: 07040102

Lab Sample ID:	580-5689-1			Date Sampled:	04/16/2007 0000
Client Matrix:	Solid	% Moisture:	10.5	Date Received:	04/23/2007 1235

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

Method:	8270C	Analysis Batch: 580-18161		Instrument ID:	SEA040
Preparation:	3550B	Prep Batch: 580-17981		Lab File ID:	ak009412.D
Dilution:	10			Initial Weight/Volume:	20.3507 g
Date Analyzed:	05/04/2007 0801			Final Weight/Volume:	2 mL
Date Prepared:	04/24/2007 0833			Injection Volume:	

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol		ND		300	1100 U
N-Nitrosodiphenylamine		ND		16	55
4-Bromophenyl phenyl ether		ND		11	110
Hexachlorobenzene		ND		12	55
Pentachlorophenol		ND		34	110
Phenanthrene		ND		4.4	22
Anthracene		14	J	4.7	22
Di-n-butyl phthalate		ND		14	220 U
Fluoranthene		26		3.4	22
Pyrene		44		3.0	22
Butyl benzyl phthalate		38 UJ		32	110
3,3'-Dichlorobenzidine		ND		10	220 UJ
Benzo[a]anthracene		ND		7.1	27
Chrysene		ND		8.2	27
Bis(2-ethylhexyl) phthalate		ND		260	1600
Di-n-octyl phthalate		ND		36	220
Benzo[a]pyrene		ND		9.3	33
Indeno[1,2,3-cd]pyrene		ND		13	44
Dibenz(a,h)anthracene		ND		13	44
Benzo[g,h,i]perylene		ND		8.0	27
Carbazole		ND		36	160
1-Methylnaphthalene		ND		9.6	33
Benzo[b]fluoranthene		ND		5.9	22
Benzo[k]fluoranthene		ND		7.6	27

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	57		36 - 145
Phenol-d5	64		38 - 149
Nitrobenzene-d5	84		38 - 141
2-Fluorobiphenyl	64		42 - 140
2,4,6-Tribromophenol	162	X I	28 - 143
Terphenyl-d14	100		42 - 151

MW 5/24/07

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: **07040104**

Lab Sample ID: 580-5689-2 Date Sampled: 04/17/2007 0000
Client Matrix: Solid % Moisture: 16.4 Date Received: 04/23/2007 1235

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

Method: 8270C Analysis Batch: 580-18161 Instrument ID: SEA040
Preparation: 3550B Prep Batch: 580-17981 Lab File ID: ak009340.D
Dilution: 10 Initial Weight/Volume: 20.2264 g
Date Analyzed: 05/01/2007 1840 Final Weight/Volume: 2 mL
Date Prepared: 04/24/2007 0833 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		ND		32	120 U
Bis(2-chloroethyl)ether		ND		35	120
2-Chlorophenol		ND		27	120
1,3-Dichlorobenzene		ND		14	59
1,4-Dichlorobenzene		ND		9.0	59
Benzyl alcohol		ND		35	120
1,2-Dichlorobenzene		ND		20	59
2-Methylphenol		ND		33	120
Bis(2-chloroisopropyl) ether		ND		40	180
3 & 4 Methylphenol		ND		63	240
N-Nitrosodi-n-propylamine		ND		31	120
Hexachloroethane		ND		25	120
Nitrobenzene		ND		18	120
Isophorone		ND		31	120
2-Nitrophenol		ND		27	120
2,4-Dimethylphenol		ND		22	120
Benzoic acid		ND		980	3000
Bis(2-chloroethoxy)methane		ND		30	120
2,4-Dichlorophenol		ND		22	120
1,2,4-Trichlorobenzene		ND		12	59
Naphthalene		81		6.7	24
4-Chloroaniline		ND		32	120 U
Hexachlorobutadiene		ND		15	59
4-Chloro-3-methylphenol		ND		26	120
2-Methylnaphthalene		210		3.7	24
Hexachlorocyclopentadiene		ND		30	120 U
2,4,6-Trichlorophenol		ND		39	180
2,4,5-Trichlorophenol		ND		27	120
2-Chloronaphthalene		ND		2.2	24
2-Nitroaniline		ND		22	120
Dimethyl phthalate		ND		9.1	120
Acenaphthylene		ND		2.7	24
2,6-Dinitrotoluene		ND		22	120
3-Nitroaniline		ND		34	120
Acenaphthene		160		6.7	24
2,4-Dinitrophenol		ND		240	1200 UJ
4-Nitrophenol		ND		310	1200
Dibenzofuran		ND		20	120
2,4-Dinitrotoluene		ND		17	120
Diethyl phthalate		ND		8.5	120
4-Chlorophenyl phenyl ether		ND		19	120
Fluorene		180		3.1	24
4-Nitroaniline		ND		22	120 U

MW 5-2-08

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: **07040104**

Lab Sample ID: 580-5689-2 Date Sampled: 04/17/2007 0000
Client Matrix: Solid % Moisture: 16.4 Date Received: 04/23/2007 1235

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

Method: 8270C Analysis Batch: 580-18161 Instrument ID: SEA040
Preparation: 3550B Prep Batch: 580-17981 Lab File ID: ak009340.D
Dilution: 10 Initial Weight/Volume: 20.2264 g
Date Analyzed: 05/01/2007 1840 Final Weight/Volume: 2 mL
Date Prepared: 04/24/2007 0833 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol		ND		320	1200 U
N-Nitrosodiphenylamine		ND		18	59
4-Bromophenyl phenyl ether		ND		12	120
Hexachlorobenzene		ND		13	59
Pentachlorophenol		ND		37	120
Phenanthrene		420		4.7	24
Anthracene		91		5.1	24
Di-n-butyl phthalate		69 U	J ~~B~~ MW	15	240
Fluoranthene		65		3.7	24
Pyrene		370		3.2	24
Butyl benzyl phthalate		ND		34	120 U
3,3'-Dichlorobenzidine		ND		11	240 U
Benzo[a]anthracene		120		7.7	30
Chrysene		180		8.9	30
Bis(2-ethylhexyl) phthalate		ND		280	1800 U
Di-n-octyl phthalate		ND		39	240 U
Benzo[a]pyrene		85		10	35
Indeno[1,2,3-cd]pyrene		51 J		14	47
Dibenz(a,h)anthracene		ND		14	47 U
Benzo[g,h,i]perylene		57		8.6	30
Carbazole		ND		39	180 U
1-Methylnaphthalene		400		10	35
Benzo[b]fluoranthene		52		6.4	24
Benzo[k]fluoranthene		ND		8.2	30 U

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	55		36 - 145
Phenol-d5	55		38 - 149
Nitrobenzene-d5	99		38 - 141
2-Fluorobiphenyl	86		42 - 140
2,4,6-Tribromophenol	199	X I	28 - 143
Terphenyl-d14	78		42 - 151

MW 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040106**

Lab Sample ID: 580-5689-4
Client Matrix: Solid
% Moisture: 27.3

Date Sampled: 04/17/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 05/01/2007 1907
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009341.D
Initial Weight/Volume: 20.0015 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		ND		3.7	14
Bis(2-chloroethyl)ether		ND		4.1	14
2-Chlorophenol		ND		3.2	14
1,3-Dichlorobenzene		ND		1.6	6.9
1,4-Dichlorobenzene		ND		1.0	6.9
Benzyl alcohol		ND		4.1	14
1,2-Dichlorobenzene		ND		2.3	6.9
2-Methylphenol		ND		3.8	14
Bis(2-chloroisopropyl) ether		ND		4.7	21
3 & 4 Methylphenol		ND		7.3	27
N-Nitrosodi-n-propylamine		ND		3.6	14
Hexachloroethane		ND		2.9	14
Nitrobenzene		ND		2.1	14
Isophorone		ND		3.6	14
2-Nitrophenol		ND		3.2	14
2,4-Dimethylphenol		ND		2.6	14
Benzoic acid		ND		110	340
Bis(2-chloroethoxy)methane		ND		3.4	14
2,4-Dichlorophenol		ND		2.6	14
1,2,4-Trichlorobenzene		ND		1.4	6.9
Naphthalene		ND		0.78	2.7
4-Chloroaniline		ND		3.7	14
Hexachlorobutadiene		ND		1.8	6.9
4-Chloro-3-methylphenol		ND		3.0	14
2-Methylnaphthalene		ND		0.43	2.7
Hexachlorocyclopentadiene		ND		3.4	14
2,4,6-Trichlorophenol		ND		4.5	21
2,4,5-Trichlorophenol		ND		3.2	14
2-Chloronaphthalene		ND		0.26	2.7
2-Nitroaniline		ND		2.6	14
Dimethyl phthalate		2.1	J	1.1	14
Acenaphthylene		ND		0.32	2.7
2,6-Dinitrotoluene		ND		2.6	14
3-Nitroaniline		ND		4.0	14
Acenaphthene		6.3		0.78	2.7
2,4-Dinitrophenol		ND		28	140
4-Nitrophenol		ND		36	140
Dibenzofuran		ND		2.3	14
2,4-Dinitrotoluene		ND		1.9	14
Diethyl phthalate		1.9	J	0.99	14
4-Chlorophenyl phenyl ether		ND		2.2	14
Fluorene		9.7		0.36	2.7
4-Nitroaniline		ND		2.6	14

MW 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: 07040106

Lab Sample ID: 580-5689-4
Client Matrix: Solid
% Moisture: 27.3
Date Sampled: 04/17/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 05/01/2007 1907
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009341.D
Initial Weight/Volume: 20.0015 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol		ND		37	140 U
N-Nitrosodiphenylamine		ND		2.1	6.9
4-Bromophenyl phenyl ether		ND		1.4	14
Hexachlorobenzene		ND		1.5	6.9
Pentachlorophenol		ND		4.3	14
Phenanthrene		1.3	J	0.55	2.7
Anthracene		ND		0.59	2.7 U
Di-n-butyl phthalate		9.8 U	~~J~~	1.8	27
Fluoranthene		ND		0.43	2.7 U
Pyrene		ND		0.37	2.7
Butyl benzyl phthalate		ND		4.0	14
3,3'-Dichlorobenzidine		ND		1.3	27
Benzo[a]anthracene		ND		0.89	3.4
Chrysene		ND		1.0	3.4
Bis(2-ethylhexyl) phthalate		44	J	33	210
Di-n-octyl phthalate		ND		4.5	27 U
Benzo[a]pyrene		ND		1.2	4.1
Indeno[1,2,3-cd]pyrene		ND		1.6	5.5
Dibenz(a,h)anthracene		ND		1.6	5.5
Benzo[g,h,i]perylene		ND		1.0	3.4
Carbazole		ND		4.5	21
1-Methylnaphthalene		ND		1.2	4.1
Benzo[b]fluoranthene		ND		0.74	2.7
Benzo[k]fluoranthene		ND		0.95	3.4

Surrogate	%Rec	Acceptance Limits
2-Fluorophenol	65	36 - 145
Phenol-d5	70	38 - 149
Nitrobenzene-d5	59	38 - 141
2-Fluorobiphenyl	59	42 - 140
2,4,6-Tribromophenol	66	28 - 143
Terphenyl-d14	89	42 - 151

JMW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040108**

Lab Sample ID: 580-5689-5
Client Matrix: Solid
% Moisture: 10.3

Date Sampled: 04/17/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 10
Date Analyzed: 05/02/2007 1455
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009359.D
Initial Weight/Volume: 20.5634 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		ND		29	110
Bis(2-chloroethyl)ether		ND		33	110
2-Chlorophenol		ND		25	110
1,3-Dichlorobenzene		ND		13	54
1,4-Dichlorobenzene		ND		8.2	54
Benzyl alcohol		ND		33	110
1,2-Dichlorobenzene		ND		18	54
2-Methylphenol		ND		30	110
Bis(2-chloroisopropyl) ether		ND		37	160
3 & 4 Methylphenol		ND		57	220
N-Nitrosodi-n-propylamine		ND		28	110
Hexachloroethane		ND		23	110
Nitrobenzene		ND		16	110
Isophorone		ND		28	110
2-Nitrophenol		ND		25	110
2,4-Dimethylphenol		ND		21	110
Benzoic acid	R	~~ND~~		~~900~~	~~2700~~
Bis(2-chloroethoxy)methane		ND		27	110
2,4-Dichlorophenol		ND		21	110
1,2,4-Trichlorobenzene		ND		11	54
Naphthalene		19	J	6.2	22
4-Chloroaniline		ND		29	110
Hexachlorobutadiene		ND		14	54
4-Chloro-3-methylphenol		ND		24	110
2-Methylnaphthalene		36		3.4	22
Hexachlorocyclopentadiene		ND		27	110
2,4,6-Trichlorophenol		ND		36	160
2,4,5-Trichlorophenol		ND		25	110
2-Chloronaphthalene		ND		2.1	22
2-Nitroaniline		ND		21	110
Dimethyl phthalate		ND		8.3	110
Acenaphthylene		5.7	J	2.5	22
2,6-Dinitrotoluene		ND		21	110
3-Nitroaniline		ND		31	110
Acenaphthene		ND		6.2	22
2,4-Dinitrophenol		ND		220	1100
4-Nitrophenol		ND		280	1100
Dibenzofuran		ND		18	110
2,4-Dinitrotoluene		ND		15	110
Diethyl phthalate		8.0	J	7.8	110
4-Chlorophenyl phenyl ether		ND		17	110
Fluorene		ND		2.8	22
4-Nitroaniline		ND		21	110

MW 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040108**

Lab Sample ID: 580-5689-5
Client Matrix: Solid
% Moisture: 10.3
Date Sampled: 04/17/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 10
Date Analyzed: 05/02/2007 1455
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009359.D
Initial Weight/Volume: 20.5634 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol		R ~~ND~~		~~290~~	~~1160~~ U
N-Nitrosodiphenylamine		ND		16	54 U
4-Bromophenyl phenyl ether		ND		11	110
Hexachlorobenzene		ND		12	54
Pentachlorophenol		ND		34	110
Phenanthrene		43		4.3	22
Anthracene		7.1 J	J	4.7	22
Di-n-butyl phthalate		74 J	~~J B~~	14	220
Fluoranthene		61 J		3.4	22
Pyrene		65		2.9	22
Butyl benzyl phthalate		ND		31	110 U
3,3'-Dichlorobenzidine		R ~~ND~~		~~8.9~~	~~220~~ U
Benzo[a]anthracene		38 J		7.0	27
Chrysene		48		8.1	27
Bis(2-ethylhexyl) phthalate		ND		260	1600 U
Di-n-octyl phthalate		ND		36	220 U
Benzo[a]pyrene		58		9.2	33
Indeno[1,2,3-cd]pyrene		75 J		13	43
Dibenz(a,h)anthracene		36 J		13	43
Benzo[g,h,i]perylene		59		7.9	27
Carbazole		ND		36	160 U
1-Methylnaphthalene		19	J	9.4	33
Benzo[b]fluoranthene		59		5.9	22
Benzo[k]fluoranthene		27 J		7.5	27

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	40		36 - 145
Phenol-d5	39		38 - 149
Nitrobenzene-d5	50		38 - 141
2-Fluorobiphenyl	59		42 - 140
2,4,6-Tribromophenol	217	X I	28 - 143
Terphenyl-d14	88		42 - 151

MN
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: 07040110

Lab Sample ID: 580-5689-6
Client Matrix: Solid
% Moisture: 22.7
Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 10
Date Analyzed: 05/01/2007 2125
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009346.D
Initial Weight/Volume: 20.6574 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		ND		34	130 U
Bis(2-chloroethyl)ether		ND		38	130
2-Chlorophenol		ND		29	130
1,3-Dichlorobenzene		ND		15	63
1,4-Dichlorobenzene		ND		9.5	63
Benzyl alcohol		ND		38	130
1,2-Dichlorobenzene		ND		21	63
2-Methylphenol		ND		35	130
Bis(2-chloroisopropyl) ether		ND		43	190
3 & 4 Methylphenol		ND		66	250
N-Nitrosodi-n-propylamine		ND		33	130
Hexachloroethane		ND		26	130
Nitrobenzene		ND		19	130
Isophorone		ND		33	130
2-Nitrophenol		ND		29	130
2,4-Dimethylphenol		ND		24	130
Benzoic acid		ND		1000	3100
Bis(2-chloroethoxy)methane		77	J	31	130
2,4-Dichlorophenol		ND		24	130 U
1,2,4-Trichlorobenzene		ND		12	63 U
Naphthalene		3600		7.1	25
4-Chloroaniline		ND		34	130 U
Hexachlorobutadiene		ND		16	63
4-Chloro-3-methylphenol		ND		28	130
Hexachlorocyclopentadiene		ND		31	130
2,4,6-Trichlorophenol		ND		41	190
2,4,5-Trichlorophenol		ND		29	130
2-Chloronaphthalene		ND		2.4	25
2-Nitroaniline		ND		24	130
Dimethyl phthalate		ND		9.6	130
Acenaphthylene		ND		2.9	25
2,6-Dinitrotoluene		ND		24	130
3-Nitroaniline		ND		36	130
Acenaphthene		1500		7.1	25
2,4-Dinitrophenol		ND		260	1300 UJ
4-Nitrophenol		ND		330	1300
Dibenzofuran		ND		21	130
2,4-Dinitrotoluene		ND		18	130
Diethyl phthalate		ND		9.0	130
4-Chlorophenyl phenyl ether		ND		20	130
Fluorene		2800		3.3	25
4-Nitroaniline		ND		24	130 U
4,6-Dinitro-2-methylphenol		ND		340	1300 U

MW 5-24-07

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: **07040110**

Lab Sample ID: 580-5689-6 Date Sampled: 04/18/2007 0000
Client Matrix: Solid % Moisture: 22.7 Date Received: 04/23/2007 1235

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

Method: 8270C Analysis Batch: 580-18161 Instrument ID: SEA040
Preparation: 3550B Prep Batch: 580-17981 Lab File ID: ak009346.D
Dilution: 10 Initial Weight/Volume: 20.6574 g
Date Analyzed: 05/01/2007 2125 Final Weight/Volume: 2 mL
Date Prepared: 04/24/2007 0833 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
N-Nitrosodiphenylamine		ND		19	63 U
4-Bromophenyl phenyl ether		ND		13	130
Hexachlorobenzene		ND		14	63
Pentachlorophenol		ND		39	130
Phenanthrene		5800		5.0	25
Anthracene		700		5.4	25
Di-n-butyl phthalate		ND		16	250 U
Fluoranthene		460		3.9	25
Pyrene		840		3.4	25
Butyl benzyl phthalate		ND		36	130 U
3,3'-Dichlorobenzidine		ND		11	250 U
Benzo[a]anthracene		210		8.1	31
Chrysene		360		9.4	31
Bis(2-ethylhexyl) phthalate		ND		300	1900 U
Di-n-octyl phthalate		ND		41	250 U
Benzo[a]pyrene		110		11	38
Indeno[1,2,3-cd]pyrene		ND		15	50 U
Dibenz(a,h)anthracene		ND		15	50 U
Benzo[g,h,i]perylene		57		9.1	31
Carbazole		ND		41	190 U
Benzo[b]fluoranthene		110		6.8	25
Benzo[k]fluoranthene		ND		8.6	31 U

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	56		36 - 145
Phenol-d5	85		38 - 149
Nitrobenzene-d5	566	X I	38 - 141
2-Fluorobiphenyl	105		42 - 140
2,4,6-Tribromophenol	193	X I	28 - 143
Terphenyl-d14	105		42 - 151

MW 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040110**

Lab Sample ID: 580-5689-6
Client Matrix: Solid
% Moisture: 22.7
Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 100
Date Analyzed: 05/02/2007 1522
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009360.D
Initial Weight/Volume: 20.6574 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylnaphthalene		23000		39	250
1-Methylnaphthalene		16000		110	380

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040111**

Lab Sample ID: 580-5689-7
Client Matrix: Water

Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/26/2007 1635
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009226.D
Initial Weight/Volume: 905 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenol	ND		0.0082	0.33
Bis(2-chloroethyl)ether	ND		0.020	0.22
2-Chlorophenol	ND		0.024	0.22
1,3-Dichlorobenzene	ND		0.012	0.22
1,4-Dichlorobenzene	ND		0.013	0.22
Benzyl alcohol	0.015	J	0.014	0.22
1,2-Dichlorobenzene	ND		0.012	0.22
2-Methylphenol	ND		0.042	0.22
Bis(2-chloroisopropyl) ether	ND		0.0097	0.22
3 & 4 Methylphenol	ND		0.019	0.44
N-Nitrosodi-n-propylamine	ND		0.022	0.22
Hexachloroethane	ND		0.014	0.33
Nitrobenzene	ND		0.0083	0.22
Isophorone	ND		0.012	0.22
2-Nitrophenol	ND		0.023	0.22
2,4-Dimethylphenol	ND		0.020	1.1
Benzoic acid	ND		0.023	1.1
Bis(2-chloroethoxy)methane	ND		0.010	0.22
2,4-Dichlorophenol	ND		0.014	0.22
1,2,4-Trichlorobenzene	ND		0.011	0.22
Naphthalene	0.0079	J	0.0015	0.22
4-Chloroaniline	ND		0.021	0.22
Hexachlorobutadiene	ND		0.018	0.33
4-Chloro-3-methylphenol	ND		0.015	0.22
2-Methylnaphthalene	0.016	J	0.0061	0.11
Hexachlorocyclopentadiene	ND		0.013	1.1
2,4,6-Trichlorophenol	ND		0.011	0.33
2,4,5-Trichlorophenol	ND		0.0094	0.22
2-Chloronaphthalene	ND		0.0033	0.033
2-Nitroaniline	ND		0.012	0.22
Dimethyl phthalate	0.029	J	0.013	0.22
Acenaphthylene	ND		0.0029	0.044
2,6-Dinitrotoluene	ND		0.015	0.22
3-Nitroaniline	ND		0.062	0.22
Acenaphthene	ND		0.0013	0.055
2,4-Dinitrophenol	ND		0.064	2.8
4-Nitrophenol	ND		0.18	1.1
Dibenzofuran	ND		0.011	0.22
2,4-Dinitrotoluene	ND		0.013	0.22
Diethyl phthalate	0.060	J	0.010	0.22
4-Chlorophenyl phenyl ether	ND		0.013	0.22
Fluorene	0.0076	J	0.0046	0.033
4-Nitroaniline	ND		0.020	0.33

MW 5/24/07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040111**

Lab Sample ID: 580-5689-7
Client Matrix: Water

Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/26/2007 1635
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009226.D
Initial Weight/Volume: 905 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol	ND		0.059	2.2
N-Nitrosodiphenylamine	ND		0.014	0.22
4-Bromophenyl phenyl ether	ND		0.011	0.22
Hexachlorobenzene	ND		0.0091	0.22
Pentachlorophenol	ND		0.014	0.39
Phenanthrene	0.0093	J	0.0027	0.044
Anthracene	ND		0.0021	0.022
Di-n-butyl phthalate	~~0.16~~	J B	0.0097	0.22
Fluoranthene	ND		0.0030	0.028
Pyrene	ND		0.0022	0.033
Butyl benzyl phthalate	~~0.14~~	J B	0.027	0.33
3,3'-Dichlorobenzidine	ND		0.18	1.1
Benzo[a]anthracene	ND		0.0036	0.033
Chrysene	ND		0.0050	0.022
Bis(2-ethylhexyl) phthalate	~~0.33~~	J B	0.035	1.7
Di-n-octyl phthalate	ND		0.020	0.22
Benzo[a]pyrene	ND		0.0030	0.022
Indeno[1,2,3-cd]pyrene	ND		0.0056	0.033
Dibenz(a,h)anthracene	ND		0.0051	0.033
Benzo[g,h,i]perylene	ND		0.0066	0.033
Carbazole	ND		0.0099	0.22
1-Methylnaphthalene	0.012	J	0.0057	0.033
Benzo[b]fluoranthene	ND		0.0051	0.044
Benzo[k]fluoranthene	ND		0.0061	0.033

Surrogate	%Rec	Acceptance Limits
2-Fluorophenol	35	10 - 120
Phenol-d5	21	10 - 102
Nitrobenzene-d5	77	34 - 146
2-Fluorobiphenyl	71	35 - 143
2,4,6-Tribromophenol	71	29 - 151
Terphenyl-d14	83	35 - 166

MW 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040114**

Lab Sample ID: 580-5689-9
Client Matrix: Solid
% Moisture: 27.0
Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 10
Date Analyzed: 05/01/2007 2152
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009347.D
Initial Weight/Volume: 20.8465 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		ND		35	130
Bis(2-chloroethyl)ether		ND		39	130
2-Chlorophenol		ND		30	130
1,3-Dichlorobenzene		ND		16	66
1,4-Dichlorobenzene		ND		10	66
Benzyl alcohol		ND		39	130
1,2-Dichlorobenzene		ND		22	66
2-Methylphenol		ND		37	130
Bis(2-chloroisopropyl) ether		ND		45	200
3 & 4 Methylphenol		ND		70	260
N-Nitrosodi-n-propylamine		ND		34	130
Hexachloroethane		ND		28	130
Nitrobenzene		ND		20	130
Isophorone		ND		34	130
2-Nitrophenol		ND		30	130
2,4-Dimethylphenol		ND		25	130
Benzoic acid		ND		1100	3300
Bis(2-chloroethoxy)methane		ND		33	130
2,4-Dichlorophenol		ND		25	130
1,2,4-Trichlorobenzene		ND		13	66
Naphthalene		4700		7.5	26
4-Chloroaniline		ND		35	130
Hexachlorobutadiene		ND		17	66
4-Chloro-3-methylphenol		ND		29	130
Hexachlorocyclopentadiene		ND		33	130
2,4,6-Trichlorophenol		ND		43	200
2,4,5-Trichlorophenol		ND		30	130
2-Chloronaphthalene		ND		2.5	26
2-Nitroaniline		ND		25	130
Dimethyl phthalate		ND		10	130
Acenaphthylene		ND		3.0	26
2,6-Dinitrotoluene		ND		25	130
3-Nitroaniline		ND		38	130
Acenaphthene		3200		7.5	26
2,4-Dinitrophenol		ND		270	1300
4-Nitrophenol		ND		340	1300
Dibenzofuran		ND		22	130
2,4-Dinitrotoluene		ND		18	130
Diethyl phthalate		ND		9.5	130
4-Chlorophenyl phenyl ether		ND		21	130
Fluorene		4900		3.4	26
4-Nitroaniline		ND		25	130
4,6-Dinitro-2-methylphenol		ND		350	1300

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040114**

Lab Sample ID: 580-5689-9
Client Matrix: Solid
% Moisture: 27.0
Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 10
Date Analyzed: 05/01/2007 2152
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009347.D
Initial Weight/Volume: 20.8465 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
N-Nitrosodiphenylamine		ND		20	66
4-Bromophenyl phenyl ether		ND		13	130
Hexachlorobenzene		ND		14	66
Pentachlorophenol		ND		41	130
Phenanthrene		3800		5.3	26
Anthracene		250		5.6	26
Di-n-butyl phthalate		ND		17	260
Fluoranthene		99		4.1	26
Pyrene		240		3.5	26
Butyl benzyl phthalate		ND		38	130
3,3'-Dichlorobenzidine		ND		12	260
Benzo[a]anthracene		53		8.5	33
Chrysene		120		9.9	33
Bis(2-ethylhexyl) phthalate		ND		320	2000
Di-n-octyl phthalate		ND		43	260
Benzo[a]pyrene		ND		11	39
Indeno[1,2,3-cd]pyrene		ND		16	53
Dibenz(a,h)anthracene		ND		16	53
Benzo[g,h,i]perylene		ND		9.6	33
Carbazole		ND		43	200
Benzo[b]fluoranthene		ND		7.1	26
Benzo[k]fluoranthene		ND		9.1	33

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	277	X I	36 - 145
Phenol-d5	67		38 - 149
Nitrobenzene-d5	1490	X I	38 - 141
2-Fluorobiphenyl	140		42 - 140
2,4,6-Tribromophenol	186	X I	28 - 143
Terphenyl-d14	94		42 - 151

MW
5/24/07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040114**

Lab Sample ID: 580-5689-9
Client Matrix: Solid
% Moisture: 27.0
Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 100
Date Analyzed: 05/02/2007 1549
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009361.D
Initial Weight/Volume: 20.8465 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylnaphthalene		44000		41	260
1-Methylnaphthalene		30000		110	390

MW
5-24-07

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: **07040116**

Lab Sample ID: 580-5689-10 Date Sampled: 04/18/2007 0000
Client Matrix: Solid % Moisture: 12.0 Date Received: 04/23/2007 1235

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

Method: 8270C Analysis Batch: 580-18161 Instrument ID: SEA040
Preparation: 3550B Prep Batch: 580-17981 Lab File ID: ak009348.D
Dilution: 10 Initial Weight/Volume: 20.3703 g
Date Analyzed: 05/01/2007 2220 Final Weight/Volume: 2 mL
Date Prepared: 04/24/2007 0833 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		ND		30	110
Bis(2-chloroethyl)ether		ND		33	110
2-Chlorophenol		ND		26	110
1,3-Dichlorobenzene		ND		13	56
1,4-Dichlorobenzene		ND		8.5	56
Benzyl alcohol		ND		33	110
1,2-Dichlorobenzene		ND		19	56
2-Methylphenol		ND		31	110
Bis(2-chloroisopropyl) ether		ND		38	170
3 & 4 Methylphenol		ND		59	220
N-Nitrosodi-n-propylamine		ND		29	110
Hexachloroethane		ND		23	110
Nitrobenzene		ND		17	110
Isophorone		ND		29	110
2-Nitrophenol		ND		26	110
2,4-Dimethylphenol		ND		21	110
Benzoic acid		ND		930	2800
Bis(2-chloroethoxy)methane		ND		28	110
2,4-Dichlorophenol		ND		21	110
1,2,4-Trichlorobenzene		ND		11	56
Naphthalene		ND		6.4	22
4-Chloroaniline		ND		30	110
Hexachlorobutadiene		ND		14	56
4-Chloro-3-methylphenol		ND		25	110
2-Methylnaphthalene		22	J	3.5	22
Hexachlorocyclopentadiene		ND		28	110
2,4,6-Trichlorophenol		ND		37	170
2,4,5-Trichlorophenol		ND		26	110
2-Chloronaphthalene		ND		2.1	22
2-Nitroaniline		ND		21	110
Dimethyl phthalate		ND		8.6	110
Acenaphthylene		ND		2.6	22
2,6-Dinitrotoluene		ND		21	110
3-Nitroaniline		ND		32	110
Acenaphthene		ND		6.4	22
2,4-Dinitrophenol		ND		230	1100
4-Nitrophenol		ND		290	1100
Dibenzofuran		ND		19	110
2,4-Dinitrotoluene		ND		16	110
Diethyl phthalate		ND		8.0	110
4-Chlorophenyl phenyl ether		ND		18	110
Fluorene		ND		2.9	22
4-Nitroaniline		ND		21	110

MW 5/24/07

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: **07040116**

Lab Sample ID:	580-5689-10			Date Sampled:	04/18/2007 0000
Client Matrix:	Solid	% Moisture:	12.0	Date Received:	04/23/2007 1235

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

Method:	8270C	Analysis Batch: 580-18161		Instrument ID:	SEA040
Preparation:	3550B	Prep Batch: 580-17981		Lab File ID:	ak009348.D
Dilution:	10			Initial Weight/Volume:	20.3703 g
Date Analyzed:	05/01/2007 2220			Final Weight/Volume:	2 mL
Date Prepared:	04/24/2007 0833			Injection Volume:	

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol		ND		300	1100
N-Nitrosodiphenylamine		ND		17	56
4-Bromophenyl phenyl ether		ND		11	110
Hexachlorobenzene		ND		12	56
Pentachlorophenol		ND		35	110
Phenanthrene		ND		4.5	22
Anthracene		ND		4.8	22
Di-n-butyl phthalate		ND		14	220
Fluoranthene		ND		3.5	22
Pyrene		ND		3.0	22
Butyl benzyl phthalate		ND		32	110
3,3'-Dichlorobenzidine		ND		10	220
Benzo[a]anthracene		ND		7.2	28
Chrysene		ND		8.4	28
Bis(2-ethylhexyl) phthalate		ND		270	1700
Di-n-octyl phthalate		ND		37	220
Benzo[a]pyrene		ND		9.5	33
Indeno[1,2,3-cd]pyrene		ND		13	45
Dibenz(a,h)anthracene		ND		13	45
Benzo[g,h,i]perylene		ND		8.1	28
Carbazole		ND		37	170
1-Methylnaphthalene		15	J	9.7	33
Benzo[b]fluoranthene		ND		6.0	22
Benzo[k]fluoranthene		ND		7.7	28

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	55		36 - 145
Phenol-d5	60		38 - 149
Nitrobenzene-d5	77		38 - 141
2-Fluorobiphenyl	61		42 - 140
2,4,6-Tribromophenol	215	X I	28 - 143
Terphenyl-d14	69		42 - 151

MW 5/24/07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040117**

Lab Sample ID: 580-5689-11
Client Matrix: Solid
% Moisture: 13.6

Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 10
Date Analyzed: 05/01/2007 2247
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009349.D
Initial Weight/Volume: 20.8811 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		ND		30	110
Bis(2-chloroethyl)ether		ND		33	110
2-Chlorophenol		ND		25	110
1,3-Dichlorobenzene		ND		13	55
1,4-Dichlorobenzene		ND		8.4	55
Benzyl alcohol		ND		33	110
1,2-Dichlorobenzene		ND		19	55
2-Methylphenol		ND		31	110
Bis(2-chloroisopropyl) ether		ND		38	170
3 & 4 Methylphenol		ND		59	220
N-Nitrosodi-n-propylamine		ND		29	110
Hexachloroethane		ND		23	110
Nitrobenzene		ND		17	110
Isophorone		ND		29	110
2-Nitrophenol		ND		25	110
2,4-Dimethylphenol		ND		21	110
Benzoic acid		ND		920	2800
Bis(2-chloroethoxy)methane		ND		28	110
2,4-Dichlorophenol		ND		21	110
1,2,4-Trichlorobenzene		ND		11	55
Naphthalene		100		6.3	22
4-Chloroaniline		ND		30	110
Hexachlorobutadiene		ND		14	55
4-Chloro-3-methylphenol		ND		24	110
2-Methylnaphthalene		210		3.4	22
Hexachlorocyclopentadiene		ND		28	110
2,4,6-Trichlorophenol		ND		37	170
2,4,5-Trichlorophenol		ND		25	110
2-Chloronaphthalene		ND		2.1	22
2-Nitroaniline		ND		21	110
Dimethyl phthalate		ND		8.5	110
Acenaphthylene		ND		2.5	22
2,6-Dinitrotoluene		ND		21	110
3-Nitroaniline		ND		32	110
Acenaphthene		ND		6.3	22
2,4-Dinitrophenol		ND		230	1100
4-Nitrophenol		ND		290	1100
Dibenzofuran		38	J	19	110
2,4-Dinitrotoluene		ND		16	110
Diethyl phthalate		ND		8.0	110
4-Chlorophenyl phenyl ether		ND		18	110
Fluorene		ND		2.9	22
4-Nitroaniline		ND		21	110

MW 52402

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040117**

Lab Sample ID: 580-5689-11
Client Matrix: Solid
% Moisture: 13.6

Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 10
Date Analyzed: 05/01/2007 2247
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009349.D
Initial Weight/Volume: 20.8811 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte (DryWt Corrected: Y)	Result (ug/Kg)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol	ND		300	1100 U J
N-Nitrosodiphenylamine	ND		17	55
4-Bromophenyl phenyl ether	ND		11	110
Hexachlorobenzene	ND		12	55
Pentachlorophenol	ND		34	110 J
Phenanthrene	89		4.4	22
Anthracene	6.5	J	4.8	22
Di-n-butyl phthalate	58 U	~~J~~	14	220
Fluoranthene	33		3.4	22
Pyrene	43		3.0	22
Butyl benzyl phthalate	ND		32	110 U
3,3'-Dichlorobenzidine	ND		10	220 U
Benzo[a]anthracene	29		7.2	28
Chrysene	37		8.3	28
Bis(2-ethylhexyl) phthalate	ND		270	1700 U
Di-n-octyl phthalate	ND		37	220 U
Benzo[a]pyrene	43		9.4	33
Indeno[1,2,3-cd]pyrene	55 J		13	44
Dibenz(a,h)anthracene	40	J	13	44
Benzo[g,h,i]perylene	57		8.1	28
Carbazole	ND		37	170 U
1-Methylnaphthalene	130		9.6	33
Benzo[b]fluoranthene	52		6.0	22
Benzo[k]fluoranthene	11	J	7.6	28

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	24	X I	36 - 145
Phenol-d5	29	X I	38 - 149
Nitrobenzene-d5	53		38 - 141
2-Fluorobiphenyl	49		42 - 140
2,4,6-Tribromophenol	200	X I	28 - 143
Terphenyl-d14	82		42 - 151

MM 5/24/07

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: **07040119**

Lab Sample ID: 580-5689-12 Date Sampled: 04/18/2007 0000
Client Matrix: Solid % Moisture: 23.8 Date Received: 04/23/2007 1235

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

Method: 8270C Analysis Batch: 580-18161 Instrument ID: SEA040
Preparation: 3550B Prep Batch: 580-17981 Lab File ID: ak009350.D
Dilution: 10 Initial Weight/Volume: 20.2527 g
Date Analyzed: 05/01/2007 2315 Final Weight/Volume: 2 mL
Date Prepared: 04/24/2007 0833 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		ND		35	130
Bis(2-chloroethyl)ether		ND		39	130
2-Chlorophenol		ND		30	130
1,3-Dichlorobenzene		ND		16	65
1,4-Dichlorobenzene		ND		9.8	65
Benzyl alcohol		ND		39	130
1,2-Dichlorobenzene		ND		22	65
2-Methylphenol		ND		36	130
Bis(2-chloroisopropyl) ether		ND		44	190
3 & 4 Methylphenol		ND		69	260
N-Nitrosodi-n-propylamine		ND		34	130
Hexachloroethane		ND		27	130
Hexachlorocyclopentadiene		ND		32	130
2,4,6-Trichlorophenol		ND		43	190
2,4,5-Trichlorophenol		ND		30	130
2-Chloronaphthalene		ND		2.5	26
2-Nitroaniline		ND		25	130
Dimethyl phthalate		ND		10	130
Acenaphthylene		ND		3.0	26
2,6-Dinitrotoluene		ND		25	130
3-Nitroaniline		ND		38	130
Acenaphthene		ND		7.4	26
2,4-Dinitrophenol		ND		270	1300
4-Nitrophenol		ND		340	1300
Dibenzofuran		ND		22	130
2,4-Dinitrotoluene		ND		18	130
Diethyl phthalate		ND		9.3	130
4-Chlorophenyl phenyl ether		ND		21	130
Fluorene		2300 J		3.4	26
4-Nitroaniline		ND		25	130
4,6-Dinitro-2-methylphenol		ND		350	1300
N-Nitrosodiphenylamine		ND		19	65
4-Bromophenyl phenyl ether		ND		13	130
Hexachlorobenzene		ND		14	65
Pentachlorophenol		ND		40	130
Phenanthrene		3600 J		5.2	26
Anthracene		180 J		5.6	26
Di-n-butyl phthalate		ND		17	260
Fluoranthene		170 J		4.0	26
Pyrene		510 J		3.5	26
Butyl benzyl phthalate		ND		38	130
3,3'-Dichlorobenzidine		ND		12	260
Benzo[a]anthracene		120 J		8.4	32

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: 07040119

Lab Sample ID: 580-5689-12 Date Sampled: 04/18/2007 0000
Client Matrix: Solid % Moisture: 23.8 Date Received: 04/23/2007 1235

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

Method: 8270C Analysis Batch: 580-18161 Instrument ID: SEA040
Preparation: 3550B Prep Batch: 580-17981 Lab File ID: ak009350.D
Dilution: 10 Initial Weight/Volume: 20.2527 g
Date Analyzed: 05/01/2007 2315 Final Weight/Volume: 2 mL
Date Prepared: 04/24/2007 0833 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Chrysene		290 J		9.7	32
Bis(2-ethylhexyl) phthalate		ND		310	1900 UJ

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	833	X I	36 - 145
Phenol-d5	99		38 - 149
Nitrobenzene-d5	15200	X I	38 - 141
2-Fluorobiphenyl	16	X I	42 - 140
2,4,6-Tribromophenol	188	X I	28 - 143
Terphenyl-d14	85		42 - 151

Method: 8270C Analysis Batch: 580-18161 Instrument ID: SEA040
Preparation: 3550B Prep Batch: 580-17981 Lab File ID: ak009363.D
Dilution: 10 Initial Weight/Volume: 20.2527 g
Date Analyzed: 05/02/2007 1644 Final Weight/Volume: 2 mL
Date Prepared: 04/24/2007 0833 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Nitrobenzene		ND		19	130 UJ
Isophorone		ND		34	130
2-Nitrophenol		ND		30	130
2,4-Dimethylphenol		ND		25	130
Benzoic acid		ND		1100	3200
Bis(2-chloroethoxy)methane		ND		32	130
2,4-Dichlorophenol		ND		25	130
1,2,4-Trichlorobenzene		ND		13	65
Naphthalene		6000 J		7.4	26
4-Chloroaniline		ND		35	130 UJ
Hexachlorobutadiene		ND		17	65
4-Chloro-3-methylphenol		ND		28	130
Di-n-octyl phthalate		ND		43	260
Benzo[a]pyrene		81 J		11	39
Indeno[1,2,3-cd]pyrene		ND		16	52 UJ
Dibenz(a,h)anthracene		ND		16	52 UJ
Benzo[g,h,i]perylene		85 J		9.5	32
Carbazole		ND		43	190 UJ
Benzo[b]fluoranthene		80 J		7.0	26
Benzo[k]fluoranthene		ND		8.9	32 UJ

MAW 5-22-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040119**

Lab Sample ID:	580-5689-12			Date Sampled:	04/18/2007 0000
Client Matrix:	Solid	% Moisture:	23.8	Date Received:	04/23/2007 1235

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

Method:	8270C	Analysis Batch: 580-18161		Instrument ID:	SEA040
Preparation:	3550B	Prep Batch: 580-17981		Lab File ID:	ak009362.D
Dilution:	100			Initial Weight/Volume:	20.2527 g
Date Analyzed:	05/02/2007 1616			Final Weight/Volume:	2 mL
Date Prepared:	04/24/2007 0833			Injection Volume:	

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylnaphthalene		15000		40	260
1-Methylnaphthalene		10000		110	390

MW
5-24-07

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: 07040120

Lab Sample ID: 580-5689-13 Date Sampled: 04/18/2007 0000
Client Matrix: Solid % Moisture: 9.9 Date Received: 04/23/2007 1235

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

Method: 8270C Analysis Batch: 580-18161 Instrument ID: SEA040
Preparation: 3550B Prep Batch: 580-17981 Lab File ID: ak009364.D
Dilution: 100 Initial Weight/Volume: 20.0697 g
Date Analyzed: 05/02/2007 1711 Final Weight/Volume: 2 mL
Date Prepared: 04/24/2007 0833 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol	R	~~ND~~		~~300~~	~~1100~~
Bis(2-chloroethyl)ether		ND		330	1100
2-Chlorophenol	R	~~ND~~		~~250~~	~~1100~~
1,3-Dichlorobenzene		ND		130	550
1,4-Dichlorobenzene		ND		84	550
Benzyl alcohol	R	~~ND~~		~~330~~	~~1100~~
1,2-Dichlorobenzene		ND		190	550
2-Methylphenol	R	~~ND~~		~~310~~	~~1100~~
Bis(2-chloroisopropyl) ether		ND		380	1700
3 & 4 Methylphenol	R	~~ND~~		~~590~~	~~2200~~
N-Nitrosodi-n-propylamine		ND		290	1100
Hexachloroethane		ND		230	1100
Nitrobenzene		ND		170	1100
Isophorone		ND		290	1100
2-Nitrophenol	R	~~ND~~		~~250~~	~~1100~~
2,4-Dimethylphenol	R	~~ND~~		~~210~~	~~1100~~
Benzoic acid	R	~~ND~~		~~9200~~	~~28000~~
Bis(2-chloroethoxy)methane		ND		280	1100
2,4-Dichlorophenol	R	~~ND~~		~~210~~	~~1100~~
1,2,4-Trichlorobenzene		ND		110	550
Naphthalene		240		63	220
4-Chloroaniline		ND		300	1100
Hexachlorobutadiene		ND		140	550
4-Chloro-3-methylphenol	R	~~ND~~		~~240~~	~~1100~~
2-Methylnaphthalene		1400		34	220
Hexachlorocyclopentadiene		ND		280	1100
2,4,6-Trichlorophenol	R	~~ND~~		~~370~~	~~1700~~
2,4,5-Trichlorophenol	R	~~ND~~		~~250~~	~~1100~~
2-Chloronaphthalene		170	J	21	220
2-Nitroaniline		ND		210	1100
Dimethyl phthalate		ND		85	1100
Acenaphthylene		ND		25	220
2,6-Dinitrotoluene		ND		210	1100
3-Nitroaniline		ND		320	1100
Acenaphthene		900		63	220
2,4-Dinitrophenol	R	~~ND~~		~~2300~~	~~11000~~
4-Nitrophenol	R	~~ND~~		~~2900~~	~~11000~~
Dibenzofuran		200	J	190	1100
2,4-Dinitrotoluene		ND		150	1100
Diethyl phthalate		ND		80	1100
4-Chlorophenyl phenyl ether		ND		180	1100
Fluorene		1000		29	220
4-Nitroaniline		ND		210	1100

MW 5-22-07

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: **07040120**

Lab Sample ID:	580-5689-13			Date Sampled:	04/18/2007 0000
Client Matrix:	Solid	% Moisture:	9.9	Date Received:	04/23/2007 1235

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

Method:	8270C	Analysis Batch: 580-18161		Instrument ID:	SEA040
Preparation:	3550B	Prep Batch: 580-17981		Lab File ID:	ak009364.D
Dilution:	100			Initial Weight/Volume:	20.0697 g
Date Analyzed:	05/02/2007 1711			Final Weight/Volume:	2 mL
Date Prepared:	04/24/2007 0833			Injection Volume:	

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol	R	~~ND~~		~~3000~~	~~11000~~
N-Nitrosodiphenylamine		ND		170	550 U
4-Bromophenyl phenyl ether		ND		110	1100
Hexachlorobenzene		ND		120	550
Pentachlorophenol	R	~~ND~~		~~340~~	~~1100~~
Phenanthrene		3300		44	220
Anthracene		480		48	220
Di-n-butyl phthalate		~~1000~~	~~J B~~	140	2200 U
Fluoranthene		1400		34	220
Pyrene		3200		30	220
Butyl benzyl phthalate		ND		320	1100 U
3,3'-Dichlorobenzidine		ND		100	2200 U
Benzo[a]anthracene		860		72	280
Chrysene		1400		83	280
Bis(2-ethylhexyl) phthalate		ND		2700	17000 U
Di-n-octyl phthalate		ND		370	2200 U
Benzo[a]pyrene		650		94	330
Indeno[1,2,3-cd]pyrene		ND		130	440 U
Dibenz(a,h)anthracene		ND		130	440 U
Benzo[g,h,i]perylene		480		81	280
Carbazole		950	J	370	1700
1-Methylnaphthalene		1000		96	330
Benzo[b]fluoranthene		490		60	220
Benzo[k]fluoranthene		ND		76	280 U

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	0	X I	36 - 145
Phenol-d5	0	X I	38 - 149
Nitrobenzene-d5	164	X I	38 - 141
2-Fluorobiphenyl	81		42 - 140
2,4,6-Tribromophenol	0	X I	28 - 143
Terphenyl-d14	49		42 - 151

