

Remedial Investigation Report

Mossman Residence
3461 East Lake Sammamish Shore Lane NE
Sammamish, Washington

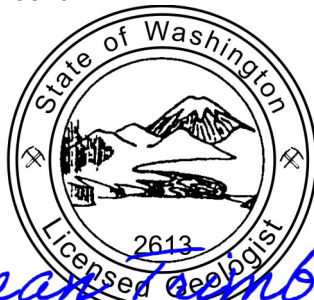
Prepared For:

Mr. Michael Mossman
3461 East Lake Sammamish Shore Lane NE
Sammamish, Washington

June 28, 2021

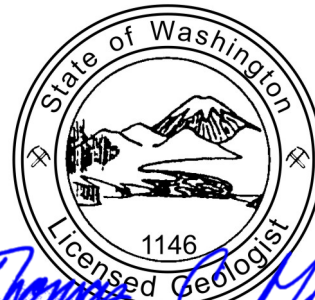
Prepared By:

TRC Environmental Corporation
1180 NW Maple Street, Suite 310
Issaquah, Washington 98027
(425) 395-0010



Sean Trimble

SEAN P. TRIMBLE



Thomas C. Morin

THOMAS C. MORIN

Prepared by:
Sean Trimble, P.G., L.G.
Senior Geologist

Reviewed and approved by:
Thomas C. Morin, L.G.
Principal Geologist / PNW Area Leader

TRC Project Number: 015364.0008

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ABBREVIATIONS AND ACRONYMS

Abbreviation/

Acronym

Definition

AES	Associated Earth Sciences
AMSL	Above mean sea level
bgs	Below ground surface
COC	Compound of concern
COPC	Compound of potential concern
CSL	Cleanup Screening Level
CSM	Conceptual site model
CUL	Cleanup level
DPT	Direct-push technology
DRO	Diesel-range organics
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
EPI	Environmental Partners, Inc.
KCHC	King County Health Code
LNAPL	Light non-aqueous phase liquid
µg/L	Micrograms per liter
µg/m ³	Micrograms per cubic meter
mg/kg	Milligrams per kilogram
MTCA	Model Toxics Control Act
NGVD	National Geodetic Vertical Datum
NVE	No value established
NWTPH-Dx	Northwest Total Petroleum Hydrocarbons as diesel
ORO	Heavy oil-range organics
RI	Remedial Investigation
SCO	Sediment Cleanup Objective
SIM	Selective ion monitoring
TRC	TRC Environmental Corporation
UST	Underground storage tank
VOCs	Volatile organic compounds
WAC	Washington Administrative Code

1.0 INTRODUCTION

TRC Environmental Corporation (TRC)¹, is pleased to submit this Remedial Investigation Report (RI Report) for the Mossman Residence located at 3461 East Lake Sammamish Shore Lane NE in Sammamish, Washington (subject property). Mr. Mike Mossman currently owns the subject property. The location of the subject property is presented on Figure 1.

This RI Report was requested by Mr. Mossman in support of his ongoing efforts to address contamination that existed at the subject property prior to his purchase and to comply with the assessment and cleanup requirements of the Model Toxics Control Act (70.105D) and its implementing regulations (Washington Administrative Code [WAC] 173-340; collectively referred to in this report as "MTCA").

1.1 Site Description

The Site consists of those areas where hazardous substances have come to be located through historical releases on the subject property. The Site includes portions of the subject property and may extend onto the adjacent northern property.

The subject property consists of one parcel identified in the property records of King County as Tax Parcel Number 192506-9042. The subject property consists of 0.154 acres and is zoned as residential (R4). The subject property has been improved with a single-family home located on the eastern shore of Lake Sammamish near Weber Point (Figure 1). The house was built as a slab-on-grade construction in approximately 1949. A heating oil underground storage tank (UST) was formerly located on the north side of the house. The subject property was historically served by a septic system. The exact location of the former septic leach field is not known but is presumed to be on the west side of the house.

Impacts associated with the Site appear to extend (see below) onto the adjacent property to the north. That property is identified as King County Parcel No. 1925069062 and is listed as being owned by Mr. and Mrs. Michael V. Rainwater. That adjacent property is also improved with a single-family home.

The subject property is generally bounded by single family residences to the north, east and south, and by Lake Sammamish to the west-southwest. The subject property is generally flat but slopes sharply to the southwest along the waterline. The Site details are shown on Figure 2.

1.2 Subject Property History

Mr. Mossman purchased the subject property in August 2012 and converted the home heating source to natural gas in October 2012. The heating oil tank was never filled by Mr. Mossman, and Mr. Mossman never operated the heating-oil-fueled heating system.

¹ Environmental Partners, Inc. (EPI) performed some of the prior work described in this report. TRC acquired EPI on December 27, 2019. For the purposes of this report, EPI and TRC may be used synonymously.

Mr. Mossman indicated that he first became aware of impacts when his dog entered the house with apparent oil on its paws after playing at the lakeshore. Mr. Mossman inspected the lakeshore and observed an oily sheen on the water near his boat dock, located approximately 60 feet west of the UST. Mr. Mossman then used a hand shovel to dig small pits and along the lakeshore north of his dock. Mr. Mossman observed sheen on the water that accumulated in the bottom of the small pits.

Mr. Mossman reported his observations to the Spill Response Division of the Washington State Department of Ecology (Ecology). On November 28, 2012, during a Site visit to confirm the report, Ecology provided absorbent booms to contain the sheen to the dock area. During an initial Site visit on December 4, 2012 to evaluate the release, EPI personnel also observed an oily sheen on groundwater in the remaining test pit excavated by Mr. Mossman and noted a strong petroleum odor.

Based upon the observed conditions the heating oil UST was determined to be the most likely source for the observed impacts. Mr. Mossman hired Filco to remove the UST. The UST removal and site investigation activities are described in Section 2.0, below.

2.0 SITE INVESTIGATION ACTIVITIES

Mr. Mossman retained EPI to conduct a UST Site Assessment and to evaluate subsurface conditions near the UST. Filco removed one 550-gallon heating oil UST from the north side of the home in a manner consistent with the requirements of MTCA and other applicable regulations. The UST was in poor condition with numerous holes near the bottom of the tank. As noted in EPI's *Underground Storage Tank Site Assessment Report*, dated February 4, 2013, the UST also appeared to be original to the home. EPI conducted soil and groundwater sampling following removal of the UST. Laboratory analyses of soil samples collected from the west, north, and south sidewalls, as well as from beneath the UST indicated the presence of diesel-range organics (DRO), at concentrations exceeding the MTCA Method A Soil Cleanup Level (CUL) of 2,000 milligrams per kilogram (mg/kg) for Unrestricted Land Uses. The groundwater sample collected from below the UST excavation also contained DRO at a concentration that exceeded the MTCA Method A Groundwater CUL of 500 micrograms per liter (µg/L). The *Underground Storage Tank Site Assessment Report* (included as Attachment A) provides a detailed discussion of the actions performed during the UST removal and the findings of those actions.

Following UST removal activities, EPI conducted a Phase II Environmental Site Assessment (ESA) that included several iterative rounds of investigation to further assess the lateral extent of soil and groundwater impacts at the Site. The results of the initial investigation activities were documented in EPI's report *Phase II Environmental Site Assessment*, dated July 1, 2013 (Attachment B).

Based on data gaps identified in the Phase II ESA, EPI performed additional assessment of the Site that included the following:

- Advancing and sampling seven additional soil borings;
- Installing four additional groundwater monitoring wells;
- Performing eight groundwater sampling events;

- Performing a vapor intrusion evaluation; and
- Collecting five freshwater sediment samples.

In May of 2020, G-Logics, Inc. (G-Logics), on behalf of one of the prior owners of the subject property, performed the following additional assessment activities:

- Advancing and sampling seven additional soil borings;
- Installing one additional groundwater monitoring well (MW-9); and
- Performing a sitewide a groundwater sampling event.

The methodology and results of the G-Logics assessment activities are documented in their *Additional Site Characterization* report dated June 29, 2020 (Attachment C).

2.1 Objectives

The general objective of any RI is to complete the characterization of a site to a point where the lateral and vertical extent of contamination is well understood and the current and potential exposure pathways are known to a level that allows for an evaluation of available remedial alternatives. That general objective has been achieved by the RI documented herein.

The specifics of the RI at the Site were to:

- Fully characterize the distribution of impacts originating from the removed, leaking UST;
- Develop a list of compounds of potential concern (COPCs) for the Site;
- Develop a conceptual site model (CSM) for the source, fate, transport, and potential exposure pathways of the COPCs;
- Identify and develop CULs for the COPCs;
- Identify the compounds of concern (COCs) for the Site; and
- Identify the COCs requiring remedial action to allow for the evaluation and selection of an appropriate remedy.

2.2 Methodology

In order to achieve the RI objectives, EPI collected soil, groundwater, sediment, and vapor samples from the Site. All media samples were collected in laboratory-provided containers, labeled, and placed in an iced cooler immediately after collection (where appropriate). All samples were submitted to the analytical laboratory under standard chain-of-custody procedures.

2.2.1 Drilling Methods

EPI monitored the completion of seven direct-push technology (DPT) soil borings (B-8 through B-14) and four DPT pre-pack groundwater monitoring wells (and MW-5 through MW-8) between November 2013 and February 2014. Prior to initiating work, EPI contracted with a utility locating service to identify the presence of locatable buried utilities at the Site. The soil borings were advanced to depths ranging from 6 to 12 feet below ground surface (bgs). The approximate boring locations are shown on Figure 2. Details of the soil sampling program are discussed in Section 2.2.2, and logs for the borings are presented in Attachment D.

Monitoring wells were constructed of ¾-inch diameter Schedule 40 polyvinyl chloride (PVC) with a 0.01-inch slot pre-packed well screen. The well screens were 5 feet in length and installed to intersect the unsaturated/saturated interface throughout the anticipated annual range of water table elevation. Each well was completed with a 4-inch steel monument at ground surface. An irrigation cover was placed over the steel monuments for aesthetic purposes.

2.2.2 Soil Sampling

EPI collected 19 DPT soil samples during the preliminary site assessment activities and 11 soil samples from the Site using DPT methods as part of the RI activities. Soil sampling equipment was decontaminated before each sampling attempt with a Liqui-Nox® solution wash and a distilled water rinse. Soil samples were obtained at 1- and 2-foot depth intervals for field screening. Soil samples obtained from the borings were collected from the sampler with a stainless steel knife and/or new gloves. The sampler was driven a maximum of 36 inches using a pneumatic hammer. A portion of each sample was placed in a laboratory-prepared sample jar for potential chemical analysis. The remaining portion of each sample was used for field screening. The sampling equipment was decontaminated prior to each use with a Liqui-Nox® soap solution, a tap water initial rinse, and a distilled water final rinse.

Field screening was performed on soil samples obtained from the borings using visual examination and headspace vapor screening with a photoionization detector (PID). Soil samples from each boring were selected for chemical analysis based on field screening results and/or the sample location relative to potential sources of contamination. The soil samples were placed in a cooler with ice for transport to the laboratory. Standard chain-of-custody procedures were followed in transporting the soil samples to the laboratory.

