PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

Investco/Looney Site
1147 Dock Street
Tacoma, Washington

October 6, 2005

Prepared for:

Mr. William Looney

Submitted to:

JS Jones & Associates
35316 28th Avenue South
Federal Way, Washington 98003

Prepared by:

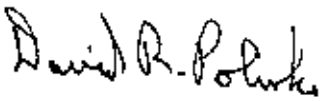
V Environmental LLC
PO Box 18612
Spokane, Washington 99228-0612

Prepared by:



Verna Lee Teller, MSES
Principal Project Scientist

Reviewed by:



David R. Polivka P.G./P.H.G.
Environmental Services Manager

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EXECUTIVE SUMMARY

V Environmental LLC completed a Phase Two Environmental Site Assessment (ESA) of the subject property, also referred to as Investco/Looney, located at 1147 Dock Street in Tacoma, Washington in general accordance with ASTM 1903-97, *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, and guidelines established by the Washington State Department of Ecology (Ecology). The Phase Two ESA effort consisted of drilling eight boreholes; collecting and analyzing soil and groundwater samples suspected to be contaminated with diesel-range and gasoline-range petroleum hydrocarbons, gasoline components benzene, toluene, ethylbenzene and xylenes, polychlorinated biphenyls, polycyclic aromatic hydrocarbons, semi-volatile compounds, and selected metals; evaluation of analytical data; and preparation of this report.

Based on information developed during this Phase Two ESA, it appears that the concentration of mercury exceeds the Model Toxic Cleanup Act Method A Soil Cleanup Levels for both unrestricted and industrial properties in two locations on the Site.

This Executive Summary is presented solely for introductory purposes and the information contained in this section should be used only in conjunction with the full text of this report. A complete description of the project, Site conditions, scope of work, investigative methods, and findings are contained in the following sections of this report.

1.0 INTRODUCTION

V Environmental LLC (VE) completed a Phase Two Environmental Site Assessment (ESA) of the subject property, also referred to as the Investco/Looney, located at 1147 Dock Street in Tacoma, Washington. This Phase Two ESA was completed in general accordance with ASTM 1903-97, *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, and guidelines established by the Washington State Department of Ecology (Ecology). This report presents the results of the Phase Two ESA work completed in September, 2005.

The location of the subject property (herein referred to as "Site") is shown in Figure 1 – *Site Location Map*. The investigation consisted of subsurface exploration using direct push drilling technology. Borehole locations are shown in Figure 2 – *Site Plan with Borehole Locations*.

1.1 BACKGROUND

Based on materials supplied by JS Jones, a review of the files at Ecology, discussion with Ms. Joyce Mercuri at Ecology, review of historical aerial photographs, and historical city directories, it appears that the facility operated as a steam heat generating plant from 1923 until 1980. Prior to 1923, the Site was used as a building supply warehouse. The heating plant burned mill tailings/sawdust from local woodworking mills until 1965 when it began using Bunker C oil. All structures on the Site were demolished in 1980, and land use has been primarily parking since the 1980s.

During an area-wide investigation in 1993, Ecology discovered a man-made fill material placed along the bank of the subject Site and collected soil samples of the fill material. Laboratory analytical results of the samples indicated the presence of mercury in concentrations greater than Sediment Quality Objectives (SQO). Based on the laboratory analytical results, Ecology determined the Site to be a source of mercury to the Thea Foss Waterway.

V Environmental reviewed historical aerial photographs at Walker & Associates in Seattle, Washington. In the 1946 and 1969 aerial photographs, approximately half of the property (north side) of the Site appeared to be covered with a building. A small area on the south side of the building appeared to include a dock for access to the City Waterway. In the 1969 aerial photograph, the structures on the water had been removed but the buildings remained. In the 1992 aerial photograph, the buildings and docks had been removed from the Site, which appeared to be covered with low-growing grasses and weeds.

No documentation concerning the operating procedures or locations of any materials were located during the limited historical investigation.

1.2 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

Three previous subsurface investigations have been conducted at the Site: underground storage tank (UST) removal (Hart Crowser), limited subsurface investigation of the soils along the top of the bank (JS Jones), and a bank remediation project (Ecology). The information below was collected from files held at Ecology. Copies of the reports are presented in Appendix A.

1992 UST REMOVAL AND CLOSURE

According to the UST Removal and Closure Assessment (Hart Crowser 1992), approximately 120 cubic yards of soil and two 35,000-gallon Bunker C Oil USTs were

removed from the Site. Laboratory analysis of the soil samples collected from the excavation indicated concentrations of Total Petroleum Hydrocarbon (TPH) and carcinogenic polyaromatic hydrocarbons (cPAHs) above the 1992 Model Toxics Control Act (MTCA) Method A soil clean up standards in effect at the time. Groundwater was encountered at 11 feet below ground surface (bgs).

Additional excavation was completed in December 1992 to remove soils with TPH concentrations greater than 200 milligrams per kilogram (mg/kg), which was the clean up standard at that time. Soils below groundwater were "dredged" until they appeared visibly clean. Approximately 50 cubic yards of soil was excavated at this time. Groundwater samples were collected and submitted for laboratory analysis for TPH using EPA Method 418.1. Laboratory analytical results included in the 1992 report indicated a clean closure of the USTs for both soil and groundwater was achieved.

1996 LIMITED SUBSURFACE INVESTIGATION

JS Jones & Associates excavated five test pits in 1996, two on the north shoreline fill and three near the edge of the bank. Soil samples were collected and submitted for laboratory analysis. Composite laboratory analytical results for the soils collected from the north shoreline indicated the presence of PAHs, TPH, and mercury in Site soils but the concentrations were below SQOs. Soil samples from the test pits in the shoreline fill area were submitted for composite analyses for copper, zinc, PAHs, TPH, mercury, cadmium and lead. Mercury was identified in concentrations greater than SQOs. Copper, zinc and PAHs were identified as present in the soil but at very low concentrations and TPH, cadmium and lead were not detected.

1998 CLOSURE REPORT DOCK STREET BANK REMEDIATION PROJECT

According to the Closure Report for the Dock Street Bank Interim Action (Ecology 1998), Site shoreline fill/soils contained TPH, mercury, lead and zinc in concentrations greater than Commencement Bay SQOs. This interim remedial action consisted of removal and disposal of contaminated fill material from along the subject Site's northern 120 feet of shoreline. An existing dock and pier were also removed during the remedial action. According to Ecology's report, a total of 1026.20 tons of petroleum- and mercury-contaminated soils was transported offsite for disposal.

Laboratory analytical results of confirmation samples collected from the bottom and south sidewall of the excavation indicated that the sediments contained mercury ranging from 0.35 ppm to 29 ppm. One sample slightly exceeded SQO for zinc (460 ppm). Two samples contained low molecular weight PAH (LPAH0 and high molecular weight PAH (HPAH) in concentrations above the SQO (8340 ppb LPAH compared to 5200 ppb; and 41,045 ppm HPAH compared to 17,000 HPAH). Ecology's conclusion suggested that the presence of PAHs in the sediments was likely the result of the removal of treated wood pilings and was not indicative of PAH contamination in the remaining sediments" (*Interim Action Cleanup Report*, pg 11

Ecology subjected the sediments containing the highest concentration of mercury to a leach test to determine whether the sediments remaining below the geotextile fabric wand rip-rap would leach contaminants to the Thea Foss Waterway. The leachate sample did not contain mercury at a detection limit of 2 ppb, which is below the marine acute water quality standard for mercury.

Subsequent post cleanup samples were collected and submitted for laboratory analysis for mercury and semi-volatile organic chemicals. Mercury was not detected at a detection limit of 0.2 ppm and no semi-volatile organics were detected at detection limits.

1.3 PROJECT OBJECTIVES

The objectives of this Phase Two ESA are to understand the subsurface conditions at the Site to facilitate property transactions.