MW
5/24/07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040122**

Lab Sample ID: 580-5689-14
Client Matrix: Solid
% Moisture: 22.3
Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 10
Date Analyzed: 05/02/2007 1806
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009366.D
Initial Weight/Volume: 20.4336 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		ND		34	130
Bis(2-chloroethyl)ether		ND		38	130
2-Chlorophenol		ND		29	130
1,3-Dichlorobenzene		ND		15	63
1,4-Dichlorobenzene		ND		9.6	63
Benzyl alcohol		ND		38	130
1,2-Dichlorobenzene		ND		21	63
2-Methylphenol		ND		35	130
Bis(2-chloroisopropyl) ether		ND		43	190
3 & 4 Methylphenol		ND		67	250
N-Nitrosodi-n-propylamine		ND		33	130
Hexachloroethane		ND		26	130
Nitrobenzene		ND		19	130
Isophorone		ND		33	130
2-Nitrophenol		ND		29	130
2,4-Dimethylphenol		ND		24	130
Benzoic acid		ND		1000	3100
Bis(2-chloroethoxy)methane		ND		31	130
2,4-Dichlorophenol		ND		24	130
1,2,4-Trichlorobenzene		ND		12	63
Naphthalene		3100		7.2	25
4-Chloroaniline		ND		34	130
Hexachlorobutadiene		ND		16	63
4-Chloro-3-methylphenol		ND		28	130
Hexachlorocyclopentadiene		ND		31	130
2,4,6-Trichlorophenol		ND		42	190
2,4,5-Trichlorophenol		ND		29	130
2-Chloronaphthalene		ND		2.4	25
2-Nitroaniline		ND		24	130
Dimethyl phthalate		ND		9.7	130
Acenaphthylene		ND		2.9	25
2,6-Dinitrotoluene		ND		24	130
3-Nitroaniline		ND		37	130
Acenaphthene		ND		7.2	25
2,4-Dinitrophenol		ND		260	1300
4-Nitrophenol		ND		330	1300
Dibenzofuran		ND		21	130
2,4-Dinitrotoluene		ND		18	130
Diethyl phthalate		ND		9.1	130
4-Chlorophenyl phenyl ether		ND		20	130
Fluorene		2900		3.3	25
4-Nitroaniline		ND		24	130
4,6-Dinitro-2-methylphenol		ND		340	1300

MW 5-24-07

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: 07040122

Lab Sample ID: 580-5689-14 Date Sampled: 04/18/2007 0000
Client Matrix: Solid % Moisture: 22.3 Date Received: 04/23/2007 1235

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

Method: 8270C Analysis Batch: 580-18161 Instrument ID: SEA040
Preparation: 3550B Prep Batch: 580-17981 Lab File ID: ak009366.D
Dilution: 10 Initial Weight/Volume: 20.4336 g
Date Analyzed: 05/02/2007 1806 Final Weight/Volume: 2 mL
Date Prepared: 04/24/2007 0833 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
N-Nitrosodiphenylamine		ND		19	63 U
4-Bromophenyl phenyl ether		ND		13	130
Hexachlorobenzene		ND		14	63
Pentachlorophenol		ND		39	130
Phenanthrene		4400		5.0	25
Anthracene		530		5.4	25
Di-n-butyl phthalate		ND		16	250 U
Fluoranthene		310		3.9	25
Pyrene		690		3.4	25
Butyl benzyl phthalate		ND		37	130 U
3,3'-Dichlorobenzidine		ND		11	250 U
Benzo[a]anthracene		190		8.2	31
Chrysene		370		9.4	31
Bis(2-ethylhexyl) phthalate		ND		300	1900 U
Di-n-octyl phthalate		ND		42	250 U
Benzo[a]pyrene		110		11	38
Indeno[1,2,3-cd]pyrene		ND		15	50 U
Dibenz(a,h)anthracene		ND		15	50 U
Benzo[g,h,i]perylene		61		9.2	31
Carbazole		ND		42	190 U
Benzo[b]fluoranthene		85		6.8	25
Benzo[k]fluoranthene		ND		8.7	31 U

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	41		36 - 145
Phenol-d5	57		38 - 149
Nitrobenzene-d5	1350	X I	38 - 141
2-Fluorobiphenyl	83		42 - 140
2,4,6-Tribromophenol	228	X I	28 - 143
Terphenyl-d14	115		42 - 151

MN
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040122**

Lab Sample ID:	580-5689-14			Date Sampled:	04/18/2007 0000
Client Matrix:	Solid	% Moisture:	22.3	Date Received:	04/23/2007 1235

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

Method:	8270C	Analysis Batch: 580-18161		Instrument ID:	SEA040
Preparation:	3550B	Prep Batch: 580-17981		Lab File ID:	ak009365.D
Dilution:	100			Initial Weight/Volume:	20.4336 g
Date Analyzed:	05/02/2007 1738			Final Weight/Volume:	2 mL
Date Prepared:	04/24/2007 0833			Injection Volume:	

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylnaphthalene		18000		39	250
1-Methylnaphthalene		12000		110	380

MN 5-14-07

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: 07040124

Lab Sample ID: 580-5689-15 Date Sampled: 04/19/2007 0000
Client Matrix: Solid % Moisture: 11.2 Date Received: 04/23/2007 1235

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

Method: 8270C Analysis Batch: 580-18161 Instrument ID: SEA040
Preparation: 3550B Prep Batch: 580-17981 Lab File ID: ak009367.D
Dilution: 10 Initial Weight/Volume: 20.2441 g
Date Analyzed: 05/02/2007 1833 Final Weight/Volume: 2 mL
Date Prepared: 04/24/2007 0833 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		ND		30	110
Bis(2-chloroethyl)ether		ND		33	110
2-Chlorophenol		ND		26	110
1,3-Dichlorobenzene		ND		13	56
1,4-Dichlorobenzene		ND		8.5	56
Benzyl alcohol		ND		33	110
1,2-Dichlorobenzene		ND		19	56
2-Methylphenol		ND		31	110
Bis(2-chloroisopropyl) ether		ND		38	170
3 & 4 Methylphenol		ND		59	220
N-Nitrosodi-n-propylamine		ND		29	110
Hexachloroethane		ND		23	110
Nitrobenzene		ND		17	110
Isophorone		ND		29	110
2-Nitrophenol		ND		26	110
2,4-Dimethylphenol		ND		21	110
Benzoic acid		ND		920	2800
Bis(2-chloroethoxy)methane		ND		28	110
2,4-Dichlorophenol		ND		21	110
1,2,4-Trichlorobenzene		ND		11	56
Naphthalene		410		6.3	22
4-Chloroaniline		ND		30	110
Hexachlorobutadiene		ND		14	56
4-Chloro-3-methylphenol		ND		24	110
2-Methylnaphthalene		2900		3.4	22
Hexachlorocyclopentadiene		ND		28	110
2,4,6-Trichlorophenol		ND		37	170
2,4,5-Trichlorophenol		ND		26	110
2-Chloronaphthalene		ND		2.1	22
2-Nitroaniline		ND		21	110
Dimethyl phthalate		ND		8.6	110
Acenaphthylene		ND		2.6	22
2,6-Dinitrotoluene		ND		21	110
3-Nitroaniline		ND		32	110
Acenaphthene		350		6.3	22
2,4-Dinitrophenol		ND		230	1100
4-Nitrophenol		ND		290	1100
Dibenzofuran		ND		19	110
2,4-Dinitrotoluene		ND		16	110
Diethyl phthalate		ND		8.0	110
4-Chlorophenyl phenyl ether		ND		18	110
Fluorene		600		2.9	22
4-Nitroaniline		ND		21	110

MM 5/24/07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040124**

Lab Sample ID: 580-5689-15
Client Matrix: Solid
% Moisture: 11.2
Date Sampled: 04/19/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 10
Date Analyzed: 05/02/2007 1833
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009367.D
Initial Weight/Volume: 20.2441 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol		ND		300	1100 U
N-Nitrosodiphenylamine		ND		17	56
4-Bromophenyl phenyl ether		ND		11	110
Hexachlorobenzene		ND		12	56
Pentachlorophenol		ND		34	110
Phenanthrene		960		4.4	22
Anthracene		120		4.8	22
Di-n-butyl phthalate		~~120~~	~~J~~	14	220 U
Fluoranthene		70		3.4	22
Pyrene		140		3.0	22
Butyl benzyl phthalate		ND		32	110 U
3,3'-Dichlorobenzidine		ND		10	220 U
Benzo[a]anthracene		38		7.2	28
Chrysene		53		8.3	28
Bis(2-ethylhexyl) phthalate		ND		270	1700 U
Di-n-octyl phthalate		ND		37	220 U
Benzo[a]pyrene		37		9.5	33
Indeno[1,2,3-cd]pyrene		ND		13	44 U
Dibenz(a,h)anthracene		ND		13	44 U
Benzo[g,h,i]perylene		29		8.1	28
Carbazole		ND		37	170 U
1-Methylnaphthalene		2200		9.7	33
Benzo[b]fluoranthene		30		6.0	22
Benzo[k]fluoranthene		ND		7.7	28 U

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	39		36 - 145
Phenol-d5	39		38 - 149
Nitrobenzene-d5	111		38 - 141
2-Fluorobiphenyl	43		42 - 140
2,4,6-Tribromophenol	192	X I	28 - 143
Terphenyl-d14	51		42 - 151

MW 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040125**

Lab Sample ID: 580-5689-16
Client Matrix: Solid
% Moisture: 8.5
Date Sampled: 04/19/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 05/02/2007 0105
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009354.D
Initial Weight/Volume: 20.1410 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		ND		2.9	11
Bis(2-chloroethyl)ether		ND		3.3	11
2-Chlorophenol		ND		2.5	11
1,3-Dichlorobenzene		ND		1.3	5.4
1,4-Dichlorobenzene		ND		0.82	5.4
Benzyl alcohol		ND		3.3	11
1,2-Dichlorobenzene		ND		1.8	5.4
2-Methylphenol		ND		3.0	11
Bis(2-chloroisopropyl) ether		ND		3.7	16
3 & 4 Methylphenol		ND		5.8	22
N-Nitrosodi-n-propylamine		ND		2.8	11
Hexachloroethane		ND		2.3	11
Nitrobenzene		ND		1.6	11
Isophorone		ND		2.8	11
2-Nitrophenol		ND		2.5	11
2,4-Dimethylphenol		ND		2.1	11
Benzoic acid		ND		90	270
Bis(2-chloroethoxy)methane		ND		2.7	11
2,4-Dichlorophenol		ND		2.1	11
1,2,4-Trichlorobenzene		ND		1.1	5.4
Naphthalene		15		0.62	2.2
4-Chloroaniline		ND		2.9	11
Hexachlorobutadiene		ND		1.4	5.4
4-Chloro-3-methylphenol		ND		2.4	11
2-Methylnaphthalene		110		0.34	2.2
Hexachlorocyclopentadiene		ND		2.7	11
2,4,6-Trichlorophenol		ND		3.6	16
2,4,5-Trichlorophenol		ND		2.5	11
2-Chloronaphthalene		ND		0.21	2.2
2-Nitroaniline		ND		2.1	11
Dimethyl phthalate		ND		0.84	11
Acenaphthylene		ND		0.25	2.2
2,6-Dinitrotoluene		ND		2.1	11
3-Nitroaniline		ND		3.1	11
Acenaphthene		10		0.62	2.2
2,4-Dinitrophenol		ND		22	110
4-Nitrophenol		ND		28	110
Dibenzofuran		ND		1.8	11
2,4-Dinitrotoluene		ND		1.5	11
Diethyl phthalate		ND		0.78	11
4-Chlorophenyl phenyl ether		ND		1.7	11
Fluorene		21		0.28	2.2
4-Nitroaniline		5.4	J	2.1	11

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040125**

Lab Sample ID: 580-5689-16
Client Matrix: Solid
% Moisture: 8.5
Date Sampled: 04/19/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 05/02/2007 0105
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009354.D
Initial Weight/Volume: 20.1410 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol		ND		29	110 U
N-Nitrosodiphenylamine		ND		1.6	5.4
4-Bromophenyl phenyl ether		ND		1.1	11
Hexachlorobenzene		ND		1.2	5.4
Pentachlorophenol		ND		3.4	11
Phenanthrene		37		0.43	2.2
Anthracene		3.7		0.47	2.2
Di-n-butyl phthalate		~~7.3~~ TM	~~J B~~ TM	1.4	22 U
Fluoranthene		2.4		0.34	2.2
Pyrene		4.7		0.29	2.2
Butyl benzyl phthalate		ND		3.1	11 U
3,3'-Dichlorobenzidine		ND		0.99	22 U
Benzo[a]anthracene		1.3	J	0.71	2.7
Chrysene		1.7	J	0.81	2.7
Bis(2-ethylhexyl) phthalate		ND		26	160 U
Di-n-octyl phthalate		ND		3.6	22
Benzo[a]pyrene		ND		0.92	3.3
Indeno[1,2,3-cd]pyrene		ND		1.3	4.3
Dibenz(a,h)anthracene		ND		1.3	4.3
Benzo[g,h,i]perylene		ND		0.79	2.7
Carbazole		ND		3.6	16
1-Methylnaphthalene		79		0.94	3.3
Benzo[b]fluoranthene		ND		0.59	2.2 U
Benzo[k]fluoranthene		ND		0.75	2.7 U

Surrogate	%Rec	Acceptance Limits
2-Fluorophenol	51	36 - 145
Phenol-d5	59	38 - 149
Nitrobenzene-d5	52	38 - 141
2-Fluorobiphenyl	59	42 - 140
2,4,6-Tribromophenol	55	28 - 143
Terphenyl-d14	84	42 - 151

MW 5/24/07

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: **07040127**

Lab Sample ID: 580-5689-17 Date Sampled: 04/19/2007 0000
Client Matrix: Solid % Moisture: 21.1 Date Received: 04/23/2007 1235

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

Method: 8270C Analysis Batch: 580-18161 Instrument ID: SEA040
Preparation: 3550B Prep Batch: 580-17981 Lab File ID: ak009369.D
Dilution: 10 Initial Weight/Volume: 20.8760 g
Date Analyzed: 05/02/2007 1927 Final Weight/Volume: 2 mL
Date Prepared: 04/24/2007 0833 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		ND		33	120 UJ
Bis(2-chloroethyl)ether		ND		36	120
2-Chlorophenol		ND		28	120
1,3-Dichlorobenzene		ND		15	61
1,4-Dichlorobenzene		ND		9.2	61
Benzyl alcohol		ND		36	120
1,2-Dichlorobenzene		ND		21	61
2-Methylphenol		ND		34	120
Bis(2-chloroisopropyl) ether		ND		41	180
3 & 4 Methylphenol		ND		64	240
N-Nitrosodi-n-propylamine		ND		32	120
Hexachloroethane		ND		25	120
Nitrobenzene		ND		18	120
Isophorone		ND		32	120
2-Nitrophenol		ND		28	120
2,4-Dimethylphenol		ND		23	120
Benzoic acid		ND		1000	3000
Bis(2-chloroethoxy)methane		ND		30	120
2,4-Dichlorophenol		ND		23	120
1,2,4-Trichlorobenzene		ND		12	61
Naphthalene		2600 J		6.9	24
4-Chloroaniline		ND		33	120 UJ
Hexachlorobutadiene		ND		16	61
4-Chloro-3-methylphenol		ND		27	120
Hexachlorocyclopentadiene		ND		30	120
2,4,6-Trichlorophenol		ND		40	180
2,4,5-Trichlorophenol		ND		28	120
2-Chloronaphthalene		ND		2.3	24
2-Nitroaniline		ND		23	120
Dimethyl phthalate		ND		9.3	120
Acenaphthylene		ND		2.8	24
2,6-Dinitrotoluene		ND		23	120
3-Nitroaniline		ND		35	120
Acenaphthene		ND		6.9	24
2,4-Dinitrophenol		ND		250	1200
4-Nitrophenol		ND		320	1200
Dibenzofuran		ND		21	120
2,4-Dinitrotoluene		ND		17	120
Diethyl phthalate		ND		8.7	120
4-Chlorophenyl phenyl ether		ND		19	120
Fluorene		1400 J		3.2	24
4-Nitroaniline		ND		23	120 UJ
4,6-Dinitro-2-methylphenol		ND		330	1200 UJ

MW 5-24-07

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: 07040127

Lab Sample ID:	580-5689-17	Date Sampled:	04/19/2007 0000
Client Matrix:	Solid % Moisture: 21.1	Date Received:	04/23/2007 1235

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

Method:	8270C	Analysis Batch: 580-18161	Instrument ID:	SEA040	
Preparation:	3550B	Prep Batch: 580-17981	Lab File ID:	ak009369.D	
Dilution:	10		Initial Weight/Volume:	20.8760 g	
Date Analyzed:	05/02/2007 1927		Final Weight/Volume:	2 mL	
Date Prepared:	04/24/2007 0833		Injection Volume:		

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
N-Nitrosodiphenylamine		ND		18	61 UJ
4-Bromophenyl phenyl ether		ND		12	120
Hexachlorobenzene		ND		13	61
Pentachlorophenol		ND		38	120
Phenanthrene		4600 J		4.9	24
Anthracene		510 J		5.2	24
Di-n-butyl phthalate		ND		16	240 UJ
Fluoranthene		520 J		3.8	24
Pyrene		770 J		3.3	24
Butyl benzyl phthalate		ND		35	120 UJ
3,3'-Dichlorobenzidine		ND		11	240 UJ
Benzo[a]anthracene		130 J		7.9	30
Chrysene		180 J		9.1	30
Bis(2-ethylhexyl) phthalate		ND		290	1800 UJ
Di-n-octyl phthalate		ND		40	240 UJ
Benzo[a]pyrene		62 J		10	36
Indeno[1,2,3-cd]pyrene		43 J		15	49
Dibenz(a,h)anthracene		ND		15	49 UJ
Benzo[g,h,i]perylene		43 J		8.9	30
Carbazole		ND		40	180 UJ
Benzo[b]fluoranthene		59 J		6.6	24
Benzo[k]fluoranthene		10 J		8.4	30

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	30	X I	36 - 145
Phenol-d5	51		38 - 149
Nitrobenzene-d5	521	X I	38 - 141
2-Fluorobiphenyl	34	X I	42 - 140
2,4,6-Tribromophenol	215	X I	28 - 143
Terphenyl-d14	108		42 - 151

MM 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040127**

Lab Sample ID:	580-5689-17			Date Sampled:	04/19/2007 0000
Client Matrix:	Solid	% Moisture:	21.1	Date Received:	04/23/2007 1235

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

Method:	8270C	Analysis Batch: 580-18161		Instrument ID:	SEA040
Preparation:	3550B	Prep Batch: 580-17981		Lab File ID:	ak009368.D
Dilution:	100			Initial Weight/Volume:	20.8760 g
Date Analyzed:	05/02/2007 1900			Final Weight/Volume:	2 mL
Date Prepared:	04/24/2007 0833			Injection Volume:	

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylnaphthalene		9800		38	240
1-Methylnaphthalene		8300		110	360

MN 5/24/07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040129**

Lab Sample ID: 580-5689-18
Client Matrix: Solid
% Moisture: 12.3
Date Sampled: 04/19/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3550B
Dilution: 10
Date Analyzed: 05/02/2007 0200
Date Prepared: 04/24/2007 0833

Analysis Batch: 580-18161
Prep Batch: 580-17981

Instrument ID: SEA040
Lab File ID: ak009356.D
Initial Weight/Volume: 20.9925 g
Final Weight/Volume: 2 mL
Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		ND		29	110
Bis(2-chloroethyl)ether		ND		33	110
2-Chlorophenol		ND		25	110
1,3-Dichlorobenzene		ND		13	54
1,4-Dichlorobenzene		ND		8.3	54
Benzyl alcohol		ND		33	110
1,2-Dichlorobenzene		ND		18	54
2-Methylphenol		ND		30	110
Bis(2-chloroisopropyl) ether		ND		37	160
3 & 4 Methylphenol		ND		58	220
N-Nitrosodi-n-propylamine		ND		28	110
Hexachloroethane		ND		23	110
Nitrobenzene		ND		16	110
Isophorone		ND		28	110
2-Nitrophenol		ND		25	110
2,4-Dimethylphenol		ND		21	110
Benzoic acid		ND		900	2700
Bis(2-chloroethoxy)methane		ND		27	110
2,4-Dichlorophenol		ND		21	110
1,2,4-Trichlorobenzene		ND		11	54
Naphthalene		1000		6.2	22
4-Chloroaniline		ND		29	110
Hexachlorobutadiene		ND		14	54
4-Chloro-3-methylphenol		ND		24	110
2-Methylnaphthalene		2900		3.4	22
Hexachlorocyclopentadiene		ND		27	110
2,4,6-Trichlorophenol		ND		36	180
2,4,5-Trichlorophenol		ND		25	110
2-Chloronaphthalene		ND		2.1	22
2-Nitroaniline		ND		21	110
Dimethyl phthalate		ND		8.4	110
Acenaphthylene		ND		2.5	22
2,6-Dinitrotoluene		ND		21	110
3-Nitroaniline		ND		31	110
Acenaphthene		620		6.2	22
2,4-Dinitrophenol		ND		220	1100
4-Nitrophenol		ND		280	1100
Dibenzofuran		ND		18	110
2,4-Dinitrotoluene		ND		15	110
Diethyl phthalate		ND		7.8	110
4-Chlorophenyl phenyl ether		ND		17	110
Fluorene		1700		2.8	22
4-Nitroaniline		ND		21	110

MW 5-24-07

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: **07040129**

Lab Sample ID: 580-5689-18 Date Sampled: 04/19/2007 0000
Client Matrix: Solid % Moisture: 12.3 Date Received: 04/23/2007 1235

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

Method: 8270C Analysis Batch: 580-18161 Instrument ID: SEA040
Preparation: 3550B Prep Batch: 580-17981 Lab File ID: ak009356.D
Dilution: 10 Initial Weight/Volume: 20.9925 g
Date Analyzed: 05/02/2007 0200 Final Weight/Volume: 2 mL
Date Prepared: 04/24/2007 0833 Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol		~~ND~~ R		~~290~~	~~1100~~
N-Nitrosodiphenylamine		ND		16	54 U
4-Bromophenyl phenyl ether		ND		11	110
Hexachlorobenzene		ND		12	54
Pentachlorophenol		~~ND~~ R		~~34~~	~~110~~
Phenanthrene		2500		4.3	22
Anthracene		220		4.7	22
Di-n-butyl phthalate		ND		14	220 U
Fluoranthene		340		3.4	22
Pyrene		430		2.9	22
Butyl benzyl phthalate		ND		31	110 U
3,3'-Dichlorobenzidine		ND		9.9	220 U
Benzo[a]anthracene		84		7.1	27
Chrysene		120		8.1	27
Bis(2-ethylhexyl) phthalate		ND		260	1600 U
Di-n-octyl phthalate		ND		36	220 U
Benzo[a]pyrene		44		9.2	33
Indeno[1,2,3-cd]pyrene		ND		13	43 U
Dibenz(a,h)anthracene		ND		13	43 U
Benzo[g,h,i]perylene		37		7.9	27
Carbazole		ND		36	160 U
1-Methylnaphthalene		2800		9.4	33
Benzo[b]fluoranthene		48		5.9	22
Benzo[k]fluoranthene		9.8	J	7.5	27

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	9	X I	36 - 145
Phenol-d5	67		38 - 149
Nitrobenzene-d5	549	X I	38 - 141
2-Fluorobiphenyl	74		42 - 140
2,4,6-Tribromophenol	192	X I	28 - 143
Terphenyl-d14	109		42 - 151

MW
5/24/07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040132**

Lab Sample ID: 580-5689-20
Client Matrix: Water

Date Sampled: 04/20/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2038
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009208.D
Initial Weight/Volume: 1045 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenol	ND		0.0071	0.29
Bis(2-chloroethyl)ether	ND		0.017	0.19
2-Chlorophenol	ND		0.021	0.19
1,3-Dichlorobenzene	ND		0.011	0.19
1,4-Dichlorobenzene	ND		0.011	0.19
Benzyl alcohol	ND		0.012	0.19
1,2-Dichlorobenzene	ND		0.011	0.19
2-Methylphenol	ND		0.036	0.19
Bis(2-chloroisopropyl) ether	ND		0.0084	0.19
3 & 4 Methylphenol	ND		0.016	0.38
N-Nitrosodi-n-propylamine	ND		0.019	0.19
Hexachloroethane	ND		0.012	0.29
Nitrobenzene	ND		0.0072	0.19
Isophorone	ND		0.011	0.19
2-Nitrophenol	ND		0.020	0.19
2,4-Dimethylphenol	ND		0.017	0.96
Benzoic acid	ND		0.020	0.96
Bis(2-chloroethoxy)methane	ND		0.0091	0.19
2,4-Dichlorophenol	ND		0.012	0.19
1,2,4-Trichlorobenzene	ND		0.0096	0.19
Naphthalene	ND		0.0013	0.19
4-Chloroaniline	ND		0.018	0.19
Hexachlorobutadiene	ND		0.015	0.29
4-Chloro-3-methylphenol	ND		0.013	0.19
2-Methylnaphthalene	ND		0.0053	0.096
Hexachlorocyclopentadiene	ND		0.011	0.96
2,4,6-Trichlorophenol	ND		0.0096	0.29
2,4,5-Trichlorophenol	ND		0.0081	0.19
2-Chloronaphthalene	ND		0.0029	0.029
2-Nitroaniline	ND		0.011	0.19
Dimethyl phthalate	ND		0.011	0.19
Acenaphthylene	ND		0.0025	0.038
2,6-Dinitrotoluene	ND		0.013	0.19
3-Nitroaniline	ND		0.054	0.19
Acenaphthene	ND		0.0011	0.048
2,4-Dinitrophenol	ND		0.056	2.4
4-Nitrophenol	ND		0.15	0.96
Dibenzofuran	ND		0.0094	0.19
2,4-Dinitrotoluene	ND		0.011	0.19
Diethyl phthalate	ND		0.0089	0.19
4-Chlorophenyl phenyl ether	ND		0.011	0.19
Fluorene	ND		0.0040	0.029
4-Nitroaniline	ND		0.017	0.29

MN 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040132**

Lab Sample ID: 580-5689-20
Client Matrix: Water

Date Sampled: 04/20/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2038
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009208.D
Initial Weight/Volume: 1045 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol	ND		0.051	1.9
N-Nitrosodiphenylamine	ND		0.012	0.19
4-Bromophenyl phenyl ether	ND		0.0096	0.19
Hexachlorobenzene	ND		0.0078	0.19
Pentachlorophenol	ND		0.012	0.33
Phenanthrene	ND		0.0023	0.038
Anthracene	ND		0.0018	0.019
Di-n-butyl phthalate	~~0.075~~	J B	0.0084	0.19
Fluoranthene	ND		0.0026	0.024
Pyrene	ND		0.0019	0.029
Butyl benzyl phthalate	~~0.090~~	J B	0.023	0.29
3,3'-Dichlorobenzidine	ND		0.15	0.96
Benzo[a]anthracene	ND		0.0032	0.029
Chrysene	ND		0.0043	0.019
Bis(2-ethylhexyl) phthalate	~~0.19~~	J B	0.031	1.4
Di-n-octyl phthalate	ND		0.017	0.19
Benzo[a]pyrene	ND		0.0026	0.019
Indeno[1,2,3-cd]pyrene	ND		0.0049	0.029
Dibenz(a,h)anthracene	ND		0.0044	0.029
Benzo[g,h,i]perylene	ND		0.0057	0.029
Carbazole	ND		0.0086	0.19
1-Methylnaphthalene	ND		0.0050	0.029
Benzo[b]fluoranthene	ND		0.0044	0.038
Benzo[k]fluoranthene	ND		0.0053	0.029

Surrogate	%Rec	Acceptance Limits
2-Fluorophenol	29	10 - 120
Phenol-d5	18	10 - 102
Nitrobenzene-d5	78	34 - 146
2-Fluorobiphenyl	70	35 - 143
2,4,6-Tribromophenol	67	29 - 151
Terphenyl-d14	82	35 - 166

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040133**

Lab Sample ID: 580-5689-21
Client Matrix: Water

Date Sampled: 04/20/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2106
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009209.D
Initial Weight/Volume: 1040 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenol	ND		0.0071	0.29
Bis(2-chloroethyl)ether	ND		0.017	0.19
2-Chlorophenol	ND		0.021	0.19
1,3-Dichlorobenzene	ND		0.011	0.19
1,4-Dichlorobenzene	ND		0.012	0.19
Benzyl alcohol	ND		0.013	0.19
1,2-Dichlorobenzene	ND		0.011	0.19
2-Methylphenol	ND		0.037	0.19
Bis(2-chloroisopropyl) ether	ND		0.0085	0.19
3 & 4 Methylphenol	ND		0.016	0.38
N-Nitrosodi-n-propylamine	ND		0.019	0.19
Hexachloroethane	ND		0.013	0.29
Nitrobenzene	ND		0.0072	0.19
Isophorone	ND		0.011	0.19
2-Nitrophenol	ND		0.020	0.19
2,4-Dimethylphenol	ND		0.017	0.96
Benzoic acid	ND		0.020	0.96
Bis(2-chloroethoxy)methane	ND		0.0091	0.19
2,4-Dichlorophenol	ND		0.013	0.19
1,2,4-Trichlorobenzene	ND		0.0096	0.19
Naphthalene	ND		0.0013	0.19
4-Chloroaniline	ND		0.018	0.19
Hexachlorobutadiene	ND		0.015	0.29
4-Chloro-3-methylphenol	ND		0.013	0.19
2-Methylnaphthalene	0.014	J	0.0053	0.096
Hexachlorocyclopentadiene	ND		0.012	0.96
2,4,6-Trichlorophenol	ND		0.0096	0.29
2,4,5-Trichlorophenol	ND		0.0082	0.19
2-Chloronaphthalene	ND		0.0029	0.029
2-Nitroaniline	ND		0.011	0.19
Dimethyl phthalate	ND		0.012	0.19
Acenaphthylene	ND		0.0025	0.038
2,6-Dinitrotoluene	ND		0.013	0.19
3-Nitroaniline	ND		0.054	0.19
Acenaphthene	0.025	J	0.0012	0.048
2,4-Dinitrophenol	ND		0.056	2.4
4-Nitrophenol	ND		0.15	0.96
Dibenzofuran	ND		0.0094	0.19
2,4-Dinitrotoluene	ND		0.012	0.19
Diethyl phthalate	0.011	J	0.0089	0.19
4-Chlorophenyl phenyl ether	ND		0.012	0.19
Fluorene	0.047		0.0040	0.029
4-Nitroaniline	ND		0.017	0.29

MW 5-21-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040133**

Lab Sample ID: 580-5689-21
Client Matrix: Water

Date Sampled: 04/20/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2106
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009209.D
Initial Weight/Volume: 1040 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol	ND		0.051	1.9 U
N-Nitrosodiphenylamine	ND		0.013	0.19
4-Bromophenyl phenyl ether	ND		0.0096	0.19
Hexachlorobenzene	ND		0.0079	0.19
Pentachlorophenol	ND		0.013	0.34
Phenanthrene	0.12		0.0023	0.038
Anthracene	0.0088	J	0.0018	0.019
Di-n-butyl phthalate	~~0.085~~	~~J B~~	0.0085	0.19 U
Fluoranthene	0.0095	J	0.0026	0.024
Pyrene	0.025	J	0.0019	0.029
Butyl benzyl phthalate	~~0.096~~	~~J B~~	0.023	0.29 U
3,3'-Dichlorobenzidine	ND		0.15	0.96 U
Benzo[a]anthracene	ND		0.0032	0.029
Chrysene	ND		0.0043	0.019
Bis(2-ethylhexyl) phthalate	~~0.17~~	~~J B~~	0.031	1.4 U
Di-n-octyl phthalate	ND	~~B~~	0.017	0.19 U
Benzo[a]pyrene	ND		0.0026	0.019
Indeno[1,2,3-cd]pyrene	ND		0.0049	0.029
Dibenz(a,h)anthracene	ND		0.0044	0.029
Benzo[g,h,i]perylene	ND		0.0058	0.029
Carbazole	ND		0.0087	0.19
1-Methylnaphthalene	0.041		0.0050	0.029
Benzo[b]fluoranthene	ND		0.0044	0.038 U
Benzo[k]fluoranthene	ND		0.0053	0.029 U

Surrogate	%Rec	Acceptance Limits
2-Fluorophenol	28	10 - 120
Phenol-d5	17	10 - 102
Nitrobenzene-d5	72	34 - 146
2-Fluorobiphenyl	64	35 - 143
2,4,6-Tribromophenol	66	29 - 151
Terphenyl-d14	80	35 - 166

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040134**

Lab Sample ID: 580-5689-22
Client Matrix: Water

Date Sampled: 04/20/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2133
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009210.D
Initial Weight/Volume: 1050 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenol	ND		0.0070	0.29
Bis(2-chloroethyl)ether	ND		0.017	0.19
2-Chlorophenol	ND		0.021	0.19
1,3-Dichlorobenzene	ND		0.010	0.19
1,4-Dichlorobenzene	ND		0.011	0.19
Benzyl alcohol	0.013	J	0.012	0.19
1,2-Dichlorobenzene	ND		0.010	0.19
2-Methylphenol	ND		0.036	0.19
Bis(2-chloroisopropyl) ether	ND		0.0084	0.19
3 & 4 Methylphenol	ND		0.016	0.38
N-Nitrosodi-n-propylamine	ND		0.019	0.19
Hexachloroethane	ND		0.012	0.29
Nitrobenzene	ND		0.0071	0.19
Isophorone	ND		0.010	0.19
2-Nitrophenol	ND		0.020	0.19
2,4-Dimethylphenol	ND		0.017	0.95
Benzoic acid	ND		0.020	0.95
Bis(2-chloroethoxy)methane	ND		0.0090	0.19
2,4-Dichlorophenol	ND		0.012	0.19
1,2,4-Trichlorobenzene	ND		0.0095	0.19
Naphthalene	0.032	J	0.0013	0.19
4-Chloroaniline	ND		0.018	0.19
Hexachlorobutadiene	ND		0.015	0.29
4-Chloro-3-methylphenol	ND		0.013	0.19
2-Methylnaphthalene	0.11		0.0052	0.095
Hexachlorocyclopentadiene	ND		0.011	0.95
2,4,6-Trichlorophenol	ND		0.0095	0.29
2,4,5-Trichlorophenol	ND		0.0081	0.19
2-Chloronaphthalene	ND		0.0029	0.029
2-Nitroaniline	ND		0.010	0.19
Dimethyl phthalate	ND		0.011	0.19
Acenaphthylene	ND		0.0025	0.038
2,6-Dinitrotoluene	ND		0.013	0.19
3-Nitroaniline	ND		0.053	0.19
Acenaphthene	0.084		0.0011	0.048
2,4-Dinitrophenol	ND		0.055	2.4
4-Nitrophenol	ND		0.15	0.95
Dibenzofuran	ND		0.0093	0.19
2,4-Dinitrotoluene	ND		0.011	0.19
Diethyl phthalate	ND		0.0089	0.19
4-Chlorophenyl phenyl ether	ND		0.011	0.19
Fluorene	0.20		0.0040	0.029
4-Nitroaniline	ND		0.017	0.29

MW 5-22-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040134**

Lab Sample ID: 580-5689-22
Client Matrix: Water

Date Sampled: 04/20/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2133
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009210.D
Initial Weight/Volume: 1050 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol	ND		0.050	1.9 U
N-Nitrosodiphenylamine	ND		0.012	0.19
4-Bromophenyl phenyl ether	ND		0.0095	0.19
Hexachlorobenzene	ND		0.0078	0.19
Pentachlorophenol	ND		0.012	0.33
Phenanthrene	0.21		0.0023	0.038
Anthracene	0.015	J	0.0018	0.019
Di-n-butyl phthalate	~~0.078~~	~~J B~~ MN	0.0084	0.19 U
Fluoranthene	0.013	J	0.0026	0.024
Pyrene	0.046		0.0019	0.029
Butyl benzyl phthalate	~~0.095~~	~~J B~~ MN	0.023	0.29 U
3,3'-Dichlorobenzidine	ND		0.15	0.95 U
Benzo[a]anthracene	0.011	J	0.0031	0.029
Chrysene	0.016	J	0.0043	0.019
Bis(2-ethylhexyl) phthalate	~~0.42~~	~~J B~~ MN	0.030	1.4 U
Di-n-octyl phthalate	0.073	J * MN	0.017	0.19
Benzo[a]pyrene	0.027		0.0026	0.019
Indeno[1,2,3-cd]pyrene	ND		0.0049	0.029 U
Dibenz(a,h)anthracene	ND		0.0044	0.029
Benzo[g,h,i]perylene	ND		0.0057	0.029
Carbazole	ND		0.0086	0.19
1-Methylnaphthalene	0.34		0.0050	0.029
Benzo[b]fluoranthene	0.023	J	0.0044	0.038
Benzo[k]fluoranthene	ND		0.0052	0.029 U

Surrogate	%Rec	Acceptance Limits
2-Fluorophenol	29	10 - 120
Phenol-d5	18	10 - 102
Nitrobenzene-d5	76	34 - 146
2-Fluorobiphenyl	65	35 - 143
2,4,6-Tribromophenol	68	29 - 151
Terphenyl-d14	76	35 - 166

MN 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040135**

Lab Sample ID: 580-5689-23
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2201
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009211.D
Initial Weight/Volume: 995 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenol	ND		0.0074	0.30
Bis(2-chloroethyl)ether	ND		0.018	0.20
2-Chlorophenol	ND		0.022	0.20
1,3-Dichlorobenzene	ND		0.011	0.20
1,4-Dichlorobenzene	ND		0.012	0.20
Benzyl alcohol	ND		0.013	0.20
1,2-Dichlorobenzene	ND		0.011	0.20
2-Methylphenol	ND		0.038	0.20
Bis(2-chloroisopropyl) ether	ND		0.0088	0.20
3 & 4 Methylphenol	ND		0.017	0.40
N-Nitrosodi-n-propylamine	ND		0.020	0.20
Hexachloroethane	ND		0.013	0.30
Nitrobenzene	ND		0.0075	0.20
Isophorone	ND		0.011	0.20
2-Nitrophenol	ND		0.021	0.20
2,4-Dimethylphenol	ND		0.018	1.0
Benzoic acid	ND		0.021	1.0
Bis(2-chloroethoxy)methane	ND		0.0095	0.20
2,4-Dichlorophenol	ND		0.013	0.20
1,2,4-Trichlorobenzene	ND		0.010	0.20
Naphthalene	0.010	J	0.0014	0.20
4-Chloroaniline	ND		0.019	0.20
Hexachlorobutadiene	ND		0.016	0.30
4-Chloro-3-methylphenol	ND		0.014	0.20
2-Methylnaphthalene	0.0095	J	0.0055	0.10
Hexachlorocyclopentadiene	ND		0.012	1.0
2,4,6-Trichlorophenol	ND		0.010	0.30
2,4,5-Trichlorophenol	ND		0.0085	0.20
2-Chloronaphthalene	ND		0.0030	0.030
2-Nitroaniline	ND		0.011	0.20
Dimethyl phthalate	ND		0.012	0.20
Acenaphthylene	ND		0.0026	0.040
2,6-Dinitrotoluene	ND		0.014	0.20
3-Nitroaniline	ND		0.056	0.20
Acenaphthene	0.015	J	0.0012	0.050
2,4-Dinitrophenol	ND		0.058	2.5
4-Nitrophenol	~~ND~~		~~0.16~~	~~1.0~~
Dibenzofuran	ND		0.0098	0.20
2,4-Dinitrotoluene	ND		0.012	0.20
Diethyl phthalate	0.014	J	0.0093	0.20
4-Chlorophenyl phenyl ether	ND		0.012	0.20
Fluorene	0.0068	J	0.0042	0.030
4-Nitroaniline	ND		0.018	0.30

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040135**

Lab Sample ID: 580-5689-23
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2201
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009211.D
Initial Weight/Volume: 995 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol	ND		0.053	2.0
N-Nitrosodiphenylamine	ND		0.013	0.20
4-Bromophenyl phenyl ether	ND		0.010	0.20
Hexachlorobenzene	ND		0.0082	0.20
Pentachlorophenol	ND		0.013	0.35
Phenanthrene	0.0046	J	0.0024	0.040
Anthracene	ND		0.0019	0.020
Di-n-butyl phthalate	~~0.004~~	~~J~~	0.0088	0.20
Fluoranthene	0.0097	J	0.0027	0.025
Pyrene	0.015	J	0.0020	0.030
Butyl benzyl phthalate	~~0.10~~	~~J~~	0.024	0.30
3,3'-Dichlorobenzidine	ND		0.16	1.0
Benzo[a]anthracene	ND		0.0033	0.030
Chrysene	ND		0.0045	0.020
Di-n-octyl phthalate	ND		0.018	0.20
Benzo[a]pyrene	ND		0.0027	0.020
Indeno[1,2,3-cd]pyrene	ND		0.0051	0.030
Dibenz(a,h)anthracene	ND		0.0046	0.030
Benzo[g,h,i]perylene	ND		0.0060	0.030
Carbazole	ND		0.0090	0.20
1-Methylnaphthalene	0.0081	J	0.0052	0.030
Benzo[b]fluoranthene	ND		0.0046	0.040
Benzo[k]fluoranthene	ND		0.0055	0.030

Surrogate	%Rec	Acceptance Limits
2-Fluorophenol	27	10 - 120
Phenol-d5	18	10 - 102
Nitrobenzene-d5	75	34 - 146
2-Fluorobiphenyl	64	35 - 143
2,4,6-Tribromophenol	67	29 - 151
Terphenyl-d14	74	35 - 166

5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040135**

Lab Sample ID: 580-5689-23
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 10
Date Analyzed: 04/26/2007 1607
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009225.D
Initial Weight/Volume: 995 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Bis(2-ethylhexyl) phthalate	16	~~B~~	0.32	15

JMW 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040136**

Lab Sample ID: 580-5689-24
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/26/2007 1730
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009228.D
Initial Weight/Volume: 1020 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenol	ND		0.0073	0.29
Bis(2-chloroethyl)ether	ND		0.018	0.20
2-Chlorophenol	ND		0.022	0.20
1,3-Dichlorobenzene	ND		0.011	0.20
1,4-Dichlorobenzene	ND		0.012	0.20
Benzyl alcohol	ND		0.013	0.20
1,2-Dichlorobenzene	ND		0.011	0.20
2-Methylphenol	ND		0.037	0.20
Bis(2-chloroisopropyl) ether	ND		0.0086	0.20
3 & 4 Methylphenol	ND		0.017	0.39
N-Nitrosodi-n-propylamine	ND		0.020	0.20
Hexachloroethane	ND		0.013	0.29
Nitrobenzene	ND		0.0074	0.20
Isophorone	ND		0.011	0.20
2-Nitrophenol	ND		0.021	0.20
2,4-Dimethylphenol	ND		0.018	0.98
Benzoic acid	ND		0.021	0.98
Bis(2-chloroethoxy)methane	ND		0.0093	0.20
2,4-Dichlorophenol	ND		0.013	0.20
1,2,4-Trichlorobenzene	ND		0.0098	0.20
4-Chloroaniline	ND		0.019	0.20
Hexachlorobutadiene	ND		0.016	0.29
4-Chloro-3-methylphenol	ND		0.014	0.20
2-Methylnaphthalene	4.7		0.0054	0.098
Hexachlorocyclopentadiene	ND		0.012	0.98
2,4,6-Trichlorophenol	ND		0.0098	0.29
2,4,5-Trichlorophenol	ND		0.0083	0.20
2-Chloronaphthalene	ND		0.0029	0.029
2-Nitroaniline	ND		0.011	0.20
Dimethyl phthalate	ND		0.012	0.20
Acenaphthylene	ND		0.0025	0.039
2,6-Dinitrotoluene	ND		0.014	0.20
3-Nitroaniline	ND		0.055	0.20
Acenaphthene	2.4		0.0012	0.049
2,4-Dinitrophenol	ND		0.057	2.5
4-Nitrophenol	ND		0.16	0.98
Dibenzofuran	ND		0.0096	0.20
2,4-Dinitrotoluene	ND		0.012	0.20
Diethyl phthalate	ND		0.0091	0.20
4-Chlorophenyl phenyl ether	ND		0.012	0.20
Fluorene	2.1		0.0041	0.029
4-Nitroaniline	ND		0.018	0.29
4,6-Dinitro-2-methylphenol	ND		0.052	2.0

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040136**

Lab Sample ID: 580-5689-24
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/26/2007 1730
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009228.D
Initial Weight/Volume: 1020 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
N-Nitrosodiphenylamine	ND		0.013	0.20 U
4-Bromophenyl phenyl ether	ND		0.0098	0.20
Hexachlorobenzene	ND		0.0080	0.20
Pentachlorophenol	R ~~ND~~		~~0.013~~	~~0.34~~
Phenanthrene	4.0		0.0024	0.039
Anthracene	0.73		0.0019	0.020
Di-n-butyl phthalate	ND		0.0086	0.20 U
Fluoranthene	0.26		0.0026	0.025
Pyrene	1.2		0.0020	0.029
Butyl benzyl phthalate	ND		0.024	0.29 U
3,3'-Dichlorobenzidine	ND		0.16	0.98 U
Benzo[a]anthracene	0.37		0.0032	0.029
Chrysene	0.51		0.0044	0.020
Bis(2-ethylhexyl) phthalate	~~0.27~~	~~J~~	0.031	1.5 U
Di-n-octyl phthalate	ND		0.018	0.20 U
Benzo[a]pyrene	0.20		0.0026	0.020
Indeno[1,2,3-cd]pyrene	ND		0.0050	0.029 U
Dibenz(a,h)anthracene	ND		0.0045	0.029 U
Benzo[g,h,i]perylene	0.11		0.0059	0.029
Carbazole	0.48		0.0088	0.20
Benzo[b]fluoranthene	0.12		0.0045	0.039
Benzo[k]fluoranthene	0.021	J	0.0054	0.029

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	27		10 - 120
Phenol-d5	9	X I	10 - 102
Nitrobenzene-d5	116		34 - 146
2-Fluorobiphenyl	57		35 - 143
2,4,6-Tribromophenol	71		29 - 151
Terphenyl-d14	80		35 - 166

MW 5-24-07

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040136**

Lab Sample ID: 580-5689-24
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 10
Date Analyzed: 04/26/2007 1702
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009227.D
Initial Weight/Volume: 1020 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Naphthalene	5.0		0.014	2.0
1-Methylnaphthalene	20		0.051	0.29

MN 5-24-07

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040137**

Lab Sample ID: 580-5689-25
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 05/01/2007 1638
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009335.D
Initial Weight/Volume: 985 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenol	ND		0.0075	0.30
Bis(2-chloroethyl)ether	0.028	J	0.018	0.20
2-Chlorophenol	ND		0.022	0.20
1,3-Dichlorobenzene	ND		0.011	0.20
1,4-Dichlorobenzene	ND		0.012	0.20
Benzyl alcohol	ND		0.013	0.20
1,2-Dichlorobenzene	0.037	J	0.011	0.20
2-Methylphenol	ND		0.039	0.20
Bis(2-chloroisopropyl) ether	ND		0.0089	0.20
3 & 4 Methylphenol	ND		0.017	0.41
N-Nitrosodi-n-propylamine	ND		0.020	0.20
Hexachloroethane	ND		0.013	0.30
Nitrobenzene	ND		0.0076	0.20
Isophorone	ND		0.011	0.20
2-Nitrophenol	ND		0.021	0.20
2,4-Dimethylphenol	ND		0.018	1.0
Benzoic acid	ND		0.021	1.0
Bis(2-chloroethoxy)methane	ND		0.0096	0.20
2,4-Dichlorophenol	ND		0.013	0.20
1,2,4-Trichlorobenzene	ND		0.010	0.20
Naphthalene	ND		0.0014	0.20
4-Chloroaniline	ND		0.019	0.20
Hexachlorobutadiene	ND		0.016	0.30
4-Chloro-3-methylphenol	ND		0.014	0.20
2-Methylnaphthalene	ND		0.0056	0.10
Hexachlorocyclopentadiene	ND		0.012	1.0
2,4,6-Trichlorophenol	ND		0.010	0.30
2,4,5-Trichlorophenol	ND		0.0086	0.20
2-Chloronaphthalene	ND		0.0030	0.030
2-Nitroaniline	ND		0.011	0.20
Dimethyl phthalate	ND		0.012	0.20
Acenaphthylene	ND		0.0026	0.041
2,6-Dinitrotoluene	ND		0.014	0.20
3-Nitroaniline	ND		0.057	0.20
Acenaphthene	0.11		0.0012	0.051
2,4-Dinitrophenol	ND		0.059	2.5
4-Nitrophenol	ND		0.16	1.0
Dibenzofuran	ND		0.0099	0.20
2,4-Dinitrotoluene	ND		0.012	0.20
Diethyl phthalate	ND		0.0094	0.20
4-Chlorophenyl phenyl ether	ND		0.012	0.20
Fluorene	0.14		0.0043	0.030
4-Nitroaniline	ND		0.018	0.30