Selected soil samples obtained from the borings were submitted to the laboratory for chemical analysis of one or more of the following:

- Petroleum hydrocarbons by Northwest Total Petroleum Hydrocarbons as diesel (NWTPH-Dx) method; and
- Volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method 8260C.

G-Logics collected an additional 18 soil samples during their separate assessment activities. The approximate soil sample locations are shown on Figure 2.

2.2.3 Groundwater Sampling

Throughout the RI effort, EPI has collected 67 groundwater samples from the Site, including 15 reconnaissance groundwater samples and 52 samples from permanent monitoring wells. G-Logics collected an additional eight groundwater samples during their assessment work. EPI collected groundwater samples using low-flow sampling methods. New downhole polyethylene tubing and a peristaltic pump were used to obtain the water samples. Prior to sample collection, each monitoring well was purged until consistent values (i.e., less than 10 percent variance between consecutive readings) were obtained for pH, temperature, dissolved oxygen, and conductivity. The water samples were transferred to clean laboratory-prepared containers provided by the analytical laboratory. Chain-of-custody procedures were observed during transport of the samples to the testing laboratory.

Prior to groundwater sampling, a hydrocarbon interface probe was used to assess the potential presence of light non-aqueous phase liquid (LNAPL) in each of the wells and, if present, to measure the thickness of accumulated LNAPL. Groundwater samples were not collected from monitoring wells that contained measurable LNAPL or when an observable sheen was noted on extracted water prior to sampling. The presence of sheen or LNAPL are indications of saturation concentrations and the affirmative presence of elevated concentrations of COPCs.

Selected groundwater samples obtained from the wells were submitted for chemical analysis of one or more of the following:

- Petroleum hydrocarbons by NWTPH-Dx method;
- VOCs by EPA Method 8260C; and
- Naphthalene by EPA Method 8270 with selective ion monitoring (SIM).

The approximate groundwater sample locations are shown on Figure 2.

2.2.3.1 Product Recovery

LNAPL was identified in monitoring well MW-2 in February 2014. In response to the discovery of LNAPL, EPI implemented an Emergency Interim Action that included installation of three, 18-inch diameter recovery wells (RW-1 to RW-3) adjacent to monitoring well MW-2. The locations of the recovery wells are indicated on Figure 2. The Emergency Interim Action included weekly inspection and, if appropriate, product recovery from the impacted wells. LNAPL recovery was conducted using either disposable bailers or with a peristaltic pump and dedicated/disposable polyethylene tubing. In addition, sorbent socks were placed in the wells to aid in passive product recovery between inspection events.

Approximately 68.7 gallons of total fluids, including approximately 33 gallons of LNAPL, have been recovered from the Site as of April 8, 2021. Table 1 summarizes the result of periodic inspection of

monitoring wells MW-2, MW-6, and recovery wells RW-1 through RW-3 and the associated LNAPL removal volumes and locations. The LNAPL total does not include any additional volume of separate phase hydrocarbons that were recovered by the sorbent materials.

2.2.4 Soil Gas and Indoor Air Sampling

In November 2013, EPI conducted a vapor intrusion evaluation at the Site, which included collection of sub-slab soil gas samples and indoor air samples. The indoor air samples were collected with the objective of assessing potential residential exposures resulting from vapor intrusion. In addition, an outdoor air sample was collected with the objective of assessing local area background air quality.

Three sub-slab soil gas samples were collected from beneath the Mossman residence. Additionally, three indoor air samples were collected from inside the Mossman residence. One additional air sample was collected from the crawlspace beneath the north-adjacent Rainwater residence. One background/ambient air sample was also collected. Sample locations are depicted on Figure 2.

All samples were collected using 6-liter SUMMA canisters equipped with 8-hour vacuum relief regulators. The inlets for the indoor air sampling canisters were set at a height of approximately 5 feet above the floor to simulate the typical human breathing space.

All sub-slab and air samples were submitted for laboratory analysis using EPA Method TO-15.

2.2.5 Sediment Sampling

On September 15, 2015, EPI collected five sediment samples from Lake Sammamish adjacent to the western property boundary in the locations indicated on Figure 2. All samples were located outboard of the ordinary high water mark from the uppermost 10 centimeters (cm) of the lake sediments, as this interval is generally assumed to represent a reasonable estimate of the biologically active zone.

The sediment samples were collected in clean laboratory-prepared and supplied containers. Chain-of-custody procedures were observed during transport of the samples to the testing laboratory. The sediment samples were submitted to the laboratory for chemical analysis of the following:

- Petroleum hydrocarbons by NWTPH-Dx method; and
- Naphthalenes by EPA Method 8270 with SIM.

3.0 NATURAL CONDITIONS

3.1 Subsurface Soil

Subsurface conditions at the Site consist of poorly-graded to well-graded sand overlying a layer of sandy loam ranging from 1 to 3 feet in thickness. Underlying the sandy loam are alluvial deposits consisting of

well-graded sand with silt and gravel that extend to the terminal depth of exploration. A thin layer of apparent peaty material and fine-grained organic sediments was encountered in several exploration locations at depths ranging from 8 to 11 feet below grade.

According to the published geologic map of the Site vicinity, *Geologic Map of King County, Washington* by Derek B. Booth, Kathy A. Troost, and Aaron P. Wisler (2007), the expected soils underlying the Site consist of glacial and glaciofluvial sand, gravel, and till with some recent alluvium.

Associated Earth Sciences, Inc. (AES) conducted a geotechnical study of the subject property in October 2015. As part of their study, AES advanced two soil borings to a maximum depth of approximately 55 feet bgs. In the geotechnical report, AES documented subsurface conditions as a silt with fine to coarse sand and trace amounts of gravel within the upper 3 feet. This material was underlain by alluvial deposits consisting of sand with trace to small amounts of silt and fine to coarse gravel and cobbles to a depth of at least 55 feet. Figure 3 depicts interpretive geologic cross-sections of the Site. Soil boring logs are presented in Attachment D.

3.2 Groundwater

Groundwater was generally encountered at depths ranging from 1 to 7 feet bgs, with the depth depending upon the general surface elevation relative to the lake level. In portions of the Site east of the retaining wall, groundwater was encountered in monitoring wells at depths ranging from about 5 to 7 feet bgs. West of the retaining wall, groundwater was present at between 1 and 3 feet bgs.

EPI conducted a well log search for water production wells located within one-quarter mile of the Site using Ecology's well log search application. The results of the search indicated that no water production wells were present within the search radius. Given the lack of water production wells, and that municipal water is locally supplied by the City of Sammamish, groundwater in the vicinity of the Site is not a current source of drinking water.

Groundwater at the Site is part of the Lake Sammamish drainage basin and clearly discharges to the lake.

During groundwater sampling events the water level elevations are measured with an electronic probe accurate to 0.01 foot. Table 2 summarizes water level measurements collected to date during Site-wide sampling events. These data indicate that the local shallow groundwater consistently migrates to the southwest toward the lake with hydraulic gradients that range from 0.02 feet/foot (ft/ft) to 0.05 ft/ft. Figure 4 presents piezometric contours for May 19, 2020. Figure 5 presents groundwater conditions at the Site between March 2014 and January 2020.

3.3 Surface Water

The Site abuts Lake Sammamish, a freshwater lake located in King County, Washington. Lake Sammamish is the sixth largest lake in Washington State and the second largest in King County. The

lake has been designated a Water of Statewide Significance. According to data available from the United States Geologic Survey, the lake elevation varies seasonally by several feet. The average high lake level occurs in February, with the lake level averaging 27.39 feet above mean sea level (AMSL; National Geodetic Vertical Datum [NGVD] 29), while the average low lake level occurs in August with a published average of 25.89 feet AMSL (NGVD 29). In a topographic survey completed on October 5, 2015 by Triad Associates, the ordinary high water mark (OHWM) was surveyed at an elevation slightly less than 28 feet AMSL (NGVD 29).

4.0 ANALYTICAL RESULTS

Any analyte detected during performance of the RI is considered a COPC for the media in which it was detected. The following sections summarize the analytical results and COPCs for the Site.

4.1 Soil

A total of 30 soil samples were collected at the Site by EPI prior to 2015. G-Logics collected an additional 18 soil samples from the Site in 2020. The 48 soil samples were submitted for chemical analysis as described in Section 2.2.2. Analytical results are summarized in Table 3. Soil sample locations with corresponding analytical results are presented on Figure 6. Laboratory analytical reports are included in Attachment E.

DRO were identified in 27 of the soil samples at concentrations ranging from 49 mg/kg to 43,000 mg/kg. Oil-range organics (ORO) were identified in five of the soil samples at concentrations ranging from 174 mg/kg to 1,000 mg/kg.

Three soil samples were submitted for analysis of VOCs. Benzene, toluene, ethylbenzene, total xylenes, n-butylbenzene, sec-butylbenzene, n-propylbenzene, 4-isopropyltoluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and naphthalene were identified in one or more of the soil samples.

4.2 Groundwater

EPI collected 67 groundwater samples from the Site, including 15 reconnaissance groundwater samples and 52 samples from permanent monitoring wells. Those samples were collected between May 2013 and January 2020. G-Logics collected an additional eight groundwater samples during their assessment work in 2020. The groundwater samples were submitted for chemical analysis as described in Section 2.2.3. A summary of groundwater analytical results for petroleum hydrocarbons is provided in Table 4. Groundwater sample locations with corresponding analytical results are presented on Figure 7. Laboratory analytical reports are included in Attachment E.

DRO were identified in 11 of the 15 reconnaissance groundwater samples and in 44 of 60 groundwater samples collected from the permanent monitoring wells. The reported DRO concentrations collected from permanent monitoring wells ranged from 51.2 µg/L in the sample collected from monitoring well MW-6 to

29,800 µg/L in the sample collected from monitoring well MW-4. Monitoring well MW-2 has contained either LNAPL or sheen throughout the duration of the RI and has not been sampled. Wells that contained observable sheen during a sampling event were not sampled.

Two groundwater samples were submitted for analysis of VOCs. Ethylbenzene, total xylenes, n-butylbenzene, sec-butylbenzene, n-propylbenzene, 4-isopropyltoluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and naphthalene were identified in the groundwater sample collected from monitoring well MW-5. Naphthalene and 1,2,4-trimethylbenzene were also identified in the groundwater sample collected from monitoring well MW-6.

The reported naphthalene concentrations in samples collected from permanent monitoring wells ranged from 0.026 µg/L in the sample collected from monitoring well MW-4 to 9.66 µg/L in the sample collected from monitoring well MW-5.