1.4 SCOPE OF WORK

The scope of work for this investigation was developed through discussions with Mr. Jeff Jones, representing the current owner, Ms. Joyce Mercuri (Ecology), and background information. Work on the project included the general following tasks:

- Drill eight (8) boreholes using a Geoprobe drilling unit;
- Collect and submit soil and groundwater samples for laboratory analysis for diesel-range and gasoline-range petroleum hydrocarbons, BTEX, PCBs, PAHs, semi-volatile compounds and RCRA 8 metals;
- Incorporate previous environmental investigation data into a more detailed Site map;
- Document observations in field notes and borehole logs; and
- Prepare this report.

A detailed description of VE field procedures is presented In Appendix B, Standard Project Methods and Practices.

2.0 SITE CHARACTERISTICS

At the time of VE's field effort, the subject Site was vacant. Previous Site buildings were razed and the construction debris removed from the Site in 1980. Portions of the building footprint and a concrete slab near the middle of the shoreline are currently present on Site.

2.1 TOPOGRAPHY

The Site includes an upland area, which is mostly level, and a steep 15-foot embankment that adjoins the west side of the Thea Foss Waterway, also known as the City Waterway. The City of Tacoma is located on the west bluff above the Site. Upland Site elevation is approximately 11 feet above mean sea level. The Thea Foss Waterway is one of five waterways in the Tacoma Tideflats, which comprises the Puyallup River delta. High bluffs enclose the Tideflats on the west and east sides.

2.2 SURFACE HYDROLOGY

Surface water is inferred to flow in generally westerly direction toward the Thea Foss Waterway.

2.3 GEOLOGY AND GROUNDWATER HYDROLOGY

The subject Site and surrounding area comprise steep bluffs overlooking Commencement Bay which were glacially modified during the Vashon Stade of the last episode of continental glaciation

approximately 13,500 years ago. Review of geologic maps (Schuster 2002) indicates that the Site is underlain by Vashon Till, which consists of a dense heterogeneous mixture of silt, sand, and gravel. The till is typically characterized by relatively low vertical hydraulic conductivity, which frequently results in the formation of a "perched" water table, and can in some cases serve to attenuate the downward migration of contaminants.

3.0 INVESTIGATION METHODS AND OBSERVATIONS

This section provides a summary of project field methods and observations made during the subsurface investigation of the Site. Additional detail on general project methodologies is provided in Appendix B.

3.1 SOIL BORING AND SAMPLING

On September 12, 2005, eight boreholes (B-1 through B-8) were advanced by a Washington State licensed driller, ESN, using a direct push drilling unit. The boreholes were drilled in accessible locations in the vicinity of the removed UST, near the corners and center of the Site, and along the edge of the bank overlooking the Thea Foss Waterway. The locations were chosen based on historic site activities and to provide overall Site soil conditions.

A licensed hydrogeologist was present on the Site to direct drilling and sampling, and to visually classify soils in accordance with the Unified Soil Classification System (USCS). All boreholes were logged and soil cores assessed for chemical odors and staining. Observations, along with other relevant geologic and hydrologic conditions encountered during drilling, were recorded on borehole logs, copies of which are presented in Appendix C.

Soil samples collected from sleeves at four foot intervals were placed in laboratory-prepared glass jars labeled with borehole number, sample interval, time, date, VE project number, and required analyses. Filled sample containers were placed immediately in a chilled ice chest and stored there until delivered to the project laboratory.

3.2 GROUNDWATER SAMPLING

With the exception of boring B-8, groundwater samples were collected from the direct-push borings by advancing the sampling probe to the desired depth. The probe was advanced into the water-bearing formation, and the sampling ports on the probe opened. The sample was collected using a peristaltic pump. Each boring was purged a minimum of three borehole volumes of water to minimize the effects of the drilling. The sample containers were then filled from the discharge of the peristaltic pump. Each sample was labeled with a unique alphanumeric sample number.

The samples were collected in a particular order to assure that the samples most likely to change rapidly when exposed to the atmosphere were collected first. The order for collecting samples was as follows:

1. Volatile Organic compounds (VOCs)
2. NWTPH-G
3. NWTPH-Dx
4. Metals

At boring B-8, a sample was obtained because the probe did not encounter water due to refusal at 8 feet bgs on what appeared to be concrete.

3.3 LABORATORY ANALYSIS

Selected soil samples were submitted under chain-of-custody protocol to Libby Environmental in Olympia, Washington, for chemical analysis. A total of 23 soil and seven groundwater samples were selected for analysis for diesel-range petroleum hydrocarbons, gasoline-range petroleum hydrocarbons, BTEX, PAHs, PCBs, semi-volatile compounds and RCRA 8 metals. Not all samples were analyzed for all constituents. The analyses on each sample were determined based on historic site activities. A copy of the chain-of-custody form and laboratory-prepared analytical reports are provided in Appendix D. Results are discussed in terms of Model Toxics Control Act (MTCA) cleanup levels in Section 4.2 of this report.

4.0 INVESTIGATION OBSERVATIONS AND RESULTS

4.1 FIELD OBSERVATIONS

Borehole logs are presented in Appendix C. The study area is surfaced with gravel and concrete. Pea gravel was used to backfill the former UST excavation area. Subsurface soils did not appear to be native. According to Hart-Crowser (July 2000) the area between South 15th Street and South 11th Street was filled with dredge material around the turn of the century. The soils were dark brown, fine to medium sand with shell fragments infrequently intermixed with embedded lenses of silt.

4.2 ANALYTICAL RESULTS

Analytical results are summarized in Table 1 and 2. A copy of the laboratory report is presented in Appendix D.

Previous environmental investigations suggested that potential significant impact to Site soils and groundwater would be in the vicinity of the former UST and Site building and along the bank above the Thea Foss shoreline. Boring locations were selected based on previous environmental investigations as well as to provide an overall Site soil condition. To conform to Ecology regulations for properties located on the Thea Foss, laboratory analyses for soil and groundwater were based on Table 830-1 in the Model Toxics Control Act Cleanup Regulation Chapter 173-340 WAC amended February 12, 2001 and included selected metals. Laboratory analytes for each boring were selected both on boring location as well as characterizing Site soils and groundwater.

4.3 FINDINGS

Soils at approximately 7 feet bgs in Boreholes B-4 and B-8 contained mercury in concentrations slightly greater than MTCA Method A Soil Cleanup levels (2.9 mg/kg and 2.1 mg/kg respectively) (Table 1). These borings are located on the northeast corner of the Site near the edge of the bank leading down to the Thea Foss Waterway. Samples from borings B-1, B-5 and B-7 detected mercury below the MTCA Method A cleanup standards. Lead below MTCA cleanup levels was detected in the soil samples from boring B-1, B-3, B-4, B-5, B-6, B-7 and B-8. In groundwater, lead was detected in all samples from the site. Concentrations greater than MTCA Method A Groundwater Cleanup levels were identified at Boring B-2, which is in the southwest quadrant of the Site. Chromium below the MTCA cleanup levels was detected in the soil sample from boring B-7 at 11 feet bgs. Chromium was also found in the groundwater below MTCA cleanup levels in the groundwater of borings B-1, B-2, B-4, and B-5. No other analytes were identified as present in the soil or groundwater samples from the Site during this investigation.

5.0 CONCLUSIONS

Based upon the information developed during this investigation, it appears that soils containing mercury in concentrations greater than the MTCA Method A Soil Cleanup levels are present in two locations in the northeast corner of the study area at a depth of approximately 7 feet bgs. No other analytes were identified in the soil in concentrations greater than MTCA Method A Soil Cleanup levels.

Groundwater was sampled at seven of the eight boring locations. Drilling at Boring 8 met refusal at a depth of approximately 7 feet bgs and groundwater was not sampled. Lead was identified in groundwater in concentrations greater than MTCA Method A Groundwater Cleanup levels in Boring 2, which is located in the southwest quadrant of the Site.