MW 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040137**

Lab Sample ID: 580-5689-25
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 05/01/2007 1638
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009335.D
Initial Weight/Volume: 985 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol	R ~~ND~~		~~0.054~~	~~2.0~~
N-Nitrosodiphenylamine	ND		0.013	0.20 U
4-Bromophenyl phenyl ether	ND		0.010	0.20
Hexachlorobenzene	ND		0.0083	0.20
Pentachlorophenol	R ~~ND~~		~~0.013~~	~~0.36~~
Phenanthrene	0.021	J	0.0024	0.041
Anthracene	0.012	J	0.0019	0.020
Di-n-butyl phthalate	~~0.078~~	~~J~~	0.0089	0.20 U
Fluoranthene	ND		0.0027	0.025 U
Pyrene	ND		0.0020	0.030 U
Butyl benzyl phthalate	~~0.23~~	~~J~~	0.024	0.30 U
3,3'-Dichlorobenzidine	ND		0.16	1.0 U
Benzo[a]anthracene	ND		0.0034	0.030
Chrysene	ND		0.0046	0.020
Di-n-octyl phthalate	ND		0.018	0.20
Benzo[a]pyrene	ND		0.0027	0.020
Indeno[1,2,3-cd]pyrene	ND		0.0052	0.030
Dibenz(a,h)anthracene	ND		0.0047	0.030
Benzo[g,h,i]perylene	ND		0.0061	0.030
Carbazole	ND		0.0091	0.20
1-Methylnaphthalene	ND		0.0053	0.030
Benzo[b]fluoranthene	ND		0.0047	0.041
Benzo[k]fluoranthene	ND		0.0056	0.030

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	0	X I	10 - 120
Phenol-d5	7	X I	10 - 102
Nitrobenzene-d5	72		34 - 146
2-Fluorobiphenyl	68		35 - 143
2,4,6-Tribromophenol	69		29 - 151
Terphenyl-d14	67		35 - 166

MW 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040137**

Lab Sample ID: 580-5689-25
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 50
Date Analyzed: 04/27/2007 1036
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009248.D
Initial Weight/Volume: 985 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Bis(2-ethylhexyl) phthalate	120	~~B~~ MV	1.6	76

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040138**

Lab Sample ID: 580-5689-26
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/26/2007 1852
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009231.D
Initial Weight/Volume: 970 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenol	ND		0.0076	0.31
Bis(2-chloroethyl)ether	ND		0.019	0.21
2-Chlorophenol	ND		0.023	0.21
1,3-Dichlorobenzene	ND		0.011	0.21
1,4-Dichlorobenzene	ND		0.012	0.21
Benzyl alcohol	ND		0.013	0.21
1,2-Dichlorobenzene	ND		0.011	0.21
2-Methylphenol	ND		0.039	0.21
Bis(2-chloroisopropyl) ether	ND		0.0091	0.21
3 & 4 Methylphenol	ND		0.018	0.41
N-Nitrosodi-n-propylamine	ND		0.021	0.21
Hexachloroethane	ND		0.013	0.31
Nitrobenzene	ND		0.0077	0.21
Isophorone	ND		0.011	0.21
2-Nitrophenol	ND		0.022	0.21
2,4-Dimethylphenol	ND		0.019	1.0
Benzoic acid	ND		0.022	1.0
Bis(2-chloroethoxy)methane	ND		0.0098	0.21
2,4-Dichlorophenol	ND		0.013	0.21
1,2,4-Trichlorobenzene	ND		0.010	0.21
Naphthalene	ND		0.0014	0.21
4-Chloroaniline	ND		0.020	0.21
Hexachlorobutadiene	ND		0.016	0.31
4-Chloro-3-methylphenol	ND		0.014	0.21
2-Methylnaphthalene	ND		0.0057	0.10
Hexachlorocyclopentadiene	ND		0.012	1.0
2,4,6-Trichlorophenol	ND		0.010	0.31
2,4,5-Trichlorophenol	ND		0.0088	0.21
2-Chloronaphthalene	ND		0.0031	0.031
2-Nitroaniline	ND		0.011	0.21
Dimethyl phthalate	ND		0.012	0.21
Acenaphthylene	ND		0.0027	0.041
2,6-Dinitrotoluene	ND		0.014	0.21
3-Nitroaniline	ND		0.058	0.21
Acenaphthene	0.17		0.0012	0.052
2,4-Dinitrophenol	ND		0.060	2.6
4-Nitrophenol	ND		0.16	1.0
Dibenzofuran	0.020	J	0.010	0.21
2,4-Dinitrotoluene	ND		0.012	0.21
Diethyl phthalate	ND		0.0096	0.21
4-Chlorophenyl phenyl ether	ND		0.012	0.21
Fluorene	0.40		0.0043	0.031
4-Nitroaniline	ND		0.019	0.31

MW 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040138**

Lab Sample ID: 580-5689-26
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/26/2007 1852
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009231.D
Initial Weight/Volume: 970 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol	ND		0.055	2.1 U
N-Nitrosodiphenylamine	ND		0.013	0.21
4-Bromophenyl phenyl ether	ND		0.010	0.21
Hexachlorobenzene	ND		0.0085	0.21
Pentachlorophenol	ND		0.013	0.36
Phenanthrene	0.078		0.0025	0.041
Anthracene	ND		0.0020	0.021 U
Di-n-butyl phthalate	~~0.093~~	~~J~~	0.0091	0.21 U
Fluoranthene	0.034		0.0028	0.026
Pyrene	0.071		0.0021	0.031
Butyl benzyl phthalate	ND		0.025	0.31 U
3,3'-Dichlorobenzidine	ND		0.16	1.0 U
Benzo[a]anthracene	0.017	J	0.0034	0.031
Chrysene	0.067		0.0046	0.021
Di-n-octyl phthalate	ND		0.019	0.21 U
Benzo[a]pyrene	ND		0.0028	0.021
Indeno[1,2,3-cd]pyrene	ND		0.0053	0.031
Dibenz(a,h)anthracene	ND		0.0047	0.031
Benzo[g,h,i]perylene	0.037		0.0062	0.031
Carbazole	0.022	J	0.0093	0.21
1-Methylnaphthalene	ND		0.0054	0.031 U
Benzo[b]fluoranthene	0.038	J	0.0047	0.041
Benzo[k]fluoranthene	ND		0.0057	0.031 U

Surrogate	%Rec	Acceptance Limits
2-Fluorophenol	18	10 - 120
Phenol-d5	11	10 - 102
Nitrobenzene-d5	80	34 - 146
2-Fluorobiphenyl	52	35 - 143
2,4,6-Tribromophenol	66	29 - 151
Terphenyl-d14	76	35 - 166

MN
5/24/07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040138**

Lab Sample ID: 580-5689-26
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 50
Date Analyzed: 04/27/2007 1103
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009249.D
Initial Weight/Volume: 970 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Bis(2-ethylhexyl) phthalate	85	B	1.6	77

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040139**

Lab Sample ID: 580-5689-27
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/26/2007 1920
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009232.D
Initial Weight/Volume: 995 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenol	ND		0.0074	0.30
Bis(2-chloroethyl)ether	ND		0.018	0.20
2-Chlorophenol	ND		0.022	0.20
1,3-Dichlorobenzene	ND		0.011	0.20
1,4-Dichlorobenzene	0.051	J	0.012	0.20
Benzyl alcohol	ND		0.013	0.20
1,2-Dichlorobenzene	0.21		0.011	0.20
2-Methylphenol	ND		0.038	0.20
Bis(2-chloroisopropyl) ether	ND		0.0088	0.20
3 & 4 Methylphenol	ND		0.017	0.40
N-Nitrosodi-n-propylamine	ND		0.020	0.20
Hexachloroethane	ND		0.013	0.30
Nitrobenzene	ND		0.0075	0.20
Isophorone	ND		0.011	0.20
2-Nitrophenol	ND		0.021	0.20
2,4-Dimethylphenol	ND		0.048	1.0
Benzoic acid	ND		0.021	1.0
Bis(2-chloroethoxy)methane	ND		0.0095	0.20
2,4-Dichlorophenol	ND		0.013	0.20
1,2,4-Trichlorobenzene	ND		0.010	0.20
4-Chloroaniline	ND		0.019	0.20
Hexachlorobutadiene	ND		0.016	0.30
4-Chloro-3-methylphenol	ND		0.014	0.20
Hexachlorocyclopentadiene	ND		0.012	1.0
2,4,6-Trichlorophenol	ND		0.010	0.30
2,4,5-Trichlorophenol	ND		0.0085	0.20
2-Chloronaphthalene	ND		0.0030	0.030
2-Nitroaniline	ND		0.011	0.20
Dimethyl phthalate	ND		0.012	0.20
Acenaphthylene	ND		0.0026	0.040
2,6-Dinitrotoluene	ND		0.014	0.20
3-Nitroaniline	ND		0.056	0.20
Acenaphthene	2.9		0.0012	0.050
2,4-Dinitrophenol	ND		0.058	2.5
4-Nitrophenol	ND		0.16	1.0
Dibenzofuran	ND		0.0098	0.20
2,4-Dinitrotoluene	ND		0.012	0.20
Diethyl phthalate	ND		0.0093	0.20
4-Chlorophenyl phenyl ether	ND		0.012	0.20
Fluorene	3.9		0.0042	0.030
4-Nitroaniline	ND		0.018	0.30
4,6-Dinitro-2-methylphenol	ND		0.053	2.0
N-Nitrosodiphenylamine	ND		0.013	0.20

MW 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040139**

Lab Sample ID: 580-5689-27
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/26/2007 1920
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009232.D
Initial Weight/Volume: 995 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
4-Bromophenyl phenyl ether	ND		0.010	0.20
Hexachlorobenzene	ND		0.0082	0.20
Pentachlorophenol	~~ND~~		~~0.013~~	~~0.35~~
Phenanthrene	2.3		0.0024	0.040
Anthracene	0.12		0.0019	0.020
Di-n-butyl phthalate	~~0.11~~	~~J~~	0.0088	0.20
Fluoranthene	0.037		0.0027	0.025
Pyrene	0.041		0.0020	0.030
Butyl benzyl phthalate	~~0.26~~	~~J~~	0.024	0.30
3,3'-Dichlorobenzidine	ND		0.16	1.0
Benzo[a]anthracene	ND		0.0033	0.030
Chrysene	ND		0.0045	0.020
Di-n-octyl phthalate	ND		0.018	0.20
Benzo[a]pyrene	ND		0.0027	0.020
Indeno[1,2,3-cd]pyrene	ND		0.0051	0.030
Dibenz(a,h)anthracene	ND		0.0046	0.030
Benzo[g,h,i]perylene	ND		0.0060	0.030
Carbazole	0.13	J	0.0090	0.20
Benzo[b]fluoranthene	ND		0.0046	0.040
Benzo[k]fluoranthene	ND		0.0055	0.030

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	17		10 - 120
Phenol-d5	9	X I	10 - 102
Nitrobenzene-d5	87		34 - 146
2-Fluorobiphenyl	77		35 - 143
2,4,6-Tribromophenol	87		29 - 151
Terphenyl-d14	79		35 - 166

5/24/07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040139**

Lab Sample ID: 580-5689-27
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 10
Date Analyzed: 04/27/2007 1158
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009251.D
Initial Weight/Volume: 995 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Naphthalene	7.1		0.014	2.0
2-Methylnaphthalene	34		0.055	1.0
1-Methylnaphthalene	29		0.052	0.30

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040139**

Lab Sample ID: 580-5689-27
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 100
Date Analyzed: 04/27/2007 1130
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009250.D
Initial Weight/Volume: 995 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Bis(2-ethylhexyl) phthalate	390	~~B~~ MW	3.2	150

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040140**

Lab Sample ID: 580-5689-28
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 10
Date Analyzed: 04/26/2007 1947
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009233.D
Initial Weight/Volume: 1055 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenol	~~ND~~		~~0.070~~	~~2.8~~
Bis(2-chloroethyl)ether	ND		0.17	1.9
2-Chlorophenol	~~ND~~		~~0.21~~	~~1.9~~
1,3-Dichlorobenzene	ND		0.10	1.9
1,4-Dichlorobenzene	ND		0.11	1.9
Benzyl alcohol	~~ND~~		~~0.12~~	~~1.9~~
1,2-Dichlorobenzene	0.53	J	0.10	1.9
2-Methylphenol	~~ND~~		~~0.36~~	~~1.9~~
Bis(2-chloroisopropyl) ether	ND		0.083	1.9
3 & 4 Methylphenol	~~ND~~		~~0.16~~	~~3.8~~
N-Nitrosodi-n-propylamine	ND		0.19	1.9
Hexachloroethane	ND		0.12	2.8
Nitrobenzene	ND		0.071	1.9
Isophorone	ND		0.10	1.9
2-Nitrophenol	~~ND~~		~~0.20~~	~~1.9~~
2,4-Dimethylphenol	~~ND~~		~~0.17~~	~~9.5~~
Benzoic acid	~~ND~~		~~0.20~~	~~9.5~~
Bis(2-chloroethoxy)methane	ND		0.090	1.9
2,4-Dichlorophenol	~~ND~~		~~0.12~~	~~1.9~~
1,2,4-Trichlorobenzene	ND		0.095	1.9
4-Chloroaniline	ND		0.18	1.9
Hexachlorobutadiene	ND		0.15	2.8
4-Chloro-3-methylphenol	~~ND~~		~~0.13~~	~~1.9~~
Hexachlorocyclopentadiene	ND		0.11	9.5
2,4,6-Trichlorophenol	~~ND~~		~~0.095~~	~~2.8~~
2,4,5-Trichlorophenol	~~ND~~		~~0.081~~	~~1.9~~
2-Chloronaphthalene	ND		0.028	0.28
2-Nitroaniline	ND		0.10	1.9
Dimethyl phthalate	ND		0.11	1.9
Acenaphthylene	ND		0.025	0.38
2,6-Dinitrotoluene	ND		0.13	1.9
3-Nitroaniline	ND		0.53	1.9
Acenaphthene	9.3		0.011	0.47
2,4-Dinitrophenol	~~ND~~		~~0.55~~	~~24~~
4-Nitrophenol	~~ND~~		~~1.5~~	~~9.5~~
Dibenzofuran	ND		0.093	1.9
2,4-Dinitrotoluene	ND		0.11	1.9
Diethyl phthalate	ND		0.088	1.9
4-Chlorophenyl phenyl ether	ND		0.11	1.9
Fluorene	34		0.040	0.28
4-Nitroaniline	ND		0.17	2.8
4,6-Dinitro-2-methylphenol	19	J	0.50	19
N-Nitrosodiphenylamine	12		0.12	1.9

AW 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040140**

Lab Sample ID: 580-5689-28
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 10
Date Analyzed: 04/26/2007 1947
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009233.D
Initial Weight/Volume: 1055 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
4-Bromophenyl phenyl ether	ND		0.095	1.9 U
Hexachlorobenzene	ND		0.078	1.9
Pentachlorophenol	ND		0.12	3.3
Anthracene	4.4		0.018	0.19
Di-n-butyl phthalate	ND		0.083	1.9 U
Fluoranthene	4.2		0.026	0.24
Pyrene	8.6		0.019	0.28
Butyl benzyl phthalate	ND		0.23	2.8 U
3,3'-Dichlorobenzidine	ND		1.5	9.5 U
Benzo[a]anthracene	1.6		0.031	0.28
Chrysene	3.0		0.043	0.19
Bis(2-ethylhexyl) phthalate	~~2.0~~	~~J B~~	0.30	14 U
Di-n-octyl phthalate	ND		0.17	1.9 U
Benzo[a]pyrene	0.85		0.026	0.19
Indeno[1,2,3-cd]pyrene	ND		0.048	0.28 U
Dibenz(a,h)anthracene	ND		0.044	0.28 U
Benzo[g,h,i]perylene	0.51		0.057	0.28
Carbazole	ND		0.085	1.9 U
Benzo[b]fluoranthene	0.84		0.044	0.38
Benzo[k]fluoranthene	ND		0.052	0.28 U

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	2	X I	10 - 120
Phenol-d5	7	X I	10 - 102
Nitrobenzene-d5	561	X I	34 - 146
2-Fluorobiphenyl	64		35 - 143
2,4,6-Tribromophenol	130		29 - 151
Terphenyl-d14	105		35 - 166

MW
5/24/07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040140**

Lab Sample ID: 580-5689-28
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 100
Date Analyzed: 04/27/2007 1225
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009252.D
Initial Weight/Volume: 1055 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Naphthalene	63		0.13	19
2-Methylnaphthalene	270		0.52	9.5
Phenanthrene	59		0.23	3.8
1-Methylnaphthalene	210		0.49	2.8

MW
5/24/07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040141**

Lab Sample ID: 580-5689-29
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 05/01/2007 1705
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009336.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenol	ND		0.0074	0.30
Bis(2-chloroethyl)ether	ND		0.018	0.20
2-Chlorophenol	ND		0.022	0.20
1,3-Dichlorobenzene	ND		0.011	0.20
1,4-Dichlorobenzene	ND		0.012	0.20
Benzyl alcohol	ND		0.013	0.20
1,2-Dichlorobenzene	0.048	J	0.011	0.20
2-Methylphenol	ND		0.038	0.20
Bis(2-chloroisopropyl) ether	ND		0.0088	0.20
3 & 4 Methylphenol	ND		0.017	0.40
N-Nitrosodi-n-propylamine	ND		0.020	0.20
Hexachloroethane	ND		0.013	0.30
Nitrobenzene	ND		0.0075	0.20
Isophorone	ND		0.011	0.20
2-Nitrophenol	ND		0.021	0.20
2,4-Dimethylphenol	ND		0.018	1.0
Benzoic acid	ND		0.021	1.0
Bis(2-chloroethoxy)methane	ND		0.0095	0.20
2,4-Dichlorophenol	ND		0.013	0.20
1,2,4-Trichlorobenzene	ND		0.010	0.20
Naphthalene	ND		0.0014	0.20
4-Chloroaniline	ND		0.019	0.20
Hexachlorobutadiene	ND		0.016	0.30
4-Chloro-3-methylphenol	ND		0.014	0.20
2-Methylnaphthalene	ND		0.0055	0.10
Hexachlorocyclopentadiene	ND		0.012	1.0
2,4,6-Trichlorophenol	ND		0.010	0.30
2,4,5-Trichlorophenol	ND		0.0085	0.20
2-Chloronaphthalene	ND		0.0030	0.030
2-Nitroaniline	ND		0.011	0.20
Dimethyl phthalate	ND		0.012	0.20
Acenaphthylene	ND		0.0026	0.040
2,6-Dinitrotoluene	ND		0.014	0.20
3-Nitroaniline	ND		0.056	0.20
Acenaphthene	0.60		0.0012	0.050
2,4-Dinitrophenol	ND		0.058	2.5
4-Nitrophenol	ND		0.16	1.0
Dibenzofuran	ND		0.0098	0.20
2,4-Dinitrotoluene	ND		0.012	0.20
Diethyl phthalate	ND		0.0093	0.20
4-Chlorophenyl phenyl ether	ND		0.012	0.20
Fluorene	0.40		0.0042	0.030
4-Nitroaniline	ND		0.018	0.30

MAN 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040141**

Lab Sample ID: 580-5689-29
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 05/01/2007 1705
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009336.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol	R ~~ND~~		~~0.053~~	~~2.0~~ U
N-Nitrosodiphenylamine	ND		0.013	0.20 U
4-Bromophenyl phenyl ether	ND		0.010	0.20
Hexachlorobenzene	ND		0.0082	0.20
Pentachlorophenol	R ~~ND~~		~~0.013~~	~~0.35~~
Phenanthrene	0.026	J	0.0024	0.040
Anthracene	0.019	J	0.0019	0.020
Di-n-butyl phthalate	~~0.098~~	~~J B~~	0.0088	0.20 U
Fluoranthene	ND		0.0027	0.025 U
Pyrene	ND		0.0020	0.030 U
Butyl benzyl phthalate	~~0.092~~	~~J B~~	0.024	0.30 U
3,3'-Dichlorobenzidine	ND		0.16	1.0 U
Benzo[a]anthracene	ND		0.0033	0.030
Chrysene	ND		0.0045	0.020
Di-n-octyl phthalate	0.080	J	0.018	0.20
Benzo[a]pyrene	ND		0.0027	0.020 U
Indeno[1,2,3-cd]pyrene	ND		0.0051	0.030
Dibenz(a,h)anthracene	ND		0.0046	0.030
Benzo[g,h,i]perylene	ND		0.0060	0.030
Carbazole	ND		0.0090	0.20
1-Methylnaphthalene	ND		0.0052	0.030
Benzo[b]fluoranthene	ND		0.0046	0.040
Benzo[k]fluoranthene	ND		0.0055	0.030

Surrogate	%Rec		Acceptance Limits
2-Fluorophenol	11		10 - 120
Phenol-d5	8	X I	10 - 102
Nitrobenzene-d5	72		34 - 146
2-Fluorobiphenyl	68		35 - 143
2,4,6-Tribromophenol	71		29 - 151
Terphenyl-d14	60		35 - 166

MW
5/24/07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040141**

Lab Sample ID: 580-5689-29
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 50
Date Analyzed: 04/27/2007 1253
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009253.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Bis(2-ethylhexyl) phthalate	210	~~B~~ MW	1.6	75

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040142**

Lab Sample ID: 580-5689-30
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/26/2007 2042
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009235.D
Initial Weight/Volume: 970 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenol	ND		0.0076	0.31
Bis(2-chloroethyl)ether	ND		0.019	0.21
2-Chlorophenol	ND		0.023	0.21
1,3-Dichlorobenzene	ND		0.011	0.21
1,4-Dichlorobenzene	ND		0.012	0.21
Benzyl alcohol	ND		0.013	0.21
1,2-Dichlorobenzene	ND		0.011	0.21
2-Methylphenol	ND		0.039	0.21
Bis(2-chloroisopropyl) ether	ND		0.0091	0.21
3 & 4 Methylphenol	ND		0.018	0.41
N-Nitrosodi-n-propylamine	ND		0.021	0.21
Hexachloroethane	ND		0.013	0.31
Nitrobenzene	ND		0.0077	0.21
Isophorone	ND		0.011	0.21
2-Nitrophenol	ND		0.022	0.21
2,4-Dimethylphenol	ND		0.019	1.0
Benzoic acid	ND		0.022	1.0
Bis(2-chloroethoxy)methane	ND		0.0098	0.21
2,4-Dichlorophenol	ND		0.013	0.21
1,2,4-Trichlorobenzene	ND		0.010	0.21
Naphthalene	ND		0.0014	0.21
4-Chloroaniline	ND		0.020	0.21
Hexachlorobutadiene	ND		0.016	0.31
4-Chloro-3-methylphenol	ND		0.014	0.21
2-Methylnaphthalene	ND		0.0057	0.10
Hexachlorocyclopentadiene	ND		0.012	1.0
2,4,6-Trichlorophenol	ND		0.010	0.31
2,4,5-Trichlorophenol	ND		0.0088	0.21
2-Chloronaphthalene	ND		0.0031	0.031
2-Nitroaniline	ND		0.011	0.21
Dimethyl phthalate	ND		0.012	0.21
Acenaphthylene	ND		0.0027	0.041
2,6-Dinitrotoluene	ND		0.014	0.21
3-Nitroaniline	ND		0.058	0.21
Acenaphthene	ND		0.0012	0.052
2,4-Dinitrophenol	ND		0.060	2.6
4-Nitrophenol	ND		0.16	1.0
Dibenzofuran	ND		0.010	0.21
2,4-Dinitrotoluene	ND		0.012	0.21
Diethyl phthalate	ND		0.0096	0.21
4-Chlorophenyl phenyl ether	ND		0.012	0.21
Fluorene	ND		0.0043	0.031
4-Nitroaniline	ND		0.019	0.31

MW 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040142**

Lab Sample ID: 580-5689-30
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/26/2007 2042
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009235.D
Initial Weight/Volume: 970 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol	ND		0.055	2.1
N-Nitrosodiphenylamine	ND		0.013	0.21
4-Bromophenyl phenyl ether	ND		0.010	0.21
Hexachlorobenzene	ND		0.0085	0.21
Pentachlorophenol	ND		0.013	0.36
Phenanthrene	ND		0.0025	0.041
Anthracene	ND		0.0020	0.021
Di-n-butyl phthalate	~~0.085~~	~~J B~~	0.0091	0.21
Fluoranthene	ND		0.0028	0.026
Pyrene	ND		0.0021	0.031
Butyl benzyl phthalate	~~0.095~~	~~J B~~	0.025	0.31
3,3'-Dichlorobenzidine	ND		0.16	1.0
Benzo[a]anthracene	ND		0.0034	0.031
Chrysene	ND		0.0046	0.021
Di-n-octyl phthalate	ND		0.019	0.21
Benzo[a]pyrene	ND		0.0028	0.021
Indeno[1,2,3-cd]pyrene	ND		0.0053	0.031
Dibenz(a,h)anthracene	ND		0.0047	0.031
Benzo[g,h,i]perylene	ND		0.0062	0.031
Carbazole	ND		0.0093	0.21
1-Methylnaphthalene	ND		0.0054	0.031
Benzo[b]fluoranthene	ND		0.0047	0.041
Benzo[k]fluoranthene	ND		0.0057	0.031

Surrogate	%Rec	Acceptance Limits
2-Fluorophenol	36	10 - 120
Phenol-d5	26	10 - 102
Nitrobenzene-d5	81	34 - 146
2-Fluorobiphenyl	72	35 - 143
2,4,6-Tribromophenol	62	29 - 151
Terphenyl-d14	79	35 - 166

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040142**

Lab Sample ID: 580-5689-30
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 20
Date Analyzed: 04/27/2007 1320
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009254.D
Initial Weight/Volume: 970 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Bis(2-ethylhexyl) phthalate	71	~~B~~ MW	0.66	31

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040143**

Lab Sample ID: 580-5689-31
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2323
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009214.D
Initial Weight/Volume: 1005 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenol	ND		0.0074	0.30
Bis(2-chloroethyl)ether	ND		0.018	0.20
2-Chlorophenol	ND		0.022	0.20
1,3-Dichlorobenzene	ND		0.011	0.20
1,4-Dichlorobenzene	ND		0.012	0.20
Benzyl alcohol	ND		0.013	0.20
1,2-Dichlorobenzene	ND		0.011	0.20
2-Methylphenol	ND		0.038	0.20
Bis(2-chloroisopropyl) ether	ND		0.0088	0.20
3 & 4 Methylphenol	ND		0.017	0.40
N-Nitrosodi-n-propylamine	ND		0.020	0.20
Hexachloroethane	ND		0.013	0.30
Nitrobenzene	ND		0.0075	0.20
Isophorone	ND		0.011	0.20
2-Nitrophenol	ND		0.021	0.20
2,4-Dimethylphenol	ND		0.018	1.0
Benzoic acid	ND		0.021	1.0
Bis(2-chloroethoxy)methane	ND		0.0095	0.20
2,4-Dichlorophenol	ND		0.013	0.20
1,2,4-Trichlorobenzene	ND		0.010	0.20
Naphthalene	ND		0.0014	0.20
4-Chloroaniline	ND		0.019	0.20
Hexachlorobutadiene	ND		0.016	0.30
4-Chloro-3-methylphenol	ND		0.014	0.20
2-Methylnaphthalene	ND		0.0055	0.10
Hexachlorocyclopentadiene	ND		0.012	1.0
2,4,6-Trichlorophenol	ND		0.010	0.30
2,4,5-Trichlorophenol	ND		0.0085	0.20
2-Chloronaphthalene	ND		0.0030	0.030
2-Nitroaniline	ND		0.011	0.20
Dimethyl phthalate	ND		0.012	0.20
Acenaphthylene	ND		0.0026	0.040
2,6-Dinitrotoluene	ND		0.014	0.20
3-Nitroaniline	ND		0.056	0.20
Acenaphthene	ND		0.0012	0.050
2,4-Dinitrophenol	ND		0.058	2.5
4-Nitrophenol	ND		0.16	1.0
Dibenzofuran	ND		0.0098	0.20
2,4-Dinitrotoluene	ND		0.012	0.20
Diethyl phthalate	0.018	J	0.0093	0.20
4-Chlorophenyl phenyl ether	ND		0.012	0.20
Fluorene	ND		0.0042	0.030
4-Nitroaniline	ND		0.018	0.30

MW 5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040143**

Lab Sample ID: 580-5689-31
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2323
Date Prepared: 04/25/2007 1300

Analysis Batch: 580-18102
Prep Batch: 580-18063

Instrument ID: SEA040
Lab File ID: ak009214.D
Initial Weight/Volume: 1005 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol	ND		0.053	2.0
N-Nitrosodiphenylamine	ND		0.013	0.20
4-Bromophenyl phenyl ether	ND		0.010	0.20
Hexachlorobenzene	ND		0.0082	0.20
Pentachlorophenol	ND		0.013	0.35
Phenanthrene	ND		0.0024	0.040
Anthracene	0.0026	J	0.0019	0.020
Di-n-butyl phthalate	2.5	~~B~~	0.0088	0.20
Fluoranthene	ND		0.0027	0.025
Pyrene	ND		0.0020	0.030
Butyl benzyl phthalate	~~0.094~~	~~J B~~	0.024	0.30
3,3'-Dichlorobenzidine	ND		0.16	1.0
Benzo[a]anthracene	ND		0.0033	0.030
Chrysene	ND		0.0045	0.020
Bis(2-ethylhexyl) phthalate	~~0.16~~	~~J B~~	0.032	1.5
Di-n-octyl phthalate	ND		0.018	0.20
Benzo[a]pyrene	ND		0.0027	0.020
Indeno[1,2,3-cd]pyrene	ND		0.0051	0.030
Dibenz(a,h)anthracene	ND		0.0046	0.030
Benzo[g,h,i]perylene	ND		0.0060	0.030
Carbazole	ND		0.0090	0.20
1-Methylnaphthalene	ND		0.0052	0.030
Benzo[b]fluoranthene	ND		0.0046	0.040
Benzo[k]fluoranthene	ND		0.0055	0.030

Surrogate	%Rec	Acceptance Limits
2-Fluorophenol	37	10 - 120
Phenol-d5	24	10 - 102
Nitrobenzene-d5	81	34 - 146
2-Fluorobiphenyl	73	35 - 143
2,4,6-Tribromophenol	74	29 - 151
Terphenyl-d14	83	35 - 166

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040131**

Lab Sample ID: 580-5689-32
Client Matrix: Waste

Date Sampled: 04/20/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3580A
Dilution: 10
Date Analyzed: 04/27/2007 0049
Date Prepared: 04/26/2007 1040

Analysis Batch: 580-18154
Prep Batch: 580-18109

Instrument ID: SEA040
Lab File ID: ak009244.D
Initial Weight/Volume: 0.1171 g
Final Weight/Volume: 10 mL
Injection Volume:

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		ND		23000	85000
Bis(2-chloroethyl)ether		ND		26000	85000
2-Chlorophenol		ND		20000	85000
1,3-Dichlorobenzene		ND		10000	43000
1,4-Dichlorobenzene		ND		6500	43000
Benzyl alcohol		ND		26000	85000
1,2-Dichlorobenzene		ND		15000	43000
2-Methylphenol		ND		24000	85000
Bis(2-chloroisopropyl) ether		ND		29000	130000
3 & 4 Methylphenol		ND		45000	170000
N-Nitrosodi-n-propylamine		ND		22000	85000
Hexachloroethane		ND		18000	85000
Nitrobenzene		ND		13000	85000
Isophorone		ND		22000	85000
2-Nitrophenol		ND		20000	85000
2,4-Dimethylphenol		ND		16000	85000
Benzoic acid		ND		710000	2100000
Bis(2-chloroethoxy)methane		ND		21000	85000
2,4-Dichlorophenol		ND		16000	85000
1,2,4-Trichlorobenzene		ND		8500	43000
Naphthalene		320000		4900	17000
4-Chloroaniline		ND		23000	85000
Hexachlorobutadiene		ND		11000	43000
4-Chloro-3-methylphenol		ND		19000	85000
2-Methylnaphthalene		2400000		2600	17000
Hexachlorocyclopentadiene		ND		21000	85000
2,4,6-Trichlorophenol		ND		28000	130000
2,4,5-Trichlorophenol		ND		20000	85000
2-Chloronaphthalene		ND		1600	17000
2-Nitroaniline		ND		16000	85000
Dimethyl phthalate		ND		6600	85000
Acenaphthylene		ND		2000	17000
2,6-Dinitrotoluene		ND		16000	85000
3-Nitroaniline		ND		25000	85000
Acenaphthene		130000		4900	17000
2,4-Dinitrophenol		ND		180000	850000
4-Nitrophenol		ND		220000	850000
Dibenzofuran		ND		15000	85000
2,4-Dinitrotoluene		ND		12000	85000
Diethyl phthalate		ND		6100	85000
4-Chlorophenyl phenyl ether		ND		14000	85000
Fluorene		360000		2200	17000
4-Nitroaniline		ND		16000	85000

MW 5-24-07

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040131**

Lab Sample ID: 580-5689-32
Client Matrix: Waste

Date Sampled: 04/20/2007 0000
Date Received: 04/23/2007 1235

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

Method: 8270C
Preparation: 3580A
Dilution: 10
Date Analyzed: 04/27/2007 0049
Date Prepared: 04/26/2007 1040

Analysis Batch: 580-18154
Prep Batch: 580-18109

Instrument ID: SEA040
Lab File ID: ak009244.D
Initial Weight/Volume: 0.1171 g
Final Weight/Volume: 10 mL
Injection Volume:

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	MDL	RL
4,6-Dinitro-2-methylphenol		ND		230000	850000 U
N-Nitrosodiphenylamine		ND		13000	43000 J
4-Bromophenyl phenyl ether		ND		8500	85000
Hexachlorobenzene		ND		9400	43000
Pentachlorophenol		ND		26000	85000
Phenanthrene		700000		3400	17000
Anthracene		63000		3700	17000
Di-n-butyl phthalate		ND		11000	170000 U
Fluoranthene		37000		2600	17000
Pyrene		69000		2300	17000
Butyl benzyl phthalate		ND		25000	85000 U
3,3'-Dichlorobenzidine		ND		7800	170000 U
Benzo[a]anthracene		17000	J	5600	21000
Chrysene		29000		6400	21000
Bis(2-ethylhexyl) phthalate		ND		200000	1300000 U
Di-n-octyl phthalate		ND		28000	170000 U
Benzo[a]pyrene		24000	J	7300	26000
Indeno[1,2,3-cd]pyrene		ND		10000	34000 UJ
Dibenz(a,h)anthracene		ND		10000	34000
Benzo[g,h,i]perylene		ND		6200	21000
Carbazole		ND		28000	130000 UJ
1-Methylnaphthalene		1700000		7400	26000
Benzo[b]fluoranthene		21000		4600	17000
Benzo[k]fluoranthene		ND		5900	21000 U

Surrogate	%Rec	Acceptance Limits
2-Fluorophenol	71	36 - 145
Phenol-d5	74	38 - 149
Nitrobenzene-d5	115	38 - 141
2-Fluorobiphenyl	84	42 - 140
2,4,6-Tribromophenol	125	28 - 143
Terphenyl-d14	74	42 - 151

MW 5/24/07

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MEMORANDUM

DATE: May 24, 2007

TO: Steve Hall, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho**

REF: TDD: 07-03-0004 PAN: 002233.0193.01SF

The data quality assurance review of 15 solid, 1 waste, and 13 water samples collected from the Avery Landing site located in Avery, Idaho, has been completed. Analysis for Polychlorinated Biphenyls (PCBs - EPA Method 8082) was performed by STL-Seattle, Tacoma, Washington.

The samples were numbered:

Solid	07040102	07040104	07040106	07040108	07040110
	07040114	07040116	07040117	07040119	07040120
	07040122	07040124	07040125	07040127	07040129
Waste	07040131				
Water	07040111	07040132	07040133	07040134	07040135
	07040136	07040137	07040138	07040139	07040140
	07040141	07040142	07040143		

Data Qualifications:

1. Sample Holding Times: Acceptable.

Sample receipt temperature was not provided; the laboratory narrative indicated that sample temperature was acceptable. The samples were collected between April 16 and 21, 2007, were extracted between April 24 and 26, 2007, and were analyzed by April 26, 2007, therefore meeting holding time criteria of less than 7 days between collection and extraction (14 days for soil and waste) and less than 40 days between extraction and analysis.

2. Instrument Performance: Acceptable.

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was $\leq 0.3\%$ for capillary column analyses.

3. Initial and Continuing Calibration: Acceptable.

All initial calibration relative standard deviations (RSDs) were less than 15% except for the SMC dichlorobenzidine; no action was taken based on this outlier. All continuing calibration % differences (% D) were less than 15% and were within QC limits.

4. Error Determination: Not Provided.

Samples necessary for bias and precision determination were not provided to the laboratory. All samples were flagged RND (Recovery Not Determined) and PND (Precision Not Determined), although the flags are not found on the Form I's.

5. 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.

6. Performance Evaluation Samples: Not Provided.

Performance evaluation samples were not provided to the laboratory.

7. System Monitoring Compounds (SMCs): Satisfactory.

All recoveries of the SMCs were within the established control limits except the SMC tetrachloro-m-xylene with low recoveries in samples 07040111, 07040136, 07040138, 07040139, and 07040141. Sample quantitation limits in these samples were qualified as estimated quantities (UJ).

8. Blank and Matrix Spikes: Acceptable.

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

9. Duplicates: Acceptable.

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

10. Compound Identification: Satisfactory.

All results were dual-column confirmed with differences between the columns less than 25% except Aroclor 1260 in samples 07040110, 07040129, 07040140, and 07040131. Positive sample results with percent differences between the columns greater than 25% were qualified as estimated quantities (J).

11. Target Compound Quantitation and Quantitation Limits: Acceptable.

Sample results and quantitation limits were correctly calculated.

12. Laboratory Contact

No laboratory contact was required.

13. 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 Superfund Organic Methods 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.

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040102**

Lab Sample ID: 580-5689-1
Client Matrix: Solid
% Moisture: 10.5
Date Sampled: 04/16/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/26/2007 0125
Date Prepared: 04/24/2007 0646

Analysis Batch: 580-18145
Prep Batch: 580-17977

Instrument ID: SEA034
Lab File ID: PCB7518.D
Initial Weight/Volume: 10.1021 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.0064	0.011
PCB-1221		ND		0.0064	0.011
PCB-1232		ND		0.0064	0.011
PCB-1242		ND		0.0064	0.011
PCB-1248		ND		0.0064	0.011
PCB-1254		ND		0.0017	0.011
PCB-1260		0.0098	J	0.0017	0.011

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	79	45 - 155
DCB Decachlorobiphenyl	71	50 - 150

MN
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040104**

Lab Sample ID: 580-5689-2
Client Matrix: Solid
% Moisture: 16.4
Date Sampled: 04/17/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/26/2007 0149
Date Prepared: 04/24/2007 0646

Analysis Batch: 580-18145
Prep Batch: 580-17977

Instrument ID: SEA034
Lab File ID: PCB7519.D
Initial Weight/Volume: 10.2524 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.0068	0.012
PCB-1221		ND		0.0068	0.012
PCB-1232		ND		0.0068	0.012
PCB-1242		ND		0.0068	0.012
PCB-1248		ND		0.0068	0.012
PCB-1254		ND		0.0017	0.012
PCB-1260		ND		0.0017	0.012

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	83	45 - 155
DCB Decachlorobiphenyl	82	50 - 150

JMW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040106**

Lab Sample ID: 580-5689-4
Client Matrix: Solid
% Moisture: 27.3
Date Sampled: 04/17/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/26/2007 0213
Date Prepared: 04/24/2007 0646

Analysis Batch: 580-18145
Prep Batch: 580-17977

Instrument ID: SEA034
Lab File ID: PCB7520.D
Initial Weight/Volume: 10.3437 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.0077	0.013
PCB-1221		ND		0.0077	0.013
PCB-1232		ND		0.0077	0.013
PCB-1242		ND		0.0077	0.013
PCB-1248		ND		0.0077	0.013
PCB-1254		ND		0.0020	0.013
PCB-1260		0.13		0.0020	0.013

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	94	45 - 155
DCB Decachlorobiphenyl	80	50 - 150

MN
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040108**

Lab Sample ID:	580-5689-5			Date Sampled:	04/17/2007 0000
Client Matrix:	Solid	% Moisture:	10.3	Date Received:	04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method:	8082	Analysis Batch: 580-18145		Instrument ID:	SEA034
Preparation:	3550B	Prep Batch: 580-17977		Lab File ID:	PCB7521.D
Dilution:	1.0			Initial Weight/Volume:	10.7649 g
Date Analyzed:	04/26/2007 0236			Final Weight/Volume:	10 mL
Date Prepared:	04/24/2007 0646			Injection Volume:	
				Column ID:	PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.0060	0.010
PCB-1221		ND		0.0060	0.010
PCB-1232		ND		0.0060	0.010
PCB-1242		ND		0.0060	0.010
PCB-1248		ND		0.0060	0.010
PCB-1254		ND		0.0016	0.010
PCB-1260		0.019		0.0016	0.010

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	86	45 - 155
DCB Decachlorobiphenyl	83	50 - 150

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040110**

Lab Sample ID: 580-5689-6
Client Matrix: Solid
% Moisture: 22.7
Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/26/2007 0347
Date Prepared: 04/24/2007 0646

Analysis Batch: 580-18145
Prep Batch: 580-17977

Instrument ID: SEA034
Lab File ID: PCB7524.D
Initial Weight/Volume: 10.1937 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.0074	0.013 U
PCB-1221		ND		0.0074	0.013
PCB-1232		ND		0.0074	0.013
PCB-1242		ND		0.0074	0.013
PCB-1248		ND		0.0074	0.013
PCB-1254		ND		0.0019	0.013
PCB-1260		0.020 J		0.0019	0.013

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	69	45 - 155
DCB Decachlorobiphenyl	79	50 - 150

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040111**

Lab Sample ID: 580-5689-7
Client Matrix: Water

Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 1645
Date Prepared: 04/25/2007 0949

Analysis Batch: 580-18140
Prep Batch: 580-18052

Instrument ID: SEA034
Lab File ID: PCB7493.D
Initial Weight/Volume: 910 mL
Final Weight/Volume: 1 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.0088	0.055 UJ
PCB-1221	ND		0.0088	0.055
PCB-1232	ND		0.0088	0.055
PCB-1242	ND		0.0088	0.055
PCB-1248	ND		0.0088	0.055
PCB-1254	ND		0.0055	0.055
PCB-1260	ND		0.0055	0.055

Surrogate	%Rec		Acceptance Limits
Tetrachloro-m-xylene	57	X	60 - 150
DCB Decachlorobiphenyl	65		40 - 135

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040114**

Lab Sample ID: 580-5689-9
Client Matrix: Solid
% Moisture: 27.0
Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/26/2007 0458
Date Prepared: 04/24/2007 0646

Analysis Batch: 580-18145
Prep Batch: 580-17977

Instrument ID: SEA034
Lab File ID: PCB7527.D
Initial Weight/Volume: 10.1749 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.0078	0.013
PCB-1221		ND		0.0078	0.013
PCB-1232		ND		0.0078	0.013
PCB-1242		ND		0.0078	0.013
PCB-1248		ND		0.0078	0.013
PCB-1254		ND		0.0020	0.013
PCB-1260		0.0092	J	0.0020	0.013

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	73	45 - 155
DCB Decachlorobiphenyl	79	50 - 150

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040116**

Lab Sample ID: 580-5689-10
Client Matrix: Solid
% Moisture: 12.0

Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/26/2007 0522
Date Prepared: 04/24/2007 0646

Analysis Batch: 580-18145
Prep Batch: 580-17977

Instrument ID: SEA034
Lab File ID: PCB7528.D
Initial Weight/Volume: 10.3936 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.0063	0.011
PCB-1221		ND		0.0063	0.011
PCB-1232		ND		0.0063	0.011
PCB-1242		ND		0.0063	0.011
PCB-1248		ND		0.0063	0.011
PCB-1254		ND		0.0016	0.011
PCB-1260		ND		0.0016	0.011

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	81	45 - 155
DCB Decachlorobiphenyl	68	50 - 150

MW
5-24-07

Client: Ecology and Environment, Inc. Job Number: 580-5689-1

Client Sample ID: 07040117

Lab Sample ID:	580-5689-11			Date Sampled:	04/18/2007 0000
Client Matrix:	Solid	% Moisture:	13.6	Date Received:	04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method:	8082	Analysis Batch: 580-18145		Instrument ID:	SEA034
Preparation:	3550B	Prep Batch: 580-17977		Lab File ID:	PCB7529.D
Dilution:	1.0			Initial Weight/Volume:	10.3414 g
Date Analyzed:	04/26/2007 0546			Final Weight/Volume:	10 mL
Date Prepared:	04/24/2007 0646			Injection Volume:	
				Column ID:	PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.0065	0.011
PCB-1221		ND		0.0065	0.011
PCB-1232		ND		0.0065	0.011
PCB-1242		ND		0.0065	0.011
PCB-1248		ND		0.0065	0.011
PCB-1254		ND		0.0017	0.011
PCB-1260		0.0044	J	0.0017	0.011

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	88	45 - 155
DCB Decachlorobiphenyl	75	50 - 150

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040119**

Lab Sample ID: 580-5689-12
Client Matrix: Solid
% Moisture: 23.8
Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/26/2007 1712
Date Prepared: 04/24/2007 0646

Analysis Batch: 580-18145
Prep Batch: 580-17977

Instrument ID: SEA034
Lab File ID: PCB7558.D
Initial Weight/Volume: 10.3970 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.0073	0.013
PCB-1221		ND		0.0073	0.013
PCB-1232		ND		0.0073	0.013
PCB-1242		ND		0.0073	0.013
PCB-1248		ND		0.0073	0.013
PCB-1254		ND		0.0019	0.013
PCB-1260		ND		0.0019	0.013

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	74	45 - 155
DCB Decachlorobiphenyl	92	50 - 150

U

VMN
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040120**

Lab Sample ID: 580-5689-13
Client Matrix: Solid
% Moisture: 9.9
Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/26/2007 0633
Date Prepared: 04/24/2007 0646

Analysis Batch: 580-18145
Prep Batch: 580-17977

Instrument ID: SEA034
Lab File ID: PCB7531.D
Initial Weight/Volume: 10.7270 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.0060	0.010
PCB-1221		ND		0.0060	0.010
PCB-1232		ND		0.0060	0.010
PCB-1242		ND		0.0060	0.010
PCB-1248		ND		0.0060	0.010
PCB-1254		ND		0.0016	0.010
PCB-1260		0.022		0.0016	0.010

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	70	45 - 155
DCB Decachlorobiphenyl	91	50 - 150

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040122**

Lab Sample ID: 580-5689-14
Client Matrix: Solid
% Moisture: 22.3
Date Sampled: 04/18/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/26/2007 0657
Date Prepared: 04/24/2007 0646

Analysis Batch: 580-18145
Prep Batch: 580-17977

Instrument ID: SEA034
Lab File ID: PCB7532.D
Initial Weight/Volume: 10.2389 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.0073	0.013
PCB-1221		ND		0.0073	0.013
PCB-1232		ND		0.0073	0.013
PCB-1242		ND		0.0073	0.013
PCB-1248		ND		0.0073	0.013
PCB-1254		ND		0.0019	0.013
PCB-1260		ND		0.0019	0.013