As discussed in Section 2.2.3.1, LNAPL was identified in monitoring well MW-2 in February 2014. EPI enacted an Emergency Interim Action that included installation of three, 18-inch diameter recovery wells (RW-1 to RW-3) adjacent to monitoring well MW-2 and weekly product recovery from the impacted wells and placement of sorbent material in each location. The Emergency Interim Action also included the placement of sorbent booms at the lakeshore immediately downslope of the recovery wells and MW-2. Approximately 68.7 gallons of total fluids, including approximately 33 gallons of product, have been recovered from the Site as of April 8, 2021 as summarized in Table 1.

4.3 Soil Gas and Indoor Air

As described in Section 2.2.4, EPI collected three sub-slab soil gas samples, three indoor air samples, one crawlspace sample, and one ambient air sample at the Site. The air samples were submitted for laboratory analysis of VOCs and petroleum fractionation using EPA Method TO-15.

The following compounds were identified in one or more soil gas samples collected from the Site:

- Acetone – in three samples at concentrations ranging from 4.13 to 4.99 micrograms per cubic meter (µg/m³);
- Benzene – in one sample at 1.29 µg/m³;
- Carbon disulfide – in one sample at 0.92 µg/m³;
- Dichlorodifluoromethane – in three samples at concentrations ranging from 2.13 µg/m³ to 2.25 µg/m³;
- Naphthalene – in three samples at concentrations ranging from 2.59 µg/m³ to 5.73 µg/m³;
- 1,1,1-Trichloroethane – in one sample at 1.15 µg/m³; and
- Tetrachloroethylene (PCE) – in three samples at concentrations ranging from 2.75 µg/m³ to 3.67 µg/m³.

A summary of soil gas analytical results for VOCs is provided in Table 5.

The following compounds were identified in one or more air samples collected from the Site:

- Acetone – in three samples at concentrations ranging from 4.93 $\mu\text{g}/\text{m}^3$ to 6.24 $\mu\text{g}/\text{m}^3$;
- Benzene – in four samples at concentrations ranging from 0.842 $\mu\text{g}/\text{m}^3$ to 1.24 $\mu\text{g}/\text{m}^3$;
- Dichlorodifluoromethane – in four samples at concentrations ranging from 2.21 $\mu\text{g}/\text{m}^3$ to 3.26 $\mu\text{g}/\text{m}^3$;
- Hexane – in three samples at concentrations ranging from 0.773 $\mu\text{g}/\text{m}^3$ to 0.854 $\mu\text{g}/\text{m}^3$;
- Propylene – in three samples at concentrations ranging from 4.19 $\mu\text{g}/\text{m}^3$ to 5.04 $\mu\text{g}/\text{m}^3$;
- Toluene – in one sample at 1.15 $\mu\text{g}/\text{m}^3$; and
- m,p-Xylenes – in four samples at concentrations ranging from 1.98 $\mu\text{g}/\text{m}^3$ to 3.06 $\mu\text{g}/\text{m}^3$.

Acetone (3.54 $\mu\text{g}/\text{m}^3$), benzene (0.795 $\mu\text{g}/\text{m}^3$), dichlorodifluoromethane (2.27 $\mu\text{g}/\text{m}^3$), toluene (1.79 $\mu\text{g}/\text{m}^3$), and m,p-xylenes (0.897 $\mu\text{g}/\text{m}^3$) were also reported in the outdoor ambient air sample collected from the Site. Concentrations of compounds detected in the ambient air sample were subtracted from the indoor air samples to assess the potential contribution of those compounds through the vapor intrusion pathway.

A summary of air sample analytical results for VOCs, with both raw concentrations and concentrations adjusted for ambient concentrations, is provided in Table 5. Laboratory analytical reports are included in Attachment E.

4.4 Sediment

A total of five sediment samples were collected at the Site at the locations indicated on Figure 2. Each sample was submitted for chemical analysis as described in Section 2.2.5. No petroleum hydrocarbons or naphthalenes were identified in the sediment samples collected from the Site. A summary of the analytical results for sediments is provided in Table 6. Laboratory analytical reports are included in Attachment E.

5.0 CONCEPTUAL SITE MODEL

The following CSM is based on data collected during the RI and identifies potential human and ecologic exposure pathways. This CSM is based upon the current understanding of the Site as characterized by the RI activities. While some minor data gaps may remain, the RI tasks have served to adequately characterize the limits of impacts and the potential exposure pathways posed by those impacts. The CSM is presented on Figure 8 and is discussed below:

- The Site and surrounding land are zoned as Residential (R-4). The subject property consists of 0.154 acres of land.
- The vicinity of the Site is developed for single family residential uses. The majority of the Site and surrounding area is covered with dwellings, roads, driveways and other surface cover.

Uncovered landscaping areas are generally small and not contiguous with adjacent properties. Most properties are fenced to some extent.

- The western boundary of the Site abuts Lake Sammamish, a freshwater lake located in King County, Washington.
- Subsurface conditions at the Site consist of poorly-graded to well-graded sand overlying a layer of sandy loam ranging from 1 to 3 feet in thickness. Underlying the sandy loam are alluvial, fluvial, and lacustrine deposits consisting of well-graded sand with silt and gravel that extend to the terminal depth of exploration.
- The COPCs at the Site are those commonly associated with heating oil, which was historically released at the Site and is present in Site soil and groundwater. The petroleum impacts in soil and groundwater originate in the area of the former UST and extend downgradient toward the lake as a small and thin layer of LNAPL and dissolved-phase constituents in groundwater. The COPCs for the Site include VOCs, naphthalenes, and DRO.
- The petroleum release from the UST appears to have affected surface (0 to 2 feet bgs) and subsurface (greater than 2 feet bgs) soils, as well as groundwater at the Site, which is present within a few feet of the ground surface. Those impacts extend beneath the western portion of the on-property dwelling and may extend slightly onto the north adjacent property but do not extend beneath that dwelling.
- Potential exposures at the Site are summarized on the CSM (Figure 8). Completed human exposure pathways include dermal exposure to and ingestion of impacted soil and surface water. In addition, inhalation of affected indoor air is a completed exposure pathway.
- The subject property and surrounding properties are supplied with water by the municipal water system. There are no known drinking water wells in the area of the property, and groundwater extraction is not occurring for potable purposes. Therefore, there is no current exposure via ingestion of groundwater at the Site.
- Section 12.24.010(C) of the King County Health Code (KCHC) establishes minimum setback distances for installation of drinking water wells. The KCHC requires a minimum setback distance of 100 feet from, among other Site features, building sewers, railroad tracks, public power utilities or gas lines, building foundations, and public and private road easements. There are no areas within the vicinity of the Site that meet these restrictions on well installation. Based on the KCHC restriction on minimum setbacks, it would not be possible to install a drinking water well on any properties that are part of or adjacent to the Site. These code restrictions serve as an institutional control that eliminates the potential for current and future use of groundwater at the Site for drinking water.
- Due to the proximity of the Site to Lake Sammamish, the shallow water encountered in the soil borings and monitoring wells is likely in hydraulic connection with surface water in the

lake; therefore, the direct contact and ingestion pathways for surface water are considered complete. In addition, a hydrocarbon sheen has at times been observed on surface water adjacent to the Site. Sorbent booms placed on the lake routinely exhibited a petroleum odor and brown discoloring through August 2017. Sheen on the lake surface was last physically observed by TRC personnel in April 2014.

- Sediment samples were collected from Lake Sammamish adjacent to the western property boundary; however, no COPCs were identified in the samples. Therefore, there is no current exposure via sediment at the Site.
- Based on WAC 173-340-7491(c)(i), the Site qualifies for an exclusion from the terrestrial ecological evaluation (TEE) based on the absence of sufficient contiguous undeveloped land within 500 feet of the Site.
- Potential aquatic exposures include potential impacts to freshwater aquatic plants and organisms.
- The standard point of compliance for soil is 15 feet below grade for direct contact for human health and potential terrestrial exposures. For soil concentrations protective of groundwater and/or surface water, the standard point of compliance for soil includes the entire soil column throughout the Site. The point of compliance for the surface water CULs shall be the point or points at which hazardous substances are released to surface waters of the state.

6.0 CLEANUP LEVELS AND COMPOUNDS OF CONCERN

CULs were developed for each of the COPCs. CULs are established to ensure protectiveness of current and potential future exposure pathways as identified in the CSM. The CULs must be protective of human health and the environment based upon the exposure pathways that remain after completion of a selected remedial action and implementation of institutional or engineering controls (if any).

6.1 Soil

To evaluate soil CULs, the following exposure pathways identified in the CSM were considered:

- Dermal exposure via direct contact with soil; and
- Soil impacts leaching to groundwater.

Based on the absence of sediment impacts, TRC did not consider the soil-to-sediment pathway in developing soil CULs. Surface water and sediment CULs are discussed in Section 6.2 and Section 6.4, respectively. The soil CULs protective of the direct contact and groundwater protection pathways are the MTCA Method A soil CULs for unrestricted land uses (Method A soil CUL), and where a Method A soil CUL is not available, the Method B soil CUL for direct contact applicable to unrestricted land uses (Method B soil CUL). The Method B soil CULs were developed using the Ecology Cleanup Levels and Risk

Calculations workbook (CLARC; i.e., book values). The Method A and Method B soil CULs applicable to the COPCs at the Site are presented in Table 3. Based on the evaluation above, these soil cleanup levels are also protective of the soil-to-groundwater-to-surface water pathway.

There is not currently a surface water cleanup level for DRO. As noted in the CSM, groundwater is in hydraulic connection with surface water and impact to surface water must be considered when addressing the soil-to-groundwater leaching pathway. For the purposes of this RI report it has been assumed that the MTCA Method A groundwater cleanup level is an appropriate, relevant and applicable regulation for surface water. The DRO cleanup level for groundwater is 500 µg/L.

TRC has evaluated the protectiveness of the soil leaching-to-groundwater then discharging to surface water pathway for DRO. This pathway was evaluated using the Ecology-developed MTCATPH 11.0 spreadsheet populated with extractable petroleum hydrocarbons (EPH) and naphthalene data reported for the soil sample collected from boring MW-4 at a depth of 5 feet bgs. This sample had a total DRO concentration of 26,000 mg/kg. The results of the evaluation indicate that, for the petroleum mixture present at the Site, soil concentrations in excess of the residual saturation limit would not result in DRO concentrations in groundwater/surface water greater than 500 µg/L. The MTCATPH calculation worksheet is provided as Attachment F.

The compounds n-butylbenzene, sec-butylbenzene, n-propylbenzene, 4-isopropyltoluene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were not considered for this CUL evaluation either because there are no MTCA Method A or B CULs available, or they are regulated as components of DRO.

The selected CULs are protective of the exposure pathways documented in the CSM. The table below summarizes the soil CULs selected for each COPC.