Further investigation may be warranted if greater confidence is required regarding the current condition of soil on the subject property. Decision-making authority with regard to further environmental investigations is the sole decision of Mr. William Looney and is dependent on Mr. Looney's risk tolerance.

6.0 STANDARD LIMITATIONS

The findings and conclusions documented in this report have been prepared for the specific application to this project and have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. A potential always remains for the presence of unknown, unidentified, or unforeseen subsurface contamination on portions of the property not sampled, such as under the building. No warranty, expressed or implied, is made. This report is for the exclusive use of Mr. William Looney and his representatives.

If new information is developed in future Site work (which may include excavations, additional borings, or other studies), VE should be contracted to reevaluate the interpretations in this report, and to provide amendments as required.

7.0 REFERENCES

Ecology, March 30, 1998. *Interim Action Cleanup Report*.

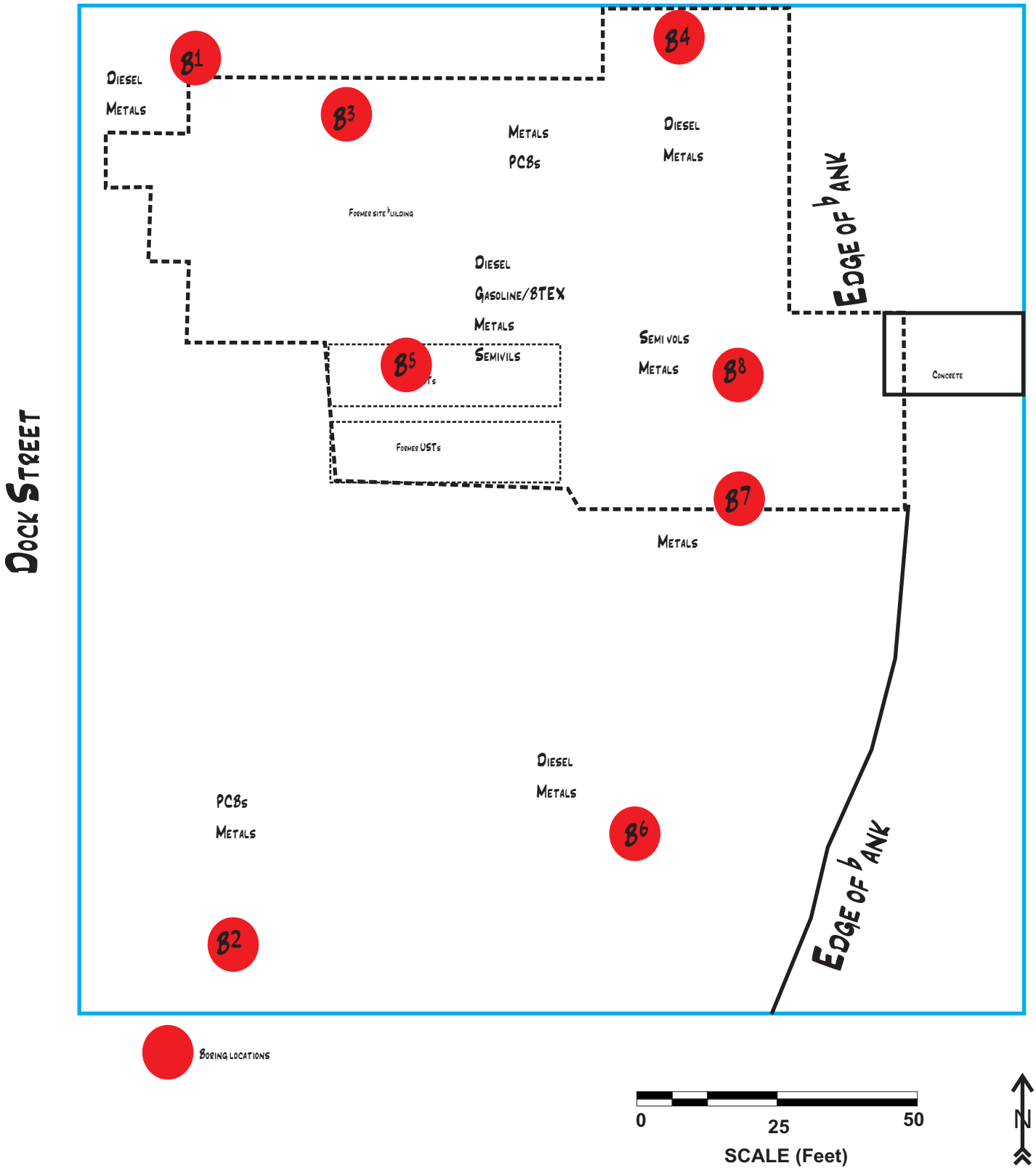
HartCrowser, May 4, 1993. Bunker C Oil Underground Storage Tank Removal and Closure Assessment.



VE Project Number: 213-1
Drawn by: Verna Lee Teller

1147 Dock Street
Tacoma, Washington

FIGURE 1
SITE LOCATION MAP
V ENVIRONMENTAL, LLC



VE Project Number: 213-1 Drawn by: Verna Lee Teller	**1147 Dock Street** **Tacoma, Washington**	**FIGURE 2** **SAMPLE LOCATION MAP** V Environmental, LLC

Table 1. Investco/Looney
Laboratory Analytical Results for Soil

	Cleanup Levels	B-1-4	B-1-7	B-1-11	B-2-4	B-2-7	B-2-11	B-3-4	B-3-7	B-3-11	B-3-11DUP	B-4-4	B-4-7	B-4-11	B-5-4	B-5-7.5	B-5-11	B-6-4	B-6-7	B-6-12	B-7-4	B-7-7	B-7-11	B-8-4	B-8-7	B-8-7DUP
Metals (mg/kg)																										
Lead	250	20	40	9.1	<1.0	<1.0	<1.0	2.2	<1.0	<1.0	<1.0	6.9	2	1.9	<1.0	16	<1.0	63	1.7	<1.0	9.3	<1.0	1.6	11	1.2	1.1
Chromium		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	1.5	<2.0	<2.0	<2.0
Cadmium		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Barium		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Selenium		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury	2	<0.4	1.8	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	**2.9**	<0.4	<0.4	0.4	0.5	<0.4	<0.4	<0.4	1.4	<0.4	<0.4	<0.4	**2.1**	**2.1**
TPH (mg/kg)																										
Benzene															<0.02	<0.02	<0.02									
Toluene															<0.05	<0.05	<0.05									
Ethylbenzene															<0.05	<0.05	<0.05									
Xylenes															<0.05	<0.05	<0.05									
Gasoline															<10	<10	<10									
Diesel		<20	<20	<20								<20	<20	<20	<20	<20	<20	<20	<20	<20						
PAHs (mg/kg)																										
Napthalene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
acenaphtylene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
acenaphthene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Fluorene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Phenanthrene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Antrhacene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Fluoranthene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Pyrene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Benzo(a)anthracene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Chrysens		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Benzo(b)fluoranthene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Benzo(a)pyrene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Indeno(1,2,3-cd)pyrene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Dibenzo(a,h)anthracene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Benzo(ghi)perylene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
PCBs (mg/kg)		na	na	na	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	na	na	na	na	na	na	na	na	na	na	<0.20	<0.20	<0.20	na	na	na

V Environmental LLC
PO Box 18612
Spokane, Washington 99228

Table 2. Investco/Looney
Laboratory Analytical Results for Groundwater

	Cleanup Levels	B-1	B-2	B-3	B-4	B-5	B-7	B-7	B-7DUP	B-8
Metals (µg/L)										
Lead	15	8	**24**	6	12	9	2	2	2	A groundwater sample could not be collected from this boring.
Chromium	50	10	20	<0.1	30	40	<0.1	<0.1	<0.1	
Cadmium		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Barium		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Silver		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Arsenic		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Selenium		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Mercury		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
TPH (µg/L)										
Benzene						<1.0				
Toluene						<1.0				
Ethylbenzene						<1.0				
Xylenes						<1.0				
Gasoline						<100				
Diesel		<200				<200	<200			
PAHs (µg/L)										
Napthalene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
acenaphtylene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
acenaphthene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Fluorene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Phenanthrene		na	na	<0.1	<0.1	<0.1	<0.1	na	na	na
Antrhacene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Fluoranthene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Pyrene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Benzo(a)anthracene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Chrysens		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Benzo(b)fluoranthene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Benzo(a)pyrene		na	na	<0.1	<0.1	<0.1	<0.1	na	na	na
Indeno(1,2,3-cd)pyrene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Dibenzo(a,h)anthracene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Benzo(ghi)perylene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na

APPENDIX A

Hart Crowser UST Closure and Assessment Report
Ecology's Interim Action Cleanup Report

(These reports are available upon request from the Department of Ecology by contacting Joyce Mercuri at (360) 407-6260 or jmer461@ecy.wa.gov.)