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	67	45 - 155
DCB Decachlorobiphenyl	85	50 - 150

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040124**

Lab Sample ID: 580-5689-15
Client Matrix: Solid
% Moisture: 11.2
Date Sampled: 04/19/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/26/2007 1736
Date Prepared: 04/24/2007 0646

Analysis Batch: 580-18145
Prep Batch: 580-17977

Instrument ID: SEA034
Lab File ID: PCB7559.D
Initial Weight/Volume: 10.6542 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.0061	0.011
PCB-1221		ND		0.0061	0.011
PCB-1232		ND		0.0061	0.011
PCB-1242		ND		0.0061	0.011
PCB-1248		ND		0.0061	0.011
PCB-1254		ND		0.0016	0.011
PCB-1260		ND		0.0016	0.011

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	69	45 - 155
DCB Decachlorobiphenyl	92	50 - 150

MW
5-24-07

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040125**

Lab Sample ID: 580-5689-16
Client Matrix: Solid
% Moisture: 8.5
Date Sampled: 04/19/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/26/2007 0744
Date Prepared: 04/24/2007 0646

Analysis Batch: 580-18145
Prep Batch: 580-17977

Instrument ID: SEA034
Lab File ID: PCB7534.D
Initial Weight/Volume: 10.5916 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.0060	0.010
PCB-1221		ND		0.0060	0.010
PCB-1232		ND		0.0060	0.010
PCB-1242		ND		0.0060	0.010
PCB-1248		ND		0.0060	0.010
PCB-1254		ND		0.0015	0.010
PCB-1260		ND		0.0015	0.010

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	93	45 - 155
DCB Decachlorobiphenyl	80	50 - 150

MN
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040127**

Lab Sample ID: 580-5689-17
Client Matrix: Solid
% Moisture: 21.1
Date Sampled: 04/19/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/26/2007 0808
Date Prepared: 04/24/2007 0646

Analysis Batch: 580-18145
Prep Batch: 580-17977

Instrument ID: SEA034
Lab File ID: PCB7535.D
Initial Weight/Volume: 10.5911 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.0069	0.012
PCB-1221		ND		0.0069	0.012
PCB-1232		ND		0.0069	0.012
PCB-1242		ND		0.0069	0.012
PCB-1248		ND		0.0069	0.012
PCB-1254		ND		0.0018	0.012
PCB-1260		0.0068	J	0.0018	0.012

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	67	45 - 155
DCB Decachlorobiphenyl	88	50 - 150

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040129**

Lab Sample ID: 580-5689-18
Client Matrix: Solid
% Moisture: 12.3
Date Sampled: 04/19/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/26/2007 0832
Date Prepared: 04/24/2007 0646

Analysis Batch: 580-18145
Prep Batch: 580-17977

Instrument ID: SEA034
Lab File ID: PCB7536.D
Initial Weight/Volume: 10.7332 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.0062	0.011
PCB-1221		ND		0.0062	0.011
PCB-1232		ND		0.0062	0.011
PCB-1242		ND		0.0062	0.011
PCB-1248		ND		0.0062	0.011
PCB-1254		ND		0.0016	0.011
PCB-1260		0.0065	J	0.0016	0.011

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	75	45 - 155
DCB Decachlorobiphenyl	90	50 - 150

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040132**

Lab Sample ID: 580-5689-20
Client Matrix: Water

Date Sampled: 04/20/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 1708
Date Prepared: 04/25/2007 0949

Analysis Batch: 580-18140
Prep Batch: 580-18052

Instrument ID: SEA034
Lab File ID: PCB7494.D
Initial Weight/Volume: 1035 mL
Final Weight/Volume: 1 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.0077	0.048
PCB-1221	ND		0.0077	0.048
PCB-1232	ND		0.0077	0.048
PCB-1242	ND		0.0077	0.048
PCB-1248	ND		0.0077	0.048
PCB-1254	ND		0.0048	0.048
PCB-1260	ND		0.0048	0.048

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	78	60 - 150
DCB Decachlorobiphenyl	82	40 - 135

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040133**

Lab Sample ID: 580-5689-21
Client Matrix: Water

Date Sampled: 04/20/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 1732
Date Prepared: 04/25/2007 0949

Analysis Batch: 580-18140
Prep Batch: 580-18052

Instrument ID: SEA034
Lab File ID: PCB7495.D
Initial Weight/Volume: 1045 mL
Final Weight/Volume: 1 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.0077	0.048
PCB-1221	ND		0.0077	0.048
PCB-1232	ND		0.0077	0.048
PCB-1242	ND		0.0077	0.048
PCB-1248	ND		0.0077	0.048
PCB-1254	ND		0.0048	0.048
PCB-1260	ND		0.0048	0.048

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	65	60 - 150
DCB Decachlorobiphenyl	78	40 - 135

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: 07040134

Lab Sample ID: 580-5689-22
Client Matrix: Water

Date Sampled: 04/20/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 1756
Date Prepared: 04/25/2007 0949

Analysis Batch: 580-18140
Prep Batch: 580-18052

Instrument ID: SEA034
Lab File ID: PCB7496.D
Initial Weight/Volume: 895 mL
Final Weight/Volume: 1 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.0089	0.056
PCB-1221	ND		0.0089	0.056
PCB-1232	ND		0.0089	0.056
PCB-1242	ND		0.0089	0.056
PCB-1248	ND		0.0089	0.056
PCB-1254	ND		0.0056	0.056
PCB-1260	ND		0.0056	0.056

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	64	60 - 150
DCB Decachlorobiphenyl	76	40 - 135

MW
5/24/07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040135**

Lab Sample ID: 580-5689-23
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 1819
Date Prepared: 04/25/2007 0949

Analysis Batch: 580-18140
Prep Batch: 580-18052

Instrument ID: SEA034
Lab File ID: PCB7497.D
Initial Weight/Volume: 860 mL
Final Weight/Volume: 1 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.0093	0.058
PCB-1221	ND		0.0093	0.058
PCB-1232	ND		0.0093	0.058
PCB-1242	ND		0.0093	0.058
PCB-1248	ND		0.0093	0.058
PCB-1254	ND		0.0058	0.058
PCB-1260	ND		0.0058	0.058

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	76	60 - 150
DCB Decachlorobiphenyl	83	40 - 135

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040136**

Lab Sample ID: 580-5689-24
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2018
Date Prepared: 04/25/2007 0949

Analysis Batch: 580-18140
Prep Batch: 580-18052

Instrument ID: SEA034
Lab File ID: PCB7502.D
Initial Weight/Volume: 980 mL
Final Weight/Volume: 1 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.0082	0.051 UJ
PCB-1221	ND		0.0082	0.051
PCB-1232	ND		0.0082	0.051
PCB-1242	ND		0.0082	0.051
PCB-1248	ND		0.0082	0.051
PCB-1254	ND		0.0051	0.051
PCB-1260	ND		0.0051	0.051

Surrogate	%Rec		Acceptance Limits
Tetrachloro-m-xylene	52	X I	60 - 150
DCB Decachlorobiphenyl	48		40 - 135

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040137**

Lab Sample ID: 580-5689-25
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2041
Date Prepared: 04/25/2007 0949

Analysis Batch: 580-18140
Prep Batch: 580-18052

Instrument ID: SEA034
Lab File ID: PCB7503.D
Initial Weight/Volume: 980 mL
Final Weight/Volume: .1 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.0082	0.051
PCB-1221	ND		0.0082	0.051
PCB-1232	ND		0.0082	0.051
PCB-1242	ND		0.0082	0.051
PCB-1248	ND		0.0082	0.051
PCB-1254	ND		0.0051	0.051
PCB-1260	ND		0.0051	0.051

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	62	60 - 150
DCB Decachlorobiphenyl	59	40 - 135

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040138**

Lab Sample ID: 580-5689-26
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2105
Date Prepared: 04/25/2007 0949

Analysis Batch: 580-18140
Prep Batch: 580-18052

Instrument ID: SEA034
Lab File ID: PCB7504.D
Initial Weight/Volume: 1005 mL
Final Weight/Volume: 1 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.0080	0.050
PCB-1221	ND		0.0080	0.050
PCB-1232	ND		0.0080	0.050
PCB-1242	ND		0.0080	0.050
PCB-1248	ND		0.0080	0.050
PCB-1254	ND		0.0050	0.050
PCB-1260	ND		0.0050	0.050

Surrogate	%Rec		Acceptance Limits
Tetrachloro-m-xylene	47	X I	60 - 150
DCB Decachlorobiphenyl	47		40 - 135

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040139**

Lab Sample ID: 580-5689-27
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2129
Date Prepared: 04/25/2007 0949

Analysis Batch: 580-18140
Prep Batch: 580-18052

Instrument ID: SEA034
Lab File ID: PCB7505.D
Initial Weight/Volume: 975 mL
Final Weight/Volume: 1 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.0082	0.051
PCB-1221	ND		0.0082	0.051
PCB-1232	ND		0.0082	0.051
PCB-1242	ND		0.0082	0.051
PCB-1248	ND		0.0082	0.051
PCB-1254	ND		0.0051	0.051
PCB-1260	ND		0.0051	0.051

Surrogate	%Rec		Acceptance Limits
Tetrachloro-m-xylene	57	X I	60 - 150
DCB Decachlorobiphenyl	49		40 - 135

5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040140**

Lab Sample ID: 580-5689-28
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/26/2007 1649
Date Prepared: 04/25/2007 0949

Analysis Batch: 580-18140
Prep Batch: 580-18052

Instrument ID: SEA034
Lab File ID: PCB7557.D
Initial Weight/Volume: 935 mL
Final Weight/Volume: 1 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.0086	0.053
PCB-1221	ND		0.0086	0.053
PCB-1232	ND		0.0086	0.053
PCB-1242	ND		0.0086	0.053
PCB-1248	ND		0.0086	0.053
PCB-1254	ND		0.0053	0.053
PCB-1260	0.028	J	0.0053	0.053

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	84	60 - 150
DCB Decachlorobiphenyl	52	40 - 135

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040141**

Lab Sample ID: 580-5689-29
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2216
Date Prepared: 04/25/2007 0949

Analysis Batch: 580-18140
Prep Batch: 580-18052

Instrument ID: SEA034
Lab File ID: PCB7507.D
Initial Weight/Volume: 980 mL
Final Weight/Volume: 1 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.0082	0.051 UJ
PCB-1221	ND		0.0082	0.051
PCB-1232	ND		0.0082	0.051
PCB-1242	ND		0.0082	0.051
PCB-1248	ND		0.0082	0.051
PCB-1254	ND		0.0051	0.051
PCB-1260	ND		0.0051	0.051

Surrogate	%Rec		Acceptance Limits
Tetrachloro-m-xylene	47	X I	60 - 150
DCB Decachlorobiphenyl	41		40 - 135

MN
5/24/07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040142**

Lab Sample ID: 580-5689-30
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2240
Date Prepared: 04/25/2007 0949

Analysis Batch: 580-18140
Prep Batch: 580-18052

Instrument ID: SEA034
Lab File ID: PCB7508.D
Initial Weight/Volume: 1010 mL
Final Weight/Volume: 1 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.0079	0.050
PCB-1221	ND		0.0079	0.050
PCB-1232	ND		0.0079	0.050
PCB-1242	ND		0.0079	0.050
PCB-1248	ND		0.0079	0.050
PCB-1254	ND		0.0050	0.050
PCB-1260	ND		0.0050	0.050

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	63	60 - 150
DCB Decachlorobiphenyl	56	40 - 135

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040143**

Lab Sample ID: 580-5689-31
Client Matrix: Water

Date Sampled: 04/21/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 04/25/2007 2303
Date Prepared: 04/25/2007 0949

Analysis Batch: 580-18140
Prep Batch: 580-18052

Instrument ID: SEA034
Lab File ID: PCB7509.D
Initial Weight/Volume: 990 mL
Final Weight/Volume: 1 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.0081	0.051 U
PCB-1221	ND		0.0081	0.051
PCB-1232	ND		0.0081	0.051
PCB-1242	ND		0.0081	0.051
PCB-1248	ND		0.0081	0.051
PCB-1254	ND		0.0051	0.051
PCB-1260	ND		0.0051	0.051

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	61	60 - 150
DCB Decachlorobiphenyl	54	40 - 135

MW
5-24-07

Client: Ecology and Environment, Inc.

Job Number: 580-5689-1

Client Sample ID: **07040131**

Lab Sample ID: 580-5689-32
Client Matrix: Waste

Date Sampled: 04/20/2007 0000
Date Received: 04/23/2007 1235

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3580A
Dilution: 1.0
Date Analyzed: 04/26/2007 1602
Date Prepared: 04/25/2007 1130

Analysis Batch: 580-18153
Prep Batch: 580-18059

Instrument ID: SEA034
Lab File ID: PCB7555.D
Initial Weight/Volume: 0.2115 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.27	0.47 U
PCB-1221		ND		0.27	0.47
PCB-1232		ND		0.27	0.47
PCB-1242		ND		0.27	0.47
PCB-1248		ND		0.27	0.47
PCB-1254		ND		0.071	0.47
PCB-1260		0.33	J	0.071	0.47

Surrogate	%Rec	Acceptance Limits
Tetrachloro-m-xylene	70	45 - 155
DCB Decachlorobiphenyl	88	50 - 150

MN
5/24/07

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Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: May 26, 2007

TO: Steve Hall, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho**

REF: TDD: 07-03-0004 PAN: 002233.0193.01SF

The data quality assurance review of 4 water samples collected from the Avery Landing site located in Avery, Idaho, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Laucks Testing Services, Seattle, Washington.

The samples were numbered:

07040132 07040133 07040134 07040143

Data Qualifications:

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

The samples were collected on April 20, 2007, extracted on April 24, 2007, and analyzed on May 8, 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 Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were less than or equal to the laboratory control limits.

3. **Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were $\leq$ the laboratory control limits of 15%.

4. **Error Determination: Not Performed.**

Samples necessary for bias and precision determination were not provided to the laboratory. All

samples were flagged RND (Recovery Not Determined) and PND (Precision Not Determined), although the flags are not found on the Form I's.

5. Blanks: Acceptable.

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in any blank.

6. System Monitoring Compounds (SMC): Acceptable.

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

7. Performance Evaluation Samples: Not Provided.

Performance evaluation samples were not provided to the laboratory.

8. Blank Spikes: Acceptable.

Blank spike results were within QC limits.

9. Quantitation and Quantitation Limits: Acceptable.

Sample concentrations were correctly calculated.

10. Laboratory Contact: Not Required.

No laboratory contact was required.

11. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan, 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

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.

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040132

Lab Name: Laucks Testing Laboratories,

Contract: N/A

SDG No.: IDA01

Run Sequence: R017496

Matrix: (SOIL/WATER) Water

Lab Sample ID: IDA01-001

Sample wt/vol: 1040.0 (g/mL) mL

Lab File ID: C507749.d

% Moisture: _____ Decanted: (Y/N) N

Date Collected: 04/20/2007

Extraction: (Type) SEPF

Date Extracted: 04/24/2007

Concentrated Extract Volume: 1000.0 (uL)

Date Analyzed: 05/08/2007

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: <2

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/L	Q
TPH-Diesel	Diesel Range Organics	0.048	U
TPH-Oil	Oil Range Organics	0.19	U

Comments:

MW 5-26-07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040133

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA01 Run Sequence: R017496

Matrix: (SOIL/WATER) Water Lab Sample ID: IDA01-002

Sample wt/vol: 1040.0 (g/mL) mL Lab File ID: C507751.d

% Moisture: _____ Decanted: (Y/N) N Date Collected: 04/20/2007

Extraction: (Type) SEPF Date Extracted: 04/24/2007

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 05/08/2007

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: <2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/L	Q
TPH-Diesel	Diesel Range Organics	0.32	
TPH-Oil	Oil Range Organics	0.19	U

Comments: The hydrocarbon pattern partially resembles a diesel.

MW 5/7/07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040134

Lab Name: Laucks Testing Laboratories,

Contract: N/A

SDG No.: IDA01

Run Sequence: R017496

Matrix: (SOIL/WATER) Water

Lab Sample ID: IDA01-003

Sample wt/vol: 1050.0 (g/mL) mL

Lab File ID: C507752.d

% Moisture: _____ Decanted: (Y/N) N

Date Collected: 04/20/2007

Extraction: (Type) SEPF

Date Extracted: 04/24/2007

Concentrated Extract Volume: 1000.0 (uL)

Date Analyzed: 05/08/2007

Injection Volume: 2.0 (uL)

Dilution Factor: 4.0

GPC Cleanup: (Y/N) N pH: ≤2

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/L	Q
TPH-Diesel	Diesel Range Organics	2.3	
TPH-Oil	Oil Range Organics	1.2	

Comments: The hydrocarbon pattern partially resembles a diesel and partially resembles an oil.

MW 5-26-07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040143

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA01 Run Sequence: R017496

Matrix: (SOIL/WATER) Water Lab Sample ID: IDA01-004

Sample wt/vol: 1030.0 (g/mL) mL Lab File ID: C507750.d

% Moisture: _____ Decanted: (Y/N) N Date Collected: 04/20/2007

Extraction: (Type) SEPF Date Extracted: 04/24/2007

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 05/08/2007

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: <2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/L	Q
TPH-Diesel	Diesel Range Organics	0.079	
TPH-Oil	Oil Range Organics	0.19	U

Comments: The hydrocarbon pattern does not resemble diesel.

MW 5-28-07

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MEMORANDUM

DATE: May 28, 2007

TO: Steve Hall, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho**

REF: TDD: 07-03-0004 PAN: 002233.0193.01SF

The data quality assurance review of 1 waste, 13 soil, and 9 water samples collected from the Avery Landing site located in Avery, Idaho, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Laucks Testing Services, Seattle, Washington. The samples were numbered:

Water	07040111	07040136	07040137	07040138	07040139
	07040140	07040135	07040141	07040142	
Soil	07040102	07040105	07040106	07040108	07040110
	07040114	07040116	07040119	07040120	07040122
	07040124	07040127	07040129		
Waste	07040131				

Data Qualifications:

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

The samples were maintained at 4°C (± 2°C) except one cooler which was received at 7.2 °C; no action was taken based on this slight outlier. The samples were collected between April 16 and 20, 2007, extracted on April 24, 25, or May 16 (waste), 2007, and analyzed by May 17, 2007, therefore meeting QC criteria of less than 7 days between collection and extraction for water samples (14 days for soil samples) and less than 40 days between extraction and analysis. There are no holding times for waste samples.

2. **Initial Calibration: Acceptable.**

Calculations were verified as correct. All correlation coefficients were > 0.995.

3. **Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were ≤ the laboratory control limits of 15%.

4. Error Determination: Not Performed.

Samples necessary for bias and precision determination were not provided to the laboratory. All samples were flagged RND (Recovery Not Determined) and PND (Precision Not Determined), although the flags are not found on the Form I's.

5. Blanks: Acceptable.

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in any blank.

6. System Monitoring Compounds (SMC): Satisfactory.

All recoveries of the SMCs were greater than 10% and within QC criteria except in diluted analyses of samples 07040140 (both SMCs with 0% recovery), 07040122 (terphenyl-d14 had a low recovery), and 07040119 (2-fluorobiphenyl had a low recovery). No action was taken based on these outliers due to dilutions.

7. Performance Evaluation Samples: Not Provided.

Performance evaluation samples were not provided to the laboratory.

8. Blank and Matrix Spikes and Duplicates: Acceptable.

Blank and matrix spike and duplicate results were within QC limits.

9. Quantitation and Quantitation Limits: Acceptable.

Sample concentrations were correctly calculated.

10. Laboratory Contact: Not Required.

No laboratory contact was required.

11. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan, 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.

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040111

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA02 Run Sequence: R017496

Matrix: (SOIL/WATER) Water Lab Sample ID: IDA02-001

Sample wt/vol: 1050.0 (g/mL) mL Lab File ID: C507716.d

% Moisture: _____ Decanted: (Y/N) N Date Collected: 04/18/2007

Extraction: (Type) SEPF Date Extracted: 04/24/2007

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 05/07/2007

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: <2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/L	Q
TPH-Diesel	Diesel Range Organics	0.048	U
TPH-Oil	Oil Range Organics	0.19	U

Comments:

MW 5-28-07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040136

Lab Name: Laucks Testing Laboratories,

Contract: N/A

SDG No.: IDA02

Run Sequence: R017496

Matrix: (SOIL/WATER) Water

Lab Sample ID: IDA02-002

Sample wt/vol: 1060.0 (g/mL) mL

Lab File ID: C507777.d

% Moisture: _____ Decanted: (Y/N) N

Date Collected: 04/21/2007

Extraction: (Type) SEPF

Date Extracted: 04/24/2007

Concentrated Extract Volume: 1000.0 (uL)

Date Analyzed: 05/09/2007

Injection Volume: 2.0 (uL)

Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: <2

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/L	Q
TPH-Diesel	Diesel Range Organics	5.5	
TPH-Oil	Oil Range Organics	3.8	

Comments: The hydrocarbon pattern partially resembles a diesel and partially resembles an oil.

MW 5/8/07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040137

Lab Name: Laucks Testing Laboratories,

Contract: N/A

SDG No.: IDA02

Run Sequence: R017496

Matrix: (SOIL/WATER) Water

Lab Sample ID: IDA02-003

Sample wt/vol: 990.0 (g/mL) mL

Lab File ID: C507773.d

% Moisture: _____ Decanted: (Y/N) N

Date Collected: 04/21/2007

Extraction: (Type) SEPF

Date Extracted: 04/24/2007

Concentrated Extract Volume: 1000.0 (uL)

Date Analyzed: 05/09/2007

Injection Volume: 2.0 (uL)

Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: <2

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/L	Q
TPH-Diesel	Diesel Range Organics	0.78	
TPH-Oil	Oil Range Organics	1.0	

Comments: The hydrocarbon pattern partially resembles a diesel and partially resembles an oil.

MW 5/28/07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040138

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA02 Run Sequence: R017496

Matrix: (SOIL/WATER) Water Lab Sample ID: IDA02-004

Sample wt/vol: 940.0 (g/mL) mL Lab File ID: C507775.d

% Moisture: _____ Decanted: (Y/N) N Date Collected: 04/21/2007

Extraction: (Type) SEPF Date Extracted: 04/24/2007

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 05/09/2007

Injection Volume: 2.0 (uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: <2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/L	Q
TPH-Diesel	Diesel Range Organics	3.9	
TPH-Oil	Oil Range Organics	4.1	

Comments: The hydrocarbon pattern partially resembles a diesel and partially resembles an oil.

MW 5/9/07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040139

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA02 Run Sequence: R017496

Matrix: (SOIL/WATER) Water Lab Sample ID: IDA02-005

Sample wt/vol: 950.0 (g/mL) mL Lab File ID: C507774.d

% Moisture: _____ Decanted: (Y/N) N Date Collected: 04/21/2007

Extraction: (Type) SEPF Date Extracted: 04/24/2007

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 05/09/2007

Injection Volume: 2.0 (uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: <2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/L	Q
TPH-Diesel	Diesel Range Organics	2.0	
TPH-Oil	Oil Range Organics	0.78	

Comments: The hydrocarbon pattern partially resembles a diesel and partially resembles an oil.

MW 5/8/07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040140

Lab Name: Laucks Testing Laboratories,

Contract: N/A

SDG No.: IDA02

Run Sequence: R017496

Matrix: (SOIL/WATER) Water

Lab Sample ID: IDA02-006

Sample wt/vol: 950.0 (g/mL) mL

Lab File ID: C507755.d

% Moisture: _____ Decanted: (Y/N) N

Date Collected: 04/21/2007

Extraction: (Type) SEPF

Date Extracted: 04/24/2007

Concentrated Extract Volume: 1000.0 (uL)

Date Analyzed: 05/09/2007

Injection Volume: 2.0 (uL)

Dilution Factor: 100.0

GPC Cleanup: (Y/N) N pH: ≤2

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/L	Q
TPH-Diesel	Diesel Range Organics	110	
TPH-Oil	Oil Range Organics	45	

Comments: The hydrocarbon pattern partially resembles a diesel and partially resembles an oil. The surrogates have been diluted out.

MW 5-28-07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040135

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA02 Run Sequence: R017496

Matrix: (SOIL/WATER) Water Lab Sample ID: IDA02-007

Sample wt/vol: 970.0 (g/mL) mL Lab File ID: C507712.d

% Moisture: _____ Decanted: (Y/N) N Date Collected: 04/21/2007

Extraction: (Type) SEPF Date Extracted: 04/24/2007

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 05/07/2007

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: <2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/L	Q
TPH-Diesel	Diesel Range Organics	0.083	
TPH-Oil	Oil Range Organics	0.21	U

Comments: The hydrocarbon pattern does not resemble diesel.

MW 5/8/07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040141

Lab Name: Laucks Testing Laboratories,

Contract: N/A

SDG No.: IDA02

Run Sequence: R017496

Matrix: (SOIL/WATER) Water

Lab Sample ID: IDA02-008

Sample wt/vol: 1020.0 (g/mL) mL

Lab File ID: C507772.d

% Moisture: _____ Decanted: (Y/N) N

Date Collected: 04/21/2007

Extraction: (Type) SEPF

Date Extracted: 04/24/2007

Concentrated Extract Volume: 1000.0 (uL)

Date Analyzed: 05/09/2007

Injection Volume: 2.0 (uL)

Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: <2

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/L	Q
TPH-Diesel	Diesel Range Organics	1.3	
TPH-Oil	Oil Range Organics	0.72	

Comments: The hydrocarbon pattern partially resembles a diesel and partially resembles an oil.

AW 5/8/07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040142

Lab Name: Laucks Testing Laboratories,

Contract: N/A

SDG No.: IDA02

Run Sequence: R017496

Matrix: (SOIL/WATER) Water

Lab Sample ID: IDA02-009

Sample wt/vol: 1000.0 (g/mL) mL

Lab File ID: C507715.d

% Moisture: _____ Decanted: (Y/N) N

Date Collected: 04/21/2007

Extraction: (Type) SEPF

Date Extracted: 04/24/2007

Concentrated Extract Volume: 1000.0 (uL)

Date Analyzed: 05/07/2007

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: <2

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/L	Q
TPH-Diesel	Diesel Range Organics	0.050	U
TPH-Oil	Oil Range Organics	0.26	

Comments: The hydrocarbon pattern does not resemble an oil.

MW 5-28-07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040102

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA02 Run Sequence: R017502

Matrix: (SOIL/WATER) Soil Lab Sample ID: IDA02-022

Sample wt/vol: 10.0 (g/mL) gm Lab File ID: C502710.d

% Moisture: 12.0 Decanted: (Y/N) N Date Collected: 04/16/2007

Extraction: (Type) PFEX Date Extracted: 04/25/2007

Concentrated Extract Volume: 5000.0 (uL) Date Analyzed: 05/02/2007

Injection Volume: 2.0 (uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/Kg	Q
TPH-Diesel	Diesel Range Organics	1500	
TPH-Oil	Oil Range Organics	12000	

Comments: The hydrocarbon pattern resembles an oil and does not resemble diesel.

MW 5/28/07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040105

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA02 Run Sequence: R017502

Matrix: (SOIL/WATER) Soil Lab Sample ID: IDA02-023

Sample wt/vol: 10.0 (g/mL) gm Lab File ID: C502711.d

% Moisture: 29.0 Decanted: (Y/N) N Date Collected: 04/17/2007

Extraction: (Type) PFEX Date Extracted: 04/25/2007

Concentrated Extract Volume: 5000.0 (uL) Date Analyzed: 05/02/2007

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/Kg	Q
TPH-Diesel	Diesel Range Organics	7200	
TPH-Oil	Oil Range Organics	5200	

Comments: The hydrocarbon pattern partially resembles diesel and partially resembles an oil.

MW 5/8/07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040106

Lab Name: Laucks Testing Laboratories,

Contract: N/A

SDG No.: IDA02

Run Sequence: R017502

Matrix: (SOIL/WATER) Soil

Lab Sample ID: IDA02-024

Sample wt/vol: 10.0 (g/mL) gm

Lab File ID: C507754.d

% Moisture: 29.0 Decanted: (Y/N) N

Date Collected: 04/17/2007

Extraction: (Type) PFEX

Date Extracted: 04/25/2007

Concentrated Extract Volume: 5000.0 (uL)

Date Analyzed: 05/09/2007

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/Kg	Q
TPH-Diesel	Diesel Range Organics	40	
TPH-Oil	Oil Range Organics	140	U

Comments: The hydrocarbon pattern does not resemble diesel.

MW 5/8/07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040108

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA02 Run Sequence: R017502

Matrix: (SOIL/WATER) Soil Lab Sample ID: IDA02-025

Sample wt/vol: 10.0 (g/mL) gm Lab File ID: C502712.d

% Moisture: 12.0 Decanted: (Y/N) N Date Collected: 04/17/2007

Extraction: (Type) PFEX Date Extracted: 04/25/2007

Concentrated Extract Volume: 5000.0 (uL) Date Analyzed: 05/02/2007

Injection Volume: 2.0 (uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/Kg	Q
TPH-Diesel	Diesel Range Organics	160	
TPH-Oil	Oil Range Organics	890	

Comments: The hydrocarbon pattern resembles an oil and does not resemble diesel.

JMW 5-28-07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040110

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA02 Run Sequence: R017S02

Matrix: (SOIL/WATER) Soil Lab Sample ID: IDA02-026

Sample wt/vol: 10.0 (g/mL) gm Lab File ID: C502773.d

% Moisture: 22.0 Decanted: (Y/N) N Date Collected: 04/18/2007

Extraction: (Type) PFEX Date Extracted: 04/25/2007

Concentrated Extract Volume: 5000.0 (uL) Date Analyzed: 05/04/2007

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/Kg	Q
TPH-Diesel	Diesel Range Organics	12000	
TPH-Oil	Oil Range Organics	2000	

Comments: The hydrocarbon pattern partially resembles diesel and partially resembles an oil.

MW 5/8/07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040114

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA02 Run Sequence: R017502

Matrix: (SOIL/WATER) Soil Lab Sample ID: IDA02-028

Sample wt/vol: 10.0 (g/mL) gm Lab File ID: C502775.d

% Moisture: 26.0 Decanted: (Y/N) N Date Collected: 04/18/2007

Extraction: (Type) PFEX Date Extracted: 04/25/2007

Concentrated Extract Volume: 5000.0 (uL) Date Analyzed: 05/04/2007

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/Kg	Q
TPH-Diesel	Diesel Range Organics	6900	
TPH-Oil	Oil Range Organics	3600	

Comments: The hydrocarbon pattern partially resembles diesel and partially resembles an oil.

MW 5/8/07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040116

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA02 Run Sequence: R017502

Matrix: (SOIL/WATER) Soil Lab Sample ID: IDA02-029

Sample wt/vol: 10.0 (g/mL) gm Lab File ID: C502721.d

% Moisture: 15.0 Decanted: (Y/N) N Date Collected: 04/18/2007

Extraction: (Type) PFEX Date Extracted: 04/25/2007

Concentrated Extract Volume: 5000.0 (uL) Date Analyzed: 05/02/2007

Injection Volume: 2.0 (uL) Dilution Factor: 4.0

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/Kg	Q
TPH-Diesel	Diesel Range Organics	650	
TPH-Oil	Oil Range Organics	2500	

Comments: The hydrocarbon pattern resembles an oil and does not resemble diesel.

MW 5-8-07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040119

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA02 Run Sequence: R017502

Matrix: (SOIL/WATER) Soil Lab Sample ID: IDA02-031

Sample wt/vol: 10.0 (g/mL) gm Lab File ID: C502722.d

% Moisture: 23.0 Decanted: (Y/N) N Date Collected: 04/18/2007

Extraction: (Type) PFEX Date Extracted: 04/25/2007

Concentrated Extract Volume: 5000.0 (uL) Date Analyzed: 05/02/2007

Injection Volume: 2.0 (uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/Kg	Q
TPH-Diesel	Diesel Range Organics	17000	
TPH-Oil	Oil Range Organics	6700	

Comments: The hydrocarbon pattern partially resembles diesel and partially resembles an oil.

MW 5/8/07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040120

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA02 Run Sequence: R017502

Matrix: (SOIL/WATER) Soil Lab Sample ID: IDA02-032

Sample wt/vol: 10.0 (g/mL) gm Lab File ID: C502723.d

% Moisture: 11.0 Decanted: (Y/N) N Date Collected: 04/18/2007

Extraction: (Type) PFEX Date Extracted: 04/25/2007

Concentrated Extract Volume: 5000.0 (uL) Date Analyzed: 05/02/2007

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/Kg	Q
TPH-Diesel	Diesel Range Organics	3700	
TPH-Oil	Oil Range Organics	3300	

Comments: The hydrocarbon pattern partially resembles diesel and partially resembles an oil.

MW 5-28-07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040122

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA02 Run Sequence: R017502

Matrix: (SOIL/WATER) Soil Lab Sample ID: IDA02-033

Sample wt/vol: 10.0 (g/mL) gm Lab File ID: C502724.d

% Moisture: 22.0 Decanted: (Y/N) N Date Collected: 04/18/2007

Extraction: (Type) PFEX Date Extracted: 04/25/2007

Concentrated Extract Volume: 5000.0 (uL) Date Analyzed: 05/03/2007

Injection Volume: 2.0 (uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/Kg	Q
TPH-Diesel	Diesel Range Organics	13000	
TPH-Oil	Oil Range Organics	7000	

Comments: The hydrocarbon pattern partially resembles diesel and partially resembles an oil.

MW 5-28-07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040124

Lab Name: Laucks Testing Laboratories, Inc.

Contract: N/A

SDG No.: IDA02

Run Sequence: R017502

Matrix: (SOIL/WATER) Soil

Lab Sample ID: IDA02-034

Sample wt/vol: 10.0 (g/mL) gm

Lab File ID: C502725.d

% Moisture: 13.0 Decanted: (Y/N) N

Date Collected: 04/19/2007

Extraction: (Type) PFEX

Date Extracted: 04/25/2007

Concentrated Extract Volume: 5000.0 (uL)

Date Analyzed: 05/03/2007

Injection Volume: 2.0 (uL)

Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH:

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/Kg	Q
TPH-Diesel	Diesel Range Organics	3100	
TPH-Oil	Oil Range Organics	1500	

Comments: The hydrocarbon pattern partially resembles diesel and partially resembles an oil.

MW 5-8-07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040127

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA02 Run Sequence: R017502

Matrix: (SOIL/WATER) Soil Lab Sample ID: IDA02-035

Sample wt/vol: 10.0 (g/mL) gm Lab File ID: C502731.d

% Moisture: 21.0 Decanted: (Y/N) N Date Collected: 04/19/2007

Extraction: (Type) PFEX Date Extracted: 04/25/2007

Concentrated Extract Volume: 5000.0 (uL) Date Analyzed: 05/03/2007

Injection Volume: 2.0 (uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/Kg	Q
TPH-Diesel	Diesel Range Organics	7800	
TPH-Oil	Oil Range Organics	3100	

Comments: The hydrocarbon pattern partially resembles diesel and partially resembles an oil.

MW 5-28-07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040129

Lab Name: Laucks Testing Laboratories, Inc.

Contract: N/A

SDG No.: IDA02

Run Sequence: R017502

Matrix: (SOIL/WATER) Soil

Lab Sample ID: IDA02-036

Sample wt/vol: 10.0 (g/mL) gm

Lab File ID: C502733.d

% Moisture: 10.0 Decanted: (Y/N) N

Date Collected: 04/19/2007

Extraction: (Type) PFEX

Date Extracted: 04/25/2007

Concentrated Extract Volume: 5000.0 (uL)

Date Analyzed: 05/03/2007

Injection Volume: 2.0 (uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH:

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/Kg	Q
TPH-Diesel	Diesel Range Organics	6600	
TPH-Oil	Oil Range Organics	1900	

Comments: The hydrocarbon pattern partially resembles diesel and partially resembles an oil.

MW 5-28-07

1

DIESEL ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

07040131

Lab Name: Laucks Testing Laboratories, Contract: N/A

SDG No.: IDA02 Run Sequence: R017667

Matrix: (SOIL/WATER) Soil Lab Sample ID: IDA02-037

Sample wt/vol: 0.13 (g/mL) gm Lab File ID: C516729.d

% Moisture: 0.0 Decanted: (Y/N) N Date Collected: 04/20/2007

Extraction: (Type) WASTE Date Extracted: 05/16/2007

Concentrated Extract Volume: 10000.0(uL) Date Analyzed: 05/17/2007

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) mg/Kg	Q
TPH-Diesel	Diesel Range Organics	1100000	
TPH-Oil	Oil Range Organics	260000	

Comments: The hydrocarbon pattern partially resembles diesel and partially resembles an oil.

MW 5-28-07

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MEMORANDUM

DATE: May 26, 2007

TO: Steve Hall, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Inorganic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho**

REF: TDD: 07-03-0004 PAN: 002233.0193.01SF

The data quality assurance review of 4 water samples collected from the Avery Landing site in Avery, Idaho, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6010, 6020, and 7471) were performed by Laucks Testing Services, Seattle, Washington.

The samples were numbered:

07040132 07040133 07040134 07040143

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 on April 20, 2007, and were analyzed by April 26, 2007, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

2. **Initial and Continuing Calibration: Satisfactory.**

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits of 90% to 110% except beryllium and cadmium high recoveries associated with all samples. All beryllium and cadmium positive results were qualified as estimated quantities (J). All AA recoveries were within QC limits of 80% to 120%.

3. **Blanks: Satisfactory.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. The following elements were detected in the applicable calibration and/or preparation blanks and resulted in sample qualifications:

Blank	Element	Concentration (ug/L)
Initial Calibration Blank (ICB)	Antimony	0.427
Continuing Calibration Blank (CCB) 9	Antimony	0.0689
	Lead	-0.101
	Selenium	-0.111
Continuing Calibration Blank (CCB) 10	Antimony	0.149
	Lead	-0.118
	Thallium	0.0969
Continuing Calibration Blank (CCB) 11	Antimony	0.136
	Lead	-0.131
	Thallium	0.102

Associated sample results were qualified as not detected (U) if the sample result was less than five times the positive blank concentration. Associated sample results were qualified as estimated quantities (J or UJ) if the sample result was less than five times the absolute value of the negative blank concentration.

4. ICP Interference Check Sample: Acceptable, Satisfactory, or Not Acceptable.

An Interference Check Sample (ICS) was analyzed at the beginning and end of each sequence or at least twice every 8 hours, whichever was more frequent. All ICS (solution AB) results were within QC limits of 80% - 120% recovery.

5. Precision and Bias Determination: Not Performed.

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

6. Performance Evaluation Sample Analysis: Not Provided.

Performance evaluation samples were not provided to the laboratory.

7. ICP Serial Dilution: Acceptable, Satisfactory, or Not Acceptable.

A serial dilution analysis was performed per matrix per concentration or per sample delivery group, whichever was more frequent. All serial dilution results were within QC limits except copper, magnesium, iron, and zinc. Associated sample results were qualified as estimated quantities (J or UJ).

8. 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.

9. 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 barium. Associated sample results were qualified as estimated quantities (J or UJ).

10. 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.

11. 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

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the sample detection limits but greater than the instrument detection 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.

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040132

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA01

Matrix (soil/water): Water

Lab Sample ID: IDA01-001

Level (low/med): LOW

Date Received: 04/23/2007

% Solids:

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	32.0	U		M	R017218
7440-36-0	Antimony	0.203	~~J~~	U	M	R017218
7440-38-2	Arsenic	0.209	J		M	R017218
7440-39-3	Barium	4.76	J	~~J~~	M	R017218
7440-41-7	Beryllium	0.0430	U		M	R017218
7440-43-9	Cadmium	0.0940	U		M	R017218
7440-70-2	Calcium	8270			M	R017218
7440-47-3	Chromium	0.364	~~J~~	U	M	R017218
7440-48-4	Cobalt	0.0290	J		M	R017218
7440-50-8	Copper	0.520	UJ	~~E~~	M	R017218
7439-89-6	Iron	53.2	J		M	R017218
7439-92-1	Lead	0.0750	UJ		M	R017218
7439-95-4	Magnesium	1830	J	~~E~~	M	R017218
7439-96-5	Manganese	1.07	J		M	R017218
7439-97-6	Mercury	0.018	UJ		CV	R017123
7440-02-0	Nickel	0.364	~~J~~	U	M	R017218
7440-09-7	Potassium	455			M	R017218
7782-49-2	Selenium	0.110	UJ		M	R017218
7440-22-4	Silver	0.0850	U		M	R017218
7440-23-5	Sodium	3030			M	R017218
7440-28-0	Thallium	0.0440	U		M	R017218
7440-62-2	Vanadium	0.173	~~J~~	U	M	R017218
7440-66-6	Zinc	9.55	UJ	~~E~~	M	R017218

Color Before: Colorless Clarity Before: Clear Texture:

Color After: Colorless Clarity After: Clear Artifacts: No

Comment

MW 5-26-07

MET-4

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040133

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA01

Matrix (soil/water): Water

Lab Sample ID: IDA01-002

Level (low/med): LOW

Date Received: 04/23/2007

% Solids:

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	32.0	U		M	R017218
7440-36-0	Antimony	0.0903	~~J~~	U	M	R017218
7440-38-2	Arsenic	0.248	J		M	R017218
7440-39-3	Barium	5.11	~~J~~	~~E~~	M	R017218
7440-41-7	Beryllium	0.0430	U		M	R017218
7440-43-9	Cadmium	0.0940	U		M	R017218
7440-70-2	Calcium	8700			M	R017218
7440-47-3	Chromium	0.326	~~J~~	U	M	R017218
7440-48-4	Cobalt	0.0327	J		M	R017218
7440-50-8	Copper	0.520	U ~~J~~	~~E~~	M	R017218
7439-89-6	Iron	53.6	~~J~~		M	R017218
7439-92-1	Lead	0.0750	U ~~J~~		M	R017218
7439-95-4	Magnesium	1930	~~J~~	~~E~~	M	R017218
7439-96-5	Manganese	1.31	J		M	R017218
7439-97-6	Mercury	0.018	U ~~J~~		CV	R017123
7440-02-0	Nickel	0.320	~~J~~	U	M	R017218
7440-09-7	Potassium	488			M	R017218
7782-49-2	Selenium	0.110	U ~~J~~		M	R017218
7440-22-4	Silver	0.0850	U		M	R017218
7440-23-5	Sodium	1020			M	R017218
7440-28-0	Thallium	0.0440	U		M	R017218
7440-62-2	Vanadium	0.231	~~J~~	U	M	R017218
7440-66-6	Zinc	1.80	U ~~J~~	~~E~~	M	R017218

Color Before: Colorless Clarity Before: Clear Texture:

Color After: Colorless Clarity After: Clear Artifacts: No

Comment

MN 5-26-07

MET-5

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040134

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA01

Matrix (soil/water): Water

Lab Sample ID: IDA01-003

Level (low/med): LOW

Date Received: 04/23/2007

% Solids:

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	32.0	U		M	R017218
7440-36-0	Antimony	0.0560	U		M	R017218
7440-38-2	Arsenic	0.296	J		M	R017218
7440-39-3	Barium	4.71	J		M	R017218
7440-41-7	Beryllium	0.0430	U		M	R017218
7440-43-9	Cadmium	0.0940	U		M	R017218
7440-70-2	Calcium	7920			M	R017218
7440-47-3	Chromium	0.263		U	M	R017218
7440-48-4	Cobalt	0.0280	U		M	R017218
7440-50-8	Copper	0.520	UJ		M	R017218
7439-89-6	Iron	48.7	J		M	R017218
7439-92-1	Lead	0.0750	UJ		M	R017218
7439-95-4	Magnesium	1770	J		M	R017218
7439-96-5	Manganese	1.37	J		M	R017218
7439-97-6	Mercury	0.018	UJ		CV	R017123
7440-02-0	Nickel	0.282		U	M	R017218
7440-09-7	Potassium	431			M	R017218
7782-49-2	Selenium	0.110	UJ		M	R017218
7440-22-4	Silver	0.0850	U		M	R017218
7440-23-5	Sodium	971			M	R017218
7440-28-0	Thallium	0.0440	U		M	R017218
7440-62-2	Vanadium	0.342		U	M	R017218
7440-66-6	Zinc	2.48		UJ	M	R017218

Color Before: Colorless Clarity Before: Clear Texture:

Color After: Colorless Clarity After: Clear Artifacts: No

Comment

MW 5-28-07 MET-6

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040143

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA01

Matrix (soil/water): Water

Lab Sample ID: IDA01-004

Level (low/med): LOW

Date Received: 04/23/2007

% Solids:

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	32.0	U		M	R017218
7440-36-0	Antimony	0.0574	~~J~~	U	M	R017218
7440-38-2	Arsenic	1.06			M	R017218
7440-39-3	Barium	21.1	J	~~J~~	M	R017218
7440-41-7	Beryllium	0.0430	U		M	R017218
7440-43-9	Cadmium	0.0940	U		M	R017218
7440-70-2	Calcium	46600			M	R017218
7440-47-3	Chromium	0.763	~~J~~	U	M	R017218
7440-48-4	Cobalt	0.0637	J		M	R017218
7440-50-8	Copper	1.41	J	~~J~~	M	R017218
7439-89-6	Iron	141	J		M	R017218
7439-92-1	Lead	0.0750	U J		M	R017218
7439-95-4	Magnesium	13200	J	~~J~~	M	R017218
7439-96-5	Manganese	2.87	J		M	R017218
7439-97-6	Mercury	0.018	U J		CV	R017123
7440-02-0	Nickel	1.50			M	R017218
7440-09-7	Potassium	1510			M	R017218
7782-49-2	Selenium	0.110	U J		M	R017218
7440-22-4	Silver	0.0850	U		M	R017218
7440-23-5	Sodium	2860			M	R017218
7440-28-0	Thallium	0.0440	U		M	R017218
7440-62-2	Vanadium	0.190	~~J~~	U	M	R017218
7440-66-6	Zinc	6.44	~~J~~	UJ ~~J~~	M	R017218

Color Before: Colorless Clarity Before: Clear Texture:

Color After: Colorless Clarity After: Clear Artifacts: No

Comment

MW 5-26-07

MET-7

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MEMORANDUM

DATE: May 28, 2007

TO: Steve Hall, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Inorganic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho**

REF: TDD: 07-03-0004 PAN: 002233.0193.01SF

The data quality assurance review of 1 waste, 14 soil, and 9 water samples collected from the Avery Landing site in Avery, Idaho, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6010, 6020, and 7471) were performed by Laucks Testing Services, Seattle, Washington.

The samples were numbered:

Water	07040111	07040136	07040137	07040138	07040139
	07040140	07040135	07040141	07040142	
Soil	07040102	07040105	07040106	07040108	07040110
	07040113	07040116	07040117	07040119	07040120
	07040122	07040124	07040127	07040129	
Waste	07040131				

Data Qualifications:

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

All water samples were preserved to a pH < 2. The samples were maintained at 4°C (± 2°C) except one cooler which was received at 7.2 °C; no action was taken based on this slight outlier. The samples were collected on April 20, 2007, and were analyzed by May 15, 2007, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury). There are no holding times for waste samples.

2. **Initial and Continuing Calibration: Satisfactory.**

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits of 90% to 110% except beryllium with high recoveries in continuing calibration verifications (CCVs) 4 through 11 (sequence R017284) and lead in CCV 4 (sequence R017284); associated positive sample results were qualified as estimated quantities (J). All AA recoveries were within QC limits of 80% to 120%.

3. Blanks: Satisfactory.

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. The following elements were detected in the applicable calibration and/or preparation blanks and resulted in sample qualifications:

Batch R017284 (Water) Blank	Element	Concentration (*u*g/L)
Initial Calibration Blank (ICB)	Antimony	0.423
ICB	Selenium	0.163
Continuing Calibration Blank (CCB) 6	Thallium	-0.0796
CCB7	Thallium	-0.0809
Preparation Blank (PB)	Antimony	-0.0593
PB	Calcium	98.3
PB	Chromium	0.249
PB	Selenium	-0.114
PB	Thallium	-0.0966
PB	Mercury	-0.044

Batch R017339 (Soil) Blank	Element	Concentration (*u*g/L)
Initial Calibration Blank	Antimony	0.5
Preparation Blank	Mercury	-0.044

Associated sample results were qualified as not detected (U) if the sample result was less than five times the positive blank concentration. Associated sample results were qualified as estimated quantities (J or UJ) if the sample result was less than five times the absolute value of the negative blank concentration.