Cleanup Levels for Soil (in mg/kg)

COPC	Cleanup Level	Basis
Diesel-Range Organics	2,000	MTCA Method A soil CUL for unrestricted land uses
Oil-Range Organics	2,000	MTCA Method A soil CUL for unrestricted land uses
Benzene	0.03	MTCA Method A soil CUL for unrestricted land uses
Toluene	7	MTCA Method A soil CUL for unrestricted land uses
Ethylbenzene	6	MTCA Method A soil CUL for unrestricted land uses
Total Xylenes	9	MTCA Method A soil CUL for unrestricted land uses
Naphthalene	5	MTCA Method A soil CUL for unrestricted land uses

6.2 Groundwater and Surface Water

The subject property and surrounding properties are supplied with water by the municipal water system. There are no known drinking water wells in the area of the subject property, and groundwater extraction

is not occurring for potable purposes. Therefore, there is no current exposure via ingestion of groundwater at the Site. Section 12.24.010(C) of the KCHC establishes minimum setback distances for installation of drinking water wells. The KCHC requires a minimum setback distance of 100 feet from, among other Site features, building sewers, railroad tracks, public power utilities or gas lines, building foundations, and public and private road easements. There are no areas within the vicinity of the Site that meet these restrictions on well installation. Based on the KCHC restriction on minimum setbacks, it would not be possible to install a drinking water well on any properties that are part of, or adjacent to, the Site. These code restrictions serve as an institutional control eliminating current and future exposure to Site groundwater via the ingestion pathway. Therefore, CULs for the following exposures defined in the CSM were considered:

- Inhalation of COCs in indoor air volatilizing from groundwater;
- Dermal exposure via direct contact with groundwater; and
- Groundwater discharging to surface water.

MTCA does not provide guidance on calculating CULs from the groundwater dermal contact pathway, so a CUL for this pathway could not be evaluated.

Because groundwater CULs must be protective of surface water, surface water CULs were also evaluated. The following criteria were evaluated to evaluate surface water CULs for the Site:

- MTCA Method B Surface Water Cleanup Levels – Human Ingestion;
- WAC 173-201A-240 Aquatic Life – Fresh Water;
- Clean Water Act §304 Aquatic Life – Fresh Water;
- National Toxics Rule – 40 CFR 131 Aquatic Life – Fresh Water;
- Clean Water Act §304 – Human Health – Ingestion; and
- National Toxics Rule 40 CFR 131 – Human Health – Ingestion.

The groundwater CULs protective of the exposure pathways described above are provided in the following table. When available, TRC selected final groundwater CULs for each COPC based on the most conservative (i.e., lowest) CUL. The selection of surface water CULs (where selected) reflects the groundwater-to-surface water exposure pathway. The final groundwater and surface water CULs are indicated in the shaded cells below.

Cleanup Levels for Groundwater (in µg/L)

COPC	Vapor Intrusion ARAR ^a	Surface Water ARAR
Diesel-Range Organics	NVE	500 ^b
Oil-Range Organics	NVE	NVE
Ethylbenzene	2,800	29 ^c
Total Xylenes	330	NVE
Naphthalene	8.9	4,900 ^d
1-Methylnaphthalene	NVE	NVE
2-Methylnaphthalene	NVE	NVE

Notes:

- a Cleanup Levels and Risk Calculations – August 2020, Groundwater Screening Levels for Vapor Intrusion
 - b MTCA Method A CUL
 - c 40 CFR 131.45 Human Health for Freshwater
 - d MTCA Method B Surface Water, non-carcinogenic
- Indicates selected Groundwater CUL.
- NVE No value established.

6.3 Indoor Air

Based on the exposure pathway identified for indoor air, CULs for indoor air were developed for each of the detected compounds. The presumed indoor air cleanup levels are the using MTCA Method B Indoor Air CUL. The standard MTCA Method B Indoor Air CULs are based on a residential exposure scenario that includes an exposure frequency of 1 (i.e., 24 hours/day, 365 days/year) and includes considerations for juvenile exposures.

Cleanup Levels for Indoor Air (in µg/m³)

COPC	Cleanup Level	Basis
Acetone	14,200	MTCA Method B CUL for Air
Benzene	0.32	MTCA Method B CUL for Air
Carbon Disulfide	320	MTCA Method B CUL for Air
Dichlorodifluoromethane	46	MTCA Method B CUL for Air
Hexane	320	MTCA Method B CUL for Air
Naphthalene	0.0735	MTCA Method B CUL for Air
Propylene	NVE	No air cleanup value has been established for this compound
Tetrachloroethylene (PCE)	9.62	MTCA Method B CUL for Air
Toluene	2,290	MTCA Method B CUL for Air
1,1,1-Trichloroethane	2,290	MTCA Method B CUL for Air
Total Xylenes	46	MTCA Method B CUL for Air

6.4 Sediment

As noted above no constituents were identified in sediment at the Site. However, impacted groundwater discharges to surface water and necessarily encounter sediments at the lakeshore. Sediment has the potential to be impacted and under the MTCA regulation it is necessary to develop appropriate CULs even if impacts have not been identified. Sediment CULs were developed for DRO and naphthalene using guidance provided in Ecology’s Sediment Management Standards (SMS) rule (WAC 173-204). Sediment Cleanup Objectives (SCOs) and Cleanup Screening Levels (CSLs) were established for each COPC. The SCOs were established based on evaluation of:

- Natural background concentrations as provided in WAC 173-204-560(3)(b) and -505(11);
- Practical quantitation limits for the COPCs; and
- Risk-based concentrations as detailed in WAC 173-204-560(3)(a).

Similarly, the CSLs were established based on evaluation of:

- Regional background concentrations as provided in WAC 173-204-560(4)(b) and -505(16);
- Practical quantitation limits for the COPCs; and
- Risk-based concentrations as detailed in WAC 173-204-560(4)(a).

CULs for each COPC for of these criteria are summarized in Table 7. Using the summary in Table 7, TRC selected final SCOs and CSLs for each COPC, which are based on the criteria established in WAC 173-204-560. The final sediment values are indicated below and are provided in Tables 6 and 7.

Freshwater Sediment Cleanup Objectives and Cleanup Screening Levels (in mg/kg Dry Weight)

COPC	SCO	CSL
DRO	340 ^a	510 ^a
Naphthalene	624 ^b	6,240 ^b

Notes:

- a Based on protection of freshwater benthic communities.
- b Based on a human health adult subsistence net fishing scenario.

7.0 IDENTIFICATION OF COCS AND DISTRIBUTION OF CONTAMINATION

COCs for the Site are defined as those compounds that exceed the selected CULs documented in Section 6.0. The following sections describe the COCs and their distribution at the Site.

7.1 Soil

Based on the reported sample analytical results and the evaluation of COPCs, the COCs identified in soil at the Site are DRO, benzene, total xylenes, and naphthalene.

DRO were identified at concentrations exceeding the MTCA Method A soil CUL of 2,000 mg/kg in 14 of the 48 soil samples collected from the Site. Concentrations exceeding the CUL ranged from 3,480 mg/kg in soil boring B-11 to 43,000 mg/kg at MW-2. The estimated extent of DRO impacts in soil is depicted on Figure 9.

Benzene (0.14 mg/kg), total xylenes (15.6 mg/kg), and naphthalene (7.2 mg/kg) were only detected at concentrations exceeding the CUL in the soil sample collected at MW-4.

7.2 Groundwater and Surface Water

The COCs identified for groundwater are DRO and naphthalene. As summarized above, there is not a current or potential future exposure pathway for groundwater for human ingestion; however, groundwater discharges directly to surface water with the potential for human and aquatic exposure. Therefore, the surface water CUL for DRO is used for groundwater. The CUL for naphthalene is based on protection of indoor air quality.

During the period of investigation of the Site, DRO has exceeded the selected CUL of 500 µg/L in 27 of 52 groundwater samples collected from permanent monitoring wells. Exceedances of the CUL ranged from 519 µg/L in the sample collected from monitoring well MW-1 to 29,800 µg/L in the sample collected from monitoring well MW-4, which is located in the source area. The current distribution of DRO impacts is indicated on Figure 10.

Groundwater quality sampling during 2020 suggests an improvement in groundwater quality since the earliest sampling events. During sitewide groundwater sampling in March 2014, samples from 3 of the 6 permanent monitoring wells exceeded the DRO CUL and the maximum detected concentration was 1,700 µg/L. During sitewide groundwater sampling in 2020, samples from 3 of the 7 on-site wells exceeded the CUL with a maximum concentration of 1,060 µg/L. The current concentration in the former source area is more than an order of magnitude less than the historical maximum concentration of 29,800 µg/L in November 2013. While routine quarterly sampling has not been performed at the Site, and it is not possible to assess trends and normal seasonal variations in concentration, the available data do suggest that removal of the source UST and natural processes may have contributed to an improvement in groundwater quality.

Naphthalene concentrations exceeded the selected CUL based on protection of the vapor intrusion pathway of 8.9 µg/L in 1 of the 40 samples submitted for this analysis. Naphthalene was reported at a concentration of 9.66 µg/L in the groundwater sample collected from monitoring well MW-5. It should be noted that no groundwater samples have been collected from monitoring well MW-2 due to the presence of LNAPL or sheen during each of the groundwater monitoring events.

No surface water samples have been collected from the Site. Lake Sammamish is used for recreational watercraft which can contribute to transient petroleum impacts and could lead to false positive results. As noted above, sorbent booms placed on the lake exhibited odor and brown discoloring through August 2017 and sheen was last physically observed at the Site by TRC personnel in April 2014. These observations suggest an improving trend in potential impacts to surface water.

TRC has compared Site groundwater concentrations to the surface water CULs developed for the Site because groundwater discharges to surface water. The reported groundwater concentrations exceed surface water CULs and groundwater discharges to surface water. It is therefore assumed that surface water has the potential to be impacted.

7.3 Indoor Air

Benzene was identified at concentrations exceeding the CUL in the three indoor air samples collected from the Mossman residence, as well as from the crawlspace located on the northern adjacent property. Benzene was also identified at concentrations exceeding the CUL in the outdoor ambient air “background” sample collected during the air monitoring effort.

The reported benzene concentrations in the three indoor air samples and crawlspace sample were adjusted to account for the constituent contributions from ambient air, by subtracting the ambient air constituent concentrations from the indoor air and crawlspace concentrations. The three adjusted indoor air sample results also exceed the CUL for benzene; however, the crawlspace sample is less than the CUL when adjusted for background.

It should be noted that benzene was detected in only one of the three sub-slab vapor samples collected from the subject property, and the reported concentration was an order of magnitude less than the corresponding screening value. However, because benzene has been identified as a COC for soil at the Site, it has also been identified as a COC for indoor air.

Although naphthalene was not reported in any of the indoor air samples, the reporting limits for the naphthalene samples were all greater than the indoor air CUL value of $0.0735 \mu\text{g}/\text{m}^3$. Therefore, naphthalene has been retained as a COC for indoor air.

7.4 Sediment

No petroleum hydrocarbons or naphthalenes were identified in the sediment samples collected from the Site; therefore, no COCs have been identified for sediment at the Site.

7.5 Summary

There are only four COCs for the Site: DRO, benzene, total xylenes, and naphthalenes. The media affected by those COCs are summarized below.