APPENDIX B

STANDARD PROJECT METHODS AND PRACTICES

B.1 HEALTH AND SAFETY PLAN

As part of the investigation, VE prepared a project-specific Health and Safety Plan (HASP) in accordance with Chapter 296-62 of the Washington Administrative Code (WAC) and 29 CFR 1910.120 (Code of Federal Regulations). The HASP identified potential physical and chemical hazards associated with the investigation, and specified requirements regarding personal protection and safety monitoring protocols. On-Site VE personnel involved with the field activities were required to be familiar with and comply with provisions stipulated in the HASP. Subcontractors on the Site were required to have their own HASP identifying potential physical and chemical hazards associated with their own work practices.

B.2 UTILITY LOCATES

Before implementing the drilling program, the public underground utilities alert service was notified of drilling activities. The service contacted appropriate agencies and/or companies with underground utilities in the area. These agencies then marked the location of their utilities along the rights-of-way and property easements.

B.3 DRILLING AND MONITORING WELL INSTALLATION

Boreholes and monitoring well installations were completed by ESN, of Olympia, Washington. Drilling procedures were as follows:

- Boreholes were completed using a Geoprobe direct push drill rig.
- Tools were cleaned before beginning each boring by following the decontamination procedures described in Section B.5.
- During drilling, soil cores were collected using a decontaminated, stainless steel sampler lined with clear plastic sleeves. At each interval, the sampler was driven 24 to 48 inches using hydraulic pressure.
- Soil characteristics including texture, color, hardness, and moisture content were recorded on boring logs. Soils were classified using the Unified Soil Classification System (USCS). The depths of any changes in lithologies and first encountered groundwater were also noted on the boring logs.
- Waste materials, including drill cuttings and decontamination water generated during the field program, were handled as described in Section B.5.

B.4 SAMPLE COLLECTION AND HANDLING PROCEDURES

B.4.1 Soil Samples

The sampler was opened longitudinally and the 24 and 48-inch plastic sample sleeves containing the undisturbed soil samples were extracted using decontaminated stainless steel sampling tools.

Soil was collected from selected areas throughout the 24 and 48 inch core run, and placed into laboratory-prepared 4 oz. glass sample jars. Each soil sample container was labeled as detailed in

Section B.6.4, and recorded on the Chain-of-Custody form (see Section B.6.3). All samples were placed immediately into a chilled cooler maintained at 4 degrees Centigrade or lower, where they were stored until delivered to the project laboratory.

All sampling equipment was decontaminated, as detailed in Section B.5.

B.4.2 Groundwater Samples

Groundwater samples were collected from the direct-push borings by advancing the sampling probe to the desired depth. The probe was advanced into the water-bearing formation, and the sampling ports on the probe opened. The sample was collected using a peristaltic pump. Each boring was purged a minimum of three borehole volumes of water to minimize the effects of the drilling. The sample containers were then filled from the discharge of the peristaltic pump. Each sample was labeled with a unique alphanumeric sample number.

The samples were collected in a particular order to assure that the samples most likely to change rapidly when exposed to the atmosphere were collected first. The order for collecting samples was as follows:

1. Volatile Organic compounds (VOCs)
2. NWTPH-G
3. NWTPH-Dx
4. Metals

B.5 EQUIPMENT DECONTAMINATION AND WASTE HANDLING

Field equipment decontamination procedures are intended to prevent cross-contamination from one boring to another and from one sample to another. Non-expendable boring and sampling equipment was thoroughly cleaned between each use. Equipment or materials that could not be completely decontaminated, such as sleeves and disposable tubing, were discarded and new materials used.

Before and after each use, all down-hole equipment (i.e., split-spoon sampler, water level indicator, bailer, etc.) was washed in an aqueous solution of cleanser, and then rinsed with distilled or de-ionized water.

All potentially dangerous wastes, including gloves, samplers, sleeves, and wash water were transported offsite for disposal by ESN.

B.6 FIELD DOCUMENTATION

Physical parameters were documented throughout the project. Documentation included field notebooks, boring logs, hydrologic data sheets, sampling field data sheets, Chain-of-Custody forms, and sample labels. Each of the forms of documentation is described in detail below.

B.6.1 Field Documentation

Field data recorded at the time of sample collection provides an unambiguous record of each sample. Recorded field data included the following, as appropriate:

- Date of entry;
- Purpose of sampling;

- Description of sample(s);
- Number and size of sample(s) taken;
- Description of sampling point(s);
- Date and time of sample collection;
- Sample identification number(s);
- References, such as maps or photographs of the Site; and
- Written notes of field observations.

Field notes were as descriptive and as inclusive as possible; allowing independent parties to reconstruct sampling particulars from the recorded information. Language was objective, factual, and free of inappropriate terminology. All field documentation was retained and filed by VE.

B.6.2 Boring Logs

A written log was compiled for each boring by the attending geologist as the boring was advanced. Each log includes descriptions of lithologies, textures, grain sizes, colors, hardness, moisture, and other properties noted in the field. Soil types were classified using the Unified Soil Classification System. If the boring was completed as a monitoring well, well construction details were included on the borehole log, and the approximate depth to groundwater was noted. At the completion of a drilling project, VE retained all original well log forms in the project file.

B.6.3 Chain-of-Custody Form

The Chain-of-Custody documents created whenever samples are collected, transferred, stored, analyzed, and destroyed are designed to create an accurate record of the possession and disposition of samples. Chain-of-Custody records can be used to trace the possession and handling of a sample from the moment of its collection through analysis and reporting of analytical values. On this project, VE's project scientist entered standard sample information on the project Chain-of-Custody form at the time each sample was collected.

The project Chain-of-Custody form included information regarding the Site name, sample identification numbers (assigned by the sampler in the field), sample date(s), sample location(s), and the type of analysis required. Whenever the sample(s) were transferred from one party to another, both parties signed the Chain-of-Custody form and recorded the date and time of the transfer. The Chain-of-Custody form accompanied the samples through all custodial entities until received by the project laboratory, where the form is filed.

B.6.4 Sample Labels

Sample labels were filled out and affixed to appropriate containers at the time of sample collection. Each label was completed with indelible ink and included information regarding the VE project number and name, sample ID number, sample location, date and time of collection, analyte, preservative(s), if any, and the sampler's initials.

B.7 ANALYTICAL LABORATORY TESTING PROGRAM

Samples intended for chemical analysis were submitted to Libby Environmental of Olympia, Washington under chain-of-custody protocol. All samples were contained, handled, and analyzed in accordance with accepted U.S. Environmental Protection Agency (EPA) and/or Washington State Department of Ecology protocols.

B.7.1 Laboratory Reporting

Results from laboratory analyses are reported on Laboratory Data Sheets. The summary sheets present information including the sample date, sample identification numbers, and results of analyses. The laboratory manager or supervisor signs the data sheets.