4. ICP Interference Check Sample: Acceptable.

An Interference Check Sample (ICS) was analyzed at the beginning and end of each sequence or at least twice every 8 hours, whichever was more frequent. All ICS (solution AB) results were within QC limits of 80% - 120% recovery.

5. Precision and Bias Determination: Not Performed.

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

6. Performance Evaluation Sample Analysis: Not Provided.

Performance evaluation samples were not provided to the laboratory.

7. ICP Serial Dilution: Satisfactory.

A serial dilution analysis was performed per matrix per concentration or per sample delivery group, whichever was more frequent. All serial dilution results were within QC limits except magnesium, sodium, and zinc in the water analysis and cadmium and manganese in the soil analysis. Associated sample results were qualified as estimated quantities (J or UJ).

8. Matrix Spike Analysis: Satisfactory.

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 except antimony and potassium (low recoveries), arsenic and calcium (high recoveries), and magnesium (0 % recovery) in the soil spikes. Sample results associated with the low recovery outliers were qualified as estimated quantities (J or UJ). Positive sample results associated with the high recovery outliers were qualified as estimated quantities (J). Sample results associated with the 0% recovery outlier were qualified as estimated quantities (J for positive results) or rejected (R for sample quantitation limits).

9. 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 antimony in the soil duplicate analysis. Associated sample results were qualified as estimated quantities (J or UJ).

10. 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.

11. 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.

<u>Data Qualifiers and Definitions</u>

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the sample detection limits but greater than the instrument detection 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.

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040111

Lab Name: Laucks Laboratories Contract:

Lab Code: LAUCKS SDG No.: IDA02

Matrix (soil/water): Water Lab Sample ID: IDA02-001

Level (low/med): LOW Date Received: 04/23/2007

% Solids:

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	32.0	U		M	R017284
7440-36-0	Antimony	0.626	~~J~~	U	M	R017284
7440-38-2	Arsenic	0.100	U		M	R017284
7440-39-3	Barium	0.400	U		M	R017284
7440-41-7	Beryllium	0.0430	U		M	R017284
7440-43-9	Cadmium	0.0940	U		M	R017284
7440-70-2	Calcium	116	U		M	R017284
7440-47-3	Chromium	0.569	~~J~~ U		M	R017284
7440-48-4	Cobalt	0.0280	U		M	R017284
7440-50-8	Copper	0.520	U		M	R017284
7439-89-6	Iron	28.1	J		M	R017284
7439-92-1	Lead	0.0750	U		M	R017284
7439-95-4	Magnesium	4.54	J	~~E~~ N	M	R017284
7439-96-5	Manganese	0.464	J		M	R017284
7439-97-6	Mercury	0.018	UJ		CV	R017124
7440-02-0	Nickel	0.110	U		M	R017284
7440-09-7	Potassium	11.0	U		M	R017284
7782-49-2	Selenium	0.229	~~J~~ UJ		M	R017284
7440-22-4	Silver	0.0850	U		M	R017284
7440-23-5	Sodium	203	~~J~~	~~E~~ N	M	R017284
7440-28-0	Thallium	0.0440	U ~~J~~		M	R017284
7440-62-2	Vanadium	0.116	J		M	R017284
7440-66-6	Zinc	1.87	J	~~E~~ N	M	R017284

Color Before: Colorless Clarity Before: Clear Texture:

Color After: Colorless Clarity After: Clear Artifacts: No

Comment

MW 5-28-07

MET-5

SW-846

-1-

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040136

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA02

Matrix (soil/water): Water

Lab Sample ID: IDA02-002

Level (low/med): LOW

Date Received: 04/23/2007

% Solids:

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	2050			M	R017284
7440-36-0	Antimony	0.537	~~J~~	U	M	R017284
7440-38-2	Arsenic	88.6			M	R017284
7440-39-3	Barium	61.1			M	R017284
7440-41-7	Beryllium	0.106	J		M	R017284
7440-43-9	Cadmium	0.142	J		M	R017284
7440-70-2	Calcium	56600			M	R017284
7440-47-3	Chromium	3.91			M	R017284
7440-48-4	Cobalt	6.15			M	R017284
7440-50-8	Copper	8.43			M	R017284
7439-89-6	Iron	26100			M	R017284
7439-92-1	Lead	2.17			M	R017284
7439-95-4	Magnesium	8280	J	E	M	R017284
7439-96-5	Manganese	3300			M	R017284
7439-97-6	Mercury	0.018	UJ		CV	R017124
7440-02-0	Nickel	6.05			M	R017284
7440-09-7	Potassium	2950			M	R017284
7782-49-2	Selenium	0.289	UJ		M	R017284
7440-22-4	Silver	0.0850	U		M	R017284
7440-23-5	Sodium	3330	J	E	M	R017284
7440-28-0	Thallium	0.0440	UJ		M	R017284
7440-62-2	Vanadium	5.41			M	R017284
7440-66-6	Zinc	7.68	J	E	M	R017284

Color Before: Brown Clarity Before: Clear Texture:

Color After: Colorless Clarity After: Clear Artifacts: No

Comment

MW 5-28-07

MET-6

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040137

Lab Name: Laucks Laboratories Contract:

Lab Code: LAUCKS SDG No.: IDA02

Matrix (soil/water): Water Lab Sample ID: IDA02-003

Level (low/med): LOW Date Received: 04/23/2007

% Solids:

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	74.9			M	R017284
7440-36-0	Antimony	0.219		UJ	M	R017284
7440-38-2	Arsenic	30.7			M	R017284
7440-39-3	Barium	84.4			M	R017284
7440-41-7	Beryllium	0.0430	U		M	R017284
7440-43-9	Cadmium	0.0940	U		M	R017284
7440-70-2	Calcium	59400			M	R017284
7440-47-3	Chromium	0.502			M	R017284
7440-48-4	Cobalt	12.9			M	R017284
7440-50-8	Copper	0.520	U		M	R017284
7439-89-6	Iron	30800			M	R017284
7439-92-1	Lead	0.105	J		M	R017284
7439-95-4	Magnesium	7660	J	E	M	R017284
7439-96-5	Manganese	5510			M	R017284
7439-97-6	Mercury	0.018	UJ		CV	R017124
7440-02-0	Nickel	5.80			M	R017284
7440-09-7	Potassium	3150			M	R017284
7782-49-2	Selenium	0.123		UJ	M	R017284
7440-22-4	Silver	0.0850	U		M	R017284
7440-23-5	Sodium	2150	J	E	M	R017284
7440-28-0	Thallium	0.0440	UJ		M	R017284
7440-62-2	Vanadium	0.871	J		M	R017284
7440-66-6	Zinc	4.48	J	E	M	R017284

Color Before: Colorless Clarity Before: Clear Texture:

Color After: Colorless Clarity After: Clear Artifacts: No

Comment

5/28/07

MET-7

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040138

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA02

Matrix (soil/water): Water

Lab Sample ID: IDA02-004

Level (low/med): LOW

Date Received: 04/23/2007

% Solids:

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	121			M	R017284
7440-36-0	Antimony	0.452	~~J~~	U	M	R017284
7440-38-2	Arsenic	13.7			M	R017284
7440-39-3	Barium	113			M	R017284
7440-41-7	Beryllium	0.0430	U		M	R017284
7440-43-9	Cadmium	0.0940	U		M	R017284
7440-70-2	Calcium	82300			M	R017284
7440-47-3	Chromium	0.465	~~J~~ U		M	R017284
7440-48-4	Cobalt	3.39			M	R017284
7440-50-8	Copper	0.689	J		M	R017284
7439-89-6	Iron	31300			M	R017284
7439-92-1	Lead	0.615	J		M	R017284
7439-95-4	Magnesium	14000	J	~~E~~	M	R017284
7439-96-5	Manganese	3430			M	R017284
7439-97-6	Mercury	0.018	UJ		CV	R017124
7440-02-0	Nickel	3.51			M	R017284
7440-09-7	Potassium	41.60			M	R017284
7782-49-2	Selenium	0.110	UJ		M	R017284
7440-22-4	Silver	0.0850	U		M	R017284
7440-23-5	Sodium	4360	J	~~E~~	M	R017284
7440-28-0	Thallium	0.0440	UJ		M	R017284
7440-62-2	Vanadium	0.668	J		M	R017284
7440-66-6	Zinc	8.01	J	~~E~~ MW	M	R017284

Color Before: Colorless Clarity Before: Clear Texture:

Color After: Colorless Clarity After: Clear Artifacts: No

Comment

MW 5/8/07

MET-8

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040139

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA02

Matrix (soil/water): Water

Lab Sample ID: IDA02-005

Level (low/med): LOW

Date Received: 04/23/2007

% Solids:

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	634			M	R017284
7440-36-0	Antimony	0.0949	~~U~~	UJ	M	R017284
7440-38-2	Arsenic	51.4			M	R017284
7440-39-3	Barium	72.1			M	R017284
7440-41-7	Beryllium	0.0430	U		M	R017284
7440-43-9	Cadmium	0.0940	U		M	R017284
7440-70-2	Calcium	44300			M	R017284
7440-47-3	Chromium	1.46			M	R017284
7440-48-4	Cobalt	1.24			M	R017284
7440-50-8	Copper	2.35			M	R017284
7439-89-6	Iron	23000			M	R017284
7439-92-1	Lead	0.583	J		M	R017284
7439-95-4	Magnesium	7760	J	E	M	R017284
7439-96-5	Manganese	2980			M	R017284
7439-97-6	Mercury	0.018	UJ		CV	R017124
7440-02-0	Nickel	2.53			M	R017284
7440-09-7	Potassium	2070			M	R017284
7782-49-2	Selenium	0.268	~~U~~	UJ	M	R017284
7440-22-4	Silver	0.0850	U		M	R017284
7440-23-5	Sodium	2670	J	E	M	R017284
7440-28-0	Thallium	0.0440	UJ		M	R017284
7440-62-2	Vanadium	1.71	J		M	R017284
7440-66-6	Zinc	7.94	J	E	M	R017284

Color Before: Colorless Clarity Before: Clear Texture:

Color After: Colorless Clarity After: Clear Artifacts: No

Comment

Form I - IN

MW 5-28-07

SW-846

MET-9

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040140

Lab Name: Laucks Laboratories Contract:

Lab Code: LAUCKS SDG No.: IDA02

Matrix (soil/water): Water Lab Sample ID: IDA02-006

Level (low/med): LOW Date Received: 04/23/2007

% Solids:

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	32200			M	R017284
7440-36-0	Antimony	1.87	U		M	R017284
7440-38-2	Arsenic	58.6			M	R017284
7440-39-3	Barium	305			M	R017284
7440-41-7	Beryllium	1.84	J		M	R017284
7440-43-9	Cadmium	1.07			M	R017284
7440-70-2	Calcium	67300			M	R017284
7440-47-3	Chromium	35.6			M	R017284
7440-48-4	Cobalt	22.9			M	R017284
7440-50-8	Copper	132			M	R017284
7439-89-6	Iron	80500			M	R017284
7439-92-1	Lead	39.8			M	R017284
7439-95-4	Magnesium	26400	J	E	M	R017284
7439-96-5	Manganese	3920			M	R017284
7439-97-6	Mercury	0.018	UJ		CV	R017124
7440-02-0	Nickel	37.8			M	R017284
7440-09-7	Potassium	8130			M	R017284
7782-49-2	Selenium	1.18			M	R017284
7440-22-4	Silver	0.532	J		M	R017284
7440-23-5	Sodium	5350	J	E	M	R017284
7440-28-0	Thallium	0.356	J		M	R017284
7440-62-2	Vanadium	53.2			M	R017284
7440-66-6	Zinc	68.3	J	E	M	R017284

MW

Color Before: Brown Clarity Before: Cloudy Texture:

Color After: Brown Clarity After: Cloudy Artifacts: No

Comment

MW 5/28/07

MET-10

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040135

Lab Name: Laucks Laboratories Contract:

Lab Code: LAUCKS SDG No.: IDA02

Matrix (soil/water): Water Lab Sample ID: IDA02-007

Level (low/med): LOW Date Received: 04/23/2007

% Solids:

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	32.0	U		M	R017284
7440-36-0	Antimony	0.218		UJ	M	R017284
7440-38-2	Arsenic	0.303	J		M	R017284
7440-39-3	Barium	12.0			M	R017284
7440-41-7	Beryllium	0.0430	U		M	R017284
7440-43-9	Cadmium	0.0940	U		M	R017284
7440-70-2	Calcium	21800			M	R017284
7440-47-3	Chromium	0.359		U	M	R017284
7440-48-4	Cobalt	1.89			M	R017284
7440-50-8	Copper	0.520	U		M	R017284
7439-89-6	Iron	82.0			M	R017284
7439-92-1	Lead	0.0750	U		M	R017284
7439-95-4	Magnesium	6370	J	E	M	R017284
7439-96-5	Manganese	120			M	R017284
7439-97-6	Mercury	0.018	UJ		CV	R017124
7440-02-0	Nickel	1.31			M	R017284
7440-09-7	Potassium	1040			M	R017284
7782-49-2	Selenium	0.110	UJ		M	R017284
7440-22-4	Silver	0.0850	U		M	R017284
7440-23-5	Sodium	2000	J	E	M	R017284
7440-28-0	Thallium	0.0440	UJ		M	R017284
7440-62-2	Vanadium	0.135	J		M	R017284
7440-66-6	Zinc	3.43	J		M	R017284

Color Before: Colorless Clarity Before: Clear Texture:

Color After: Colorless Clarity After: Clear Artifacts: No

Comment

MET-11

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040141

Lab Name: Laucks Laboratories Contract:

Lab Code: LAUCKS SDG No.: IDA02

Matrix (soil/water): Water Lab Sample ID: IDA02-008

Level (low/med): LOW Date Received: 04/23/2007

% Solids:

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	32.0	U		M	R017284
7440-36-0	Antimony	0.465	~~UM~~	U	M	R017284
7440-38-2	Arsenic	46.6			M	R017284
7440-39-3	Barium	109			M	R017284
7440-41-7	Beryllium	0.0430	U		M	R017284
7440-43-9	Cadmium	0.0940	U		M	R017284
7440-70-2	Calcium	81700			M	R017284
7440-47-3	Chromium	0.537	~~UM~~	U	M	R017284
7440-48-4	Cobalt	2.63			M	R017284
7440-50-8	Copper	0.520	U		M	R017284
7439-89-6	Iron	50600			M	R017284
7439-92-1	Lead	0.0750	U		M	R017284
7439-95-4	Magnesium	9900	J	E	M	R017284
7439-96-5	Manganese	5630			M	R017284
7439-97-6	Mercury	0.018	UJ		CV	R017124
7440-02-0	Nickel	3.55			M	R017284
7440-09-7	Potassium	2680			M	R017284
7782-49-2	Selenium	0.272	~~UM~~	UJ	M	R017284
7440-22-4	Silver	0.0850	U		M	R017284
7440-23-5	Sodium	2710	J	E	M	R017284
7440-28-0	Thallium	0.0440	UJ		M	R017284
7440-62-2	Vanadium	1.24	J		M	R017284
7440-66-6	Zinc	5.03	J	E	M	R017284

Color Before: Colorless Clarity Before: Clear Texture:

Color After: Colorless Clarity After: Clear Artifacts: No

Comment

MW 5/8/07

MET-12

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040142

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA02

Matrix (soil/water): Water

Lab Sample ID: IDA02-009

Level (low/med): LOW

Date Received: 04/23/2007

% Solids:

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	79.7			M	R017284
7440-36-0	Antimony	0.222		UJ	M	R017284
7440-38-2	Arsenic	0.655	J		M	R017284
7440-39-3	Barium	9.30			M	R017284
7440-41-7	Beryllium	0.0430	U		M	R017284
7440-43-9	Cadmium	0.0940	U		M	R017284
7440-70-2	Calcium	22700			M	R017284
7440-47-3	Chromium	0.608		U	M	R017284
7440-48-4	Cobalt	0.0826	J		M	R017284
7440-50-8	Copper	0.746	J		M	R017284
7439-89-6	Iron	183			M	R017284
7439-92-1	Lead	0.178	J		M	R017284
7439-95-4	Magnesium	6460	J	E	M	R017284
7439-96-5	Manganese	0.946	J		M	R017284
7439-97-6	Mercury	0.018	UJ		CV	R017124
7440-02-0	Nickel	0.902	J		M	R017284
7440-09-7	Potassium	808			M	R017284
7782-49-2	Selenium	0.115		UJ	M	R017284
7440-22-4	Silver	0.0850	U		M	R017284
7440-23-5	Sodium	1950	J	E	M	R017284
7440-28-0	Thallium	0.0440	UJ		M	R017284
7440-62-2	Vanadium	0.268	J		M	R017284
7440-66-6	Zinc	5.04	J	E	M	R017284

Color Before: Colorless Clarity Before: Clear Texture:

Color After: Colorless Clarity After: Clear Artifacts: No

Comment

MW 5-28-07

MET-13

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040102

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA02

Matrix (soil/water): Soil

Lab Sample ID: IDA02-022

Level (low/med): LOW

Date Received: 04/23/2007

% Solids: 88.1

Concentration Units : mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	11200			M	R017339
7440-36-0	Antimony	0.20	UJ	*N	M	R017339
7440-38-2	Arsenic	17.3	J	N	M	R017339
7440-39-3	Barium	63.2			M	R017339
7440-41-7	Beryllium	0.40	J		M	R017339
7440-43-9	Cadmium	0.47	J	E	M	R017339
7440-70-2	Calcium	862	J	N	M	R017339
7440-47-3	Chromium	18.8			M	R017339
7440-48-4	Cobalt	8.8			M	R017339
7440-50-8	Copper	23.7			M	R017339
7439-89-6	Iron	24600			M	R017339
7439-92-1	Lead	11.0			M	R017339
7439-95-4	Magnesium	3420	J	N	M	R017339
7439-96-5	Manganese	403	J	E	M	R017339
7439-97-6	Mercury	0.0199	J		CV	R017362
7440-02-0	Nickel	16.5			M	R017339
7440-09-7	Potassium	1600	J	N	M	R017339
7782-49-2	Selenium	0.13	J	N	M	R017339
7440-22-4	Silver	0.14	J		M	R017339
7440-23-5	Sodium	52.2			M	R017339
7440-28-0	Thallium	0.11	J		M	R017339
7440-62-2	Vanadium	11.9			M	R017339
7440-66-6	Zinc	48.7			M	R017339

Color Before: Brown Clarity Before: Texture: Medium

Color After: Colorless Clarity After: Artifacts: No

Comment

MN 5/8/07

MET-14

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040105

Lab Name: Laucks Laboratories Contract:

Lab Code: LAUCKS SDG No.: IDA02

Matrix (soil/water): Soil Lab Sample ID: IDA02-023

Level (low/med): LOW Date Received: 04/23/2007

% Solids: 71.4

Concentration Units : mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	19500			M	R017339
7440-36-0	Antimony	0.074	J	*N	M	R017339
7440-38-2	Arsenic	8.6	J	N	M	R017339
7440-39-3	Barium	113			M	R017339
7440-41-7	Beryllium	0.67	J		M	R017339
7440-43-9	Cadmium	0.52	J	E	M	R017339
7440-70-2	Calcium	2720	J	N	M	R017339
7440-47-3	Chromium	18.4			M	R017339
7440-48-4	Cobalt	8.4			M	R017339
7440-50-8	Copper	21.5			M	R017339
7439-89-6	Iron	20000		*	M	R017339
7439-92-1	Lead	9.5			M	R017339
7439-95-4	Magnesium	7760	J	N	M	R017339
7439-96-5	Manganese	260	J	E	M	R017339
7439-97-6	Mercury	0.0124	J		CV	R017362
7440-02-0	Nickel	16.3			M	R017339
7440-09-7	Potassium	2940	J	N	M	R017339
7782-49-2	Selenium	0.28	J	W	M	R017339
7440-22-4	Silver	0.15	J		M	R017339
7440-23-5	Sodium	477			M	R017339
7440-28-0	Thallium	0.20	J		M	R017339
7440-62-2	Vanadium	25.4			M	R017339
7440-66-6	Zinc	47.3			M	R017339

Color Before: Brown Clarity Before: Texture: Medium

Color After: Colorless Clarity After: Artifacts: No

Comment

MK 5-8-07

MET-15

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040106

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA02

Matrix (soil/water): Soil

Lab Sample ID: IDA02-024

Level (low/med): LOW

Date Received: 04/23/2007

% Solids: 70.8

Concentration Units : mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	14900			M	R017339
7440-36-0	Antimony	0.10	J	*N	M	R017339
7440-38-2	Arsenic	7.3	J	N	M	R017339
7440-39-3	Barium	92.8			M	R017339
7440-41-7	Beryllium	0.47	J		M	R017339
7440-43-9	Cadmium	0.45	J	E	M	R017339
7440-70-2	Calcium	1480	J	N	M	R017339
7440-47-3	Chromium	11.9			M	R017339
7440-48-4	Cobalt	6.2			M	R017339
7440-50-8	Copper	20.8			M	R017339
7439-89-6	Iron	15100		*	M	R017339
7439-92-1	Lead	9.3			M	R017339
7439-95-4	Magnesium	5830	J	N	M	R017339
7439-96-5	Manganese	188	J	E	M	R017339
7439-97-6	Mercury	0.0114	J		CV	R017362
7440-02-0	Nickel	13.3			M	R017339
7440-09-7	Potassium	1980	J	N	M	R017339
7782-49-2	Selenium	0.36	J	N	M	R017339
7440-22-4	Silver	0.11	J		M	R017339
7440-23-5	Sodium	86.3			M	R017339
7440-28-0	Thallium	0.15	J		M	R017339
7440-62-2	Vanadium	20.5			M	R017339
7440-66-6	Zinc	42.2			M	R017339

Color Before: Brown Clarity Before: Texture: Medium

Color After: Colorless Clarity After: Artifacts: No

Comment

MN 5-8-07

MET-16

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040108

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA02

Matrix (soil/water): Soil

Lab Sample ID: IDA02-025

Level (low/med): LOW

Date Received: 04/23/2007

% Solids: 87.8

Concentration Units : mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	11200			M	R017339
7440-36-0	Antimony	1.3	J	*N	M	R017339
7440-38-2	Arsenic	12.0	J	N	M	R017339
7440-39-3	Barium	193			M	R017339
7440-41-7	Beryllium	0.62	J		M	R017339
7440-43-9	Cadmium	0.81	J	E	M	R017339
7440-70-2	Calcium	6390	J	N	M	R017339
7440-47-3	Chromium	15.1			M	R017339
7440-48-4	Cobalt	6.5			M	R017339
7440-50-8	Copper	101			M	R017339
7439-89-6	Iron	19700		*	M	R017393
7439-92-1	Lead	145			M	R017339
7439-95-4	Magnesium	8060	J	N	M	R017339
7439-96-5	Manganese	354	J	E	M	R017339
7439-97-6	Mercury	0.0553	J		CV	R017362
7440-02-0	Nickel	24.9			M	R017339
7440-09-7	Potassium	3250	J	N	M	R017339
7782-49-2	Selenium	0.22	J	N	M	R017339
7440-22-4	Silver	0.16	J		M	R017339
7440-23-5	Sodium	292			M	R017339
7440-28-0	Thallium	0.16	J		M	R017339
7440-62-2	Vanadium	30.2			M	R017339
7440-66-6	Zinc	101			M	R017339

Color Before: Brown Clarity Before: Texture: Medium

Color After: Brown Clarity After: Artifacts: No

Comment

Form I - IN

MW 5-8-07

SW-846

MET-17

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040110

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA02

Matrix (soil/water): Soil

Lab Sample ID: IDA02-026

Level (low/med): LOW

Date Received: 04/23/2007

% Solids: 78.2

Concentration Units : mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	13500			M	R017339
7440-36-0	Antimony	0.21	J	N	M	R017339
7440-38-2	Arsenic	5.7	J	N	M	R017339
7440-39-3	Barium	76.3			M	R017339
7440-41-7	Beryllium	0.57	J		M	R017339
7440-43-9	Cadmium	0.39	J	E	M	R017339
7440-70-2	Calcium	2310	J	N	M	R017339
7440-47-3	Chromium	13.2			M	R017339
7440-48-4	Cobalt	6.9			M	R017339
7440-50-8	Copper	25.1			M	R017339
7439-89-6	Iron	18000			M	R017339
7439-92-1	Lead	6.1			M	R017339
7439-95-4	Magnesium	6190	J	N	M	R017339
7439-96-5	Manganese	271	J	E	M	R017339
7439-97-6	Mercury	0.0119	J		CV	R017362
7440-02-0	Nickel	13.1			M	R017339
7440-09-7	Potassium	2460	J	N	M	R017339
7782-49-2	Selenium	0.38	J	W	M	R017339
7440-22-4	Silver	0.10	J		M	R017339
7440-23-5	Sodium	113	J		M	R017339
7440-28-0	Thallium	0.16	J		M	R017339
7440-62-2	Vanadium	25.6			M	R017339
7440-66-6	Zinc	34.9			M	R017339

Color Before: Brown Clarity Before: Texture: Medium

Color After: Colorless Clarity After: Artifacts: No

Comment

MET-18

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040113

Lab Name: Laucks Laboratories Contract:

Lab Code: LAUCKS SDG No.: IDA02

Matrix (soil/water): Soil Lab Sample ID: IDA02-027

Level (low/med): LOW Date Received: 04/23/2007

% Solids: 72.3

Concentration Units : mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	15800			M	R017339
7440-36-0	Antimony	0.12	J	*N	M	R017339
7440-38-2	Arsenic	7.5	J	N	M	R017339
7440-39-3	Barium	96.0			M	R017339
7440-41-7	Beryllium	0.54	J		M	R017339
7440-43-9	Cadmium	0.43	J	E	M	R017339
7440-70-2	Calcium	1910	J	N	M	R017339
7440-47-3	Chromium	12.8			M	R017339
7440-48-4	Cobalt	8.5			M	R017339
7440-50-8	Copper	20.7			M	R017339
7439-89-6	Iron	16900			M	R017339
7439-92-1	Lead	8.3			M	R017339
7439-95-4	Magnesium	6570	J	N	M	R017339
7439-96-5	Manganese	319	J	E	M	R017339
7439-97-6	Mercury	0.0105	J		CV	R017362
7440-02-0	Nickel	13.4			M	R017339
7440-09-7	Potassium	1720	J	N	M	R017339
7782-49-2	Selenium	0.39	J	N	M	R017339
7440-22-4	Silver	0.11	J		M	R017339
7440-23-5	Sodium	106			M	R017339
7440-28-0	Thallium	0.16	J		M	R017339
7440-62-2	Vanadium	23.0			M	R017339
7440-66-6	Zinc	42.5			M	R017339

Color Before: Brown Clarity Before: Texture: Medium

Color After: Colorless Clarity After: Artifacts: No

Comment

MET-19

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040116

Lab Name: Laucks Laboratories Contract:

Lab Code: LAUCKS SDG No.: IDA02

Matrix (soil/water): Soil Lab Sample ID: IDA02-029

Level (low/med): LOW Date Received: 04/23/2007

% Solids: 85.3

Concentration Units: mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	14100			M	R017339
7440-36-0	Antimony	0.17	J	N	M	R017339
7440-38-2	Arsenic	15.7	J	N	M	R017339
7440-39-3	Barium	125			M	R017339
7440-41-7	Beryllium	0.46			M	R017339
7440-43-9	Cadmium	0.53	J	E	M	R017339
7440-70-2	Calcium	1620	J	N	M	R017339
7440-47-3	Chromium	12.1			M	R017339
7440-48-4	Cobalt	7.1			M	R017339
7440-50-8	Copper	20.5			M	R017339
7439-89-6	Iron	18900		*	M	R017339
7439-92-1	Lead	17.3			M	R017339
7439-95-4	Magnesium	7460	J	N	M	R017339
7439-96-5	Manganese	200	J	E	M	R017339
7439-97-6	Mercury	0.00640	UJ		CV	R017362
7440-02-0	Nickel	16.1			M	R017339
7440-09-7	Potassium	3500	J	N	M	R017339
7782-49-2	Selenium	0.23	J	N	M	R017339
7440-22-4	Silver	0.12	J		M	R017339
7440-23-5	Sodium	70.4			M	R017339
7440-28-0	Thallium	0.17	J		M	R017339
7440-62-2	Vanadium	22.1			M	R017339
7440-66-6	Zinc	26.0			M	R017339

Color Before: Brown Clarity Before: Texture: Medium

Color After: Yellow Clarity After: Artifacts: No

Comment

MWS 6/08

MET-20

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040117

Lab Name: Laucks Laboratories Contract:

Lab Code: LAUCKS SDG No.: IDA02

Matrix (soil/water): Soil Lab Sample ID: IDA02-030

Level (low/med): LOW Date Received: 04/23/2007

% Solids: 85.5

Concentration Units : mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	12100			M	R017339
7440-36-0	Antimony	1.1	J	N	M	R017339
7440-38-2	Arsenic	16.9	J	N	M	R017339
7440-39-3	Barium	174			M	R017339
7440-41-7	Beryllium	0.46	J		M	R017339
7440-43-9	Cadmium	0.78	J	E	M	R017339
7440-70-2	Calcium	4370	J	N	M	R017339
7440-47-3	Chromium	12.3			M	R017339
7440-48-4	Cobalt	19.2			M	R017339
7440-50-8	Copper	71.6			M	R017339
7439-89-6	Iron	19300			M	R017339
7439-92-1	Lead	159			M	R017339
7439-95-4	Magnesium	6590	J	N	M	R017339
7439-96-5	Manganese	288	J	E	M	R017339
7439-97-6	Mercury	0.117			CV	R017362
7440-02-0	Nickel	32.3			M	R017339
7440-09-7	Potassium	2740	J	N	M	R017339
7782-49-2	Selenium	0.21	J		M	R017339
7440-22-4	Silver	0.17	J		M	R017339
7440-23-5	Sodium	139			M	R017339
7440-28-0	Thallium	0.14	J		M	R017339
7440-62-2	Vanadium	21.9			M	R017339
7440-66-6	Zinc	72.3			M	R017339

Color Before: Brown Clarity Before: Texture: Medium

Color After: Brown Clarity After: Artifacts: No

Comment

5-28-07

MET-21

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040119

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA02

Matrix (soil/water): Soil

Lab Sample ID: IDA02-031

Level (low/med): LOW

Date Received: 04/23/2007

% Solids: 76.6

Concentration Units : mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	13100			M	R017339
7440-36-0	Antimony	0.099	J	N	M	R017339
7440-38-2	Arsenic	4.2	J	N	M	R017339
7440-39-3	Barium	65.6			M	R017339
7440-41-7	Beryllium	0.46	J		M	R017339
7440-43-9	Cadmium	0.36	J	E	M	R017339
7440-70-2	Calcium	1930	J	N	M	R017339
7440-47-3	Chromium	10.9			M	R017339
7440-48-4	Cobalt	5.5			M	R017339
7440-50-8	Copper	18.7			M	R017339
7439-89-6	Iron	15000			M	R017339
7439-92-1	Lead	7.7			M	R017339
7439-95-4	Magnesium	5750	J	N	M	R017339
7439-96-5	Manganese	98.3	J	E	M	R017339
7439-97-6	Mercury	0.00713	UJ		CV	R017362
7440-02-0	Nickel	12.9			M	R017339
7440-09-7	Potassium	2060	J	N	M	R017339
7782-49-2	Selenium	0.30	J		M	R017339
7440-22-4	Silver	0.078	J		M	R017339
7440-23-5	Sodium	89.5			M	R017339
7440-28-0	Thallium	0.13	J		M	R017339
7440-62-2	Vanadium	23.5			M	R017339
7440-66-6	Zinc	34.4			M	R017339

Color Before: Brown Clarity Before: Texture: Medium

Color After: Colorless Clarity After: Artifacts: No

Comment

Form I - IN

MW 5-28-07

SW-846

MET-22

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040120

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA02

Matrix (soil/water): Soil

Lab Sample ID: IDA02-032

Level (low/med): LOW

Date Received: 04/23/2007

% Solids: 89.4

Concentration Units : mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	10200			M	R017339
7440-36-0	Antimony	0.49	J	*N	M	R017339
7440-38-2	Arsenic	16.1	J	N	M	R017339
7440-39-3	Barium	175			M	R017339
7440-41-7	Beryllium	0.42	J		M	R017339
7440-43-9	Cadmium	0.86		E	M	R017339
7440-70-2	Calcium	3110	J	N	M	R017339
7440-47-3	Chromium	12.0			M	R017339
7440-48-4	Cobalt	6.3			M	R017339
7440-50-8	Copper	44.7			M	R017339
7439-89-6	Iron	16300			M	R017339
7439-92-1	Lead	69.1			M	R017339
7439-95-4	Magnesium	4180	J	N	M	R017339
7439-96-5	Manganese	315	J	E	M	R017339
7439-97-6	Mercury	0.0312	J		CV	R017362
7440-02-0	Nickel	17.8			M	R017339
7440-09-7	Potassium	1920	J	N	M	R017339
7782-49-2	Selenium	0.31	J	*N	M	R017339
7440-22-4	Silver	0.14	J		M	R017339
7440-23-5	Sodium	203			M	R017339
7440-28-0	Thallium	0.12	J		M	R017339
7440-62-2	Vanadium	29.9			M	R017339
7440-66-6	Zinc	111			M	R017339

Color Before: Brown Clarity Before: Texture: Medium

Color After: Brown Clarity After: Artifacts: No

Comment

MW 5-28-07

MET-23

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040122

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA02

Matrix (soil/water): Soil

Lab Sample ID: IDA02-033

Level (low/med): LOW

Date Received: 04/23/2007

% Solids: 78.3

Concentration Units : mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	13000			M	R017339
7440-36-0	Antimony	0.063	J	N	M	R017339
7440-38-2	Arsenic	5.4	J	N	M	R017339
7440-39-3	Barium	65.8			M	R017339
7440-41-7	Beryllium	0.49			M	R017339
7440-43-9	Cadmium	0.36	J	E	M	R017339
7440-70-2	Calcium	1530	J	N	M	R017339
7440-47-3	Chromium	11.2			M	R017339
7440-48-4	Cobalt	7.1			M	R017339
7440-50-8	Copper	18.1			M	R017339
7439-89-6	Iron	16800			M	R017339
7439-92-1	Lead	4.3			M	R017339
7439-95-4	Magnesium	5320	J	N	M	R017339
7439-96-5	Manganese	240	J	E	M	R017339
7439-97-6	Mercury	0.00697	UJ		CV	R017362
7440-02-0	Nickel	12.9			M	R017339
7440-09-7	Potassium	1960	J	N	M	R017339
7782-49-2	Selenium	0.21	J	N	M	R017339
7440-22-4	Silver	0.081	J		M	R017339
7440-23-5	Sodium	101			M	R017339
7440-28-0	Thallium	0.16	J		M	R017339
7440-62-2	Vanadium	22.3			M	R017339
7440-66-6	Zinc	29.5			M	R017339

Color Before: Brown Clarity Before: Texture: Medium

Color After: Colorless Clarity After: Artifacts: No

Comment

MW 5/8/07

MET-24

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040124

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA02

Matrix (soil/water): Soil

Lab Sample ID: IDA02-034

Level (low/med): LOW

Date Received: 04/23/2007

% Solids: 87.4

Concentration Units : mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	11100			M	R017339
7440-36-0	Antimony	0.059	J	N	M	R017339
7440-38-2	Arsenic	17.0	J	N	M	R017339
7440-39-3	Barium	62.4			M	R017339
7440-41-7	Beryllium	0.40	J		M	R017339
7440-43-9	Cadmium	0.29	J	E	M	R017339
7440-70-2	Calcium	1740	J	N	M	R017339
7440-47-3	Chromium	10.8			M	R017339
7440-48-4	Cobalt	7.9			M	R017339
7440-50-8	Copper	21.3			M	R017339
7439-89-6	Iron	18400			M	R017339
7439-92-1	Lead	2.3			M	R017339
7439-95-4	Magnesium	6670	J	N	M	R017339
7439-96-5	Manganese	201	J	E	M	R017339
7439-97-6	Mercury	0.00625	UJ		CV	R017362
7440-02-0	Nickel	15.0			M	R017339
7440-09-7	Potassium	3240	J	N	M	R017339
7782-49-2	Selenium	0.19	J	W	M	R017339
7440-22-4	Silver	0.070	J		M	R017339
7440-23-5	Sodium	89.7			M	R017339
7440-28-0	Thallium	0.26	J		M	R017339
7440-62-2	Vanadium	19.5			M	R017339
7440-66-6	Zinc	18.4			M	R017339

Color Before: Brown Clarity Before: Texture: Coarse

Color After: Colorless Clarity After: Artifacts: No

Comment

MW 5-8-07

MET-25

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040127

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA02

Matrix (soil/water): Soil

Lab Sample ID: IDA02-035

Level (low/med): LOW

Date Received: 04/23/2007

% Solids: 79

Concentration Units : mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	12700			M	R017339
7440-36-0	Antimony	0.070	J	*N	M	R017339
7440-38-2	Arsenic	6.1	J	N	M	R017339
7440-39-3	Barium	69.2			M	R017339
7440-41-7	Beryllium	0.39	J		M	R017339
7440-43-9	Cadmium	0.41	J	E	M	R017339
7440-70-2	Calcium	1290	J	N	M	R017339
7440-47-3	Chromium	10.7			M	R017339
7440-48-4	Cobalt	6.9			M	R017339
7440-50-8	Copper	20.2			M	R017339
7439-89-6	Iron	17100		*	M	R017339
7439-92-1	Lead	6.3			M	R017339
7439-95-4	Magnesium	5290	J	N	M	R017339
7439-96-5	Manganese	221	J	E	M	R017339
7439-97-6	Mercury	0.00691	UJ		CV	R017362
7440-02-0	Nickel	12.1			M	R017339
7440-09-7	Potassium	1940	J	N	M	R017339
7782-49-2	Selenium	0.26	J	W	M	R017339
7440-22-4	Silver	0.086	J		M	R017339
7440-23-5	Sodium	89.5			M	R017339
7440-28-0	Thallium	0.15	J		M	R017339
7440-62-2	Vanadium	21.0			M	R017339
7440-66-6	Zinc	33.4			M	R017339

Color Before: Brown Clarity Before: Texture: Fine

Color After: Colorless Clarity After: Artifacts: No

Comment

Form I - IN

MN 5/28/07

SW-846

MET-26

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040129

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA02

Matrix (soil/water): Soil

Lab Sample ID: IDA02-036

Level (low/med): LOW

Date Received: 04/23/2007

% Solids: 89.6

Concentration Units : mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	7760			M	R017339
7440-36-0	Antimony	0.066	J	N	M	R017339
7440-38-2	Arsenic	5.1	J	N	M	R017339
7440-39-3	Barium	44.3			M	R017339
7440-41-7	Beryllium	0.24	J		M	R017339
7440-43-9	Cadmium	0.23	J	E	M	R017339
7440-70-2	Calcium	1580	J	N	M	R017339
7440-47-3	Chromium	7.7			M	R017339
7440-48-4	Cobalt	5.6			M	R017339
7440-50-8	Copper	43.0			M	R017339
7439-89-6	Iron	15100			M	R017339
7439-92-1	Lead	4.7			M	R017339
7439-95-4	Magnesium	4170	J	N	M	R017339
7439-96-5	Manganese	120	J	E	M	R017339
7439-97-6	Mercury	0.00609	UJ		CV	R017362
7440-02-0	Nickel	8.7			M	R017339
7440-09-7	Potassium	1960	J	N	M	R017339
7782-49-2	Selenium	0.16	J	N	M	R017339
7440-22-4	Silver	0.055	J		M	R017339
7440-23-5	Sodium	108			M	R017339
7440-28-0	Thallium	0.094	J		M	R017339
7440-62-2	Vanadium	28.3			M	R017339
7440-66-6	Zinc	20.7			M	R017339

Color Before: Brown Clarity Before: Texture: Coarse

Color After: Colorless Clarity After: Artifacts: No

Comment

MW 5-28-07

MET-27

SW-846
-1-
INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

07040131

Lab Name: Laucks Laboratories

Contract:

Lab Code: LAUCKS

SDG No.: IDA02

Matrix (soil/water): Soil

Lab Sample ID: IDA02-037

Level (low/med): LOW

Date Received: 04/23/2007

% Solids: 100

Concentration Units : mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7429-90-5	Aluminum	71.2			M	R017339
7440-36-0	Antimony	0.28	J	*N	M	R017339
7440-38-2	Arsenic	3.1		N	M	R017339
7440-39-3	Barium	2.3			M	R017339
7440-41-7	Beryllium	0.013	U		M	R017339
7440-43-9	Cadmium	0.061	J	E	M	R017339
7440-70-2	Calcium	55.9	J	N	M	R017339
7440-47-3	Chromium	3.4			M	R017339
7440-48-4	Cobalt	0.38			M	R017339
7440-50-8	Copper	10.9			M	R017339
7439-89-6	Iron	35.9			M	R017339
7439-92-1	Lead	1.6			M	R017339
7439-95-4	Magnesium	1.3	U	N	M	R017339
7439-96-5	Manganese	0.74	J	E	M	R017339
7439-97-6	Mercury	0.00546	U		CV	R017362
7440-02-0	Nickel	21.8			M	R017339
7440-09-7	Potassium	7.6	J	N	M	R017339
7782-49-2	Selenium	0.23	J		M	R017339
7440-22-4	Silver	0.038	J		M	R017339
7440-23-5	Sodium	5.5	J		M	R017339
7440-28-0	Thallium	0.0091	U		M	R017339
7440-62-2	Vanadium	21.9			M	R017339
7440-66-6	Zinc	1.5	U		M	R017339

Color Before: Brown Clarity Before: Texture: Fine

Color After: Orange Clarity After: Artifacts: No

Comment

MW 5/28/07

MET-28

ecology and environment, inc.
Global Environmental Specialists
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: July 31, 2012

TO: Steve Hall, START-3 Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho**

COC: 12-05-0006-23

REF:

TDDs: 12-05-0006	PANs: 002233.0790.01RA
12-05-0007	PANs: 002233.0791.01RA
12-05-0008	PANs: 002233.0792.01RA
12-05-0009	PANs: 002233.0793.01RA

The data quality assurance review of two soil samples collected from the Avery Landing Site (consisting of the Avery Bentcik, Avery IDOL, Avery FHWA, and Avery Potlatch sites) located in Avery, Idaho, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by TestAmerica Seattle, Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2 and 4 Data Validation Electronic/Manual Process (S4VEM). The samples were numbered: 12060078 12060079

Data Qualifications:

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

The samples were maintained at < 6°C. The samples were collected on July 23, 2012, extracted by July 25, 2012, and analyzed by July 26, 2012, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples, and less than 40 days between extraction and analysis.

2. **Initial and Continuing Calibrations: Acceptable.**

Calculations were verified as correct. All initial calibration correlation coefficients were ≥ 0.990 and/or all relative percent differences (RPDs) were less than or equal to the laboratory control limits of 15%. All continuing calibration percent differences (%Ds) were ≤ the laboratory control limits of 15%.

3. **Error Determination: Not Performed.**

Samples necessary for bias and precision determination were not provided to the laboratory. All samples were flagged RND (Recovery Not Determined) and PND (Precision Not Determined), although the flags are not found on the Form I's.

4. **Blanks: Satisfactory.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel-range TPHs (7.80 mg/kg) and motor oil-range TPHs (17.1 mg/kg) were detected in the method blank; no action was taken as applicable sample results were more than five times the blank results.

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

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

6. **Performance Evaluation Samples: Not Provided.**
Performance evaluation samples were not provided to the laboratory.

7. **Blank Spikes: Acceptable.**
Blank spike results were within QC limits.

8. **Duplicates: Acceptable.**
Duplicate results were within QC limits.

9. **Quantitation and Quantitation Limits: Acceptable.**
Sample concentrations were correctly calculated.

10. **Laboratory Contact: Not Required.**
No laboratory contact was required.

11. **Overall Assessment of Data for Use**
In samples 12060078 and 12060079, the results in the #2 Diesel and Motor Oil ranges are due to what most closely resembles a complex mixture of heavily weathered/degraded diesel fuel, a mineral/ transformer oil range product, and motor oil. The affected analytes are qualified as estimated quantities with a high bias (JH).

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan, 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 analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

JH - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a high bias.

JL - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a low bias.

JK - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias.

JQ – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias and falls between the Method Detection Limit (MDL) and the Reporting Limit (RL).

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Analytical Data

Client: Ecology and Environment, Inc. Job Number: 580-34089-1

Client Sample ID: 12060078

Lab Sample ID: 580-34089-1 Date Sampled: 07/23/2012 0830
Client Matrix: Solid % Moisture: 22.4 Date Received: 07/24/2012 0950

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	580-116162	Instrument ID:	SEA012
Prep Method:	3550B	Prep Batch:	580-116125	Lab File ID:	CF00722.D
Dilution:	1.0			Initial Weight/Volume:	10.1228 g
Analysis Date:	07/26/2012 0844			Final Weight/Volume:	10 mL
Prep Date:	07/25/2012 1245			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
#2 Diesel (C10-C24)		1700	JH ~~B~~ Y	7.3	32
Motor Oil (>C24-C36)		1700	JH ~~B~~ Y MW	12	64

S4VM

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	115		50 - 150

MW
7-3-12

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-34089-1

Client Sample ID: 12060079

Lab Sample ID: 580-34089-2

Client Matrix: Solid

% Moisture: 22.7

Date Sampled: 07/23/2012 0845

Date Received: 07/24/2012 0950

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	580-116162	Instrument ID:	SEA012
Prep Method:	3550B	Prep Batch:	580-116125	Lab File ID:	CF00724.D
Dilution:	1.0			Initial Weight/Volume:	10.2840 g
Analysis Date:	07/26/2012 0924			Final Weight/Volume:	10 mL
Prep Date:	07/25/2012 1245			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
#2 Diesel (C10-C24)		590	~~Y B~~	7.2	31
Motor Oil (>C24-C36)		640	Y B	11	63

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	101		50 - 150

MW 7-31-12

ecology and environment, inc.
Global Environmental Specialists
720 Third Avenue, Suite 1700
Seattle, Washington 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: August 6, 2012

TO: Steve Hall, START-3 Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington

SUBJ: **Organic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho**

COC: 12-05-0006-22

REF:

TDDs:	12-05-0006	PANs: 002233.0790.01RA
	12-05-0007	PANs: 002233.0791.01RA
	12-05-0008	PANs: 002233.0792.01RA
	12-05-0009	PANs: 002233.0793.01RA

The data quality assurance review of two soil samples collected from the Avery Landing Site (consisting of the Avery Bentcik, Avery IDOL, Avery FHWA, and Avery Potlatch sites) located in Avery, Idaho, has been completed. Selected Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270D) was performed by GEL Labs, Inc., Charleston, South Carolina. All sample analyses were evaluated following EPA's Stage 2 Data Validation Manual Process (S2VM) and/or Stage 4 Data Validation Manual Process (S4VM).

The samples were numbered: 12060076 12060077

Data Qualifications:

1. Sample Holding Times: Acceptable.

The samples were maintained and received within the QC limits of < 6°C. The samples were collected on July 21, 2012, were extracted on July 24, 2012, and were analyzed on July 25, 2012, 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: Acceptable.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

3. Initial Calibration: Acceptable.

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) were within the QC limits.

4. **Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits. All % differences were within the QC limits except indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i) perylene with high recoveries in the 7-25 calibration and hexachlorocyclopentadiene and pentachlorophenol with low recoveries in the 7-26 calibration. Positive sample results associated with the high recovery outliers were qualified as estimated quantities with a high bias (JH). Positive results and sample quantitation limits associated with the low recovery outliers were qualified as estimated quantities with a low bias (JL and UJL, respectively).