Summary of COCs by Media

Compound	Media				
	Soil	Groundwater	Surface Water	Sediment	Indoor Air
DRO	X	X	X		
Benzene	X				X
Total Xylenes	X				
Naphthalene	X	X	X		X

8.0 RI CONCLUSIONS

The following conclusions are supported by the findings of the RI:

- Soil, groundwater, and indoor air at the Site have been impacted with petroleum hydrocarbons at concentrations exceeding corresponding CULs for each media. Current data suggest the potential for groundwater to impact surface water.
- The COCs identified at the Site are DRO, benzene, total xylenes, and naphthalene.
- The source of impacts at the Site is a historical release of heating oil from a UST that was removed from the Site in 2012. Impacts from the source area extend in soil and groundwater to the west toward Lake Sammamish.
- The selected CULs are conservative and protective of all current and potential future exposure pathways including dermal exposure, ingestion, and aquatic exposures.
- The nature and extent of contamination at the Site have been sufficiently well characterized to support the development of a Feasibility Study and Cleanup Action Plan. No significant data gaps remain that would prevent selection of an appropriate remedy for the Site.

9.0 LIMITATIONS

To the extent that preparation of this RI Report has required the application of best professional judgment and the application of scientific principles, certain results of this work have been based on subjective interpretation. TRC makes no warranties express or implied, including and without limitation, warranties as to merchantability or fitness for a particular purpose. The information provided in this RI Report is not to be construed as legal advice.

Tables

Table 1
Cumulative LNAPL Recovery Summary
Remedial Investigation Report
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Date	Depth to Groundwater MW-2	Depth to Product MW-2	Product Thickness MW-2	Estimated Volume of Product Removed MW-2	Estimated Volume of Product Removed MW-6	Estimated Volume of Product Removed RWs	Approximate Volume of Contaminated Water Removed	RW-1 (Northern) Saturation	RW-2 (Middle) Saturation	RW-3 (Southern) Saturation	Notes
3/11/2014	NM	NM	NM	0.10	--	--	--	--	--	--	Booms installed, sheen collected, no measurements recorded (estimated amount of product)
3/13/2015	NM	NM	NM	0.00	--	--	--	--	--	--	Boom inspection only
3/24/2014	NM	NM	NM	0.25	--	--	--	--	--	--	---
3/26/2014	NM	NM	0.04	0.50	--	--	0.50	--	--	--	0.5 gallons of contaminated water also recovered
3/28/2014	NM	NM	NM	0.10	--	--	0.50	--	--	--	0.5 gallons of contaminated water also recovered
4/1/2014	NM	NM	NM	0.10	--	--	0.50	--	--	--	0.5 gallons of contaminated water also recovered
4/3/2014	NM	NM	3.50	0.90	--	--	0.40	--	--	--	0.4 gallons of contaminated water also recovered
4/9/2014	NM	NM	NM	0.10	--	--	0.50	--	--	--	0.5 gallons of contaminated water also recovered
4/11/2014	NM	NM	NM	0.10	--	--	0.50	--	--	--	0.5 gallons of contaminated water also recovered
4/14/2014	3.95	1.81	2.14	0.50	--	--	0.25	--	--	--	0.25 gallons of contaminated water also recovered
4/16/2014	NM	NM	NM	0.40	--	--	1.10	--	--	--	1.1 gallons of contaminated water also recovered
4/23/2014	NM	NM	NM	0.40	--	--	--	--	--	--	---
4/24/2014	NM	NM	NM	0.40	--	--	--	--	--	--	Product volume estimated
4/29/2014	NM	NM	NM	0.40	--	--	1.00	--	--	--	1.0 gallons of contaminated water also recovered
5/2/2014	NM	NM	NM	0.30	--	--	1.00	--	--	--	1.0 gallons of contaminated water also recovered
5/5/2014	NM	NM	NM	0.30	--	--	1.00	--	--	--	1.0 gallons of contaminated water also recovered
5/8/2014	NM	NM	NM	0.30	--	--	1.25	--	--	--	1.25 gallons of contaminated water also recovered
5/13/2014	NM	NM	NM	0.25	--	--	1.00	--	--	--	1.0 gallons of contaminated water also recovered
5/15/2014	NM	NM	NM	0.25	--	--	1.00	--	--	--	1.0 gallons of contaminated water also recovered
5/20/2014	NM	NM	NM	0.25	--	--	--	--	--	--	---
5/23/2014	NM	NM	NM	0.20	--	--	--	--	--	--	---
5/28/2014	NM	NM	NM	0.13	--	--	1.00	--	--	--	1.0 gallons of contaminated water also recovered
5/30/2014	NM	NM	NM	0.13	--	--	1.00	--	--	--	1.0 gallons of contaminated water also recovered
6/6/2014	NM	NM	NM	0.10	--	--	--	--	--	--	---
6/13/2014	NM	NM	NM	0.00	--	--	--	--	--	--	Recovery Well Installation (no measurements recorded)
11/4/2014	3.55	1.41	2.14	0.50	--	--	0.40	--	--	--	0.4 gallons of contaminated water also recovered
11/10/2014	NM	NM	NM	0.10	--	--	--	--	--	--	---
12/5/2014	3.85	1.44	2.41	0.60	--	--	--	--	--	--	Less than 0.12 gallon of product removed
12/12/2014	NM	NM	NM	0.10	--	--	0.50	--	--	--	0.5 gallons of contaminated water also recovered
12/30/2014	NM	NM	NM	0.20	--	--	0.75	--	--	--	0.75 gallons of contaminated water also recovered
1/27/2015	NM	NM	NM	0.20	--	--	0.50	--	--	--	0.5 gallons of contaminated water also recovered
2/11/2015	NM	NM	NM	0.50	--	0.25	--	--	--	--	0.5 gallons of product removed from MW-2; 0.25 gallons of product removed from recovery wells
2/17/2015	NM	NM	NM	0.50	--	0.60	--	--	--	--	0.5 gallons of product removed from MW-2; 0.5 gal product removed from RW-3; trace removed from RW1 & RW2
2/24/2015	NM	NM	NM	0.10	--	--	--	--	--	--	---
3/5/2015	NM	NM	NM	0.20	--	--	--	--	--	--	---
3/12/2015	NM	NM	NM	0.02	--	--	--	--	--	--	Trace (<100mL) of product removed
4/9/2015	NM	NM	NM	0.50	--	--	2.50	--	--	--	2.5 gallons of contaminated water also recovered
4/16/2015	NM	NM	NM	0.25	--	0.10	--	--	--	--	0.25 gal product removed from MW-2; sheen pumped off recovery wells
4/23/2015	NM	NM	NM	0.10	--	--	--	--	--	--	---
4/29/2015	NM	NM	NM	0.20	--	0.10	--	--	--	--	0.2 gal product removed from MW-2, sheen pumped off recovery wells
5/7/2015	NM	NM	NM	0.50	--	--	--	--	--	--	---
5/15/2015	NM	NM	NM	0.40	--	--	--	--	--	--	---
5/21/2015	NM	NM	NM	0.80	--	--	--	--	--	--	---
5/28/2015	NM	NM	NM	0.50	--	--	--	--	--	--	---
6/4/2015	NM	NM	NM	0.55	--	--	--	--	--	--	---
6/12/2015	NM	NM	NM	0.30	--	--	--	--	--	--	---
6/23/2015	NM	NM	NM	0.30	--	--	--	--	--	--	---
7/9/2015	NM	NM	NM	0.00	--	--	--	--	--	--	Onsite for boom maintenance & LNAPL recovery (No measurements or observations recorded)
7/15/2015	NM	NM	NM	0.25	--	--	--	--	--	--	---
7/19/2015	NM	NM	NM	0.10	--	--	--	--	--	--	---
8/11/2015	NM	NM	NM	0.10	--	--	--	--	--	--	---
9/8/2015	NM	NM	NM	0.10	--	0.10	--	--	--	--	No product in MWs, sheen removed from RWs
9/25/2015	3.14	2.81	0.33	0.10	--	--	--	--	--	--	Trace amount of product removed
10/1/2015	3.15	2.80	0.35	0.10	--	--	--	--	--	--	Trace amount of product removed, product booms replaced in RWs
10/9/2015	2.98	2.77	0.21	0.10	--	--	--	--	--	--	Trace amount of product removed
10/16/2015	2.75	2.66	0.09	0.10	--	--	--	--	--	--	Trace amount of product removed
10/23/2015	2.79	2.53	0.26	0.10	--	--	--	--	--	--	Trace amount of product removed
11/6/2015	2.26	1.95	0.31	0.10	--	--	--	--	--	--	Trace amount of product removed
11/13/2015	2.01	1.74	0.27	0.10	--	--	--	--	--	--	Trace amount of product removed
11/19/2015	0.60	0.10	0.50	0.15	--	--	--	--	--	--	Trace amount of product removed