Prior to reporting the analytical data, the data was reviewed and verified by the project chemist. The purpose of this review was to verify the following:

- All blanks, duplicates, and matrix and surrogate spike recoveries were within the quality.
- Acceptance limits and all instrument calibrations were acceptable.
- All computations were performed correctly, and all sample results were correctly identified and reported. The analytical laboratory's project manager performs this review.

B.7.2 Laboratory Quality Assurance and Quality Control

The project laboratory was capable of performing analyses in accordance with Ecology regulations. In addition, the laboratory is accredited by Ecology for hazardous materials analysis. A copy of the laboratory's QA/QC manual and accreditation certificate are available for review upon request. Laboratory data quality was verified based on independent review by qualified VE personnel.

B.8 PROJECT REPORT QUALITY ASSURANCE

The quality of this report was assured through technical review of the report and other project deliverables by peers and VE principals. Individual sections of the report were reviewed by professionals with relevant technical expertise to ensure that data, technical issues, and regulatory interpretations are accurate and applicable.

APPENDIX C
Boring Logs

VE Project No.: 213-1	Borehole ID: B-1
Drilling Contractor: ESN	Location: 1147 Dock Street
Drilling Method / Rig: Geoprobe	Surface Elevation:
Driller: Todd	Date Started: 9/12/2005
Field Representative: Verna Lee Teller, David Polivka	Date Finished: 9/12/2005
Surface Conditions.	Page 1 of 8

DEPTH (feet)	Sample Recovery	Sample Interval	SAMPLE ID	PID (ppm)	Well Completion	USCS Symbol	USCS	SOIL/ROCK DESCRIPTION
1								Surface gravel w/ some fine Sand
2	2'		B-1-					gray medium Sand (moist)
3								some wood fragments
4								
5								
6			B-1					
7								
8								(moist)
9								
10			B-					
11								
12								-wet
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								

11 & abs 47° 15.105 N
122° 26.092 W

18

VE Project No.: 213-1	Borehole ID: B-2
Drilling Contractor: ESN	Location: 1147 Dock Street
Drilling Method / Rig: Geoprobe	Surface Elevation:
Driller: Todd Klein	Date Started: 9/12/2005
Field Representative: Verna Lee Teller, David Polivka	Date Finished: 9/12/2005
Surface Conditions:	Page 1 of 8

DEPTH (feet) | Sample Recovery | Sample Interval | SAMPLE ID | PID (ppm) | Well Completion | USCS Symbol | USCS

SOIL/ROCK DESCRIPTION

sandy gravel surface

B-2-4

0½ light brown, fine to med sand & gravels (dry - damp)

-4 dark brown med sand & some fine gravels & shell fragments (dry - damp) some laminated silt layers

B-2-8

dark, brown med sand & shell fragments (wet -

B-2-12

GW

½ silt layer - 11'7" soft / wet

¼ silt layer - 11'9" - soft / wet

½ sand layer

41° 15.079 N
122° 26.088 W

VF Project No.: 213-1	Borehole ID: B-3
Drilling Contractor: ESN	Location: 1147 Dock Street
Drilling Method / Rig: Geoprobe	Surface Elevation:
Driller: Todd	Date Started: 9/12/2005
Field Representative: Verna Lee Teller, David Polivka	Date Finished: 9/12/2005
Surface Conditions:	Page 1 of 8

B3

DEPTH (feet)	Sample Recovery	Sample Interval	SAMPLE ID	PID (ppm)	Well Completion	USCS Symbol	USCS
1							
2			B-3-4'				
3							
4							
5							
6			B-3-7				
7							
8							
9			B-3-11				
10							
11							
12							
13							
14					1" S.S. 10 Slot		
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

SOIL/ROCK DESCRIPTION

Surface gravel + concrete

Gray medium Sand (dry) (Loose)

6½-7 4" piece of concrete

gray medium sand wet @ 10½'

Boring Terminated at 12' well pushed To 13'

6' abs

47° 15.104 N
122° 26.080 W

VE Project No.: 213-1	Borehole ID: B-4
Drilling Contractor: ESN	Location: 1147 Dock Street
Drilling Method / Rig: Geoprobe	Surface Elevation:
Driller: Todd Klein	Date Started: 9/12/2005
Field Representative: Verna Lee Teller, David Polivka	Date Finished: 9/12/2005
Surface Conditions: gravel	Page 1 of 8

DEPTH (feet)	Sample Recovery	Sample Interval	SAMPLE ID	PID (ppm)	Well Completion	USCS Symbol	USCS	SOIL/ROCK DESCRIPTION
1								surface - gravel
2	1		B-4-4					surface brown sandy gravel reddish brown med sand } mixture brick fragments 3½ - dark brown med sand – moist
3								
4								
5								
6	2		B4-7					6' – med brown silty fine sand – ~~[illegible]~~ (moist to wet)
7								
8								light brown laminated sandy silt & mottling
9								
10	3		B-4-11					10.6" - dark brown med sand wet all 11 2" layer of cobbles at 11' 11.6' - very wet
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								

47° 15.107 N
122° 26.070 W

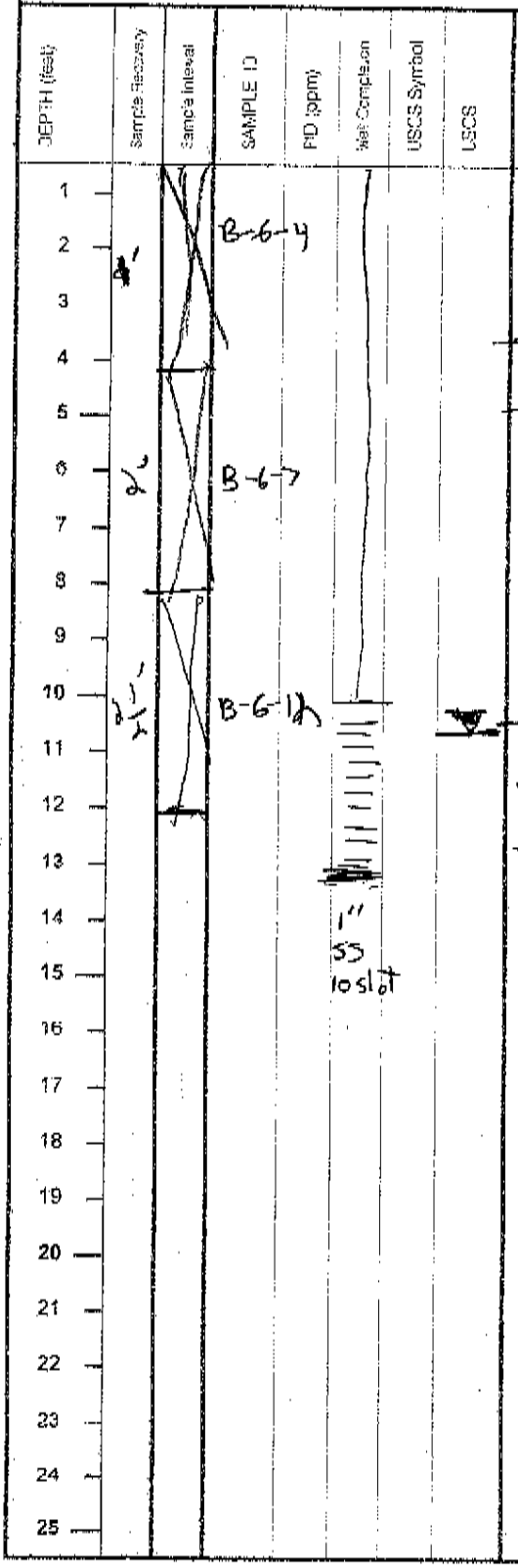
VE Project No.: 213-1	Borehole ID: B-5
Drilling Contractor: ESN	Location: 1147 Dock Street
Drilling Method / Rig: Geoprobe	Surface Elevation:
Driller: Todd	Date Started: 9/12/2005
Field Representative: Verna Lee Teller, David Polivka	Date Finished: 9/12/2005
Surface Conditions:	Page 1 of 8

appears to be middle of backfill area from former USTs

DEPTH (feet)	Sample Recovery	Sample Interval	SAMPLE ID	PID (ppm)	Well Completion	USCS Symbol	USCS	SOIL/ROCK DESCRIPTION
1	3							surface gravels + sand -
2			B-5-4					Brown Sandy gravel (dry) ~~Dense~~
3								
4								
5								
6	3'		B-5-7'					- dark brown med sand c pea gravel gravelly sand moist
7								
8								- med brown, med sandy gravel moist to wet
9								silty sand - dry - med brown
10	4'		B-5-					- ~~dark brown medium sand c pea gravel gravelly sand (moist)~~
11								11½ - wet - sandy c silt some med brown
12								- ~~dark brown sandy gravel moist to wet~~
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								