5. **Blanks: Acceptable.**

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

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

All SMC recoveries were within QC limits.

7. **Matrix Spike (MS)/MS Duplicate (MSD)/Blank Spike (BS) 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 pentachlorophenol with a low recovery in the BS (associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias [JL and UJL, respectively]).

8. **Duplicate Analysis: Satisfactory.**

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 pyrene. No action was taken based on this outlier as the associated spike results were within QC limits.

9. **Internal Standards: Acceptable.**

All internal standards (IS) were within $\pm$ 30 seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

10. **Precision and Bias Determination: Not Performed.**

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

11. **Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

12. **Overall Assessment of Data for Use**

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan, 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 analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

JH - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a high bias.

JL - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a low bias.

JK - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias.

JQ – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias and falls between the MDL and the Minimum (or Practical) Quantitation Limit (MQL, PQL).

N - The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Ecology and Environment, Inc.
Address : 720 Third Ave
Suite 1700
Seattle, Washington 98104
Contact: Mr. Steve Hall
Project: Project No. 4500000347

Report Date: July 27, 2012

Client Sample ID:	12060076	Project:	ECOL00801
Sample ID:	308397001	Client ID:	ECOL008
Matrix:	Soil		
Collect Date:	21-JUL-12 09:00		
Receive Date:	24-JUL-12		
Collector:	Client		
Moisture:	23.2%		

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatile-GC/MS										
SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"										
1,1'-Biphenyl	U	ND	433	ug/kg	1	JLD1	07/25/12	1712	1232292	1
1,2,4,5-Tetrachlorobenzene	U	ND	433	ug/kg	1					
1-Methylnaphthalene	U	ND	43.3	ug/kg	1					
2,3,4,6-Tetrachlorophenol	U	ND	433	ug/kg	1					
2,4,5-Trichlorophenol	U	ND	433	ug/kg	1					
2,4,6-Trichlorophenol	U	ND	433	ug/kg	1					
2,4-Dichlorophenol	U	ND	433	ug/kg	1					
2,4-Dimethylphenol	U	ND	433	ug/kg	1					
2,4-Dinitrophenol	U	ND	866	ug/kg	1					
2,4-Dinitrotoluene	U	ND	433	ug/kg	1					
2,6-Dinitrotoluene	U	ND	433	ug/kg	1					
2-Chloronaphthalene	U	ND	43.3	ug/kg	1					
2-Chlorophenol	U	ND	433	ug/kg	1					
2-Methyl-4,6-dinitrophenol	U	ND	433	ug/kg	1					
2-Methylnaphthalene	U	ND	43.3	ug/kg	1					
2-Nitrophenol	U	ND	433	ug/kg	1					
3,3'-Dichlorobenzidine	U	ND	433	ug/kg	1					
4-Bromophenylphenylether	U	ND	433	ug/kg	1					
4-Chloro-3-methylphenol	U	ND	433	ug/kg	1					
4-Chloroaniline	U	ND	433	ug/kg	1					
4-Chlorophenylphenylether	U	ND	433	ug/kg	1					
4-Nitrophenol	U	ND	433	ug/kg	1					
Acenaphthene	U	ND	43.3	ug/kg	1					
Acenaphthylene	U	ND	43.3	ug/kg	1					
Acetophenone	U	ND	433	ug/kg	1					
Anthracene	U	ND	43.3	ug/kg	1					
Atrazine	U	ND	433	ug/kg	1					
Benzaldehyde	U	ND MU	433	ug/kg	1					
Benzo(a)anthracene		402	43.3	ug/kg	1					
Benzo(a)pyrene	U	ND	43.3	ug/kg	1					
Benzo(b)fluoranthene	U	ND MU JH	43.3	ug/kg	1					
Benzo(ghi)perylene		126	43.3	ug/kg	1					
Benzo(k)fluoranthene	U	ND	43.3	ug/kg	1					
Butylbenzylphthalate	U	ND	433	ug/kg	1					
Caprolactam	U	ND	433	ug/kg	1					
Carbazole	U	ND MU	43.3	ug/kg	1					
Chrysene		629	43.3	ug/kg	1					

S4VM

MW 8/6/12

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Ecology and Environment, Inc.
Address : 720 Third Ave
Suite 1700
Seattle, Washington 98104
Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID: 12060076
Sample ID: 308397001

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatile-GC/MS										
SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"										
Di-n-butylphthalate	U	ND	433	ug/kg	1					
Di-n-octylphthalate	U	ND	433	ug/kg	1					
Dibenzo(a,h)anthracene	U	ND	43.3	ug/kg	1					
Dibenzofuran	U	ND	433	ug/kg	1					
Diethylphthalate	U	ND	433	ug/kg	1					
Dimethylphthalate	U	ND	433	ug/kg	1					
Diphenylamine	U	ND	433	ug/kg	1					
Fluoranthene	U	ND	43.3	ug/kg	1					
Fluorene	U	ND	43.3	ug/kg	1					
Hexachlorobenzene	U	ND	433	ug/kg	1					
Hexachlorobutadiene	U	ND	433	ug/kg	1					
Hexachlorocyclopentadiene	U	ND	433	ug/kg	1					
Hexachloroethane	U	ND	433	ug/kg	1					
Indeno(1,2,3-cd)pyrene	U	ND	43.3	ug/kg	1					
Isophorone	U	ND	433	ug/kg	1					
N-Nitrosodipropylamine	U	ND	433	ug/kg	1					
Naphthalene	U	ND	43.3	ug/kg	1					
Nitrobenzene	U	ND	433	ug/kg	1					
Pentachlorophenol	U	ND	433	ug/kg	1					
Phenanthrene		2940	43.3	ug/kg	1					
Phenol	U	ND	433	ug/kg	1					
Pyrene		2660	43.3	ug/kg	1					
bis(2-Chloroethoxy)methane	U	ND	433	ug/kg	1					
bis(2-Chloroethyl) ether	U	ND	433	ug/kg	1					
bis(2-Chloroisopropyl)ether	U	ND	433	ug/kg	1					
bis(2-Ethylhexyl)phthalate	U	ND	433	ug/kg	1					
m,p-Cresols	U	ND	433	ug/kg	1					
m-Nitroaniline	U	ND	433	ug/kg	1					
o-Cresol	U	ND	433	ug/kg	1					
o-Nitroaniline	U	ND	433	ug/kg	1					
p-Nitroaniline	U	ND	433	ug/kg	1					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3550C	3550C BNA Soil Prep for 8270D	MXS4	07/24/12	1915	1232290

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3550C/8270D	

GEL LABORATORIES LLC

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Certificate of Analysis

Company : Ecology and Environment, Inc.
Address : 720 Third Ave
Suite 1700
Seattle, Washington 98104
Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID: 12060076
Sample ID: 308397001

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
2-Fluorobiphenyl	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	1010 ug/kg	2160	46.9	(24%-106%)
Nitrobenzene-d5	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	1120 ug/kg	2160	51.9	(22%-124%)
p-Terphenyl-d14	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	1880 ug/kg	2160	86.9	(24%-137%)
2,4,6-Tribromophenol	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	2160 ug/kg	4330	49.8	(23%-124%)
2-Fluorophenol	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	1890 ug/kg	4330	43.7	(27%-112%)
Phenol-d5	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	1720 ug/kg	4330	39.8	(26%-112%)

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Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID:	12060077	Project:	ECOL00801
Sample ID:	308397002	Client ID:	ECOL008
Matrix:	Soil		
Collect Date:	21-JUL-12 09:15		
Receive Date:	24-JUL-12		
Collector:	Client		
Moisture:	23.9%		

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatile-GC/MS										
SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"										
1,1'-Biphenyl	U	ND	438	ug/kg	1	JLD1	07/25/12	1737	1232292	1
1,2,4,5-Tetrachlorobenzene	U	ND	438	ug/kg	1					
1-Methylnaphthalene	U	ND	43.8	ug/kg	1					
2,3,4,6-Tetrachlorophenol	U	ND	438	ug/kg	1					
2,4,5-Trichlorophenol	U	ND	438	ug/kg	1					
2,4,6-Trichlorophenol	U	ND	438	ug/kg	1					
2,4-Dichlorophenol	U	ND	438	ug/kg	1					
2,4-Dimethylphenol	U	ND	438	ug/kg	1					
2,4-Dinitrophenol	U	ND	875	ug/kg	1					
2,4-Dinitrotoluene	U	ND	438	ug/kg	1					
2,6-Dinitrotoluene	U	ND	438	ug/kg	1					
2-Chloronaphthalene	U	ND	43.8	ug/kg	1					
2-Chlorophenol	U	ND	438	ug/kg	1					
2-Methyl-4,6-dinitrophenol	U	ND	438	ug/kg	1					
2-Methylnaphthalene	U	ND	43.8	ug/kg	1					
2-Nitrophenol	U	ND	438	ug/kg	1					
3,3'-Dichlorobenzidine	U	ND	438	ug/kg	1					
4-Bromophenylphenylether	U	ND	438	ug/kg	1					
4-Chloro-3-methylphenol	U	ND	438	ug/kg	1					
4-Chloroaniline	U	ND	438	ug/kg	1					
4-Chlorophenylphenylether	U	ND	438	ug/kg	1					
4-Nitrophenol	U	ND	438	ug/kg	1					
Acenaphthene	U	ND	43.8	ug/kg	1					
Acenaphthylene	U	ND	43.8	ug/kg	1					
Acetophenone	U	ND	438	ug/kg	1					
Anthracene	U	ND	43.8	ug/kg	1					
Atrazine	U	ND	438	ug/kg	1					
Benzaldehyde	U	ND	438	ug/kg	1					
Benzo(a)anthracene		251	43.8	ug/kg	1					
Benzo(a)pyrene	U	ND	43.8	ug/kg	1					
Benzo(b)fluoranthene	U	ND	43.8	ug/kg	1					
Benzo(ghi)perylene	U	ND	43.8	ug/kg	1					
Benzo(k)fluoranthene	U	ND	43.8	ug/kg	1					
Butylbenzylphthalate	U	ND	438	ug/kg	1					
Caprolactam	U	ND	438	ug/kg	1					
Carbazole	U	ND	43.8	ug/kg	1					
Chrysene		384	43.8	ug/kg	1					

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Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID: 12060077
Sample ID: 308397002

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatile-GC/MS										
SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"										SHM
Di-n-butylphthalate	U	ND	438	ug/kg	1					
Di-n-octylphthalate	U	ND	438	ug/kg	1					
Dibenzo(a,h)anthracene	U	ND	43.8	ug/kg	1					
Dibenzofuran	U	ND	438	ug/kg	1					
Diethylphthalate	U	ND	438	ug/kg	1					
Dimethylphthalate	U	ND	438	ug/kg	1					
Diphenylamine	U	ND	438	ug/kg	1					
Fluoranthene	U	ND	43.8	ug/kg	1					
Fluorene	U	ND	43.8	ug/kg	1					
Hexachlorobenzene	U	ND	438	ug/kg	1					
Hexachlorobutadiene	U	ND	438	ug/kg	1					
Hexachlorocyclopentadiene	U	ND	438	ug/kg	1					
Hexachloroethane	U	ND	438	ug/kg	1					
Indeno(1,2,3-cd)pyrene	U	ND	43.8	ug/kg	1					
Isophorone	U	ND	438	ug/kg	1					
N-Nitrosodipropylamine	U	ND	438	ug/kg	1					
Naphthalene	U	ND	43.8	ug/kg	1					
Nitrobenzene	U	ND	438	ug/kg	1					
Pentachlorophenol	U	ND MW	438 JL	ug/kg	1					
Phenanthrene		1880	43.8	ug/kg	1					
Phenol	U	~~ND~~ MW	438	ug/kg	1					
Pyrene		1110	43.8	ug/kg	1					
bis(2-Chloroethoxy)methane	U	ND	438	ug/kg	1					
bis(2-Chloroethyl) ether	U	ND	438	ug/kg	1					
bis(2-Chloroisopropyl)ether	U	ND	438	ug/kg	1					
bis(2-Ethylhexyl)phthalate	U	ND	438	ug/kg	1					
m,p-Cresols	U	ND	438	ug/kg	1					
m-Nitroaniline	U	ND	438	ug/kg	1					
o-Cresol	U	ND	438	ug/kg	1					
o-Nitroaniline	U	ND	438	ug/kg	1					
p-Nitroaniline	U	ND MW	438	ug/kg	1					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3550C	3550C BNA Soil Prep for 8270D	MXS4	07/24/12	1915	1232290

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3550C/8270D	

MW 8/6/12

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Certificate of Analysis

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Address : 720 Third Ave
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Seattle, Washington 98104
Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID: 12060077
Sample ID: 308397002

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
2-Fluorobiphenyl	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	916 ug/kg	2190	41.9	(24%-106%)
Nitrobenzene-d5	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	950 ug/kg	2190	43.4	(22%-124%)
p-Terphenyl-d14	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	1360 ug/kg	2190	62.2	(24%-137%)
2,4,6-Tribromophenol	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	1790 ug/kg	4380	40.9	(23%-124%)
2-Fluorophenol	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	1490 ug/kg	4380	34.1	(27%-112%)
Phenol-d5	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	1380 ug/kg	4380	31.6	(26%-112%)

MW
7-6-12

ecology and environment, inc.
Global Environmental Specialists
720 Third Avenue, Suite 1700
Seattle, Washington 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: August 6, 2012

TO: Steve Hall, START-3 Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho**

COC: 12-05-0006-22

REF: TDDs: 12-05-0006 PANs: 002233.0790.01RA
12-05-0007 PANs: 002233.0791.01RA
12-05-0008 PANs: 002233.0792.01RA
12-05-0009 PANs: 002233.0793.01RA

The data quality assurance review of two soil samples collected from the Avery Landing Site (consisting of the Avery Bentcik, Avery IDOL, Avery FHWA, and Avery Potlatch sites) located in Avery, Idaho, has been completed. Volatile organic compound (VOC) analysis (EPA Method 8260) was performed by GEL Labs, Inc., Charleston, South Carolina. All sample analyses were evaluated following EPA's Stage 2 Data Validation Manual Process (S2VM) and/or Stage 4 Data Validation Manual Process (S4VM).

The samples were numbered: 12060078 12060079

Data Qualifications:

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

The samples were maintained and received within the QC limits of < 6°C. The samples were collected on July 23, 2012, and were analyzed by July 26, 2012, therefore meeting QC criteria of less than 14 days between collection and analysis for soil and preserved water samples.

2. **Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

3. **Initial Calibration: Acceptable.**

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) were within QC limits.

4. **Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits. All % differences were within the QC limits except carbon tetrachloride with an increasing response factor in the 7-25 continuing calibration; no action was taken based on this outlier as it was not detected in any sample.

5. **Blanks: Acceptable.**

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

6. **System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except bromofluorobenzene in sample 12060078 with a high recovery; no action was taken as there were no associated positive results in sample 12060078.

7. **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.

8. **Duplicate Analysis: Acceptable.**

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

9. **Internal Standards: Satisfactory.**

All internal standards were within ± 30 seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts except chlorobenzene in sample 12060078 and chlorobenzene and 1,4-dichlorobenzene in sample 12060079, all with low area counts; associated sample results were qualified as estimated quantities with a low bias (JL or UJL).

10. **Precision and Bias Determination: Not Performed.**

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

11. **Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

12. **Overall Assessment of Data for Use**

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan, 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 analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

JH - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a high bias.

JL - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a low bias.

JK - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias.

JQ – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias and falls between the MDL and the Minimum (or Practical) Quantitation Limit (MQL, PQL).

N - The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

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Certificate of Analysis

Company : Ecology and Environment, Inc.
Address : 720 Third Ave
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Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID: 12060078
Sample ID: 308397003
Matrix: Soil
Collect Date: 23-JUL-12 08:30
Receive Date: 24-JUL-12
Collector: Client

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics										
5035/8260B TCL in Solid "As Received"										
1,1,1-Trichloroethane	U	ND	0.847 U	ug/kg	1	JEB	07/25/12	2247	1232783	1 SHVM
1,1,2,2-Tetrachloroethane	U	ND	0.847	ug/kg	1					
1,1,2-Trichloroethane	U	ND	0.847 JL	ug/kg	1					
1,1-Dichloroethane	U	ND	0.847	ug/kg	1					
1,1-Dichloroethylene	U	ND	0.847	ug/kg	1					
1,2-Dichloroethane	U	ND	0.847	ug/kg	1					
1,2-Dichloroethylene (total)	U	ND	1.69	ug/kg	1					
1,2-Dichloropropane	U	ND	0.847	ug/kg	1					
2-Butanone	U	ND	4.24	ug/kg	1					
2-Hexanone	U	ND	4.24 JL	ug/kg	1					
4-Methyl-2-pentanone	U	ND	4.24 JL	ug/kg	1					
Acetone		15.7	4.24	ug/kg	1					
Benzene	U	ND	0.847 U	ug/kg	1					
Bromodichloromethane	U	ND	0.847	ug/kg	1					
Bromoform	U	ND	0.847	ug/kg	1					
Bromomethane	U	ND	0.847	ug/kg	1					
Carbon disulfide	U	ND	4.24	ug/kg	1					
Carbon tetrachloride	U	ND	0.847	ug/kg	1					
Chlorobenzene	U	ND	0.847 JL	ug/kg	1					
Chloroethane	U	ND	0.847	ug/kg	1					
Chloroform	U	ND	0.847	ug/kg	1					
Chloromethane	U	ND	0.847	ug/kg	1					
Dibromochloromethane	U	ND	0.847 JL	ug/kg	1					
Ethylbenzene	U	ND	0.847 JL	ug/kg	1					
Methylene chloride	U	ND	4.24	ug/kg	1					
Styrene	U	ND	0.847 JL	ug/kg	1					
Tetrachloroethylene	U	ND	0.847 JL	ug/kg	1					
Toluene	U	ND	0.847 JL	ug/kg	1					
Trichloroethylene	U	ND	0.847	ug/kg	1					
Vinyl acetate	U	ND	4.24	ug/kg	1					
Vinyl chloride	U	ND	0.847	ug/kg	1					
Xylenes (total)	U	ND	2.54	ug/kg	1					
cis-1,2-Dichloroethylene	U	ND	0.847	ug/kg	1					
cis-1,3-Dichloropropylene	U	ND	0.847	ug/kg	1					
m,p-Xylenes	U	ND	1.69 JL	ug/kg	1					
o-Xylene	U	ND	0.847 JL	ug/kg	1					
tert-Butyl methyl ether	U	ND	0.847	ug/kg	1					
trans-1,2-Dichloroethylene	U	ND	0.847	ug/kg	1					

8612

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Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID: 12060078
Sample ID: 308397003

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics										
5035/8260B TCL in Solid "As Received"										
trans-1,3-Dichloropropylene	~~U~~	~~ND~~	0.847	UJ ug/kg	1					S4VA

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	5035/8260B Prep	JEB	07/24/12	1425	1232782

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8260B	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	5035/8260B TCL in Solid "As Received"	46.7 ug/kg	50.0	110	(80%-124%)
Bromofluorobenzene	5035/8260B TCL in Solid "As Received"	90.7 ug/kg	50.0	214*	(80%-120%)
Toluene-d8	5035/8260B TCL in Solid "As Received"	50.8 ug/kg	50.0	120	(80%-120%)

The Following NCRs have been identified

NCR ID:1104042 Batch ID: 1232783 1. Samples 308397003 and 308397004 did not pass surrogate recoveries.

2. Samples 308397003 and 308397004 did not have acceptable internal standard responses.

MW 8-6-12

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Address : 720 Third Ave
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Seattle, Washington 98104
Contact: Mr. Steve Hall
Project: Project No. 4500000347

Report Date: July 27, 2012

Client Sample ID:	12060079	Project:	ECOL00801
Sample ID:	308397004	Client ID:	ECOL008
Matrix:	Soil		
Collect Date:	23-JUL-12 08:45		
Receive Date:	24-JUL-12		
Collector:	Client		

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics										
5035/8260B TCL in Solid "As Received"										
1,1,1-Trichloroethane	U	ND	0.893	ug/kg	1	JEB	07/26/12	2233	1232783	1
1,1,2,2-Tetrachloroethane	U	ND	0.893	ug/kg	1					
1,1,2-Trichloroethane	U	ND	0.893	ug/kg	1					
1,1-Dichloroethane	U	ND	0.893	ug/kg	1					
1,1-Dichloroethylene	U	ND	0.893	ug/kg	1					
1,2-Dichloroethane	U	ND	0.893	ug/kg	1					
1,2-Dichloroethylene (total)	U	ND	1.79	ug/kg	1					
1,2-Dichloropropane	U	ND	0.893	ug/kg	1					
2-Butanone	U	ND	4.46	ug/kg	1					
2-Hexanone	U	ND	4.46	ug/kg	1					
4-Methyl-2-pentanone	U	ND	4.46	ug/kg	1					
Acetone		10.7	4.46	ug/kg	1					
Benzene	U	ND	0.893	ug/kg	1					
Bromodichloromethane	U	ND	0.893	ug/kg	1					
Bromoform	U	ND	0.893	ug/kg	1					
Bromomethane	U	ND	0.893	ug/kg	1					
Carbon disulfide	U	ND	4.46	ug/kg	1					
Carbon tetrachloride	U	ND	0.893	ug/kg	1					
Chlorobenzene	U	ND	0.893	ug/kg	1					
Chloroethane	U	ND	0.893	ug/kg	1					
Chloroform	U	ND	0.893	ug/kg	1					
Chloromethane	U	ND	0.893	ug/kg	1					
Dibromochloromethane	U	ND	0.893	ug/kg	1					
Ethylbenzene	U	ND	0.893	ug/kg	1					
Methylene chloride	U	ND	4.46	ug/kg	1					
Styrene	U	ND	0.893	ug/kg	1					
Tetrachloroethylene	U	ND	0.893	ug/kg	1					
Toluene	U	ND	0.893	ug/kg	1					
Trichloroethylene	U	ND	0.893	ug/kg	1					
Vinyl acetate	U	ND	4.46	ug/kg	1					
Vinyl chloride	U	ND	0.893	ug/kg	1					
Xylenes (total)	U	ND	2.68	ug/kg	1					
cis-1,2-Dichloroethylene	U	ND	0.893	ug/kg	1					
cis-1,3-Dichloropropylene	U	ND	0.893	ug/kg	1					
m,p-Xylenes	U	ND	1.79	ug/kg	1					
o-Xylene	U	ND	0.893	ug/kg	1					
tert-Butyl methyl ether	U	ND	0.893	ug/kg	1					
trans-1,2-Dichloroethylene	U	ND	0.893	ug/kg	1					

MW 8-6-12

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Seattle, Washington 98104
Contact: Mr. Steve Hall
Project: Project No. 4500000347

Report Date: July 27, 2012

Client Sample ID: 12060079
Sample ID: 308397004

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics										
5035/8260B TCL in Solid "As Received"										
trans-1,3-Dichloropropylene	~~U~~	~~ND~~	0.893 U	ug/kg	1					S4VM

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	5035/8260B Prep	JEB	07/24/12	1431	1232782

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8260B	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	5035/8260B TCL in Solid "As Received"	43.3 ug/kg	50.0	97.0	(80%-124%)
Bromofluorobenzene	5035/8260B TCL in Solid "As Received"	53.7 ug/kg	50.0	120	(80%-120%)
Toluene-d8	5035/8260B TCL in Solid "As Received"	48.9 ug/kg	50.0	110	(80%-120%)

The Following NCRs have been identified

NCR ID:1104042 Batch ID: 1232783 1. Samples 308397003 and 308397004 did not pass surrogate recoveries.

2. Samples 308397003 and 308397004 did not have acceptable internal standard responses.

MW 8-6-12

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Global Environmental Specialists
720 Third Avenue, Suite 1700
Seattle, Washington 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: August 6, 2012

TO: Steve Hall, START-3 Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho**

COC: 12-05-0006-22

REF:

TDDs: 12-05-0006	PANs: 002233.0790.01RA
12-05-0007	PANs: 002233.0791.01RA
12-05-0008	PANs: 002233.0792.01RA
12-05-0009	PANs: 002233.0793.01RA

The data quality assurance review of 2 soil samples collected from the Avery Landing Site (consisting of the Avery Bentcik, Avery IDOL, Avery FHWA, and Avery Potlatch sites) located in Avery, Idaho, has been completed. Polychlorinated Biphenyl (PCB) analysis (EPA Method 8082A) was performed by GEL Labs, Inc., Charleston, South Carolina. All sample analyses were evaluated following EPA's Stage 2 Data Validation Manual Process (S2VM) and/or Stage 4 Data Validation Manual Process (S4VM).

The samples were numbered: 12060076 12060077

Data Qualifications:

1. Sample Holding Times: Acceptable.

The samples were maintained at < 6°C. The samples were collected on July 21, 2012, extracted on July 24, 2012, and were analyzed by July 26, 2012, 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: Acceptable.

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was ≤ 0.3% for capillary column analyses.

3. Initial and Continuing Calibration: Acceptable.

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits.

4. **Error Determination: Not Provided.**

Samples necessary for bias and precision determination were not provided to the laboratory. All samples were flagged RND (Recovery Not Determined) and PND (Precision Not Determined), although the flags are not found on the Form I's.

5. **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.

6. **Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

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

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

8. **Blank Spike: Acceptable.**

Recoveries of all spiked analytes were within the appropriate control limits except when outside limits due to dilution and matrix interference.

9. **Duplicates: Acceptable.**

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

10. **Compound Identification: Acceptable.**

All results were dual-column confirmed with differences between the columns less than 25%.

11. **Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

12. **Laboratory Contact**

No laboratory contact was required.

13. **Overall Assessment**

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan, 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 analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

JH - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a high bias.

JL - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a low bias.

JK - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias.

JQ – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias and falls between the MDL and the Minimum (or Practical) Quantitation Limit (MQL, PQL).

N - The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Ecology and Environment, Inc.
Address : 720 Third Ave
Suite 1700
Seattle, Washington 98104
Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID:	12060076	Project:	ECOL00801
Sample ID:	308397001	Client ID:	ECOL008
Matrix:	Soil		
Collect Date:	21-JUL-12 09:00		
Receive Date:	24-JUL-12		
Collector:	Client		
Moisture:	23.2%		

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB										
SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"										
Aroclor-1016	U	ND	21.6	ug/kg	5	JXM	07/26/12	1007	1232183	1
Aroclor-1221	U	ND	21.6	ug/kg	5					
Aroclor-1232	U	ND	21.6	ug/kg	5					
Aroclor-1242	U	ND	21.6	ug/kg	5					
Aroclor-1248	U	ND	21.6	ug/kg	5					
Aroclor-1254	U	ND	21.6	ug/kg	5					
Aroclor-1260	U	ND	21.6	ug/kg	5					
Aroclor-Total	U	ND	21.6	ug/kg	5					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	AXV1	07/24/12	1814	1232182

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	5.01 ug/kg	8.65	57.9	(25%-112%)
Decachlorobiphenyl	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	5.73 ug/kg	8.65	66.2	(19%-130%)

8-3-12

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Ecology and Environment, Inc.
Address : 720 Third Ave
Suite 1700
Seattle, Washington 98104
Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID:	12060077	Project:	ECOL00801
Sample ID:	308397002	Client ID:	ECOL008
Matrix:	Soil		
Collect Date:	21-JUL-12 09:15		
Receive Date:	24-JUL-12		
Collector:	Client		
Moisture:	23.9%		

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB										
SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"										
Aroclor-1016	U	ND	21.8	ug/kg	5	JXM	07/26/12	1022	1232183	1
Aroclor-1221	U	ND	21.8	ug/kg	5					
Aroclor-1232	U	ND	21.8	ug/kg	5					
Aroclor-1242	U	ND	21.8	ug/kg	5					
Aroclor-1248	U	ND	21.8	ug/kg	5					
Aroclor-1254	U	ND	21.8	ug/kg	5					
Aroclor-1260	U	ND	21.8	ug/kg	5					
Aroclor-Total	U	ND	21.8	ug/kg	5					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	AXV1	07/24/12	1814	1232182

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	4.53 ug/kg	8.74	51.9	(25%-112%)
Decachlorobiphenyl	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	4.97 ug/kg	8.74	56.9	(19%-130%)

Q-342

FREE PRODUCT RECOVERY SYSTEM

AVERY, IDAHO

POTLATCH CORPORATION

VICINITY MAP

TABLE OF CONTENTS

1. SHEET 1 OF 3 TITLE SHEET
2. SHEET 2 OF 3 SITE PLAN
3. SHEET 3 OF 3 CROSS SECTION/DETAILS

BENCHMARK:

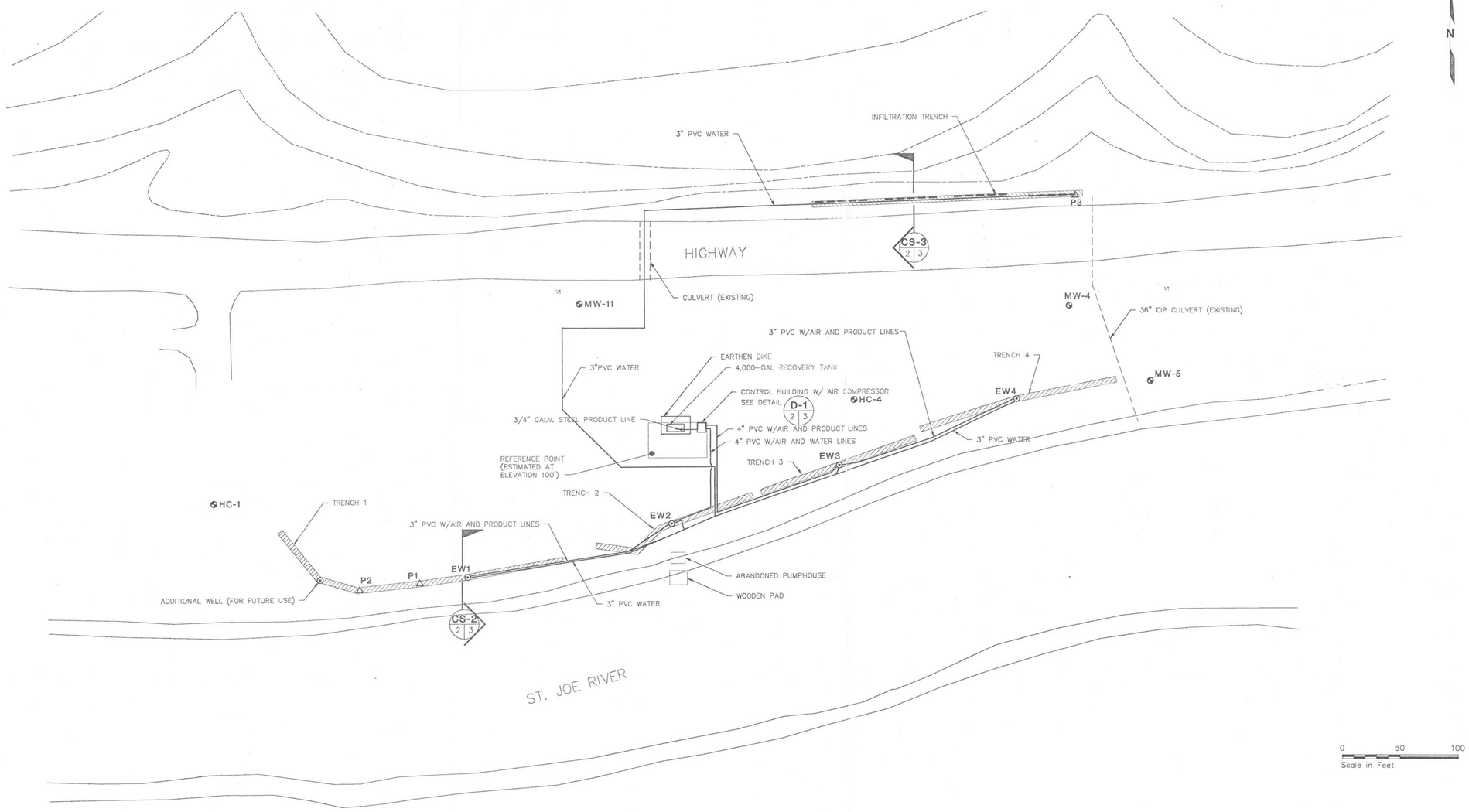
DESIGNED BY: J.A. HEST | CHECKED BY: D.G. WINTER
DRAWN BY: JUAN A. HERNANDEZ | CHECKED BY: B.L. KELLEMS

NO.	DATE	BY	REVISION

HARTCROWSER
Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699
206.324.9530

FREE PRODUCT RECOVERY SYSTEM
TITLE SHEET
POTLATCH CORPORATION

TYPE DRAWING: FINAL / CONST. / RECORD X
DATE: 12/16/94
JOB NO. 2296-05
SHEET 1 OF 3 SHEETS



MW-4	MONITORING WELL LOCATION AND DESIGNATION
EW1	EXTRACTION WELL LOCATION AND DESIGNATION
P1	PIEZOMETER LOCATION AND DESIGNATION
— — — —	3" PVC 20-SLOT WELL SCREEN
	INFILTRATION TRENCH
	EXTRACTION TRENCH

BENCHMARK:

DESIGNED BY:	J.A. HEST	CHECKED BY:	D.G. WINTER
DRAWN BY:	S.W. PARK	CHECKED BY:	B.L. KELLEMS

NO.	DATE	BY	REVISION

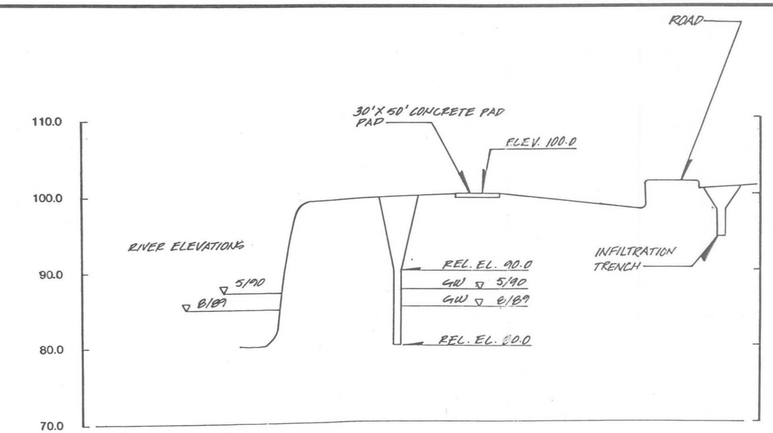
HARTCROWSER
Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699
206.324.9530

FREE PRODUCT RECOVERY SYSTEM
SITE PLAN

POTLATCH CORPORATION

TYPE DRAWING	SHEET
PRELIM.	2
CONST.	OF
RECORD X	3
DATE: 12/19/94	SHEETS
JOB NO. 2296-05	

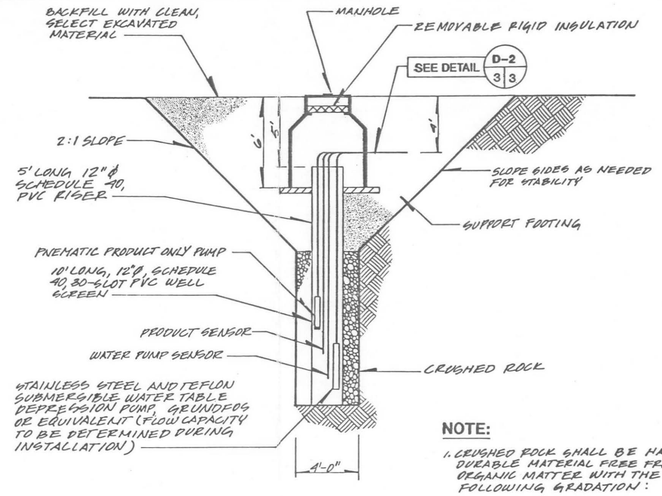
2296D05 EJC 12/20/94 PLOT: 1=50



NOTES:

1. REFERENCE POINT FOR RELATIVE ELEVATIONS IS 30'X 50' CONCRETE PAD.
2. THE INSTALLER IS RESPONSIBLE FOR TEMPORARY SHORING AND DEWATERING NECESSARY FOR TRENCH INSTALLATION.
3. EXCAVATED SOIL AND GROUNDWATER MAY CONTAIN PETROLEUM HYDROCARBONS. INSTALLER IS RESPONSIBLE FOR WORKER HEALTH AND SAFETY, AND PROPER SOIL DISPOSAL.

SECTION CS-1 / 2 | 3
NOT TO SCALE

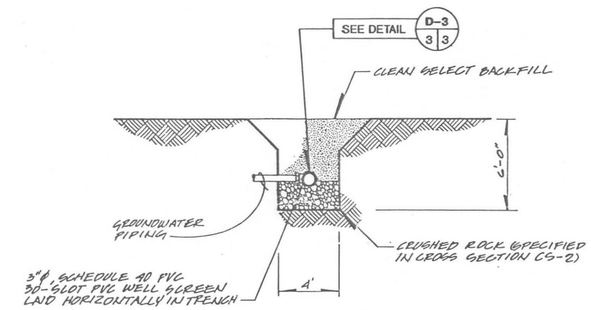


NOTE:

1. CRUSHED ROCK SHALL BE HARD, DURABLE MATERIAL FREE FROM ORGANIC MATTER WITH THE FOLLOWING GRADATION:

US SIEVE SIZE	% FINER
3 INCH	100
1/4 INCH	0-2

SECTION CS-2 / 2 | 3
NOT TO SCALE



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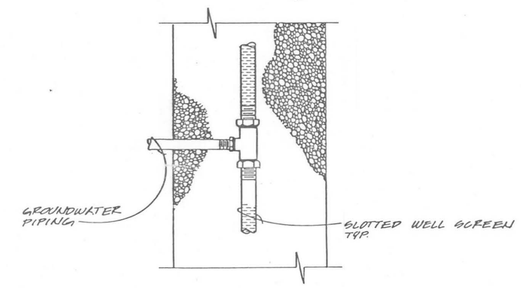
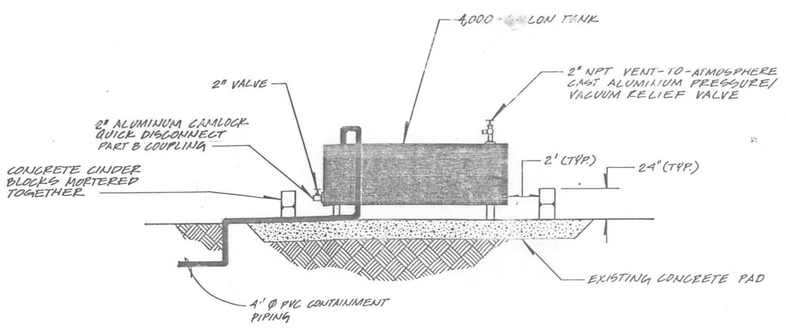


SECTION CONNECTION DETAIL / D-3 / 3 | 3
NOT TO SCALE

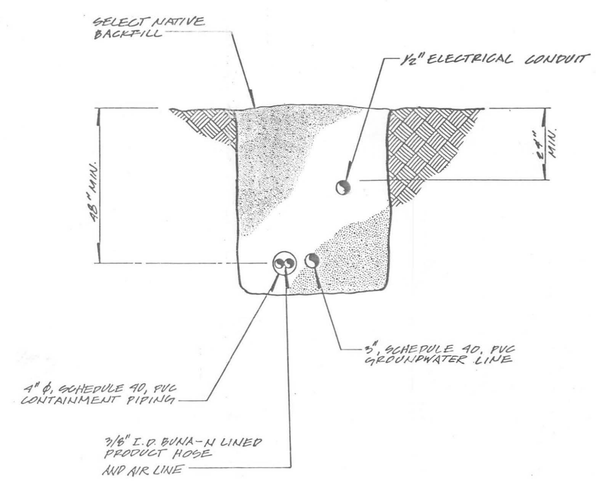


NOTE:

1. ~~CONSTRUCT~~ CONTAINMENT ON ALL SIDES ~~OF TANK~~ (LONG SIDES ~~OF CONTAINMENT~~ NOT SHOWN IN DRAWING)

ACTUAL CONTAINMENT CONSTRUCTED USING EARTHEN BERMS

TANK AND CONTAINMENT DETAIL / D-1 / 2 | 3
NOT TO SCALE



TRENCH DETAIL / D-2 / 3 | 3
NOT TO SCALE

BENCHMARK:

DESIGNED BY: J.A. HEST | CHECKED BY: D.G. WINTER
DRAWN BY: JUAN A. HERNANDEZ | CHECKED BY: B.L. KELLEMS

NO.	DATE	BY	REVISION

HARTCROWSER
Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699
206.324.9530

FREE PRODUCT RECOVERY SYSTEM

CROSS SECTION / DETAILS

POTLATCH CORPORATION

TYPE DRAWING: FINAL CONST. RECORD ×
DATE: 12/16/94
JOB NO. 2296-05
SHEET 3 OF 3 SHEETS

HARTCROWSER

Earth and Environmental Technologies

Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699
Fax 206.328.5581
Tel 206.324.9530

MEMORANDUM

DATE: December 23, 1994

TO: Gregg Rapp/Potlatch

FROM: Jim Hest James Hest

RE: Construction Report for Free Product Recovery System (FPRS)
Avery Landing, Idaho
J-2296-05

Construction activities for installation of the FPRS at the Avery Landing site are summarized in Table 1. The on-site personnel during construction were:

Mike Orr and Steve Normington (and others during peak construction)	Latah Construction
Jim Hest and Jim Feider	Hart Crowser
Mark Harpole	Current Electric

The equipment used to construct the recovery trenches and utility trenches was supplied by Latah Construction and consisted of the following:

- Trackhoe - Komatsu PC300LC
- Dozer - Catapillar D-8
- Backhoe - Case 580
- Dump Truck - 10 CY International

Table 2 summarizes the groundwater and product levels in the existing monitoring wells that were measured prior to actual construction of the deep trenches. It should be noted that monitoring well HC-2 had been destroyed prior to FPRS work and could not be

located. Table 3 summarizes the groundwater and product levels in the existing monitoring wells and new extraction wells measured prior to FPRS startup. Table 4 summarizes the groundwater and product levels in the new extraction wells during FPRS startup.

Several major changes were made during the construction of the FPRS. The original design was to construct three extraction trenches totaling 450 linear feet and 150 linear feet of infiltration trench. During excavation, the extent of contamination was found to exceed the boundaries estimated for the original design. Potlatch Corporation, with the consent of Idaho Department of Environmental Quality (IDEQ), added an additional extraction trench. Four extraction trenches totaling 730 linear feet were constructed, and a modified extraction well was installed near the west end of Trench No. 1 for possible future use. Additionally, a total of 220 linear feet of infiltration trench was constructed to account for the installation of the fourth extraction trench.

Several problems were encountered during FPRS startup involving the sensors associated with two of the skimming pumps and a broken regulator, which were not operational at startup. Mark Harpole continued to troubleshoot the problems and eventually got all the skimming pumps operating properly. In concurrence with IDEQ, Potlatch shut down the FPRS for the winter on December 9, 1994, and plans to restart the system up in early April 1995.

constr.mem

Attachments:
Table 1 - Construction Activities
Table 2 - Pre-Construction Water/Product Measurements
Table 3 - Post-Construction Water/Product Measurements
Table 4 - System Startup Measurements
Construction Drawings for Avery Landing Recovery System

Table 1 - Construction Activities

Date	Activities	Comments
9/8/94	Removed top 10 feet of soil from middle to east end of Trench No. 2 with dozer, stockpiled "clean" soil for testing.	Encountered wood and concrete debris and also demolished small concrete foundations.
9/9/94	Excavated soil from depths of 10 to 20 feet and placed crushed rock from depths of 20 to 11 feet, total of 75 linear feet.	Visible hydrocarbon contamination from 12- to 20-foot depth.
9/12/94	Attempted to excavate top 10 feet of soil from middle to west end of Trench No. 2 with dozer.	Encountered major concrete structures in the Old Roundhouse area, attempted to remove with CAT and excavator.
9/13/94	Excavated soil around concrete structures in Old Roundhouse area, stockpiled "clean" soil for testing.	Unable to break up concrete. Arranged for delivery of hydraulic hammer.
9/14/94	Attached hydraulic hammer to excavator to break up concrete. Detached hydraulic hammer. Took monitoring well measurements (see Table 2).	Hydraulic hammer developed leak. Sent hammer to shop.
9/15/94	Dug a test pit 175 feet east of Trench No. 2 (east end). Continued excavating to the east and placed crushed rock from depths of 20 to 11 feet, total of 50 linear feet on Trench No. 4.	Visible hydrocarbon contamination varied from surface to depth of 20 feet. IDEQ visited site and concurred with extending trench to the east.
9/16/94	Excavated additional 75 linear feet of Trench No. 4 placing crushed rock from depths of 20 to 11 feet. Eliminated MW-1 and MW-2 during trench excavation.	Visible hydrocarbon contamination varied from surface to 20 feet. Trench installed between concrete footing on north side and piping to the south.
9/19/94	Excavated additional 60 linear feet of Trench No. 4 placing crushed rock from depths of 20 to 11 feet.	Visible hydrocarbon contamination diminished near 36-inch cast iron culvert. Ended Trench No. 4 5 feet west of culvert.
9/20/94	Excavated 80 linear feet of Trench No. 3 placing crushed rock from depths of 20 to 11 feet. Installed extraction well in Trench No. 3, bottom elevation at 78.50 feet. Stockpiled "clean" soil for testing.	Pushed soil from Trench No. 1 back into excavation on top of crushed rock with dozer. Visible hydrocarbon contamination from 12- to 20-foot depths.

Table 1 - Continued

Date	Activities	Comments
9/21/94	Excavated an additional 60 linear feet to complete Trench No. 3, placing crushed rock from depths of 20 to 11 feet. Installed extraction well in Trench No. 4, bottom elevation at 78.78 feet. Dug two test pits, located 175 and 250 feet west of pumphouse. Stockpiled "clean" soils for testing.	Visible hydrocarbon contamination from 12- to 20-foot depths. Test pit No. 1 (175'W) indicated visible hydrocarbon contamination from 12- to 20-foot depths. Test Pit No. 2 (250'W) indicated visible hydrocarbon contamination from 13- to 18-foot depths. IDEQ visited site and agreed HC-3 could be removed to install trenches.
9/22/94	Attached hydraulic hammer to excavator. Detached hydraulic hammer.	Hydraulic hammer ineffective on subsurface roundhouse concrete structures.
9/23/94	Installed extraction well in Trench No. 2, bottom elevation at 78.24 feet.	Decision was made to install fourth trench (Trench No. 1). Ordered additional equipment.
9/26/94	Excavated additional 85 linear feet to finish Trench No. 2. Placed crushed rock from depths of 20 to 11 feet. Removed monitoring well HC-3.	Visible hydrocarbon contamination from 12- to 20-foot depths. Trenched around the concrete structures.
9/27/94	Excavated 230 linear feet of infiltration trench to a depth from 6.5 to 7.5 feet and placed 2 feet of crushed rock for the infiltration bed. In addition, 140 linear feet of carrier pipe trench was excavated to a depth of 4.5 to 5.5 feet. The carrier and infiltration piping was installed with one foot of crushed rock placed over the pipe.	Infiltration trench repositioned to start 10 feet west of cast iron culvert. The carrier pipe was placed in the highway culvert and temporarily plugged.
9/28/94	Excavated 80 linear feet of Trench No. 1 placing crushed rock from depths of 20 to 11 feet. Installed extraction well in Trench No. 1, bottom elevation at 78.54 feet. Stockpiled "clean" soils for testing.	Visible hydrocarbon contamination from 12- to 20-foot depths. Contamination continued to the west. Encountered debris and ashes in upper 8 feet.
9/29/94	Excavated 85 linear feet of Trench No. 1 placing crushed rock from depths of 20 to 12 feet. Control building erected. Loaded out trench boxes. Stockpiled "clean" soils for testing. Place two piezometers in Trench No. 1.	Visible hydrocarbon contamination from 13- to 19-foot depths. Contamination continued to the west. Encountered debris and ashes in upper 8 feet.