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12/4/2015	1.02	0.63	0.39	0.10	--	0.40	--	--	--	--	0.4 gallons removed from recovery wells
12/22/2015	0.70	0.20	0.50	0.10	--	--	--	--	--	--	--
1/8/2016	3.37	1.49	1.88	0.15	--	--	--	--	--	--	--
1/15/2016	3.78	1.52	2.26	0.20	--	--	--	--	--	--	--
1/22/2016	3.21	1.00	2.21	0.20	--	--	--	--	--	--	--
1/29/2016	3.82	0.70	3.12	0.2	--	--	--	--	--	--	--
2/8/2016	3.75	1.31	2.44	0.2	--	--	--	--	--	--	--
2/19/2016	3.56	0.88	2.68	0.5	--	--	--	--	--	--	--
3/4/2016	3.37	1.05	2.32	0.2	--	--	--	--	--	--	--
3/11/2016	NM	0.50	NM	--	--	--	--	--	--	--	Product depth estimated due to high water level in casing
3/25/2016	3.76	1.50	2.26	0.5	--	0.6	--	--	--	--	0.6 gallons removed from recovery wells
4/11/2016	3.23	1.99	1.24	0.2	--	--	--	--	--	--	--
4/18/2016	3.72	2.10	1.62	0.2	0.10	--	--	--	--	--	MW-6 noted product, however no product was removed.
4/27/2016	3.89	2.13	1.76	0.2	0.10	--	--	--	--	--	MW-6 noted product, however no product was removed.
5/5/2016	3.48	2.27	1.21	0.15	--	0.3	--	--	--	--	0.3 gallons removed from recovery wells
5/11/2016	3.47	2.45	1.02	0.20	--	--	--	--	--	--	--
5/16/2016	3.29	2.43	0.86	0.10	--	--	--	--	--	--	--
5/24/2016	3.12	2.34	0.78	0.20	0.10	--	--	--	--	--	MW-6 noted product, however no product was removed
6/1/2016	3.22	2.33	0.89	0.20	0.10	--	--	--	--	--	MW-6 noted product, however no product was removed
6/10/2016	3.12	2.52	0.60	0.20	--	--	--	--	--	--	--
6/16/2016	2.90	2.57	0.33	0.20	--	0.20	--	--	--	--	0.2 gallons removed from recovery wells
7/1/2016	2.80	2.48	0.32	0.18	--	--	0.25	--	--	--	.25 gallon of water removed
7/8/2016	2.63	2.53	0.10	0.10	--	--	0.20	--	--	--	.2 gallons of water removed
8/5/2016	2.96	2.75	0.21	0.10	--	--	0.50	--	--	--	.5 gallons of water removed
8/19/2016	2.95	2.83	0.12	0.10	--	--	0.10	--	--	--	.1 gallon of water removed
8/24/2016	3.02	2.97	0.05	0.10	--	--	--	--	--	--	--
9/1/2016	2.98	2.94	0.04	0.10	0.10	--	0.60	--	--	--	0.6 gallons of water removed, sheen noted in MW-6 no product removed
9/6/2016	3.25	2.90	0.35	0.10	0.10	--	0.10	--	--	--	0.1 gallon of water removed, sheen noted in MW-6 no product removed
9/20/2016	3.12	2.93	0.19	0.10	--	--	0.3	--	--	--	0.3 gallons of water removed, no sheen noted in MW-6
9/27/2016	3.04	2.93	0.11	0.10	--	--	0.1	--	--	--	0.1 gallons of water removed, no sheen noted in MW-6
10/7/2016	2.90	2.84	0.06	0.10	--	--	0.20	--	--	--	0.2 gallon of water removed, no sheen noted in MW-6
10/21/2016	2.97	1.74	1.23	0.10	0.10	--	0.1	--	--	--	0.1 gallons of water removed, sheen noted in MW-6 no product removed
10/28/2016	1.97	1.53	0.44	0.20	0.10	--	0.1	--	--	--	0.1 gallons of water removed, sheen noted in MW-6 no product removed
11/4/2016	2.17	1.38	0.79	0.20	0.10	--	0.20	--	--	--	0.2 gallons of water removed, sheen noted in MW-6 no product removed
11/15/2016	3.57	1.25	2.32	0.20	0.10	--	0.20	--	--	--	0.2 gallons of water removed, sheen noted in MW-6 no product removed
11/28/2016	3.02	1.19	1.83	0.20	0.10	--	0.20	--	--	--	0.2 gallons of water removed, sheen noted in MW-6 no product removed
12/14/2016	3.64	1.48	2.16	0.20	0.00	--	0.30	--	--	--	0.2 gallons of water removed, no sheen noted in MW-6
1/12/2017	3.56	1.97	1.59	0.20	0.10	--	0.10	--	--	--	0.1 gallons of water removed, sheen noted in MW-6 no product removed
1/20/2017	3.57	1.28	2.29	0.20	0.00	--	0.10	--	--	--	0.1 gallons of water removed, no sheen noted in MW-6
1/24/2017	3.12	1.46	1.66	0.20	0.10	--	0.10	--	--	--	0.1 gallons of water removed, sheen noted in MW-6 no product removed
1/31/2017	3.28	1.9	1.38	0.20	--	--	0.10	--	--	--	0.1 gallons of water removed, no sheen noted in MW-6
2/7/2017	3.91	1.3	2.61	0.20	0.10	--	0.30	--	--	--	0.3 gallons of water removed, 0.1 gallons removed from MW-6 no sheen noted.
2/13/2017	NM	NM	NM	0.20	--	--	0.60	--	--	--	0.6 gallon of water removed, due to high lake levels product was at surface of MW-2 casing, no DTP/DTW measurements collected
2/28/2017	4.2	0.8	3.40	0.20	--	--	0.30	--	--	--	0.3 gallons of water removed, no sheen noted in MW-6
3/14/2017	3.05	0.97	2.08	0.20	--	--	0.20	--	--	--	No Sheen noted on MW-6
3/23/2017	2.94	1.31	1.63	0.20	--	--	0.40	--	--	--	No Sheen noted on MW-6
3/30/2017	3.00	1.02	1.98	0.20	0.10	--	0.40	--	--	--	Sheen noted on MW-6
4/5/2017	3.63	1.06	2.57	0.20	--	--	0.20	--	--	--	No sheen noted on MW-6
4/13/2017	3.96	1.29	2.67	0.20	--	--	0.40	--	--	--	No sheen noted on MW-6
4/20/2017	3.36	2.43	0.93	0.20	--	--	0.40	--	--	--	No sheen noted on MW-6
4/27/2017	3.43	1.46	1.97	0.20	--	--	0.75	--	--	--	No sheen noted on MW-6
5/4/2017	3.05	1.69	1.36	0.10	--	--	0.20	--	--	--	No sheen noted on MW-6
5/8/2017	3.11	1.37	1.74	0.20	--	--	0.10	--	--	--	No sheen noted on MW-6
5/18/2017	3.03	1.55	1.48	0.20	0.10	--	0.20	--	--	--	Sheen noted on MW-6
5/22/2017	2.83	1.75	1.08	0.20	--	--	0.10	--	--	--	No sheen noted on MW-6
5/31/2017	3.33	2.05	1.28	0.20	0.10	--	0.50	--	--	--	Sheen noted on MW-6
6/15/2017	3.69	2.23	1.46	0.10	0.10	--	0.30	--	--	--	Sheen noted on MW-6
6/22/2017	3.31	2.26	1.05	0.10	--	--	0.20	--	--	--	No sheen noted on MW-6
6/30/2017	3.43	2.32	1.11	0.10	--	--	0.10	--	--	--	No sheen noted on MW-6
7/6/2017	3.23	2.45	0.78	0.10	--	--	0.10	--	--	--	No sheen noted on MW-6

Table 1
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Date	Depth to Groundwater MW-2	Depth to Product MW-2	Product Thickness MW-2	Estimated Volume of Product Removed MW-2	Estimated Volume of Product Removed MW-6	Estimated Volume of Product Removed RWs	Approximate Volume of Contaminated Water Removed	RW-1 (Northern) Saturation	RW-2 (Middle) Saturation	RW-3 (Southern) Saturation	Notes
8/3/2017	2.87	2.78	0.09	0.10	--	--	0.20	--	--	--	Sheen noted on MW-6; 0.25 gallons of contaminated water also recovered; boom in middle recovery well replaced; two booms replaced in lake that had been ripped and damaged.
8/10/2017	2.82	2.79	0.03	0.08	--	--	0.15	--	--	--	No sheen noted on MW-6
8/18/2017	2.94	2.89	0.05	0.10	--	--	0.10	--	--	--	Sheen observed within well box for MW-6
8/22/2017	2.905	2.9	0.00	0.00	--	--	--	--	--	--	No product removed
8/29/2017	2.96	0	2.96	0.00	--	--	--	--	--	--	No product removed
9/8/2017	3.01	2.97	0.04	0.08	0.05	--	0.08	--	--	--	---
9/28/2017	3.06	2.92	0.14	0.10	0.01	--	0.10	--	--	--	No product removed
10/12/2017	2.87	2.85	0.02	0.10	0.01	--	0.10	--	--	--	No product removed
10/20/2017	2.51	2.46	0.05	0.10	--	--	0.10	--	--	--	---
10/25/2017	2.35	2.21	0.14	0.10	--	--	0.10	--	--	--	Product booms replaced
12/5/2017	1.14	1.13	0.01	0.10	--	--	0.10	--	--	--	Replace one product boom on lake (no product observed); approximately 0.1 gallons of contaminated water also recovered.
12/15/2017	1.88	1.87	0.01	0.10	--	--	0.11	--	--	--	0.11 gallons of contaminated water also recovered.
12/21/2017	1.33	NM	NM	--	--	--	1.00	--	--	--	Replace boom in one recovery well and 2 booms along the lake shore (no observable product on lake).
12/28/2017	1.645	1.64	0.05	0.05	--	--	1.00	--	--	--	Remove approximately 0.05 gallons of product; replace boom in one recovery well.
1/9/2018	1.14	0	0.00	0.00	--	--	0.00	--	--	--	---
1/19/2018	0.6	0	0.00	0.00	--	--	0.00	--	--	--	---
1/25/2018	0.705	0.7	0.01	0.05	--	--	0.10	--	--	--	---
2/1/2018	0.9	0	0.00	0.00	--	--	0.00	--	--	--	---
2/9/2018	0.98	0.97	0.01	0.10	--	--	0.50	--	--	--	Approximately 0.05 gallons of water removed from MW-2 well box; product visible on top of water in well box.
2/16/2018	1.42	NM	NM	--	--	--	--	--	--	--	No product measured in MW-2; 0.005' of product observed in MW-6.
2/23/2018	1.59	0	0.00	--	--	--	--	--	--	--	---
3/1/2018	1.69	1.67	0.02	0.10	--	--	0.20	--	--	--	Removed approximately 0.1 gallons of product and 0.1 gallons of contaminated H2O
3/8/2018	1.81	NM	NM	--	--	--	0.10	--	--	--	No measurable product in MW-2 or MW-6. Approximately 0.1 gallons of contaminated water removed from MW-2 & MW-6 well boxes to gain access for depth to water measurements.
3/14/2018	3.1	1.85	1.25	0.20	--	--	0.10	--	--	--	---
3/22/2018	3.8	1.56	2.24	0.20	--	--	0.30	--	--	--	0.3 gal of contaminated water also recovered.
3/28/2018	3.01	1.92	1.09	0.20	--	--	0.20	--	--	--	Rotate product booms
4/2/2018	2.85	1.97	0.88	0.10	--	--	0.10	--	--	--	---
4/12/2018	2.6	1.99	0.61	0.10	--	--	0.10	--	--	--	---
4/20/2018	1.4	0.9	0.50	0.20	--	--	0.20	--	--	--	---
4/27/2018	NM	NM	NM	0.02	--	--	0.10	--	--	--	Could not measure DTW or DTP in MW-2; sensor malfunctioning on oil/water interface probe. Was able to recover appx. 0.02 gallons of product from MW-2.
5/1/2018	2.42	1.71	0.71	0.10	--	--	0.10	--	--	--	Approximately 0.10 gallons of product and 0.10 gallons of contaminated water (product visible on surface of water within MW-2 well box).
5/10/2018	3.28	1.95	1.33	0.10	--	--	0.20	--	--	--	0.2 gal of contaminated water also recovered; no product observed in MW-6.
5/18/2018	3.22	2.1	1.12	0.05	--	0.01	0.30	--	--	--	0.3 gal of contaminated water also recovered; no product observed in MW-6.
6/1/2018	2.76	2.4	0.36	0.01	--	0.01	0.25	--	--	--	No product observed in MW-6.
6/6/2018	2.61	2.5	0.11	0.01	--	0.01	0.20	--	--	--	---
6/29/2018	2.58	2.55	0.03	0.01	--	--	0.10	--	--	--	---
7/12/2018	2.64	2.62	0.02	0.01	--	0.01	0.20	--	--	--	Removed appx. 2 cups of water from well box at MW-3.
7/19/2018	2.69	2.68	0.01	0.01	--	0.06	0.60	--	--	--	---
8/9/2018	2.89	--	--	--	--	--	--	--	--	--	No measurable product in MW-2 or MW-6.
8/17/2018	2.91	2.91	Sheen	--	--	--	--	--	--	--	Only sheen detected in MW-2. Solid waste drum full. Low water level in recovery wells. Adjusted booms.
8/23/2018	2.97	2.96	0.01	0.01	--	--	0.01	--	--	--	Water level in recovery wells low (near bottom); rotated booms.
9/14/2018	2.83	2.83	0.01	--	--	--	--	--	--	--	Sheen at MW-2. Product thickness of 0.005 rounds to 0.01 in spreadsheet.
9/27/2018	2.95	2.89	0.06	--	--	--	--	--	--	--	Replaced boom in southern recovery well
10/4/2018	2.89	2.82	0.07	0.05	--	0.03	0.40	--	--	--	Rotated booms in lake
10/12/2018	2.65	2.64	0.01	0.01	--	--	0.20	--	--	--	Rotated booms in recovery wells
10/19/2018	2.65	2.64	0.01	0.01	--	--	0.20	--	--	--	Replaced boom in northern recover well and southern beach boom
10/25/2018	2.63	--	--	--	sheen	--	--	--	--	--	No sheen or measurable product in MW-2. Sheen detected at MW-6.
11/1/2018	2.21	--	--	--	--	--	--	--	--	--	Rotated booms in recovery wells; reposition boom near dock
11/9/2018	2.17	--	--	--	--	--	--	--	--	--	Rotated booms in recovery wells
11/16/2018	2.19	--	--	--	sheen	--	--	--	--	--	No sheen or measurable product in MW-2. Sheen detected at MW-6.
11/30/2018	1.65	1.65	0.01	--	sheen	--	--	--	--	--	Sheen detected at MW-2 and -6. Rotated center recovery well.
12/5/2018	1.83	1.83	--	--	--	--	--	--	--	--	Sheen detected at MW-2
12/13/2018	1.85	--	--	--	--	--	--	--	--	--	Sheen detected at MW-6
12/21/2018	1.68	1.67	0.01	0.01	--	--	--	--	--	--	Rotated booms in recovery wells; reposition boom near dock
12/26/2018	1.72	1.71	--	--	--	--	--	--	--	--	Replace two booms in recover wells
1/8/2019	1.39	1.38	0.01	0.01	--	--	0.21	--	--	--	Removed approximately 2 tbsps of product and appx. 0.2-gal of water.
1/17/2019	1.84	1.835	0.01	0.01	--	--	--	--	--	--	Removed approximately 2 tbsps of product and appx. 0.5-gal of water. Replaced one damaged boom on lake.