47° 15.097 N
122° 26.081 W

VE Project No.: 213-1	Borehole ID: B-6
Drilling Contractor: ESN	Location: 1147 Dock Street
Drilling Method / Rig: Geoprobe	Surface Elevation:
Driller: Todd KLEIN	Date Started: 9/12/2005
Field Representative: Verna Lee Teller, David Polivka	Date Finished: 9/12/2005
Surface Conditions:	Page 1 of 8



SOIL/ROCK DESCRIPTION

Gravel/Surface w/ grass

Lt Brown gravelly silty fine Sand (dry) (Loose)

gray Brown fine Sandy silt (dry) (Loose)

dark gray Black medium Sand w/ shell fragments (moist) (Loose)

wet @ 10½'

11.7' a ½" layer Brown clayey silt (wet) (Soft)

Boring Terminated at 12' Screen Pushed to 13'

47° 15.088 N
122° 26.075 W

VE Project No.: 213-1	Borehole ID: B-7
Drilling Contractor: ESN	Location: 1147 Dock Street
Drilling Method / Rig: Geoprobe	Surface Elevation:
Driller: Todd	Date Started: 9/12/2005
Field Representative: Verna Lee Teller, David Polivka	Date Finished: 9/12/2005
Surface Conditions:	Page 1 of 8

DEPTH (feet)	Sample Recovery	Sample Interval	SAMPLE ID	PID (ppm)	Well Completion	USCS Symbol	USCS	SOIL/ROCK DESCRIPTION
1								Surface - grass/blackberry vines over gravel - weath
2								some weather Brick
3	2		B-7-4					3' Brown gravelly med Sand To
4								Dark gray med Sand w/shell fragments moist
5								some laminated thin silt layers
6	2		B-7-7					3.7' 1" Thick Lt Brown silt layer w/ iron staining
7								
8								more moist
9								
10	2		B-7-11					
11								11½ - very wet
12								
13								
14					1"			water sampled @
15					SS			
16					10			
17					Slot			
18								
19								
20								
21								
22								
23								
24								
25								

47° 15.093N
122° 26.069W

21

VE Project No.: 213-1	Borehole ID: B-8
Drilling Contractor: ESN	Location: 1147 Dock Street
Drilling Method / Rig: Geoprobe	Surface Elevation:
Driller: Todd	Date Started: 9/12/2005
Field Representative: Verna Lee Teller, David Polivka	Date Finished: 9/12/2005
Surface Conditions:	Page 1 of 8

DEPTH (feet)	Sample Recovery	Sample Interval	SAMPLE ID	PID (ppm)	Well Completion	USCS Symbol	USCS	SOIL/ROCK DESCRIPTION
1								Surface cobble / concrete foundation
2								
3			B-8					
4								3½ feet some iron staining
5								– dark brown med. sand & shell fragments (moist)
6			B-8					
7								
8								
9								8' ± refusal Possibly concrete No water
10			B-8					
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								

47° 15,102 N
122° 24,061 W

APPENDIX D
Laboratory Reports

LIBBY ENVIRONMENTAL CHEMISTRY LABORATORY

INVESTCO/LOONEY PROJECT
Tacoma, Washington
VENVIRONMENTAL
Client Project #213-1
Libby Project No.L050912-1

Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8021B) in Soil

Sample Number	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline (mg/kg)	Surrogate Recovery (%)
Method Blank	9/16/05	nd	nd	nd	nd	nd	94
LCS	9/16/05	112%	105%				86
B5-4	9/16/05	nd	nd	nd	nd	nd	87
B5-7.5	9/16/05	nd	nd	nd	nd	nd	87
B5-11	9/16/05	nd	nd	nd	nd	nd	87
B5-11 Dup	9/16/05	nd	nd	nd	nd	nd	86
Practical Quantitation Limi		0.02	0.05	0.05	0.05	10	

"nd" Indicates not detected at the listed detection limits
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Trifluorotoluene). 65% TO 135%

ANALYSES PERFORMED BY Sherry Chilcutt

LIBBY ENVIRONMENTAL CHEMISTRY LABORATORY

INVESTCO/LOONEY PROJECT
Tacoma, Washington
VENVIRONMENTAL
Client Project #213-1
Libby Project No.L050912-1

Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Mineral Oil (mg/kg)	Oil (mg/kg)
Method Blank	9/20/2005	118	nd	nd	nd
B1-4	9/20/2005	132	nd	nd	nd
B1-7	9/20/2005	134	nd	nd	nd
B1-11	9/20/2005	78	nd	nd	nd
B4-4	9/20/2005	78	nd	nd	nd
B4-7	9/20/2005	70	nd	nd	nd
B4-11	9/20/2005	85	nd	nd	nd
B5-4	9/20/2005	72	nd	nd	nd
B5-7.5	9/20/2005	75	nd	nd	nd
B5-11	9/20/2005	74	nd	nd	nd
B6-4	9/20/2005	82	nd	nd	nd
B6-7	9/20/2005	68	nd	nd	nd
B6-12	9/20/2005	93	nd	nd	nd
B6-12 Dup	9/20/2005	68	nd	nd	nd
Practical Quantitation Limit			20	40	40

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

LIBBY ENVIRONMENTAL CHEMISTRY LABORATORY

INVESTCO/LOONEY PROJECT
Tacoma, Washington
VENVIRONMENTAL
Client Project #213-1
Libby Project No.L050912-1

Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (ug/l)	Mineral Oil (ug/l)	Oil (ug/l)
Method Blank	9/20/05	93	nd	nd	nd
B1	9/20/05	91	nd	nd	nd
B1 Dup	9/20/05	88	nd	nd	nd
B5	9/20/05	105	nd	nd	nd
B6	9/20/05	92	nd	nd	nd
Practical Quantitation Limit			200	400	400

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

LIBBY ENVIRONMENTAL CHEMISTRY LABORATORY

INVESTCO/LOONEY PROJECT
Tacoma, Washington
VENVIRONMENTAL
Client Project #213-1
Libby Project No.L050912-1

Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8021B) in Water

Sample Number	Date Analyzed	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	Gasoline (ug/l)	Surrogate Recovery (%)
Method Blank	9/16/05	nd	nd	nd	nd	nd	94
LCS	9/16/05	112%	105%				86
B-5	9/16/05	nd	nd	nd	nd	nd	101
B-5 Dup	9/16/05	nd	nd	nd	nd	nd	88
B-5 MS	9/16/05	104%	95%				80
Practical Quantitation Limit		1	1	1	1	100	

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Trifluorotoluene): 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

Advanced Analytical Laboratory
(425) 497-0110, fax (425) 497-8089

AAL Job Number: A50913-2
Client: Libby Environmental
Client Project Name: Investco/Looney
Client Project Number: na
Date received: 09/13/05