Table 1 - Continued

Date	Activities	Comments
9/30/94	Excavated 25 linear feet of Trench No. 1 placing crushed rock from depths of 20 to 12 feet. Stockpiled "clean" soils for testing. Sampled stockpiles (1 sample/100 cy), 16 samples total.	Visible hydrocarbon contamination from 13- to 19-foot depths. Contamination continued to the west. Decided to place an additional well in Trench No. 1.
10/3/94	Excavated 40 linear feet of Trench No. 1 placing crushed rock from depths of 20 to 12 feet. Installed additional extraction well in Trench No. 1. Well casing used was 18-inch plastic culvert. Slotted bottom 12 feet with circular saw. Filled in Trench Nos. 3 and 4 with soil (excavated and stockpiled next to each trench during construction).	Visible hydrocarbon contamination from 13- to 19-foot depths. Contamination continued to the west. Stopped excavating because of Avery sewer line.
10/4/94	Set manholes over extraction wells. Filled in Trench No. 1 with soil (excavated and stockpiled next to trench during construction).	Set manholes to ensure tops are one foot above adjacent area for drainage.
10/5/94	Filled in Trench No. 2 with concrete debris and "clean" soil stockpile. Excavated trench from highway culvert to near the control building, depth from 5 to 6 feet. Installed water pipe from culvert to south of control building.	Altered path of trench because of subsurface concrete structures. Used an additional 250 linear feet of 3-inch PVC pipe to avoid structures. IDEQ visited site and approved installing earthen dike.
10/6/94	Excavated trenches for electrical, water, and product piping, at a depth of 5 feet. Started to install utilities in trench.	Utility trenches were excavated in straight lines from well to well to minimize pipe usage.
10/7/94	Continued installing utilities and started to backfill trenches. Drilled holes in manholes, inserted piping, and grouted.	
10/10/94	Finished installing utilities and continued to backfill trenches.	
10/11/94	Finished backfilling trenches and around manholes. Started to level site with CAT. Built earthen dike around AST.	
10/12/94	Finished leveling site with CAT. Insulated control building. Installed product piping from control building to tank.	Trench contractor demobilized.
10/13/94	Installed control panels.	Hart Crowser demobilized until power hookup to control building completed.

Table 1 - Continued

Date	Activities	Comments
10/24/94	Started installing flexible air and product lines through conduit pipe, electrician worked on power and sensor wiring.	Electrician completed power hook-up to control building and pulled power and sensor wires from the control house to the four extraction wells between 10/13 and 10/24.
10/25/94	Continued installing flexible air and product lines. Electrician worked on power and sensor wiring.	
10/26/94	Finish installing flexible air and product lines. Electrician worked on power and sensor wiring.	
10/27/94	Electrician finished power and sensor hookups. Set groundwater pumps in extraction wells. The intake for each pump was set 1.55 feet from bottom. Took measurements prior to starting extraction wells (see Table 3). Took measurements during operation of groundwater pumps (see Table 4).	Rained during night and all day. The river rose over a foot from day before. Started groundwater pumps at 1 p.m.
10/28/94	Took measurements prior to installing skimming pumps. Skimming pumps were set with gravity float at mid-point of traveling guides. Demobilized from site.	Extraction well No. 2 was cycling on and off indicating maximum drawdown. Skimming pumps for extraction well Nos. 2 and 4 were not operating properly because of sensor problems. The skimming pump for extraction well No. 3 was not working because of a broken part on control panel. Electrician was contacted, but was unable to come. Arrangements were made for the electrician to troubleshoot the problems and place the lids on each manhole.

Table 2 - Pre-Construction Water/Product Measurements

Identification Number	Date	Depth to Product	Depth to Groundwater	Product Thickness	T.O.C. Elevation	Groundwater Elevation
MW-4	9/14/94	ND	12.88	Trace	99.76	86.88
MW-5	9/14/94	ND	10.55	ND	97.76	87.21
MW-11	9/14/94	12.0	NA	NA	98.16	NA
HC-1R	9/14/94	ND	13.71	ND	97.50	83.79
HC-4	9/14/94	11.15	NA	NA	98.94	NA
River	9/14/94	—	—	—	—	84.18

Notes:

All depths, thicknesses, and elevations in feet. Depths referenced to monitoring well tops of casing (T.O.C.).
Elevations referenced to southwest corner of concrete pad (100.0 feet).

NA - Not Available
ND - Not Detected with measuring tape and detection paste

TABLE-2.tbl

Table 3 - Post-Construction Water/Product Measurements

Identification Number	Date	Depth to Product	Depth to Groundwater	Product Thickness	T.O.C. Elevation	Groundwater Elevation
MW-5	10/27/94	ND	10.45	ND	97.76	87.31
HC-1R	10/27/94	ND	13.25	ND	97.50	84.25
HC-4	10/27/94	13.30	15.34	2.04	98.94	83.60
EW-1	10/27/94	ND	11.00	Trace	95.34	84.34
EW-2	10/27/94	ND	10.37	Trace	95.24	84.87
EW-3	10/27/94	ND	10.05	Trace	95.78	85.73
EW-4	10/27/94	ND	8.05	Trace	94.32	86.27
P-1	10/27/94	ND	17.31	ND	101.42	84.11
P-2	10/27/94	ND	15.87	ND	100.06	84.19
River	10/27/94	--	--	--	--	84.41

Notes:

MW-4 and MW-11 were unaccessible at time of measurements.
All depths, thicknesses, and elevations in feet. Depths referenced to monitoring well tops of casing (T.O.C.)
Elevations referenced to southwest corner of concrete pad (100.0 feet).

ND - Not Detected with interface probe.

TABLE-3.TBL

Table 4 - System Startup Measurements

Identification Number	Date	Time	Depth to Product	Depth to Groundwater	Product Thickness	T.O.C. Elevations	Groundwater Elevations
EW-1	10/27	1 p.m.	ND	11.00	Trace	95.34	84.34
	10/27	3 p.m.	ND	11.94	Trace	95.34	83.40
	10/28	8 a.m.	ND	12.02	Trace	95.34	83.32
EW-2	10/27	1 p.m.	ND	10.37	Trace	95.24	84.87
	10/27	3 p.m.	ND	10.77	Trace	95.24	84.47
	10/28	8 a.m.	12.57	12.80	0.23	95.24	82.44
EW-3	10/27	1 p.m.	ND	10.05	Trace	95.78	85.73
	10/27	3 p.m.	ND	11.35	Trace	95.78	84.43
	10/28	8 a.m.	ND	10.98	Trace	95.78	84.80
EW-4	10/27	1 p.m.	ND	8.05	Trace	94.32	86.27
	10/27	3 p.m.	8.81	8.83	0.02	94.32	85.49
	10/28	8 a.m.	ND	8.16	Trace	94.32	86.16
P-1	10/27	1 p.m.	ND	17.31	ND	101.42	84.11
	10/27	3 p.m.	ND	17.65	ND	101.42	83.77
	10/28	8 a.m.	ND	17.64	ND	101.42	83.78
P-2	10/27	1 p.m.	ND	15.87	ND	100.06	84.39
	10/27	3 p.m.	ND	16.16	ND	100.06	83.90
	10/28	8 a.m.	ND	16.15	ND	100.06	83.91
River	10/27	1 p.m.	—	—	—	—	84.73
	10/27	3 p.m.	—	—	—	—	84.93
	10/28	8 a.m.	—	—	—	—	85.03

Notes:

System started 10/27/94 at 1 p.m.
All depths, thicknesses, and elevations in feet. Depths referenced to monitoring well tops of casing (T.O.C). Elevations referenced to southwest corner of concrete pad (100.0 feet).

ND - Not Detected with interface probe.

TABLE-4.tbl

Table 4 - System Startup Measurements

Identification Number	Date	Time	Depth to Product	Depth to Groundwater	Product Thickness	T.O.C. Elevations	Groundwater Elevations
EW-1	10/27	1 p.m.	ND	11.00	Trace	95.34	84.34
	10/27	3 p.m.	ND	11.94	Trace	95.34	83.40
	10/28	8 a.m.	ND	12.02	Trace	95.34	83.32
EW-2	10/27	1 p.m.	ND	10.37	Trace	95.24	84.87
	10/27	3 p.m.	ND	10.77	Trace	95.24	84.47
	10/28	8 a.m.	12.57	12.80	0.23	95.24	82.44
EW-3	10/27	1 p.m.	ND	10.05	Trace	95.78	85.73
	10/27	3 p.m.	ND	11.35	Trace	95.78	84.43
	10/28	8 a.m.	ND	10.98	Trace	95.78	84.80
EW-4	10/27	1 p.m.	ND	8.05	Trace	94.32	86.27
	10/27	3 p.m.	8.81	8.83	0.02	94.32	85.49
	10/28	8 a.m.	ND	8.16	Trace	94.32	86.16
P-1	10/27	1 p.m.	ND	17.31	ND	101.42	84.11
	10/27	3 p.m.	ND	17.65	ND	101.42	83.77
	10/28	8 a.m.	ND	17.64	ND	101.42	83.78
P-2	10/27	1 p.m.	ND	15.87	ND	100.06	84.39
	10/27	3 p.m.	ND	16.16	ND	100.06	83.90
	10/28	8 a.m.	ND	16.15	ND	100.06	83.91
River	10/27	1 p.m.	—	—	—	—	84.73
	10/27	3 p.m.	—	—	—	—	84.93
	10/28	8 a.m.	—	—	—	—	85.03

Notes:

System started 10/27/94 at 1 p.m.
All depths, thicknesses, and elevations in feet. Depths referenced to monitoring well tops of casing (T.O.C). Elevations referenced to southwest corner of concrete pad (100.0 feet).

ND - Not Detected with interface probe.

TABLE-4.tbl

HARTCROWSER

Earth and Environmental Technologies

Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699
Fax 206.328.5581
Tel 206.324.9530
www.hartcrowser.com

J-2296-07

why wasn't monit well MW-11 measured?

April 28, 1999

Mr. Gregory A. Rapp
Construction Services Manager
Potlatch Corporation
1100 Railroad Avenue
P.O. Box 386
St. Maries, Idaho 83861

RECEIVED
APR 30 1999
IDHW-DEQ
Coeur d'Alene Field Office

Re: First Quarter 1999 Performance Report
Avery Landing Recovery System

Dear Mr. Rapp:

Hart Crowser is pleased to present the First Quarter 1999 Performance Report for the Avery Landing free product recovery system. This letter report presents the first quarter groundwater elevations, product thickness measurements, and recovered free product volume.

why couldn't gw elev be measured within the well? (Covered w/ snow)

GROUNDWATER AND PRODUCT QUARTERLY MONITORING

Three extraction wells (EW-2 through EW-4), three monitoring wells (HC-1, HC-4, and MW-5), and one piezometer (P-1) were monitored on March 18, 1999. At each monitoring location, depth to product and depth to groundwater measurements were performed using a Flexidip, a free product measuring device. The groundwater elevations at EW-1 and P-2 were calculated from measured elevations at surrounding wells. The river elevation adjacent to extraction well vault EW-3 was also monitored by measuring the elevation difference between the top of the vault and the river. The river elevations at the remaining three extraction well vaults were calculated based on the average slope of the river bottom and the distance between vaults. These measurements and calculations are presented with those of previous monitoring rounds in Table 1. Well locations and current groundwater contours are shown on Figure 1.

During the March 18 site visit, the extraction system was not maintaining a water table depression along the St. Joe River. The extraction well operation was observed as follows:

- EW-1 is no longer in use, as described in the 1998 Annual Report;
- EW-2 was operating and maintaining groundwater capture as indicated on Figure 1;
- EW-3 was operating, but was not maintaining groundwater capture. This could be the result of high groundwater flow due to spring runoff; and
- EW-4 was not operating during the March 18 site visit because of pump failure. During the site visit on April 6, 1999, the motor and pump had been replaced, and EW-4 is currently operating.

During weekly system monitoring done by Potlatch, free product was discovered in the ditch on the opposite side of the road. We planned to excavate the ditch to determine if the treatment system re-injection piping had a leak. On April 6, 1999, we excavated in the area of the re-injection trench and we discovered a significant amount of free product in the soil. While locating the injection piping, we broke the pipe. We, therefore, could not tell if the pipe was already broken prior to our excavation. After repairing the pipe, the system was restarted. Once again, water was observed in the ditch about one week later. Other than residual free product in the ditch, no further free product has been observed since then. Absorbent booms have been placed in the ditch to catch any residual free product encountered.

water or oil?

We have not been able to determine the source of the product in the soil above the re-injection piping. The source could be an unknown spill from the former storage tank that was located just up the hill. Another possibility is the treatment system water depression pumps are transferring free product from the extraction area to the re-injection area. To minimize the possibility of the total fluids pumps transferring free product we reset the level control probes. This may reduce the system's ability to maintain groundwater capture.

explain

FREE PRODUCT RECOVERY

The total volume of free product in the recovery tank is approximately 640 gallons. The 1998 Annual Report contained an error in estimated free product recovery. The treatment system is currently recovering about 50 gallons per quarter.

PROJECT SCHEDULE

Table 2 presents the project schedule for the remainder of 1999. Since the groundwater extraction system will be operating year-round during 1999, the second quarterly monitoring event corresponds to the second quarter of the calendar year. As indicated, we plan on performing the next monitoring event on June 24, 1999, and will submit the second quarter monitoring report by

July 16, 1999. If you should decide that this date needs to be altered, please let us know as soon as possible.

Table 2 - Avery Landing Recovery System
Remaining Project Schedule for 1999

Remaining Schedule	Date
Conduct Second Quarter Monitoring	June 24, 1999
Submit Second Quarter Performance Report	July 16, 1999
Conduct Third Quarter Monitoring	August 12, 1999
Submit Third Quarter Performance Report	September 3, 1999
Conduct Fourth Quarter Monitoring	September 28, 1999
Submit Fourth Quarter Performance Report	November 9, 1999
Submit Annual Report	February 5, 2000

LIMITATIONS

Work for this project was performed, and this letter report prepared, in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar location, at the time the work was performed. It is intended for the exclusive use of the Potlatch Corporation for specific application to the referenced property.

If additional information or clarification is required, please call Terry Montoya at (206) 324-9530.

Sincerely,

HART CROWSER, INC.

TERRY MONTOYA
Project Engineer

MATT SCHULTZ, P.E.
Senior Associate Engineer

229607\1stQtr99(ltr).doc

Attachments:
Table 1 - Avery Landing Groundwater and River Monitoring Data
Figure 1 - Avery Landing Third Quarter, Groundwater Flow Direction Map

cc: Kreg Beck, Idaho Department of Environmental Quality

Table 1 - Avery Landing Groundwater and River Monitoring Data

Monitoring Location	Date	Depth to Product	Depth to Water	Product Thickness	T.O.C. Elevation	Groundwater Elevation
EW-1	10/27/94	ND	11	0	95.34	84.34
	6/30/95	ND	10.9	0	95.34	84.44
	9/21/95	11.25	11.27	0.02	95.34	84.07
	7/11/96	ND	9.74	0	95.34	85.60
	9/11/96	ND	10.88	0	95.34	84.46
	11/5/96	ND	11.94	0	95.34	83.40
	7/17/97	ND	10.38	0	95.34	84.96
	10/9/97	ND	13.17	0	95.34	82.17
	6/25/98	ND	10.01	0	95.34	85.33
	8/12/98	NM	10.52	0	95.34	84.82
	10/22/98	Sheen	10.86	0	95.34	84.48
	3/18/99				95.34	85.57 ****
EW-2	10/27/94	ND	10.37	0	95.24	84.87
	6/30/95	10.57	10.89	0.32	95.24	84.35
	9/21/95	13.9	13.92	0.02	95.24	81.32
	7/11/96	11.03	11.66	0.63	95.24	83.58
	9/11/96	Sheen	14.00	0	95.24	81.24
	11/5/96	Sheen	12.27	0	95.24	82.97
	7/17/97	8.99	9.09	0.1	95.24	86.15
	10/9/97	Sheen	15.44	0	95.24	79.80
	6/25/98	9.19	9.64	0.45	95.24	85.60
	8/12/98	NM	9.99	0	95.24	85.25
	10/22/98	Sheen	10.94	0	95.24	84.30
	3/18/99	10.17	10.27	0.1	95.24	84.97
EW-3	10/27/94	ND	10.05	0	95.78	85.73
	6/30/95	9.35	9.8	0.45	95.78	85.98
	9/21/95	10.92	11.08+	0.16	95.78	84.70
	7/11/96	8.53	8.64	0.11	95.78	87.14
	9/11/96	10.75	11.70	0.95	95.78	84.08
	11/5/96	Sheen	11.8	0	95.78	83.98
	7/17/97	9.13	9.33	0.2	95.78	86.45
	10/9/97	10.9	11.68	0.78	95.78	84.10
	6/25/98	8.78	9.43	0.65	95.78	86.35
	8/12/98	NM	11	0	95.78	84.78
	10/22/98	12.58	13.38	0.8	95.78	82.40
	3/18/99	9.03	9.23	0.8	95.78	86.55

Table 1 - Avery Landing Groundwater and River Monitoring Data

Monitoring Location	Date	Depth to Product	Depth to Water	Product Thickness	T.O.C. Elevation	Groundwater Elevation
EW-4	10/27/94	ND	8.05	0	94.32	86.27
	6/30/95	7.84	7.85	0.01	94.32	86.47
	9/21/95	8.22	8.24	0.02	94.32	86.08
	7/11/96	Sheen	6.44	0	94.32	87.88
	11/5/96	Sheen	8.08	0	94.32	86.24
	7/17/97	Sheen	5.43	0	94.32	88.89
	10/9/97	Sheen	7.11	0	94.32	87.21
	6/25/98	5.28	5.3	0.02	94.32	89.02
	8/12/98	NM	8.98	0	94.32	85.34
	10/22/98	ND	8.98	0	94.32	85.34
	3/18/99	5.18	5.26	0	94.32	89.06
HC-1	10/27/94	ND	13.25	0	97.50	84.25
	6/30/95	ND	12.00	0	97.50	85.50
	9/21/95	NM	13.42	0	97.50	84.08
	7/11/96	ND	11.92	0	97.50	85.58
	9/11/96	ND	12.90	0	97.50	84.60
	11/5/96	Could not locate due to snow				
	7/17/97	ND	11.27	0	97.50	86.23
	10/9/97	ND	12.87	0	97.50	84.63
	6/25/98	ND	11.85	0	97.50	85.65
	8/12/98	NM	12.97	0	97.50	84.53
	10/22/98	ND	13.1	0	97.50	84.40
	3/18/99	ND	11.7	0	97.50	85.80
HC-4	10/27/94	13.3	15.34	2.04	98.94	83.60
	6/30/95	11.89	15.49	3.6	98.94	83.45
	9/21/95	13.67	NM	NM	98.94	85.27
	7/11/96	11.58	12.93	1.35	98.94	86.01
	9/11/96	13.53	13.93	0.40	98.94	85.01
	11/5/96	11.82	13.62	1.80	98.94	85.32
	7/17/97	11.65	13.25	1.60	98.94	85.69
	10/9/97	12.67	14.92	2.25	98.94	84.02
	6/25/98	11.53	12.49	0.96	98.94	86.45
	8/12/98	NM	13.9	NM	98.94	85.04
	10/22/98	10.3	14.7	4.40	98.94	84.24
	3/18/99	10.5	14.05	4.40	98.94	84.89
HC-5	11/5/96	ND	11.22	0	97.95	86.73
	7/17/97	Monument under standing water				
	10/9/97	Monument under standing water				
	6/25/98	Lost during road construction				

Table 1 - Avery Landing Groundwater and River Monitoring Data

Monitoring Location	Date	Depth to Product	Depth to Water	Product Thickness	T.O.C. Elevation	Groundwater Elevation
MW-4	9/14/94	ND	12.88	0	99.76	86.88
	6/30/95	ND	10.19	0	99.76	89.57
	9/21/95	ND	11.95	0	99.76	87.81
	7/11/96	Sheen	10.18	0	99.76	89.58
	9/11/96	Sheen	11.33	0	99.76	88.43
	11/5/96	Lost during road construction				
MW-5	10/27/94	ND	10.45	0	97.76	87.31
	6/30/95	ND	9.13	0	97.76	88.63
	9/21/95	ND	10.83	0	97.76	86.93
	7/11/96	ND	8.98	0	97.76	88.78
	9/11/96	ND	10.71	0	97.76	87.05
	11/5/96	ND	10.65	0	97.76	87.11
	7/17/97	ND	8.75	0	97.76	89.01
	10/9/97	ND	10.89	0	97.76	86.87
	6/25/98	ND	8.56	0	97.76	89.20
	8/12/98	NM	10.68	0	97.76	87.08
	10/22/98	ND	13.5	0	97.76	84.26
	3/18/99	ND	8.8	0	97.76	88.96
MW-11	9/14/94	12	NA	NA	98.16	NA
	6/30/95	5.54	7.25	1.71	98.16	90.41
	7/11/96	6.34	10.00	3.66	98.16	88.16
	9/11/96	3.25	7.20	3.95	98.16	90.96
	11/5/96	3.05	7.20	4.15	98.16	90.96
	7/17/97	6.33	9.99	3.66	98.16	88.17
	8/12/98	NM	3.90	NM	98.16	94.26
	10/22/98	6.96	8.00	1.04	98.16	90.16
P-1	10/27/94	ND	17.31	0	101.42	84.11
	6/30/95	ND	16.72	0	101.42	84.70
	9/21/95	ND	17.4	0	101.42	84.02
	7/11/96	ND	15.87	0	101.42	85.55
	9/11/96	ND	16.98	0	101.42	84.44
	11/5/96	ND	17.06	0	101.42	84.36
	7/17/97	ND	15.34	0	101.42	86.08
	10/9/97	ND	17.64	0	101.42	83.78
	6/25/98	ND	14.53	0	101.42	86.89
	8/12/98	NM	16.72	0	101.42	84.70
	10/22/98	ND	15.6	0	101.42	85.82
	3/18/99	ND	15.65	0	101.42	85.77

Table 1 - Avery Landing Groundwater and River Monitoring Data

Monitoring Location	Date	Depth to Product	Depth to Water	Product Thickness	T.O.C. Elevation	Groundwater Elevation
P-2	10/27/94	ND	15.87	0	100.06	84.19
	6/30/95	ND	15.26	0	100.06	84.80
	9/21/95	ND	16.04	0	100.06	84.02
	7/11/96	ND	14.52	0	100.06	85.54
	9/11/96	ND	15.62	0	100.06	84.44
	11/5/96	ND	15.08	0	100.06	84.98
	7/17/97	ND	13.92	0	100.06	86.14
	10/9/97	ND	16.09	0	100.06	83.97
	6/25/98	ND	15.95	0	100.06	84.11
	8/12/98	NM	15.3	0	100.06	84.76
	10/22/98	NM	16.95	0	100.06	83.11
	3/18/99	NM				86.02 ****
River at EW-1	10/27/94					83.12 *
	6/30/95					84.03 **
	9/21/95					82.24
	7/11/96					83.74 ***
	9/11/96					82.56
	11/5/96					83.16
	7/17/97					82.39
	10/9/97					83.00
	6/25/98					85.22
	8/12/98					85.42
	10/22/98					85.00
	3/18/99					83.93
River at EW-2	10/27/94					84.41
	6/30/95					85.32
	9/21/95					83.53
	7/11/96					85.03
	9/11/96					83.85
	11/5/96					83.59
	7/17/97					85.35
	10/9/97					84.20
	6/25/98					86.42
	8/12/98					86.62
	10/22/98					86.20
	3/18/99					85.13

Table 1 - Avery Landing Groundwater and River Monitoring Data

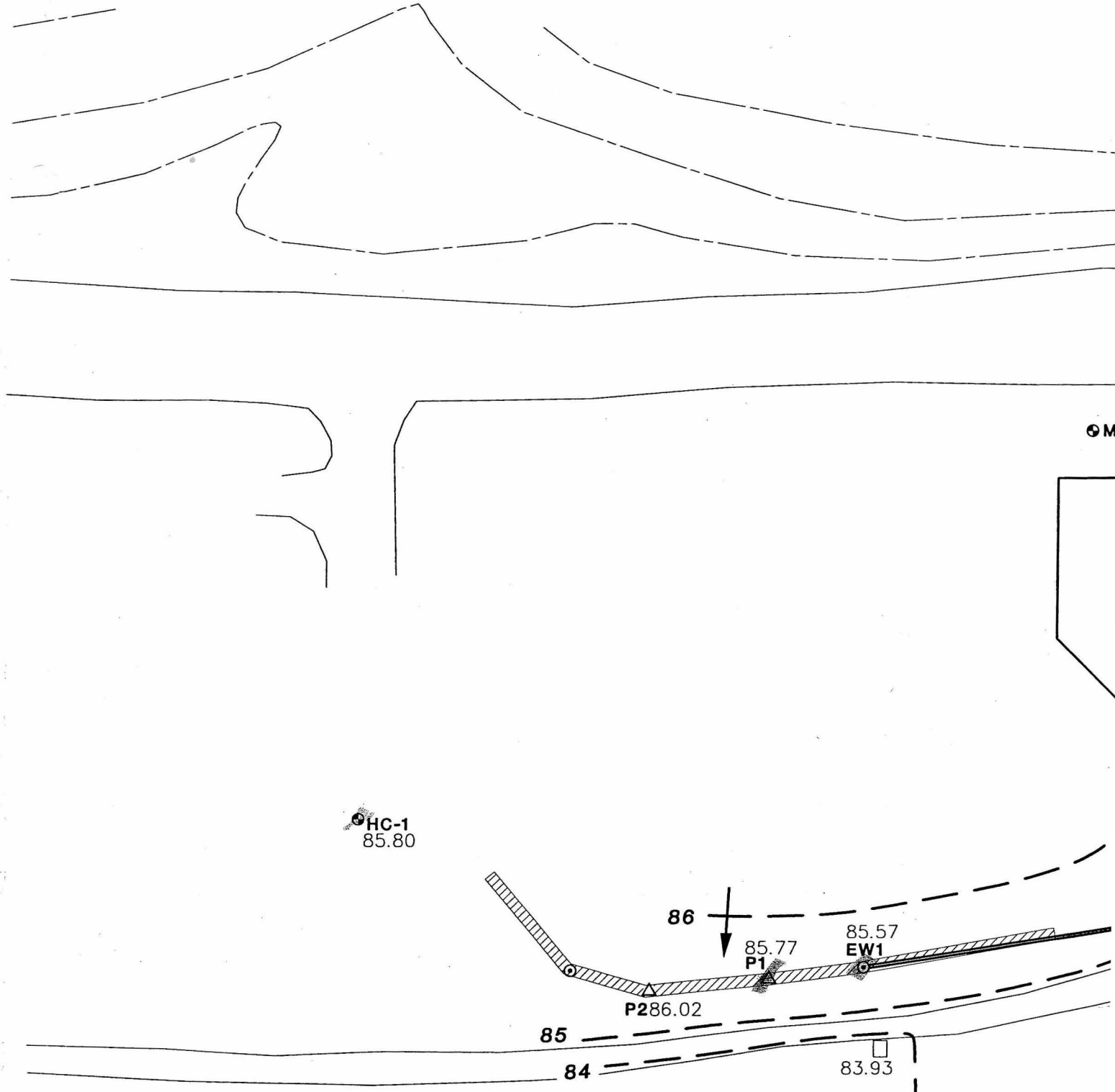
Monitoring Location	Date	Depth to Product	Depth to Water	Product Thickness	T.O.C. Elevation	Groundwater Elevation
River at EW-3	10/27/94					85.16 *
	6/30/95					86.07
	9/21/95					84.28
	7/11/96					85.78 ***
	9/11/96					84.60
	11/5/96					84.10
	7/17/97					86.31
	10/9/97					85.16
	6/25/98					85.16
	8/12/98					85.65
	10/22/98					85.23
	3/18/99					86.10
River at EW-4	10/27/94					86.49 *
	6/30/95					87.40
	9/21/95					85.61
	7/11/96					87.11 ***
	9/11/96					85.93
	11/5/96					86.44
	7/17/97					87.27
	10/9/97					86.12
	6/25/98					88.34
	8/12/98					88.54
	10/22/98					88.12
	3/18/99					87.05

Notes:
All measurements in feet.
* River elevation was extrapolated from the river surface slope measured in 1995 and the river elevation measured south of EW-2 in 1994.
** River elevation was extrapolated from river surface slope, based on river elevations measured south of EW-2, EW-3, and EW-4 in 1995.
*** River elevation was extrapolated from river surface slope, and the wood dock benchmark.
**** Groundwater elevation was interpolated from measured elevations at EW-2 and P-1

T.O.C. - Top of Casing
ND - Not Detected
NA - Not Available
NM - Not Measured

229607\1stQtr99.xls

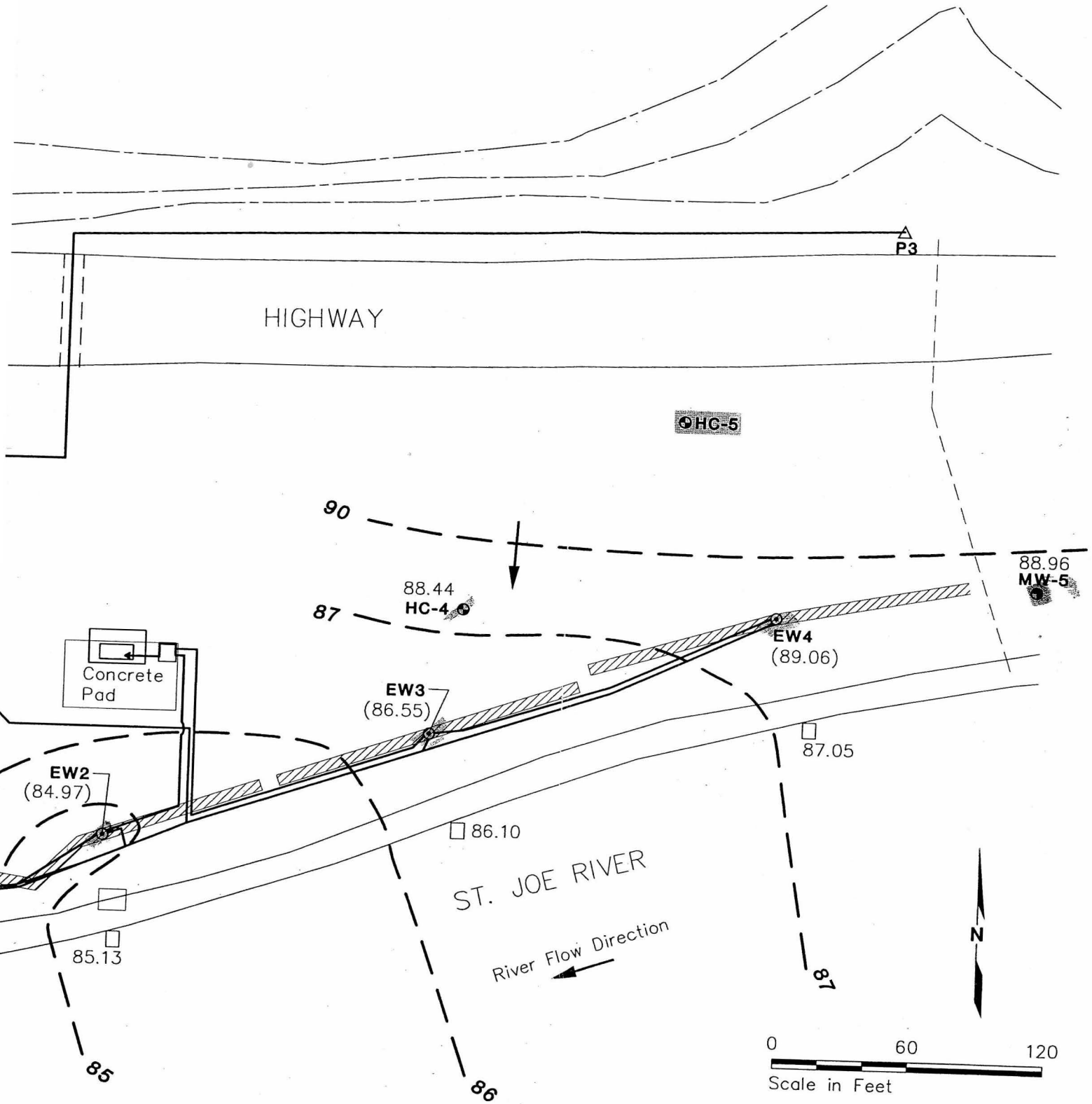
Avery Landing First Quarter 1999 Groundwater Flo



MW-4	Monitoring Well Location and Number
83.79	Groundwater Elevation in Feet (3/18/99)
(86.69)	Corrected Groundwater Elevation due to Free Product in Feet (3/18/99)
EW1	Extraction Well Location and Number
P1	Piezometer Location and Number
HC-5	Lost During Construction (1997)

CVD 4/23/99 1=60 woodstock.pc2
22960705

Direction Map



Note: Elevation datum is southwest corner of Concrete Pad (100.00 feet)

7.40 Estimated River Elevation in Feet (3/18/99)

Groundwater Elevation Contour in Feet

Approximate Groundwater Flow Direction

Extraction Trench

HARTCROWSER

J-2296-07 4/99

Figure 1

IDAHO DEPARTMENT OF HEALTH AND WELFARE

In the matter of:	)	CONSENT ORDER
	)	Idaho Code § 39-108
Potlatch Corporation --	)	
Avery Landing	)	

1. Pursuant to Idaho Code § 39-108 (Idaho Environmental Protection and Health Act), the Idaho Department of Health and Welfare, Division of Environmental Quality (Department) enters into this Consent Order with Potlatch Corporation (hereafter "Respondent").

2. Respondent is currently the owner of a property located near Avery, Idaho (hereafter "Property" and is more particularly described in Exhibit A hereto).

3. The Avery Landing site is adjacent to the St. Joe River. Petroleum products have been discovered in the ground water at the Avery Landing site and discharging from the site into the St. Joe River.

4. Potlatch has voluntarily prepared and the Department has approved a Remediation Plan that describes a free phase petroleum product recovery system. The Remediation Plan is attached hereto as Exhibit B and is incorporated herein as a part of this Consent Order. Respondent shall, to the extent that access to undertake the same exists or is granted, fully implement all aspects of the Remediation Plan by the dates set forth in the Remediation plan, and thereby shall:

   A. Submit final plans and specifications regarding the recovery system as provided in the Remediation Plan;

   B. Construct, operate and maintain the recovery system as provided in the Remediation Plan;

   C. Conduct water level and product monitoring and submit the results to the Department as provided in the Remediation Plan. Three day notification to the Department, prior to any sampling event, is required.

   D. Submit by the dates and in the manner provided in the Remediation Plan, the following documents and information:

(1) final plans and specifications, including a project implementation schedule, regarding the recovery system;

(2) laboratory results and analysis of soils excavated during construction of the recovery system;

(3) water level monitoring results and analysis of ground water flow direction prior to construction of system;

(4) results of quarterly product and water level monitoring;

(5) a report setting forth a capture zone analysis and an analysis of the effectiveness of the system submitted three (3) weeks after the first quarter of operation;

(6) product thickness sampling results taken after the shutdown of the system to determine if recovery is complete; and

(7) reports, submitted on an annual basis, beginning one year after the effective date of this Consent Order, that shall describe (i) the total amount of product recovered in that year and the destination of the product recovered, (ii) an analysis of the effectiveness of the recovery system, and (iii) a schedule for the next year's product and water level monitoring. The Department shall review the annual reports in terms of the effectiveness and continued practicality of the use of the recovery system, and in order to evaluate Respondent's compliance with this Consent Order. Based upon the reports, any party to this Consent Order may request, in writing, a modification of the approved Remediation Plan, which shall be promptly reviewed and acted upon by the Department. The Department shall also approve or require modification of the schedules for water level and product monitoring based upon information in the reports; and

E. Continue to operate the recovery system pursuant to the Remediation Plan until the free product thickness as measured in all wells and the recovery trench is less than one tenth (0.1) inch. After completion of recovery, the recovery system shall be shut down for a period of at least one (1) year. The Department shall notify the Respondent in writing regarding the length of the shutdown. If, at the end of the shutdown period, the

product thickness levels exceed one tenth (0.1) inch in any monitoring well or the recovery trench, Respondent shall restart the recovery system and operate it until the product thickness levels reach one tenth (0.1) inch or less in all monitoring wells and the recovery trench. Thereafter, the system shall be shut down, monitored and restarted as provided above.

After collecting at least two (2) years of recovery and monitoring data, and product thickness is greater than one tenth (0.1) inch, Respondent may propose an alternative recovery system shutdown criteria if free product recovery rate and thickness of product have shown an asymptotically decreasing rate over time. Upon Department approval of the alternative recovery system shutdown criteria, agreement with the Department that asymptotic levels have been reached, and discharge to the river is controlled by the recovery effort (no sheen on the water), Respondent may petition the Department for site closure. After reaching asymptotic levels, the recovery system shall be shut down for a period of at least one (1) year. The Department shall notify Respondent in writing regarding the length of shutdown. If at the end of the shutdown period the levels of product have changed from those considered asymptotic, Respondent shall restart the recovery system and operate it until levels are truly asymptotic. Should levels remain asymptotic, the closure of the site is dependent on the discharge from the site to the river. If a sheen is present on the river from petroleum seepage from the site following system shutdown, Respondent has the option of restarting the recovery system and/or installing product skimmer pumps in the recovery trench to control petroleum seepage. The Department agrees that skimmer pumps capturing the majority of the petroleum entering the recovery trench is a best management practice to control petroleum discharge to the river and other control measures will not be required. Once petroleum seepage is controlled by the skimmer pumps, Respondent may again petition the Department for closure after a one (1) year shutdown period. Any other methods to control discharge to the St. Joe River must be approved by the Department in writing and take place prior to the one (1) year shutdown period. Should petroleum seepage begin prior to the end of the one (1) year shutdown period, Respondent shall, as a best management practice, restart the skimmer pumps.

If the collected data establish that the 0.1 inch product thickness or alternative shutdown conditions are met, the Department understands and agrees that further operation

of the recovery system would not be justified and the site will be closed.

A flow chart to illustrate the pathway of possible site closure was developed on March 25, 1994 and is attached to this Consent Order.

5. Work undertaken pursuant to this Consent Order shall not deviate from the Department approved Remediation Plan without prior notification to and written approval by the Department.

6. Respondent shall be responsible for obtaining all required permits or agreements for the disposal or treatment of any contaminated material. The Department will provide assistance in identifying necessary permits and will expedite issuance of same. The Department will also take the lead in attempting to obtain right of entry for Respondent on the Federal Highway Administration right-of-way and the Theriault property as necessary to implement the Remediation Plan.

7. All monitoring wells shall be properly closed in accordance with Idaho Department of Water Resources regulations prior to termination of this Consent Order.

8. All communications required by this Consent Order shall be addressed to:

   Gwen P. Burr, Regional Administrator
   North Idaho Regional Office
   Division of Environmental Quality
   2110 Ironwood Parkway
   Coeur d'Alene, Idaho 83814

   Douglas M. Conde
   Deputy Attorney General
   Division of Environmental Quality
   1410 N. Hilton
   Boise, Idaho 83706

9. Respondent shall allow the Department access to the portions of the site it owns for remediation oversight and to take and/or split samples.

10. This Consent Order shall not in any way relieve Respondent from any obligation to comply with any provision of the Idaho Water Quality Standards and Wastewater Treatment Requirements or any other applicable local, state, or federal laws.

11. Subject to Respondent's compliance with the terms of this Consent Order, the Department agrees that full compliance with this Consent Order is a complete and final resolution of all

claims by the Department against a complying Respondent relating to the subjects covered by this Consent Order, and the Department hereby releases Respondent with respect to the above-mentioned claims.

12. Upon fulfilling the requirements of this Consent Order, Respondent may petition the Department in writing for a termination of this Consent Order. This Consent Order shall remain in full force and effect until the Department acknowledges in writing that the Consent Order is terminated and that Respondent has fulfilled all requirements of this Consent Order.

13. This Consent Order shall bind Respondent and its successors and assigns until terminated in writing by the Department as provided in paragraph 12.

14. The effective date of this Consent Order shall be the date of signature by all parties.

DATED this 16th day of August, 1994.

IDAHO DEPARTMENT OF HEALTH AND WELFARE

By: Jerry L. Harris
Jerry L. Harris, Director
Idaho Department of Health and Welfare

DATED this 18 day of August, 1994.

POTLATCH CORPORATION

By: Richard K. Kelly
Richard K. Kelly
Vice President, Western Wood Products Division
Potlatch Corporation

avery.co/lvh
August 11, 1994

DESCRIPTION OF POTLATCH PROPERTY
AVERY, IDAHO

Part of Government Lot 1 of Section 16, Township 45 North, Range 5 East, Boise Meridian, Shoshone County, Idaho, located between the southerly boundary of FHWA Forest Highway 50 and the northerly bank of the St. Joe River.

EXHIBIT A

REMEDIATION PLAN FOR AVERY LANDING

A. THE SYSTEM

The recovery system is designed to recover free phase petroleum product. A trench recovery system will be used to capture product currently moving into the St. Joe River, by depressing the ground water and intercepting the product along this flow path.

B. SYSTEM DESIGN

The design of the recovery system is described in the initial drawings attached hereto. The recovery system design may change depending on field conditions. The trench length will be at least 200 feet long in all cases. Within thirty (30) days after the effective date of the Consent Order regarding Avery Landing, final plans and specifications stamped by an Idaho registered, professional engineer shall be submitted to the Department for review and approval. The plans and specifications shall be revised until approved by the Department. The Department shall notify Potlatch and CMC, in writing, of its approval.

Prior to construction, Potlatch and CMC shall measure the water level in new and existing monitoring wells (the wells are described in paragraph D) and submit the results and an analysis of ground water flow direction to the Department. The Department shall review the submitted material to determine whether the location of the system is adequate to capture the contaminant plume. The Department shall notify Potlatch and CMC, in writing, whether the location of the system is adequate or should be changed.

C. CONSTRUCTION

Unless a different time is agreed to by the parties hereto, Potlatch and CMC shall begin construction of the recovery system in accordance with the project implementation schedule submitted with the plans and specifications.

Construction will involve exposure of contaminated material to the environment. All construction practices must be planned or field modified to minimize the release of contaminated materials to the environment. This includes not digging contaminated materials during periods when runoff is occurring to the St. Joe River from the excavation area. Precautions to control runoff from sudden storm events need to be taken.

Soil excavated during construction that is not used to backfill the recovery trench shall be treated and/or disposed of in accordance with applicable state and federal law. Potlatch and CMC shall analyze the excavated soil not used for

 EXHIBIT B

backfill, using composite sampling, for PCBs, semi-volatile organic compounds, metals and total petroleum hydrocarbons (TPH). The laboratory results and analysis shall be submitted to the Department within three (3) weeks after receipt by Potlatch and CMC. TPH levels shall be determined for every one hundred (100) cubic yards of soil. If the laboratory results and analysis shows that the excavated soil constitutes a hazardous waste, it must be handled according to applicable state and federal law. If the soil does not constitute a hazardous waste, but contains over 1000 mg/kg TPH, then the material shall be landfarmed, or otherwise treated or disposed of in a manner approved by the Department. If the soil contains TPH levels less than 1000 mg/kg, the Department shall not address its treatment or disposal. Within thirty (30) days of the submittal of the soil analysis to the Department, the Department shall notify Potlatch and CMC, in writing, regarding whether the soil constitutes a hazardous waste, or, if not a hazardous waste, whether it may be landfarmed. If landfarming contaminated soil at the site is approved by the Department, landfarming shall be carried out as follows:

1. Excavated soil must be stockpiled and covered, protecting the material from precipitation until seasonally warm weather.

2. Once warm weather occurs, the soil is spread in a layer not thicker than six (6) inches. (If contaminated soil is landfarmed off-site, an impermeable liner is required and the location must be approved by DEQ.)

3. The soil must be treated until the levels of TPH is measured at less than 1000 mg/kg. Sample locations may be determined by the Department at a later date (typically the Department requires one sample for every 100 cubic yards of soil). To prevent surface runoff, a minimum of one foot high berm shall be built around the landfarm using non-contaminated material, to prevent runoff of contaminated soil from reaching the river.

D. MONITORING

Two types of monitoring are required prior to and during operation: Water Level Monitoring, and Product Monitoring.

1. Water Level Monitoring - Water level monitoring will establish the presence of a ground water capture zone around the recovery trench. Six existing wells will be used in this monitoring. The existing wells are HC-1R, HC-2, HC-3, HC-4, MW-4, MW-5, and MW-11 as identified in the attached Hart Crowser Figure 1. Access for water level measurement in the recovery trench is required.

Monthly measurements of depth to water shall be made during the first quarter of operation. Quarterly measurements shall be made for the balance of the first year of operation. A water level measurement schedule for system life will be developed after review of the first year data. The schedule shall be submitted to the Department for review and approval, as part of an annual report. Potlatch and CMC shall submit a report including a capture zone analysis and an analysis on the effectiveness of the recovery system within three (3) weeks after the first three months of the operation of the system. A totalizing flow meter is required to record the volume of water pumped to the infiltration trench.

The Department shall review the first quarter report. If requested by the Department, based upon its review of the first quarter report, the recovery system shall be modified if necessary to create a capture zone encompassing the known contaminated area.

2. Product Monitoring - Monitoring of the product will be used to determine when the free phase recovery is complete and the use of the recovered product.

Product thickness will be measured in wells [redacted], or as agreed to by Potlatch, CMC, and the Department. Monthly measurements of product thickness shall be made during the first quarter of operation and quarterly measurements shall be done for the balance of the first year of operation. A product thickness measurement schedule for system life will be developed after review of the first year data. The schedule must be submitted to the Department for review and written approval, as part of an annual report.

A representative sample of the product must be analyzed and the analysis submitted to the Department, along with knowledge of process (source determination as understood by Potlatch and CMC), prior to initial disposal, to determine the status of the product as a hazardous waste. Testing shall be by toxicity characteristic leaching procedure (TCLP). The recovered product must be handled according to state and federal regulations.

The total amount of product recovered and final destination of the product will be reported to the Department on an annual basis, as part of an annual report.

3. Monitoring Data - Unless specified otherwise, all laboratory results, analysis and other data collected from the site will be forwarded to the Department within three (3) weeks of receipt by Potlatch and CMC.

E. OPERATION AND MAINTENANCE CONSIDERATIONS

Winter time operation of the recovery system could potentially be impossible in the harsh climate of Avery. Potlatch and CMC shall make a reasonable effort to operate the system year round but recognize weather limitations. Shutdowns of the system in extremely cold weather and/or deep snow are expected. In the event of winter shutdown, appropriate steps must be taken to stabilize the site.

Proper operation of the separation system between product and water is necessary. Free product should not be pumped into the infiltration trench. The infiltration trench itself should not overflow or be a hazard in any way. No discharges into the St. Joe River will be allowed from the system.

Any system failure or shutdown lasting more than two days shall be reported to the Department within two days of detection of such failure. Any discharge of free product into the environment by the system shall be reported to the Department within 24 hours of detection of such discharge.

Absorbant booms shall be installed to contain petroleum discharge from seeps along the river. These booms shall be in operation from June 1 to October 31, during active remediation.

F. REPORTS

Recovery completion and post-recovery monitoring will be conducted according to the provisions of the Consent Order.