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Date	Depth to Groundwater MW-2	Depth to Product MW-2	Product Thickness MW-2	Estimated Volume of Product Removed MW-2	Estimated Volume of Product Removed MW-6	Estimated Volume of Product Removed RWs	Approximate Volume of Contaminated Water Removed	RW-1 (Northern) Saturation	RW-2 (Middle) Saturation	RW-3 (Southern) Saturation	Notes
1/25/2019	1.79	--	--	--	--	--	--	--	--	--	No measurable product in MW-2, MW-6, or recovery wells. Replaced damaged boom on lake.
1/31/2019	1.95	--	--	--	--	--	--	--	--	--	--
2/8/2019	2.01	--	--	--	--	--	--	--	--	--	No measurable product in MW-2, MW-6, or recovery wells.
2/15/2019	1.55	Sheen	--	--	--	--	--	--	--	--	No measurable product in MW-2, MW-6, or recovery wells.
2/27/2019	1.74	--	--	--	--	--	--	--	--	--	No measurable product in MW-2, MW-6, or recovery wells.
3/6/2019	2.03	--	--	--	--	--	--	--	--	--	No measurable product in MW-2, MW-6, or recovery wells.
3/14/2019	2.97	--	--	--	--	--	--	--	--	--	No measurable product in MW-2, MW-6, or recovery wells.
3/21/2019	1.99	--	--	--	--	--	--	--	--	--	No measurable product in MW-2, MW-6, or recovery wells.
3/27/2019	--	--	--	--	--	--	--	--	--	--	Boom check only. All booms ok.
4/4/2019	2.21	--	--	--	--	--	--	--	--	--	No measurable product in MW-2, MW-6, or recovery wells.
4/12/2019	1.68	--	--	--	--	--	--	--	--	--	Replaced booms in all three recovery wells.
4/18/2019	1.59	--	--	--	--	--	--	--	--	--	Booms in recovery wells absorbing product.
4/26/2019	1.90	1.89	0.01	--	--	--	0.11	--	--	--	No product removed from MW-2. Product booms in recover wells rotated.
5/2/2019	2.14	--	--	--	--	--	--	--	--	--	Weak sheen on surface water in recovery wells, went away when flipped booms
5/10/2019	2.29	--	--	--	--	--	--	--	--	--	Did not flip booms in recovery wells, no sheen/product
5/17/2019	2.23	--	--	--	--	--	--	--	--	--	Middle recovery boom showed sheen on water, flipped boom, others ok.
7/24/2019	2.31	--	--	--	--	--	--	--	--	--	Flipped booms in all recovery wells, booms show signs of absorbing product, sheen in all three wells. No LNAPL detected in MW-2
1/23/2020	0.80	--	--	--	--	--	--	--	--	--	Flipped booms in all recovery wells, booms show signs of absorbing product, sheen in all three wells. No LNAPL detected in MW-2
2/25/2020	1.43	--	--	--	--	--	--	--	--	--	Flipped booms in two recovery wells, replaced one boom, all booms showed signs of absorbing product, sheen in all three wells, No LNAPL in MW-2
3/27/2020	2.50	2.17	0.33	0.03	--	--	0.13	--	--	--	All product booms in recovery wells ok, did not flip but could see that they were absorbing product. LNAPL detected in MW-2
4/17/2020	2.40	2.30	0.10	0.01	--	--	0.11	--	--	--	Rotated all product booms, showed signs of absorbing product, sheen observed, pumped LNAPL from MW-2
5/11/2020	2.30	--	--	--	--	--	--	--	--	--	Rotated all product booms in recovery wells, replaced one product boom in recovery wells due to product saturation, signs that all recovery well product booms are still absorbing product, No LNAPL detected in MW-2 however, a strong odor and sheen observed
5/26/2020	2.20	--	--	--	--	--	--	--	--	--	Rotated northern most recovery well, boom 80% saturated with product, will replace on next visit, other two recovery wells ok, did not rotate and only 10-30% saturated with product. Sheen observed in recovery wells. No LNAPL in MW-2, strong odor
6/12/2020	2.15	2.12	0.03	0.01	--	--	0.11	--	--	--	Rotated all product booms in recovery wells, sheen and odor observed.
7/1/2020	2.38	--	--	--	--	--	--	--	--	--	Northern and middle recovery well rotated, southernmost recovery well ok only 20% saturated and did not rotate. Sheen and odor observed.
7/17/2020	2.57	--	--	--	--	--	--	--	--	--	Rotated recovery wells booms. Replaced northern most product boom after 100% saturated with product. Odor in all three recovery wells.
7/30/2020	2.68	--	--	--	--	--	--	--	--	--	Rotated all product booms in recovery wells. Sheen and odor observed in recovery wells. Strong odor in MW-6.
9/2/2020	2.93	--	--	--	--	--	--	--	--	--	Rotated all product booms, replace booms in recovery wells soon, odor in MW-6 and MW-2.
9/15/2020	3.03	--	--	--	--	--	--	40	80	60	Rotated product booms in recovery wells, no LNAPL detected, MW-2 had odor.
10/28/2020	2.405	2.40	0.005	--	--	--	--	--	--	50	Rotated all product booms in recovery wells, sheen and odor observed. Only 0.005' of product in MW-2, will pump next time on-site if equal to or greater than 0.01' of product.
11/23/2020	2.86	2.85	<0.01	--	--	--	--	100, R	75	60	Replaced boom in northern recovery well (100%) saturated, other recovery wells were approximately 75 & 60% saturated, rotated all booms to continue to absorb product, sheen in each recovery well and strong odor.
12/22/2020	1.15	1.14	<0.01	--	--	--	--	80	100, R	<10	Product in well MW-2 not removed due to default pump while on-site, ~0.005' of LNAPL detected in well MW-9, Replaced middle recovery well boom, sheen and odor in northern and middle recovery well, removed lake booms.
1/15/2021	--	--	--	--	--	--	--	--	--	--	All wells along waterfront under water. No access
2/2/2021	1.75	1.35	0.40	0.20	--	--	--	90	5	10	Product in well MW-2 detected, removed approximately 4 tablespoons of product. No product in MW-6. Sheen observed in RW-1 & 2. Rotated booms.
3/11/2021	1.85	--	--	--	--	--	--	95	15	40	No product detected. Sheen observed in RW-1 & 2. Rotated booms.
4/8/2021	3.44	2.06	1.38	0.03	--	--	--	100 R	25	70	LNAPL detected in MW-2, removed approx. 3 oz with peristaltic pump, no LNAPL detected in other wells, no sheen observed in lake, rotated booms, replaced RW-1 boom.
Total (gallons)				28.71	1.87	2.78	35.32				
Total Product Removed (Gallons)				33.35							

Notes:
 Sheen or Trace: 0.01 gallons.
 0.1 gallons = 12.8 ounces.
 LNAPL Light non-aqueous phase liquid.
 NM Not Measured.
 R Replaced boom

Table 2
Groundwater Elevation Data
Remedial Investigation Report
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Well ID	Date	Ground Elevation	PVC Casing Elevation ^a	Depth to Water ^b	LNAPL Thickness ^c	Water Table Elevation ^d
MW-1	5/21/2013	28.02	27.74	0.01	--	27.73
	11/21/2013			0.80	--	26.94
	3/4/2014			0.25	--	27.49
	9/15/2015			1.89	0.01	25.85
	1/22/2016			0.50	--	27.24
	8/5/2016			1.68	--	26.06
	11/30/2016			0.50	--	27.24
	10/12/2018			1.62	--	26.12
	1/23/2020			0.30*	--	27.44
	5/19/2020**			1.23	--	26.51
MW-2	5/21/2013	29.09	28.75	2.00	--	26.75
	11/21/2013			3.20	--	25.55
	3/4/2014			---	LNAPL ^e	---
	9/15/2015			3.20	0.31	25.57
	1/22/2016			3.20	2.21	25.73
	8/5/2016			2.96	0.21	25.81
	11/30/2016			3.25	2.1	25.67
	10/12/2018			2.64	0.01	26.11
	1/23/2020			0.80*	Heavy Sheen	28.67
	5/19/2020**			2.31	0.06	26.44
MW-3	5/21/2013	33.03	32.82	4.96	--	27.86
	11/21/2013			5.40	--	27.42
	3/4/2014			5.09	--	27.73
	9/15/2015			6.88	--	25.94
	1/22/2016			5.13	--	27.69
	8/5/2016			6.67	--	26.15
	11/30/2016			5.20	--	27.62
	10/12/2018			6.56	--	26.26
	1/23/2020			4.83	--	27.99
	5/19/2020**			6.29	--	26.53
MW-4	5/21/2013	33.40	33.30	3.88	--	29.42
	11/21/2013			5.19	--	28.11
	3/4/2014			3.38	--	29.92
	9/15/2015			5.91	--	27.39
	1/22/2016			3.73	--	29.57
	8/5/2016			6.05	--	27.25
	11/30/2016			4.14	--	29.16
	10/12/2018			5.75	--	27.55
	1/23/2020			4.08	--	29.22
	5/19/2020**			5.24	--	28.06
MW-5	11/21/2013	27.57	27.36	0.40	--	26.96
	3/4/2014			-- ^f	--	---
	9/15/2015			1.51	--	25.85
	1/22/2016			0.10	--	27.26
	8/5/2016			1.32	--	26.04
	11/30/2016			0.00	--	27.36
	10/12/2018			1.27	--	26.09
	1/23/2020			-- ^f	--	---
	5/19/2020**			0.87	--	26.49
MW-6	11/21/2013	29.60	29.29	2.38	--	26.91
	3/4/2014			1.89	--	27.40
	9/15/2015			3.53	--	25.76
	1/22/2016			1.97	--	27.32
	8/5/2016			3.30	--	25.99
	11/30/2016			1.30	Sheen	27.99
	10/12/2018			3.27	--	26.02
	1/23/2020			1.82	--	27.47
	5/19/2020**			2.87	--	26.42
MW-7	3/4/2014	32.10	31.89	4.46	--	27.43
	9/15/2015			6.07	--	25.82
	1/22/2016			4.54	--	27.35
	8/5/2016			5.85	--	26.04