Analytical Results

Metals (7010), mg/kg		MTH BLK	LCS	B-1-4	B-1-7	B-1-11	B-2-4	B-2-7
Matrix	Soil	Soil	%	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Date analyzed	Limits	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Lead (Pb)	1.0	nd	104%	20	40	9.1	nd	nd
Chromium (Cr)	2.0	nd	102%	nd	nd	nd	nd	nd
Cadmium (Cd)	1.0	nd	96%	nd	nd	nd	nd	nd
Barium (Ba)	10	nd	90%	nd	nd	nd	nd	nd
Silver (Ag)	1.0	nd	102%	nd	nd	nd	nd	nd
Arsenic (As)	2.0	nd	105%	nd	nd	nd	nd	nd
Selenium (Se)	10	nd	95%	nd	nd	nd	nd	nd
Mercury (Hg) (7470A)	0.4	nd	102%	nd	1.8	nd	nd	nd

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 497-0110, fax (425) 497-8099

AAL Job Number:	A50913-2
Client:	Libby Environmental
Client Project Name:	Investco/Looney
Client Project Number	na
Date received	09/13/05

Analytical Results

Metals (7010), mg/kg		MTH BLK	B-2-11	B-3-4	B-3-7	B-3-11	B-3-11 Dup!	B-4-4
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Date analyzed	Limits	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Lead (Pb)	1.0	nd	nd	2.2	nd	nd	nd	6.9
Chromium (Cr)	2.0	nd	nd	nd	nd	nd	nd	nd
Cadmium (Cd)	1.0	nd	nd	nd	nd	nd	nd	nd
Barium (Ba)	10	nd	nd	nd	nd	nd	nd	nd
Silver (Ag)	1.0	nd	nd	nd	nd	nd	nd	nd
Arsenic (As)	2.0	nd	nd	nd	nd	nd	nd	nd
Selenium (Se)	10	nd	nd	nd	nd	nd	nd	nd
Mercury (Hg) (7470A)	0.4	nd	nd	nd	nd	nd	nd	nd

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 497-0110, fax (425) 497-8089

AAL Job Number:	A50913-2
Client:	Libby Environmental
Client Project Name:	Investco/Looney
Client Project Number	na
Date received:	09/13/05

Analytical Results

Metals (7010), mg/kg		MTH BLK	B-4-7	B-4-11	B-5-4	B-5-7.5	B-5-11	B-6-4
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Date analyzed	Limits	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Lead (Pb)	1.0	nd	2.0	1.9	nd	16	nd	63
Chromium (Cr)	2.0	nd	nd	nd	nd	nd	nd	nd
Cadmium (Cd)	1.0	nd	nd	nd	nd	nd	nd	nd
Barium (Ba)	10	nd	nd	nd	nd	nd	nd	nd
Silver (Ag)	1.0	nd	nd	nd	nd	nd	nd	nd
Arsenic (As)	2.0	nd	nd	nd	nd	nd	nd	nd
Selenium (Se)	10	nd	nd	nd	nd	nd	nd	nd
Mercury (Hg) (7470A)	0.4	nd	2.9	nd	nd	0.4	0.5	nd

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 497-0110, fax (425) 497-8089

AAL Job Number:	AS0913-2
Client:	Libby Environmental
Client Project Name:	Investco/Looney
Client Project Number	na
Date received	09/13/05

Analytical Results

Metals (7010), mg/kg		MTH BLK	B-6-7	B-6-12	B-7-4	B-7-7	B-7-11	B-8-4
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Date analyzed	Limits	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Lead (Pb)	1.0	nd	1.7	nd	9.3	nd	1.6	11
Chromium (Cr)	2.0	nd	nd	nd	nd	nd	1.5	nd
Cadmium (Cd)	1.0	nd	nd	nd	nd	nd	nd	nd
Barium (Ba)	10	nd	nd	nd	nd	nd	nd	nd
Silver (Ag)	1.0	nd	nd	nd	nd	nd	nd	nd
Arsenic (As)	2.0	nd	nd	nd	nd	nd	nd	nd
Selenium (Se)	10	nd	nd	nd	nd	nd	nd	nd
Mercury (Hg) (7470A)	0.4	nd	nd	nd	1.4	nd	nd	nd

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 497-0110, fax (425) 497-8089

AAL Job Number:	A50913-2
Client:	Libby Environmental
Client Project Name:	Investco/Looney
Client Project Number:	na
Date received	09/13/05

Analytical Results

Metals (7010), mg/kg		MTH BLK	B-8-7	Dupl B-8-7	RPD
Matrix	Soil	Soil	Soil	Soil	%
Date extracted	Reporting	09/15/05	09/15/05	09/15/05	09/15/05
Date analyzed	Limits	09/15/05	09/15/05	09/15/05	09/15/05
Lead (Pb)	1.0	nd	1.2	1.1	9%
Chromium (Cr)	2.0	nd	nd	nd	
Cadmium (Cd)	1.0	nd	nd	nd	
Barium (Ba)	10	nd	nd	nd	
Silver (Ag)	1.0	nd	nd	nd	
Arsenic (As)	2.0	nd	nd	nd	
Selenium (Se)	10	nd	nd	nd	
Mercury (Hg) (7470A)	0.4	nd	2.1	2.1	0%

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 497-0110, fax (425) 497-8089

AAL Job Number: A50913-2
Client: Libby Environmental
Client Project Name: Investco/Looney
Client Project Number: na
Date received: 09/13/05

Analytical Results

Metals (7010), mg/l		MTH BLK	LCS	B-1	B-2	B-3	B-4	B-5
Matrix	Water	Water	Water	Water	Water	Water	Water	Water
Date extracted	Reporting	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Date analyzed	Limits	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Lead (Pb)	0.002	nd	104%	0.008	0.024	0.006	0.012	0.009
Chromium (Cr)	0.01	nd	102%	0.01	0.02	nd	0.03	0.04
Cadmium (Cd)	0.005	nd	96%	nd	nd	nd	nd	nd
Barium (Ba)	0.05	nd	90%	nd	nd	nd	nd	nd
Silver (Ag)	0.01	nd	102%	nd	nd	nd	nd	nd
Arsenic (As)	0.005	nd	105%	nd	nd	nd	nd	nd
Selenium (Se)	0.05	nd	95%	nd	nd	nd	nd	nd
Mercury (Hg) (7470A)	0.0005	nd	100%	nd	nd	nd	nd	nd

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
J - estimated value
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 497-0110, fax (425) 497-8089

AAL Job Number: A50913-2
Client: Libby Environmental
Client Project Name: Investco/Looney
Client Project Number: na
Date received: 09/13/05

Analytical Results

Metals (7010), mg/l		MTH BLK	B-6	B-7	Dupl B-7
Matrix	Water	Water	Water	Water	Water
Date extracted	Reporting	09/15/05	09/15/05	09/15/05	09/15/05
Date analyzed	Limits	09/15/05	09/15/05	09/15/05	09/15/05
Lead (Pb)	0.002	nd	0.002	0.002	0.002
Chromium (Cr)	0.01	nd	nd	nd	nd
Cadmium (Cd)	0.005	nd	nd	nd	nd
Barium (Ba)	0.05	nd	nd	nd	nd
Silver (Ag)	0.01	nd	nd	nd	nd
Arsenic (As)	0.005	nd	nd	nd	nd
Selenium (Se)	0.05	nd	nd	nd	nd
Mercury (Hg) (7470A)	0.0005	nd	nd	nd	nd

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
J - estimated value
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 497-0110, fax (425) 497-8089

AAL Job Number:	A50913-2
Client	Libby Environmental
Client Project Name:	Investco/Looney
Client Project Number:	na
Date received	09/13/05