The following reports and information, as outlined in this Remediation Plan, shall be submitted to the Department:

1. As provided in paragraph 6.B of the Consent Order, within thirty (30) days after the effective date of the Consent Order, final plans and specifications regarding the design of the system, including a project implementation schedule;

2. As provided in paragraph C, within three (3) weeks after receiving laboratory results, an analysis of the excavated soils not used to backfill the recovery trench;

3. As provided in paragraph D, within three (3) weeks of receipt by Potlatch and CMC, the results of quarterly

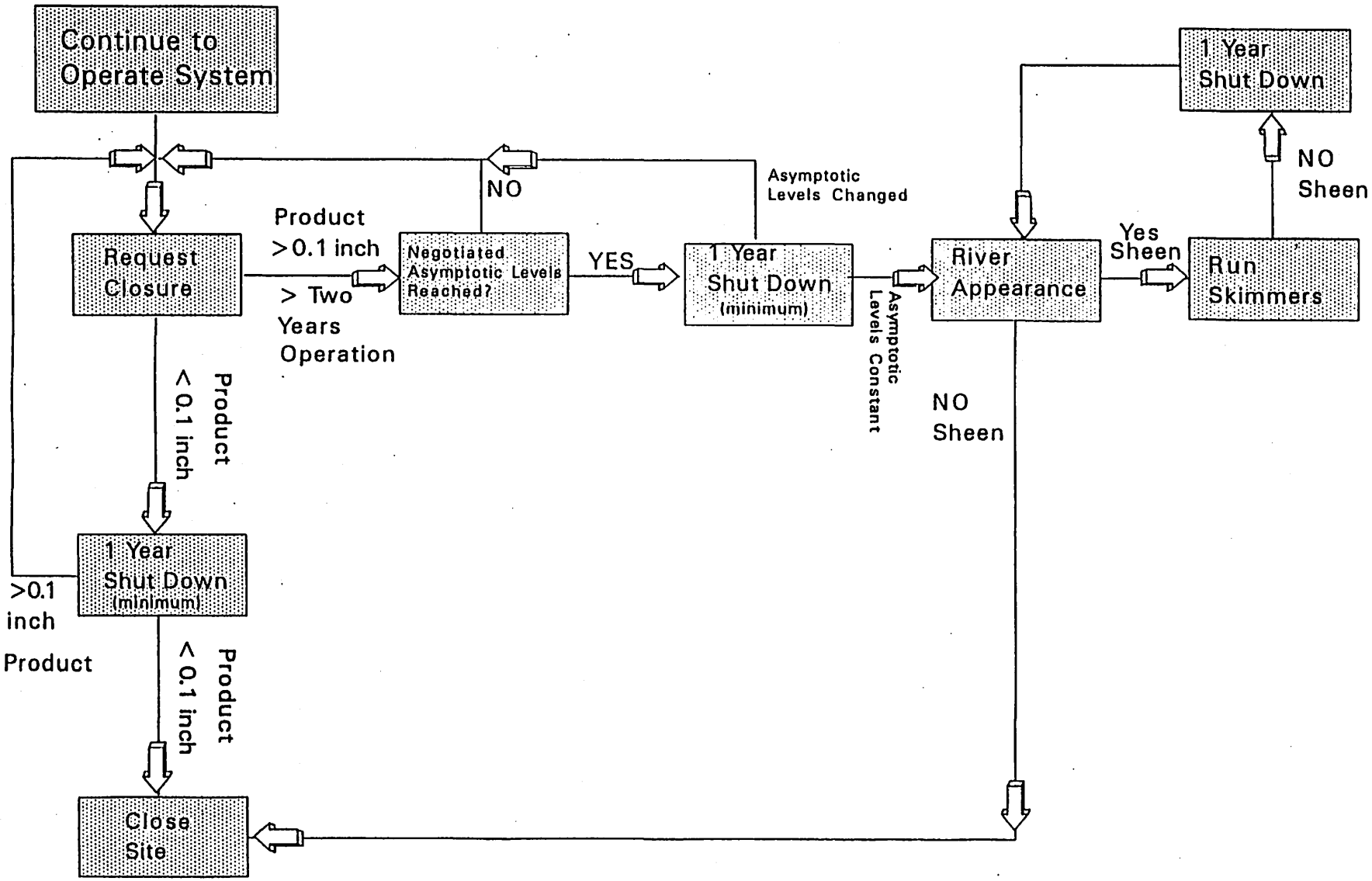
product and water level monitoring taken during the operation of the system;

4. As provided in paragraph D, three (3) weeks after the first three months of the operation of the system, a report setting forth a capture zone analysis and an analysis of the effectiveness of the system;

5. Product thickness sampling results taken after the shutdown of the system to determine if recovery is complete; and

6. On an annual basis, beginning one year after the effective date of the Consent Order, an annual report describing (i) the total amount of product recovered in that year and the destination of the product recovered; (ii) an analysis of the effectiveness of the system; and (iii) a schedule for the next year's product and water level monitoring. The Department shall review the annual reports in terms of the effectiveness and continued practicality of the use of the recovery system, and in order to evaluate Potlatch and CMC's compliance with the Consent Order. The Department shall also approve or require a modification of the water level and product monitoring schedules contained in the annual reports. Based upon the reports, any party to the Consent Order may request, in writing, a modification of this Remediation Plan.

Shut down Criteria Flow Chart
Avery Landing Site March 25, 1994



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DEQ-Coeur d'Alene
Regional Office

Potlatch

Potlatch Corporation
Resource Management Division
Idaho Region

St. Joe Area Woodlands
P.O. Box 386
St. Maries, Idaho 83861-0386
Telephone (208) 245-4146
Fax (208) 245-6421

December 21, 2001

State of Idaho
Division of Environmental Quality
2110 Ironwood Parkway
Coeur d'Alene ID 83814-2648

Attn: Kreg Beck

Re: Avery Landing Remediation and Project Schedule

Dear Kreg:

The Avery landing monthly well monitoring from November 2000 through October of 2001 is attached for your review.

We purchased a "new" oil/water interface meter manufactured by HERON INSTRUMENTS to accurately measure product depth in the wells for the twelve month monitoring period.

The product thickness measured in older wells (EW's, HC's and MW's) over the past twelve month period shows "less" product thickness than previously measured in the wells.

During the monthly well monitoring the St. Joe River water surface was observed for any visible oil sheen and none was observed.

In the spring of 2001 sixty cottonwood, thirty willow and maple, sixty Ponderosa Pine, and twenty five Spruce trees were planted on the remediation site.

On August 9th and 10th, 2001 the St. Joe Oil Company removed 1,290 gallons of stored oil product to the Potlatch Corporation, St. Maries Complex boilers for disposal. This stored oil was extracted by our original remediation system that operated from 1994 through 2000. We filed a "Notification of Regulated Waste Activity" with the environmental Protection Agency to comply with section 3010 of the Resource Conservation and Recovery Act (RCRA). Our EPA I.D. number is IDR000200105.

Potlatch

Potlatch Corporation
Resource Management Division
Idaho Region

St. Joe Area Woodlands
P.O. Box 386
St. Maries, Idaho 83861-0386
Telephone (208) 245-4146
Fax (208) 245-6421

The Avery Landing Remediation System has been installed for over a year and is functioning as designed. The remediation has effectively stopped the oil product from entering the St. Joe River.

For the next five years (2002-2006) we propose to monitor the existing wells once per year during the month of August or September. In the event measurable oil product of 0.05' or greater is observed in the six 36 inch collection wells, we will use absorption pads to collect and remove the oil from the wells. We will also monitor the St. Joe River for any sign of oil sheen on the water surface and ensure that vegetation is established in accordance with our corrective action plan.

Kreg, if you have any questions feel free to call me at my St. Maries office.

Sincerely,

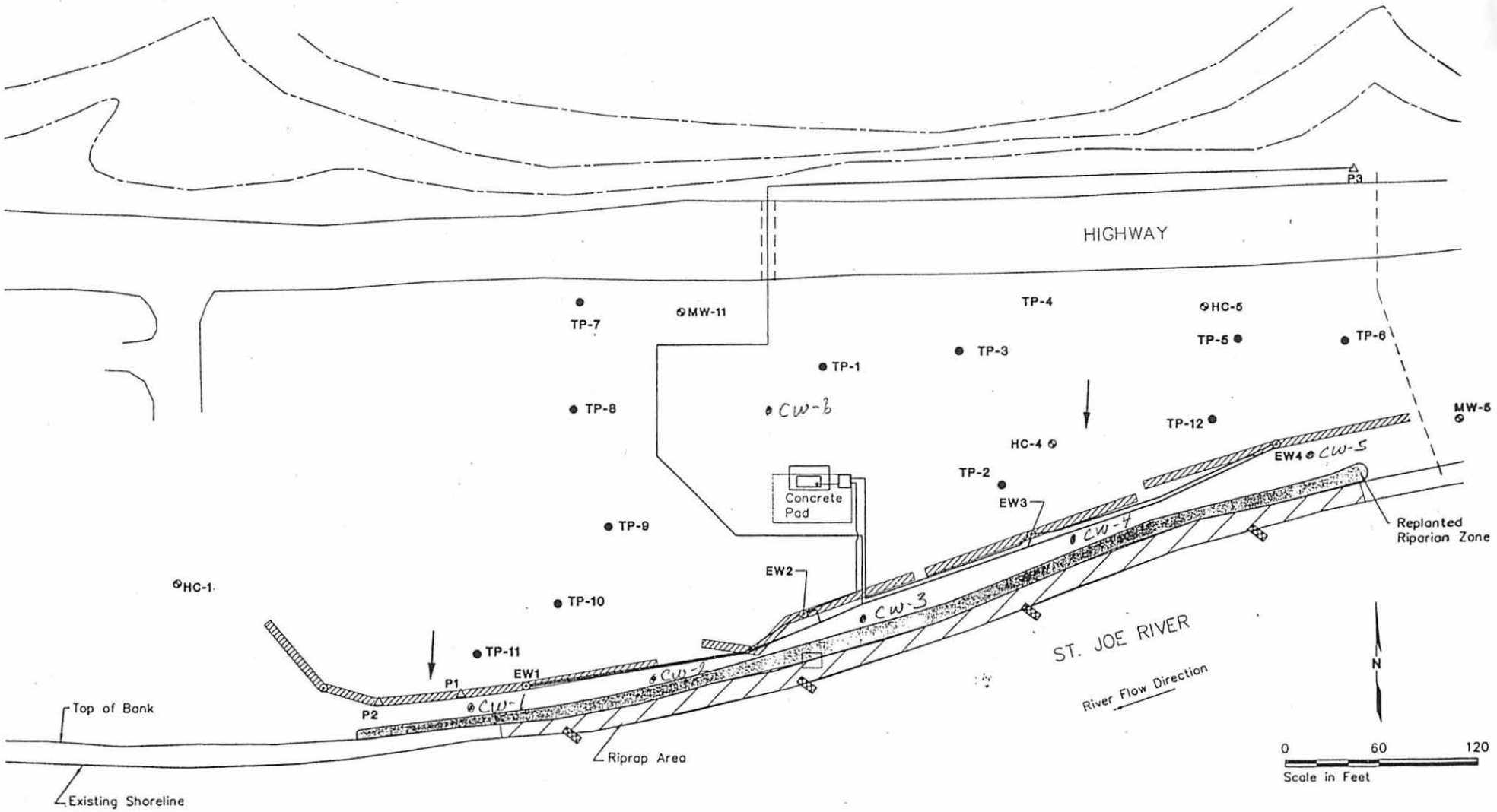
Norm Linton

Norm Linton
Area Manager

NL: br

CC: Greg Weigal - U.S., EPA, Boise
Chip Corsi - IDFG, CDA
Mike McAllister
John Emery
Greg Rapp

Avery Landing Remediation Site



Exploration Location and Number

- MW-4 Monitoring Well
- EW1 Extraction Well
- P1 Piezometer
- Approximate Groundwater Flow Direction
- Existing Extraction Trench
- Area of Riparian Zone to be Replanted
- TP-1 Test Pit/Monitoring Well Location and Number
- Riprap Barb Location

HARTCROWSER

7/00

Avery Well Monitoring

Monitoring Location	Date	Dept to Oil Product	Dept to Water	Product Thickness	Comments
CW-1	11/08/00	-	14.51	-	To water - no oil
	12/04/00	-	13.92	-	To water - sheen
	01/16/01	-	13.82	-	Depth to water light sheen
	02/15/01	-	13.46	-	To water - light sheen
	03/16/01	-	13.85	-	To water - light sheen visible
	04/18/01	-	13.70	-	To water - sheen
	05/15/01	-	10.58	-	To water - light sheen visible
	06/20/01	-	13.21	-	To water - light sheen visible
	07/24/01	-	14.12	-	To water - light sheen visible
	08/21/01	-	14.43	-	To water - light sheen present
	09/28/01	-	14.69	-	To water - light sheen
	10/31/01	-	13.75	-	To water - light sheen (15.7 to bottom)
CW-2	11/08/00	-	15.31	-	To water - oil not measureable - sheen
	12/04/00	-	14.74	-	To water - sheen
	01/16/01	-	14.62	-	To water - light sheen
	02/15/01	-	14.30	-	To water - light sheen
	03/16/01	-	14.68	-	To water - light sheen
	04/18/01	-	14.45	-	
	05/15/01	-	11.41	-	To water - light sheen visible
	06/20/01	-	14.01	-	To water - light sheen
	07/24/01	-	14.95	-	To water - light sheen visible
	08/21/01	-	15.23	-	To water - light sheen/rust
	09/28/01	-	15.41	-	To water - light sheen
	10/31/01	-	14.55	-	To water - light sheen (15.85 to bottom)
CW-3	11/08/00	-	13.30	-	To water - no oil
	12/04/00	-	11.81	-	To water - very light sheen
	01/16/01	-	12.35	-	To water - light sheen
	02/15/01	-	12.10	-	To water - light sheen
	03/16/01	-	12.73	-	To water - light sheen
	04/18/01	-	12.35	-	To water - sheen
	05/15/01	-	8.80	-	To water - light sheen
	06/20/01	-	11.87	-	To water - light sheen
	07/24/01	-	12.81	-	To water - light sheen visible
	08/21/01	-	13.18	-	To water - light sheen visible
	09/28/01	-	13.38	-	To water - light sheen, some rust
	10/31/01	-	12.40	-	To water - light sheen (16.1 to bottom)
CW-4	11/08/00	-	12.51	-	To water - sheen visible
	12/04/00	-	11.20	-	To water - sheen
	01/16/01	-	11.56	-	To water - light sheen
	02/15/01	-	11.52	-	To water - light sheen
	03/16/01	-	11.68	-	To water - very light sheen
	04/18/01	-	11.50	-	To water - sheen
	05/15/01	-	8.24	-	To water - very light sheen
	06/20/01	-	10.93	-	To water - light sheen
	07/24/01	-	11.89	-	To water - rusty sheen present
	08/21/01	-	12.40	-	To water - rusty sheen present
	09/28/01	-	12.71	-	To water - rusty sheen
	10/31/01	-	10.83	-	To water - clean (15.60 to bottom)
CW-5	11/08/00	-	12.85	-	To water - oil not measurable - sheen
	12/04/00	-	11.91	-	To water - no measurable oil - sheen
	01/16/01	-	11.81	-	To water - light sheen
	02/15/01	-	11.41	-	To water - light sheen

Avery Well Monitoring

Monitoring Location	Date	Dept to Oil Product	Dept to Water	Product Thickness	Comments
	03/16/01	-	11.83	-	To water - very light sheen
CW-5	04/18/01	-	11.18	-	To water - sheen
(Continued)	05/15/01	-	8.50	-	To water - light sheen
	06/20/01	-	11.10	-	To water - very light sheen
	07/24/01	-	12.41	-	To water - light sheen
	08/21/01	-	12.83	-	To water
	09/28/01	-	13.39	-	To water - very light sheen
	10/31/01	-	11.78	-	To water - very light sheen (15.30 to bottom)
CW-6	11/08/00	-	18.21	-	To water - sheen
	12/04/00	-	17.35	-	To water - sheen
	01/16/01	-	17.33	-	To water - light sheen
	02/15/01	-	17.11	-	To water - light sheen
	03/16/01	-	17.26	-	To water - light sheen
	04/18/01	-	17.14	-	To water - sheen
	05/15/01	-	14.11	-	Visable thin layer of oil
	06/20/01	-	16.70	-	Visable thin layer of oil
	07/24/01	-	17.68	-	To water - visable thin layer of oil
	08/21/01	-	18.13	-	To water - visable thin layer of oil
	09/28/01	-	18.42	-	To water - thin layer of oil
	10/31/01	-	17.33	-	To water - thin layer of oil (19.70 to bottom)
EW-1	11/08/00	-	15.91	-	To water - sheen visible
	12/04/00	-	15.30	-	To water - light sheen
	01/16/01	-	15.39	-	To water - light sheen
	02/15/01	-	15.08	-	To water - light sheen
	03/16/01	-	15.45	-	To water
	04/18/01	-	15.45	-	To water - light sheen
	05/15/01	-	12.21	-	To water
	06/20/01	-	14.84	-	To water
	07/24/01	-	15.68	-	To water
	08/21/01	-	16.06	-	To water - light sheen
	09/28/01	-	16.34	-	To water - light sheen
	10/31/01	-	15.38	-	To water - light sheen
EW-2	11/08/00	-	15.25	-	To water - heavy sheen
	12/04/00	14.19	Can't determine	-	Can't determine oil depth - too thick
	01/16/01	14.60	Can't determine	-	To oil - very thick
	02/15/01	14.34	14.36	0.02	Oil present
	03/16/01	14.75	14.78	0.03	Oil present
	04/18/01	14.60	Can't determine	-	Couldn't clean probe
	05/15/01	11.53	11.54	0.01	Oil present - thin layer
	06/20/01	14.10	Can't determine	-	To oil
	07/24/01	14.95	15.00	0.05	To oil
	08/21/01	15.34	15.38	0.04	Oil present
	09/28/01	15.62	15.67	0.05	To oil
	10/31/01	14.62	14.65	0.03	To oil
EW-3	11/08/00	16.42	16.50	0.08	Oil present
	12/04/00	14.42	Can't determine	-	Can't determine oil depth - too thick
	01/16/01	14.80	Can't determine	-	Oil present - can't get thickness
	02/15/01	14.50	Can't determine	-	Oil present
	03/16/01	14.77	14.80	0.03	Oil present
	04/18/01	14.60	Can't determine	-	Couldn't clean probe
	05/15/01	11.38	11.42	0.04	Oil present
	06/20/01	14.13	14.17	0.04	Oil present

Avery Well Monitoring

Monitoring Location	Date	Dept to Oil Product	Dept to Water	Product Thickness	Comments
	07/24/01	15.05	15.11	0.06	Oil present
	08/21/01	15.52	15.58	0.06	Oil present
EW-3	09/28/01	15.81	15.89	0.08	To oil
(Continued)	10/31/01	14.60	14.64	0.04	To oil
EW-4	11/08/00	13.75	13.77	0.02	Oil present
	12/04/00	12.64	12.65	0.01	Oil present
	01/16/01	12.74	Can't determine	-	Thick oil present
	02/15/01	12.25	Can't determine	-	To oil
	03/16/01	12.42	Can't determine	-	To oil - very thick
	04/18/01	11.35	Can't determine	-	Couldn't clean probe
	05/15/01	9.01	9.02	0.01	To oil - thin layer
	06/20/01	11.58	11.59	0.005	Oil present
	07/24/01	12.90	12.93	0.03	Oil present
	08/21/01	13.62	13.64	0.02	Oil present
	09/28/01	14.00	14.02	0.02	To oil
	10/31/01	12.55	12.57	0.02	To oil (very thick)
HC-1	11/08/00	-	-	-	Could not find
	12/04/00	-	-	-	Could not find
	01/16/01	-	-	-	Could not find
	02/15/01	-	-	-	Could not find
	03/16/01	-	12.70	-	To water - no oil
	04/18/01	-	12.50	-	To water - clean
	05/15/01	-	9.72	-	To water - some red rust
	06/20/01	-	12.10	-	Water - light red rust
	07/24/01	-	12.91	-	To water - clean
	08/21/01	-	13.27	-	To water - clean
	09/28/01	-	13.45	-	To water - light red rust present
	10/31/01	-	12.63	-	Red rust present (17.85 to bottom)
HC-4	11/08/00	13.68	14.46	0.78	Oil present
	12/04/00	12.97	Can't determine	-	Can't determine oil depth - too thick
	01/16/01	12.81	Can't determine	-	Oil present
	02/15/01	12.51	Can't determine	-	Oil present
	03/16/01	11.91	Can't determine	-	To oil
	04/18/01	12.20	Can't determine	-	Couldn't find probe
	05/15/01	10.48	Can't determine	-	Oil present
	06/20/01	12.15	12.34	0.19	Oil present
	07/24/01	13.07	13.38	0.31	Oil present
	08/21/01	13.55	14.12	0.57	Oil present
	09/28/01	13.80	14.61	0.81	Oil present
	10/31/01	12.65	13.45	0.80	Oil present (18.13 to bottom)
HC-5	11/08/00	-	18.40	-	To water - no oil
	12/04/00	-	17.63	-	To water - no measurable oil - sheen
	01/16/01	-	17.55	-	To water - no oil
	02/15/01	-	17.28	-	To water - no oil
	03/16/01	-	17.24	-	To water
	04/18/01	-	16.98	-	To water - clean
	05/15/01	-	14.25	-	To water - clean
	06/20/01	-	16.80	-	To water - clean
	07/24/01	-	17.88	-	To water - clean
	08/21/01	-	18.40	-	To water - clean
	09/28/01	-	18.72	-	To water - clean
	10/31/01	-	17.46	-	To water (23.05 to bottom)

Avery Well Monitoring

Monitoring Location	Date	Dept to Oil Product	Dept to Water	Product Thickness	Comments
MW-5	11/08/00	-	10.80	-	To water - no oil
	12/04/00	-	9.93	-	To water - no oil
MW-5	01/16/01	-	9.70	-	To water - no oil
(Continued)	02/15/01	-	9.35	-	To water - no oil
	03/16/01	-	10.04	-	To water
	04/18/01	-	9.28	-	Clean
	05/15/01	-	6.51	-	Clean
	06/20/01	-	9.20	-	Clean
	07/24/01	-	10.40	-	Clean
	08/21/01	-	10.97	-	Clean water
	09/28/01	-	11.28	-	Clean water
	10/31/01	-	9.92	-	To water (12.83 to bottom)
MW-11	11/08/00	-	-	-	Not tested
	12/04/00	18.40	-	-	Oil to thick - do not test
	01/16/01	17.90	-	-	To oil (thick) - not measurable
	02/15/01	-	-	-	Can't find - deep snow
	03/16/01	-	-	-	Not tested
	04/18/01	15.75	-	-	Couldn't clean probe
	05/15/01	-	-	-	Not tested
	06/20/01	-	-	-	Not tested
	07/24/01	-	-	-	Not tested
	08/21/01	-	-	-	Not tested
	09/28/01	-	-	-	Not tested
	10/31/01	-	-	-	Not tested
TP-1, 2"	11/08/00	-	20.02	-	To water - no oil
	12/04/00	-	19.10	-	To water - sheen
	01/16/01	-	19.16	-	To water - no oil
	02/15/01	-	18.88	-	To water - no oil
	03/16/01	-	19.08	-	To water - light sheen
	04/18/01	-	18.85		To water - light sheen
	05/15/01	15.785	15.79	0.005	To thin layer of oil
	06/20/01	-	18.53	-	To water - light sheen
	07/24/01	-	19.46	-	To water - light sheen
	08/21/01	-	19.95	-	To water - light sheen
	09/28/01	-	20.22	-	To water - sheen present
	10/31/01	-	19.08	-	Trace of oil (22.41 to bottom)
TP-1, 4"	11/08/00	-	19.75	-	To water - sheen
	12/04/00	18.83	18.84	0.01	Thin layer of oil
	01/16/01	-	18.92	-	To water - no oil
	02/15/01	-	18.63	-	To water - light sheen
	03/16/01	-	18.82	-	To water - heavy sheen
	04/18/01	-	18.60		To water - heavy sheen
	05/15/01	-	15.63	-	Heavy sheen
	06/20/01	-	18.28	-	To water - light sheen
	07/24/01	-	19.20	-	To water - heavy sheen
	08/21/01	-	19.69	-	To water - heavy sheen
	09/28/01	-	19.96	-	To water - heavy sheen
	10/31/01	-	18.85	-	Trace of oil - micro worms (16.98 to bottom)
TP-2	11/08/00	-	14.95	-	To water - no oil
	12/04/00	-	15.37	-	To bottom - no oil - dry well
	01/16/01	-	15.45	-	Dry well

Avery Well Monitoring

Monitoring Location	Date	Dept to Oil Product	Dept to Water	Product Thickness	Comments
	02/15/01	-	15.35	-	Dry well
	03/16/01	-	14.61	-	to water
	04/18/01	15.21	Can't determine	-	Couldn't clean probe
	05/15/01	-	12.19	-	To water
TP-2	06/20/01	14.85	14.86	0.01	Oil present
(Continued)	07/24/01	-	15.40	-	Well bottom - sludge no oil
	08/21/01	-	15.40	-	Well bottom - dry trace of oil
	09/28/01	-	15.90	-	well bottom - dry light trace of oil
	10/31/01	-	14.50	-	To water (15.40 to bottom)
TP-3	11/08/00	-	16.45	-	Dry well
	12/04/00	-	16.05	-	Dry well
	01/16/01	-	16.10	-	Dry well
	02/15/01	-	16.12	-	Dry well
	03/16/01	-	15.01	-	To water - light sheen
	04/18/01	-	15.80	-	To water - light sheen
	05/15/01	-	13.28	-	To water - very light sheen
	06/20/01	-	15.58	-	To water - oil globs on probe
	07/24/01	-	16.10	-	Well bottom - dry well/clean
	08/21/01	-	16.10	-	Well bottom - dry trace of oil
	09/28/01	-	16.10	-	Well bottom - dry trace of oil
	10/31/01	-	15.20	-	Trace of oil - micro worms present (16.10 to bottom)
TP-5	11/08/00	-	17.92	-	To water - no oil
	12/04/00	-	16.27	-	To water - no measurable oil - sheen
	01/16/01	-	16.11	-	To water - light sheen
	02/15/01	-	15.76	-	To water - light sheen
	03/16/01	-	15.12	-	To water
	04/18/01	-	15.55	-	Clean
	05/15/01	-	12.73	-	Clean
	06/20/01	-	15.21	-	Clean
	07/24/01	-	16.35	-	Clean
	08/21/01	-	16.86	-	To water - micro worms present
	09/28/01	-	16.98	-	To water - trace of oil
	10/31/01	-	15.63	-	To water (18.10 to bottom)
TP-6	11/08/00	-	15.00	-	Dry well
	12/04/00	-	14.76	-	To water - no oil
	01/16/01	-	14.62	-	Dry well
	02/15/01	-	14.42	-	To water - no oil
	03/16/01	-	14.13	-	To water
	04/18/01	-	14.14	-	Clean
	05/15/01	-	11.62	-	Clean
	06/20/01	-	13.95	-	Clean
	07/24/01	-	14.79	-	Specks of oil
	08/21/01	-	14.95	-	Well bottom - dry trace of oil
	09/28/01	-	14.98	-	Well bottom - oily mud
	10/31/01	-	14.38	-	To water (14.98 to bottom)
TP-7	11/08/00	-	17.30	-	Dry well
	12/04/00	-	17.05	-	Bottom - dry well
	01/16/01	-	17.00	-	Dry well
	02/15/01	-	17.10	-	Dry well
	03/16/01	-	14.73	-	To water - red rust in water
	04/18/01	-	15.38		Clean
	05/15/01	-	14.36	-	To water - red rust color

Avery Well Monitoring

Monitoring Location	Date	Dept to Oil Product	Dept to Water	Product Thickness	Comments
	06/20/01	-	16.96	-	Dry well - wet red rust
	07/24/01	-	16.98	-	Well bottom - dry
	08/21/01	-	16.98	-	Well bottom - dry
	09/28/01	-	16.98	-	Well bottom - dry
	10/31/01	-	16.81	-	To water - micro worms (16.98 to bottom)
TP-8	11/08/00	-	17.40	-	Dry well
	12/04/00	-	16.76	-	Bottom - dry well
	01/16/01	-	16.81	-	Dry well
	02/15/01	-	16.80	-	Dry well
	03/16/01	-	16.42	-	To water - oil skim present
	04/18/01	-	16.45	-	To water - skim of oil
	05/15/01	-	14.00	-	To water - skim of oil
	06/20/01	-	16.39	-	To water - skim of oil
	07/24/01	-	16.82	-	Well bottom - dry
	08/21/01	-	16.82	-	Well bottom - dry
	09/28/01	-	16.82	-	Well bottom - dry
	10/31/01	-	16.82	-	Dry - clean
TP-9	11/08/00	-	18.41	-	Water - no oil
	12/04/00	-	17.80	-	To water - no oil
	01/16/01	-	17.67	-	To water - no oil
	02/15/01	-	17.38	-	To water - no oil
	03/16/01	17.35	17.42	0.04	Oil present - very thin oil
	04/18/01	-	17.34	-	Oil present - thin oil
	05/15/01	14.58	14.585	0.005	To thin layer of oil - micro worms present
	06/20/01	17.05	17.055	0.005	Thin layer of oil
	07/24/01	17.95	17.98	0.03	Oil present
	08/21/01	18.35	18.39	0.04	Oil present
	09/28/01	18.61	18.64	0.03	Oil present - micro worms present
	10/31/01	17.66	17.67	0.01	Oil present (19.25 to bottom)
TP-10	11/08/00	-	18.00	-	Dry well
	12/04/00	-	17.48	-	To water - no oil
	01/16/01	-	17.24	-	To water - no oil
	02/15/01	-	16.96	-	To water - no oil
	03/16/01	-	17.03	-	To water
	04/18/01	-	17.10	-	Clean
	05/15/01	-	14.20	-	To water
	06/20/01	-	16.64	-	To water
	07/24/01	-	17.45	-	To water - micro white worms
	08/21/01	-	17.50	-	Well bottom - light sludge - oily
	09/28/01	-	17.50	-	Well bottom - dry
	10/31/01	-	16.84	-	To water - micro worms (17.50 to bottom)
TP-11	11/08/00	-	18.00	-	Dry well
	12/04/00	-	17.46	-	To water - no oil
	01/16/01	-	17.23	-	To water - no oil
	02/15/01	-	16.97	-	To water - no oil
	03/16/01	-	17.11	-	To water - very light sheen
	04/18/01	-	17.10	-	To water - very light sheen
	05/15/01	-	14.18	-	To water - light sheen
	06/20/01	-	16.70	-	To water
	07/24/01	-	17.43	-	To water - micro white worms present - no oil
	08/21/01	-	17.58	-	To water - micro white worms present
	09/28/01	-	17.80	-	To water - light sheen present

Avery Well Monitoring

Monitoring Location	Date	Dept to Oil Product	Dept to Water	Product Thickness	Comments
	10/31/01	-	17.70	-	To water - micro worms (17.90 to bottom)
TP-12	11/08/00	-	14.76	-	To water - no oil
	12/04/00	-	15.01	-	To water - no measureable oil - sheen
	01/16/01	-	14.83	-	To water - no oil
	02/15/01	-	14.72	-	To water - no oil
TP-12	03/16/01	-	13.82	-	To water
(Continued)	04/18/01	-	14.70	-	To water - light sheen
	05/15/01	-	11.60	-	Light sheen
	06/20/01	-	14.26	-	Very light sheen
	07/24/01	-	15.25	-	Well bottom - sandy sludge with oil
	08/21/01	-	15.25	-	Well bottom - sludge with oil
	09/28/01	-	15.28	-	Well bottom - oil sludge
	10/31/01	-	14.53	-	To water - trace of oil (15.30 to bottom)

Potlatch.

March 11, 2011

Earl Liverman
U.S. EPA Region 10
1910 Northwest Boulevard, Suite 208
Coeur d'Alene, ID 83814

Re: EPA's Draft Environmental Evaluation/Cost Analysis (EE/CA) for Avery Landing Site in Shoshone County, Idaho

Dear Mr. Liverman:

Potlatch Land & Lumber, LLC (Potlatch) appreciates the opportunity to comment on the subject EE/CA. As a current owner of a portion of the Avery Landing Site, Potlatch has a keen interest in the EE/CA and any final remedy that is selected by EPA at the Site. As you are aware, Potlatch has already expended significant resources in attempting to address the environmental issues at the Site. Potlatch has acted responsibly and in close consultation with the State of Idaho since environmental issues were first discovered at the Site in the 1980s. Even though Potlatch never caused or contributed to the historical environmental conditions at the Site, we have been the only entity that has attempted to address these issues. We fully expect to continue to contribute our fair share to the costs of any cleanup at the Site attributable to petroleum releases on Potlatch's property and hope that we can work with EPA to achieve an agreeable settlement. Accordingly, we are submitting the following technical comments seeking clarification of certain matters relevant to the Site cleanup.

I. Technical Comments

Potlatch appreciates the opportunity that was provided by EPA to discuss technical issues related to the subject EE/CA with our consultant Geo-Engineers. Based on those discussions, we offer the following technical comments.

A. Multiple terms are interchangeably used in the EE/CA to characterize the presence and delineation of the extent of petroleum hydrocarbons and it is not clear what the applicable screening levels and cleanup criteria are for petroleum hydrocarbons at the Site. The only criteria specified for cleanup is a "free product" of greater than .1 inch. This standard is derived from the definition of "free product" in state water quality rules at IDAPA 58.01.02. It is not clear how this standard will be applied and implemented during site cleanup. Also, state rules only require the removal of free product to the "maximum extent practicable". *See* IDAPA 58.01.02.852.04.a. There is no discussion on what the maximum extent practicable is or how the

proposed remedy achieves this ARAR. Clarification is requested on what screening levels or cleanup criteria for petroleum hydrocarbons will be used to delineate the extent of contamination and soil requiring remedial action. Further, clarification is requested for how the selected screening levels or cleanup criteria will be utilized during the remedial action to identify the limits of the proposed remedial excavation and for any required post-construction groundwater monitoring.

B. The EE/CA acknowledges that the concentrations of metals present in soil at the Site are likely the result of background metals concentrations for the area. However, the EE/CA identifies metals as contaminants of concern for the Site. Clarification is requested on what is the basis for identification of background metals as contaminants of concern. Further, clarification is requested on how background metals concentrations will be utilized during remedial action to identify the limits of the proposed remedial excavation and for any required post-construction groundwater monitoring.

C. The extent of remedial activities is identified to be based on the presence of petroleum hydrocarbons. However, the EE/CA also compares existing Site data to screening levels for various other supposedly non-petroleum chemicals including volatile and semi-volatile organic compounds and polychlorinated biphenyls (PCBs). Clarification is requested on how the screening levels for these alleged non-petroleum chemicals and PCBs will be utilized (i) to define the extent of contamination; (ii) to identify the limits of the remedial action; and (iii) to determine any required for post-construction groundwater monitoring.

D. Clarification is requested on the purpose and need for the pre-design polychlorinated biphenyl (PCB) investigation identified in the EE/CA cost estimate for Alternative A4 (i.e., off-site disposal). The existing Site data included in the EE/CA show that PCBs were not detected in soil, sediment, groundwater and surface water at concentrations greater than screening levels and it is not clear why additional characterization of PCBs is warranted.

E. Due to the high costs associated with disposal of the excavated materials and import of backfill to the Site, the remedial actions evaluated should include consideration of, and allowance for, reuse of the soil or components of the soil requiring treatment as part of the remedial action in addition to landfill disposition. Options for soil reuse should include screening, treatment, and reuse of the reclaimed larger soil fraction (ex. gravel) materials as backfill at the Site, use of the impacted media as a component to roadway paving, or other alternatives approved by EPA.

F. Clarification is requested on the extent of excavation that is anticipated along and within the St. Joe River as part of the selected remedial alternative. Additionally, the EE/CA

specifies the installation of a temporary dam-like structure to exclude water and facilitate the shoreline excavation. It is not clear however, if the cost for the dam-like structure is included in the remedial cost estimates.

G. The source for several of the unit rate assumptions in the cost estimates provided were not identified. Clarification is requested on the basis and assumptions for all unit rates used so that independent verification of the estimated costs can be made.

H. A schedule for the completion of remedial action planning, design and performance of remedial activities is not provided. Consideration of the schedule for preparation and performance of remedial activities may have significant influence on the project approach and cost. Clarification is requested on EPA's proposed schedule for implementation of remedial activities at the Avery Landing site.

II. **Specific Comments and Suggested Revisions to Sections of the Draft EE/CA**

In addition to the foregoing technical comments, we have comments regarding the drafting of the subject EE/CA. As stated above, it is our hope that we can work with EPA to reach an agreeable settlement. However, despite our desire to work cooperatively with EPA there are portions of the subject EE/CA which potentially impacts our relationship. We are concerned about many aspects of the subject EE/CA and how it might affect Potlatch's share and amount of liability at the Site. Therefore we have determined that it is necessary to submit the following detailed comments.

A. Executive Summary

1. Paragraph 1. The summary mentions that there are three owners of the Site. We note that there are actually four owners - the bed and banks of the St. Joe River are owned by the State of Idaho.

2. Paragraph 2. There is no evidence to suggest that "hazardous substances" (aside from naturally occurring metals) are discharging to the St. Joe River from the Site. We suggest that this paragraph should be amended accordingly.

B. Chapter 2. Site Characterization

1. Section 2.1.2.

a. First Paragraph. Based on historical records there were many more fuel tanks on the Site than the 500,000 gallon AST. These tanks and associated piping were located on Section 15 of the Site which is not owned and never was owned by Potlatch. Also, as stated in our technical comments, we don't understand the emphasis on trace amounts of PCBs detected in a very small percentage of samples at the Site, when these trace amounts are all below any conservative health based levels.

b. Second Paragraph. The Figures 2-4 and 2-5 only highlight certain Milwaukee Railway facilities. The railroad site schematic is a more accurate depiction of the Site and shows that all of the fuel tanks at the Site were located on Section 15 and were not located on Potlatch's property. This is significant because the only contaminant at the Site is petroleum. Also the AST referenced in this paragraph should be a 500,000 gallon tank not a 50,000 gallon tank.

c. Third Paragraph. Potlatch purchased the property from the Chicago Milwaukee Railroad in 1980 in a sale that was approved by the Bankruptcy Court. Potlatch did not purchase the property from CMC Real Estate Company as suggested. We fail to see the relevance of the statement that "there are reports that Potlatch attempted to purchase the entire site." This is not relevant to the EE/CA and should be deleted. Further the statement that "many of the Milwaukee Railroad facilities . . . were located on Potlatch's property" is misleading and therefore should be deleted. A simple reference to the railroad site schematic can provide readers with an accurate picture of the various facilities and their locations. To the extent such a narrative description of historical railroad facilities is necessary to the EE/CA, it should state that all of the fuel storage and refueling facilities were located on property not owned by Potlatch.

d. Fifth Paragraph. The statement that Potlatch reinjected untreated ground water from the 1990 pump and treat system after processing through an oil-water separation is misleading. Such a system was approved by IDEQ with knowledge by EPA. There may have been one instance when reinjection of untreated ground water accidentally took place. We believe that this statement does not assist in the analysis and should be deleted from the EE/CA.

2. Section 2.2.3. There is no evidence that reinjection of ground water north of the road by Potlatch pursuant to IDEQ requirements affected the extent and distribution of contaminants. This sentence should be deleted.

3. Section 2.2.5. The first sentence should be amended to note that Potlatch, not IDEQ, discovered and reported the discharges in 2005. Potlatch strongly disagrees with the characterizations in this section related to boom maintenance. It is also not clear why such a discussion is relevant to this EE/CA particularly since the use of booms is never considered in the remainder of the EE/CA. Accordingly, we request that this discussion be deleted.

4. Section 2.2.6 Third Paragraph. Potlatch disagrees that "CERCLA hazardous substances" such as PAHs and metals were detected at the Site. First, any PAHs detected at the site are not CERCLA hazardous substances but rather are clearly from petroleum or "any fraction thereof" as specified at 42 U.S.C. § 9601(14) and implementing EPA Guidance. This fact is acknowledged later on in the EE/CA. *See* EE/CA at p. 2-21. Second, as also acknowledged in the EE/CA, the metals detected in site soils at the Site are clearly from native soils and consistent with EPA and state rules, should not be treated as contaminants or COC's at the Site. *See* EE/CA at p. 2-16. Third, as discussed in our Technical Comments, the emphasis on PCBs is not appropriate as all samples have been below the most conservative federal and state regulatory criteria. Further, it would be appropriate in this Section to specify what the cleanup levels are for any alleged hazardous substances at the Site and whether such levels were exceeded based on data collected. Finally, we don't understand why the former domestic well is discussed in this section in view of the fact it is not being used, and will not be used in the future if appropriate institutional controls are put in place. We believe the discussion of the well should be deleted. If the EE/CA requires reference to the domestic well on site in this section (despite the fact that it is not being used, and will not be used in the future whether or not institutional controls are put in place) then it should be made clear that all sample results ever taken from the domestic well indicated compliance with all state and federal drinking water criteria.

5. Section 2.4.1 First Paragraph. The statement that "other contaminants are likely related to other historical activities" does not appear supportable. Almost all of the "other contaminants" or "COCs" are metals which are naturally occurring in native soils. *See* EE/CA at p. 2-16.

6. Section 2.4.3. The reference to "potential future residents" at the Site would not be necessary if institutional controls were considered in the EE/CA. Likewise the alleged threat of some hypothetical potential future residents drinking water from the closed domestic well on site could easily be addressed by the appropriate use of institutional controls. *See also* General Comment D, *infra.*

7. Section 2.6.2.1. Residents. It is not appropriate to consider "full time residents" as appropriate receptors. Institutional controls could address this issue. Similarly assuming that there will be ingestion of impacted ground water and dermal contact is not appropriate when institutional controls could address this. Finally the risk of inhalation of

volatile chemicals in "homes" could also be addressed through institutional controls. *See also* General Comment D, *infra.*

Regarding the exposure pathway in the St. Joe River, the potential for future domestic water intakes in the area could have been addressed by reliance upon institutional controls. Further, the statement that residents "may ingest contaminated fish" is inappropriate and inflammatory and should be deleted as there is no evidence that any fish are contaminated and this portion of the St. Joe River is catch-and-release only. Such a statement also is contradicted in a later part of the EE/CA in which it is concluded that the level of biological impact, if any, is low. *See* EE/CA at p. 2-19.

8. Section 2.6.2.2. As we stated above, reliance on unrestricted residential use for determining IDEQ initial default target levels for Site soil is inappropriate. We also note that IDEQ rules implementing the default target levels at IDAPA 58.01.24, "Standards and Procedures for Application of Risk Based Corrective Action at Petroleum Release Sites" specifically acknowledge the use of institutional controls and site specific risk assessment which we believe would lead to different target levels for the Site. *See also* General comment D, *infra.*

9. Section 2.6.4. It would be more accurate to state that the "only" as opposed to the "primary" COC for the site is petroleum. Petroleum is not a CERCLA hazardous substance. We do not think there is any supportable basis to suggest that the PAHs or VOCs present at the site above screening levels are anything but petroleum products and therefore should not be considered hazardous substances under CERCLA.

C. Chapter 3. Identification of Removal Action Objectives.

1. Section 3.2.2. This section notes that waste streams must be disposed of in accordance with CERCLA's off-site rule. Since the waste streams are non-CERCLA wastes at the Site, further explanation should be provided as to why CERCLA's off-site rule must be followed.

III. General Comments

A. Potlatch is concerned that the tone and approach of the draft EE/CA is that of an advocacy document focused on justifying the application of CERCLA and the maximum assessment of liability against Potlatch under CERCLA. We believe that this tone and approach detracts from the EE/CA fulfilling its objectives.

B. The draft EE/CA appears to be laying the groundwork for imposing significant liability on Potlatch by (i) attempting to characterize Potlatch as a party that has disregarded the environmental issues at the Site and not exercised due care with respect to the risks at the Site,

and (ii) suggesting that a good portion of the contamination at the Site is found on Potlatch's property. Potlatch believes such characterizations in the draft EE/CA do not assist in the analysis of the risks at the Site and proper remediation, and should be deleted. Potlatch notes that it is the only entity that has ever stepped up and taken responsibility to address the environmental issues at the Site (with the concurrence of state authorities and knowledge of the EPA) despite the fact that Potlatch never caused any of the Site's environmental problems. Moreover, it is clear from the data presented in the EE/CA that most of the contamination on Potlatch's property has likely migrated onto the property from properties to the north and east of Potlatch's property due to the well documented movement of ground water and the location of petroleum storage and fueling tanks on other portions of the Site. *See also* Specific Comments B.1 and B.3, *supra*.

C. The data presented in the EE/CA shows pretty clearly that the only real risk at the Site is that petroleum products (which are not CERCLA hazardous substances) are seeping into the St. Joe River in contravention of the Clean Water Act. The application of CERCLA to this Site, however, substantially increases disposal costs and potentially expands the scope of Potlatch's liability at the site. For example, the EE/CA concludes that waste disposal must comply with CERCLA's off-site disposal rule. Since the waste streams at the Site are non-CERCLA wastes, it is not clear why CERCLA's off-site rule would apply. It would have been helpful for the EE/CA to compare the costs of disposal of the waste stream if the CERCLA off-site rule did not apply. This is a significant issue because a large percentage of the $8 plus million recommended cleanup alternative involves the hauling of large volumes of impacted soils and other materials for long distances to ensure compliance with CERCLA's off-site rule. We believe that alternative disposal scenarios should be considered which could substantially reduce cleanup costs. *See also*, Technical Comment E, *supra*.

D. Related to General Comments A, B and C, EPA has proposed clean up the Avery Landing Site soils and groundwater to achieve a future residential use scenario. Potlatch does not believe it is reasonable to treat an isolated site that was operated as an industrial site for most of the 20th century and which is at least a mile from any full time residential structures as a likely future residential site. Had commercial and industrial cleanup standards been applied instead, the EE/CA would have concluded that any deminimus hazardous substances found at the Site are either natural background concentrations found in native soils in the area (for metals) or otherwise do not pose any risks at the Site and are therefore not COCs. Potlatch is disappointed that the EE/CA did not consider the application of institutional controls at the Site as a mechanism to ensure that future residences and ground water extraction does not occur. Institutional controls are a well recognized mechanism under Idaho and federal law to manage residual risks at a site. Had commercial and industrial cleanup standards been applied and an institutional control approach been utilized, Potlatch believes it is likely that EPA would have properly concluded that this is not a CERCLA site, thereby potentially resulting in substantially reduced cleanup costs at the Site.

E. As stated in the Technical Comments, it is clear from the EE/CA that the real driver for site cleanup is diesel fuel and Bunker C fuel (DRO/ heavy oils) and associated PAHs. However no clear cleanup levels are suggested for these constituents and therefore it is difficult to assess what the actual costs of the proposed cleanup will be or when the cleanup will be complete. The draft EE/CA does suggest a so called "LNAPL" or "free product" cleanup standard of .1 inch of petroleum on the water surface or the water table for ground water. This standard is derived from Idaho law, however the free product standard is modified under Idaho law to only require clean up to this standard to the "maximum extent practicable." Potlatch would suggest that a cleanup in which there is no documented or anticipated impact to human health or the environment that will likely cost in excess of $8 million far exceeds a "practicable" clean up.

F. We understand EPA's desire to address the minor seeping of petroleum into the St. Joe River. However, the draft EE/CA does not present any data or information that such minor seeping is causing any negative ecological or human health impacts. This is a significant issue for Potlatch, because in the end, it is on the basis of this minor seepage that the EE/CA recommends a removal action that is estimated to cost in excess of $8 million.

G. Potlatch also believes that other remedial alternatives that meet the RAO's should have been considered. A cut-off wall alternative was not evaluated and should have been included in the EE/CA to ensure that a representative range of effective alternatives were considered. Installation of a cut-off wall, LNAPL extraction, hot spot/source removal (e.g. free product removal, removal of source materials on the shoreline), and institutional controls can be used to remediate the Site at a lower cost. This alternative was considered by Potlatch in its draft EE/CA Report (Golder 2010a), and apparently rejected by the EPA in the current draft EE/CA so we expect that the EPA will be reluctant to amend the EE/CA to consider the alternative. However, at the very least, we believe the EPA should consider alternative disposal scenarios on and off-site which would substantially reduce the costs of the cleanup. *See also*, Technical Comment E, *supra* on soil reuse options.

Thank you again for considering these comments. We look forward to working with EPA to implement a cost effective and equitable cleanup at the site.

Very truly yours,

Lorrie D. Scott
Vice President, General Counsel
& Corporate Secretary

(b) (4), (b) (5)