Analytical Results

PAH(8270), mg/kg		MTH BLK	LCS	B-3-4	B-3-7	B-3-11	B-5-4	B-5-7.5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Date analyzed	Limits	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Naphthalene	0.10	nd		nd	nd	nd	nd	nd
Acenaphthylene	0.10	nd		nd	nd	nd	nd	nd
Acenaphthene	0.10	nd	101%	nd	nd	nd	nd	nd
Fluorene	0.10	nd		nd	nd	nd	nd	nd
Phenanthrene	0.10	nd		nd	nd	nd	nd	nd
Anthracene	0.10	nd		nd	nd	nd	nd	nd
Fluoranthene	0.10	nd	92%	nd	nd	nd	nd	nd
Pyrene	0.10	nd		nd	nd	nd	nd	nd
Benzo(a)anthracene	0.10	nd		nd	nd	nd	nd	nd
Chrysene	0.10	nd		nd	nd	nd	nd	nd
Benzo(b)fluoranthene	0.10	nd		nd	nd	nd	nd	nd
Benzo(k)fluoranthene	0.10	nd		nd	nd	nd	nd	nd
Benzo(a)pyrene	0.10	nd	70%	nd	nd	nd	nd	nd
Indeno(1,2,3-cd)pyrene	0.10	nd		nd	nd	nd	nd	nd
Dibenzo(a,h)anthracene	0.10	nd		nd	nd	nd	nd	nd
Benzo(ghi)perylene	0.10	nd		nd	nd	nd	nd	nd
Surrogate recoveries								
2-Fluorobiphenyl		113%	92%	82%	74%	97%	79%	75%
4-Terphenyl-d14		88%	97%	104%	87%	86%	88%	102%

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 497-0110, fax (425) 497-8089

AAL Job Number:	A50913-2
Client:	Libby Environmental
Client Project Name:	Investco/Looney
Client Project Number:	na
Date received:	09/13/05

Analytical Results

PAH(8270), mg/kg		MTH BLK	B-5-11	B-8-4	B-8-7	MS B-8-7	MSD B-8-7	RPD B-8-7
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Date analyzed	Limits	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Naphthalene	0.10	nd	nd	nd	nd			
Acenaphthylene	0.10	nd	nd	nd	nd			
Acenaphthene	0.10	nd	nd	nd	nd	114%	108%	5%
Fluorene	0.10	nd	nd	nd	nd			
Phenanthrene	0.10	nd	nd	nd	nd			
Anthracene	0.10	nd	nd	nd	nd			
Fluoranthene	0.10	nd	nd	nd	nd	100%	96%	4%
Pyrene	0.10	nd	nd	nd	nd			
Benzo(a)anthracene	0.10	nd	nd	nd	nd			
Chrysene	0.10	nd	nd	nd	nd			
Benzo(b)fluoranthene	0.10	nd	nd	nd	nd			
Benzo(k)fluoranthene	0.10	nd	nd	nd	nd			
Benzo(a)pyrene	0.10	nd	nd	nd	nd	80%	80%	0%
Indeno(1,2,3-cd)pyrene	0.10	nd	nd	nd	nd			
Dibenzo(a,h)anthracene	0.10	nd	nd	nd	nd			
Benzo(ghi)perylene	0.10	nd	nd	nd	nd			
Surrogate recoveries								
2-Fluorobiphenyl		113%	96%	79%	94%	96%	107%	
4-Terphenyl-d14		88%	117%	95%	105%	113%	103%	

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 497-0110, fax (425) 497-8089

AAL Job Number: AS0913-2
Client: Libby Environmental
Client Project Name: Investco/Looney
Client Project Number: na
Date received: 09/13/05

Analytical Results

PAH(8270), ug/L		MTH BLK	LCS	B-3	B-4	B-5	B-5 Dupl
Matrix	Water	Water	Water	Water	Water	Water	Water
Date extracted	Reporting	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Date analyzed	Limits	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Naphthalene	1.0	nd		nd	nd	nd	nd
Acenaphthylene	1.0	nd		nd	nd	nd	nd
Acenaphthene	1.0	nd	84%	nd	nd	nd	nd
Fluorene	1.0	nd		nd	nd	nd	nd
Phenanthrene	0.1	nd		nd	nd	nd	nd
Anthracene	1.0	nd		nd	nd	nd	nd
Fluoranthene	1.0	nd	76%	nd	nd	nd	nd
Pyrene	1.0	nd		nd	nd	nd	nd
Benzo(a)anthracene	1.0	nd		nd	nd	nd	nd
Chrysene	1.0	nd		nd	nd	nd	nd
Benzo(b)fluoranthene	1.0	nd		nd	nd	nd	nd
Benzo(k)fluoranthene	1.0	nd		nd	nd	nd	nd
Benzo(a)pyrene(*)	0.1	nd	72%	nd	nd	nd	nd
Indeno(1,2,3-cd)pyrene	1.0	nd		nd	nd	nd	nd
Dibenzo(ah)anthracene	1.0	nd		nd	nd	nd	nd
Benzo(ghi)perylene	1.0	nd		nd	nd	nd	nd
*-instrument detection limits							
Surrogate recoveries:							
Fluorobiphenyl		94%	77%	116%	107%	109%	107%
o-Terphenyl		87%	91%	81%	82%	80%	81%

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 497-0110, fax (425) 497-8089

AAL Job Number:	A50913-2
Client	Libby Environmental
Client Project Name:	Investco/Looney
Client Project Number:	na
Date received	09/13/05

Analytical Results

8082(PCBs), mg/kg		MTH BLK	LCS	B-2-4	B-2-7	B-2-11	B-3-4	B-3-7
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Date analyzed	Limits	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
A1221	0.20	nd		nd	nd	nd	nd	nd
A1232	0.20	nd		nd	nd	nd	nd	nd
A1242 (A1016)	0.20	nd		nd	nd	nd	nd	nd
A1248	0.20	nd		nd	nd	nd	nd	nd
A1254	0.20	nd		nd	nd	nd	nd	nd
A1260	0.20	nd	117%	nd	nd	nd	nd	nd
Surrogate recoveries:								
Tetrachloro-m-xylene		124%	92%	129%	124%	129%	128%	128%
Decachlorobiphenyl		75%	128%	75%	73%	83%	72%	73%

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 497-0110, fax (425) 497-8089

AAL Job Number:	A50913-2
Client:	Libby Environmental
Client Project Name:	Investco:Looney
Client Project Number:	na
Date received:	09/13/05

Analytical Results

8082(PCBs), mg/kg		MTH BLK	B-3-11	B-7-4	B-7-7	B-7-11	B-7-11	B-7-11
							MS	MSD
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
Date analyzed	Limits	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05	09/15/05
A1221	0.20	nd	nd	nd	nd	nd		
A1232	0.20	nd	nd	nd	nd	nd		
A1242 (A1016)	0.20	nd	nd	nd	nd	nd		
A1248	0.20	nd	nd	nd	nd	nd		
A1254	0.20	nd	nd	nd	nd	nd		
A1260	0.20	nd	nd	nd	nd	nd	123%	91%
Surrogate recoveries:								
Tetrachloro-m-xylene		124%	129%	127%	128%	126%	107%	77%
Decachlorobiphenyl		75%	73%	81%	73%	70%	116%	130%

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 497-0110, fax (425) 497-8089

AAL Job Number:	A50913-2
Client:	Libby Environmental
Client Project Name:	Investco/Looney
Client Project Number:	na
Date received:	09/13/05

Analytical Results			RPD
8082(PCBs), mg/kg		MTH BLK	B-7-11
Matrix	Soil	Soil	Soil
Date extracted	Reporting	09/15/05	09/15/05
Date analyzed	Limits	09/15/05	09/15/05
A1221	0.20	nd	
A1232	0.20	nd	
A1242 (A1016)	0.20	nd	
A1248	0.20	nd	
A1254	0.20	nd	
A1260	0.20	nd	29%
Surrogate recoveries:			
Tetrachloro-m-xylene		124%	
Decachlorobiphenyl		75%	

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%