Table 2
Groundwater Elevation Data
Remedial Investigation Report
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Well ID	Date	Ground Elevation	PVC Casing Elevation ^a	Depth to Water ^b	LNAPL Thickness ^c	Water Table Elevation ^d
MW-7	11/30/2016	32.10	31.89	4.53	--	27.36
	10/12/2018			5.79	--	26.10
	1/23/2020			4.42	--	27.47
	5/19/2020**			5.42	--	26.47
MW-8	3/4/2014	29.30	29.05	1.60	--	27.45
	9/15/2015			3.21	--	25.84
	1/22/2016			1.71	--	27.34
	8/5/2016			3.98	--	25.07
	11/30/2016			1.68	--	27.37
	10/12/2018			2.95	--	26.10
	1/23/2020			1.57	--	27.48
	5/19/2020**			2.58	--	26.47
MW-9 ^g	5/19/2020**	--	33.11**	6.51	--	26.60

Notes:

All measurements are in feet. Elevations are in feet above mean sea level (AMSL).

- a Polyvinyl chloride (PVC) casing elevation on the north side of the well casing.
~ Survey Coordinate System and Zone: Washington State Plane, North Zone coordinates.
~ Horizontal Datum: NAD 83(91) US feet (horizontal accuracy: 0.1').
~ Vertical Datum: NGVD 29 (vertical accuracy: 0.01').

To convert from NGVD 29 to NAVD 88, add 3.58 feet to elevations.

- ~ Survey completed October 5, 2015 by Triad Associates.

b Depth to groundwater measured from top of well casing.

c LNAPL thickness = [Depth to LNAPL] - [Depth to Water]; measured from top of well casing using an electronic oil-water interface probe. Bold value indicates measurable thickness.

d Water table elevations adjusted for the presence of LNAPL using the following formula and assumed LNAPL specific gravity of 0.8: [Water Table Elevation] = [PVC Casing Elevation] - LNAPL present; however, thickness and depth to water not recorded.

e Groundwater surface was greater than PVC casing at this location on the date measured.

f Elevation derived from MW-3 casing elevation, well not surveyed by Triad Associates.

-- Not recorded.

* Depth to groundwater measurement is an estimate.

** May 19, 2020 information provided by G-Logics.

LNAPL Light non-aqueous phase liquid.

Table 3
Soil Analytical Results
Remedial Investigation Report
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Report	Sample ID	Sample Date	Total Petroleum Hydrocarbons ^a		Volatile Organic Compounds ^b											
			DRO	ORO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	n-Butyl-benzene	sec-Butyl-benzene	n-Propyl-benzene	4-Isopropyl-toluene	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	Naphthalene	
Phase II ESA Investigation	B-1:7.5	5/20/2013	27,000	<1,500	--	--	--	--	--	--	--	--	--	--	--	--
	B-1:11	5/20/2013	<20	<50	--	--	--	--	--	--	--	--	--	--	--	--
	B-2:5	5/20/2013	<30	<60	--	--	--	--	--	--	--	--	--	--	--	--
	B-2:7.5	5/20/2013	4,800	<400	--	--	--	--	--	--	--	--	--	--	--	--
	B-3:4	5/20/2013	<20	<53	--	--	--	--	--	--	--	--	--	--	--	--
	B-3:6.5	5/20/2013	49	350	--	--	--	--	--	--	--	--	--	--	--	--
	B-4:5	5/20/2013	<20	<50	--	--	--	--	--	--	--	--	--	--	--	--
	B-4:6.5	5/20/2013	7,600	<910	--	--	--	--	--	--	--	--	--	--	--	--
	B-5:4	5/20/2013	<20	<50	--	--	--	--	--	--	--	--	--	--	--	--
	B-5:6.5	5/20/2013	6,700	<350	--	--	--	--	--	--	--	--	--	--	--	--
	B-6:3.5	5/20/2013	<20	<50	--	--	--	--	--	--	--	--	--	--	--	--
	B-6:5.5	5/20/2013	<30	<60	--	--	--	--	--	--	--	--	--	--	--	--
	MW-1:1.3	5/21/2013	32,000	<1,800	--	--	--	--	--	--	--	--	--	--	--	--
	MW-2:2	5/21/2013	13,000	<890	--	--	--	--	--	--	--	--	--	--	--	--
	MW-2:3	5/21/2013	43,000	<1,600	--	--	--	--	--	--	--	--	--	--	--	--
	MW-2:6	5/21/2013	300	1,000	--	--	--	--	--	--	--	--	--	--	--	--
	B-7:6	5/21/2013	<30	<60	--	--	--	--	--	--	--	--	--	--	--	--
MW-4:5	5/21/2013	26,000	<1,500	0.14 ^c	0.4 ^c	3.1 ^c	15.6 ^c	--	--	--	--	--	--	--	7.2	
Footing:1.5	5/21/2013	<20	<50	--	--	--	--	--	--	--	--	--	--	--	--	
Remedial Investigation	B-8:8	11/20/2013	1,910	<68.0	<0.0230	<0.0230	<0.0340	--	<0.0230	0.258	<0.0230	0.0848	0.0322	<0.0230	<0.0340	
	B-9:8	11/20/2013	372	<70	--	--	--	--	--	--	--	--	--	--	--	
	B-10:6	11/20/2013	502	<65.0	--	--	--	--	--	--	--	--	--	--	--	
	B-11:4	11/19/2013	3,480	<49.0	--	--	--	--	--	--	--	--	--	--	--	
	B-12:7	11/19/2013	54.1	<69.0	--	--	--	--	--	--	--	--	--	--	--	
	B-13:7.7	2/17/2014	<20	<50	--	--	--	--	--	--	--	--	--	--	--	
	B-14:7	2/17/2014	640	<50	--	--	--	--	--	--	--	--	--	--	--	
	MW-5:2	11/19/2013	<21.0	<53.0	--	--	--	--	--	--	--	--	--	--	--	
	MW-6:4	11/19/2013	228	<52.0	<0.0220	<0.0220	<0.0330	0.0373	0.146	0.0537	0.0735	0.0400	0.311	0.0608	0.0852	
	MW-7:5.5	2/17/2014	<20	<50	--	--	--	--	--	--	--	--	--	--	--	
MW-8:3.5	2/17/2014	<20	<50	--	--	--	--	--	--	--	--	--	--	--		

Table 3
Soil Analytical Results
Remedial Investigation Report
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Report	Sample ID	Sample Date	Total Petroleum Hydrocarbons ^a		Volatile Organic Compounds ^b												
			DRO	ORO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	n-Butyl-benzene	sec-Butyl-benzene	n-Propyl-benzene	4-Isopropyl-toluene	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	Naphthalene		
G-Logics Supplemental Data*	MW-9-7	5/14/2020	<31.6	180	--	--	--	--	--	--	--	--	--	--	--	--	
	MW-9-10	5/14/2020	<21.6	<54.0	--	--	--	--	--	--	--	--	--	--	--	--	
	GB-1-7	5/14/2020	1,540	174	--	--	--	--	--	--	--	--	--	--	--	--	--
	GB-1-9	5/14/2020	947	<52.6	--	--	--	--	--	--	--	--	--	--	--	--	--
	GB-2-7	5/14/2020	13,800	<68.3	<0.881	<1.03	2.81	16.26	--	--	--	--	--	--	--	--	45.6
	GB-2-9	5/14/2020	7,410	178	--	--	--	--	--	--	--	--	--	--	--	--	--
	GB-3-4	5/14/2020	3,740	<51.8	--	--	--	--	--	--	--	--	--	--	--	--	--
	GB-3-6	5/14/2020	64.9	<49.5	--	--	--	--	--	--	--	--	--	--	--	--	--
	GB-3-8	5/14/2020	<21.3	<53.3	--	--	--	--	--	--	--	--	--	--	--	--	--
	GB-4-2	5/14/2020	30,900	<47.5	<0.719	<0.839	<0.839	<2.28	--	--	--	--	--	--	--	--	7.41
	GB-4-4	5/14/2020	28,900	<55.4	--	--	--	--	--	--	--	--	--	--	--	--	--
	GB-4-8	5/14/2020	<21.8	<54.5	--	--	--	--	--	--	--	--	--	--	--	--	--
	GB-5-4	5/14/2020	<21.7	<54.3	--	--	--	--	--	--	--	--	--	--	--	--	--
	GB-6-1	5/14/2020	105	<59.4	--	--	--	--	--	--	--	--	--	--	--	--	--
	GB-6-4	5/14/2020	<23.1	<57.7	--	--	--	--	--	--	--	--	--	--	--	--	--
	GB-7-6	5/14/2020	<20.5	<51.2	--	--	--	--	--	--	--	--	--	--	--	--	--
GB-7-8	5/14/2020	1,530	<62.9	--	--	--	--	--	--	--	--	--	--	--	--	--	
GB-7-9	5/14/2020	<31.6	<79.0	--	--	--	--	--	--	--	--	--	--	--	--	--	
MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses^d			2,000	2,000	0.03	7	6	9	4,000^e	8,000^e	8,000^e	NVE	800^e	800^e	5		

Notes:

All results presented in milligrams per kilogram (mg/kg).

Bold Bold results indicate that the compound was detected.

Shaded Shaded results exceed the cleanup level.

^a Analyzed by Method NWTPH-Dx or NWTPH-Dx Extended.

^b Analyzed by EPA Method 8260 reporting only non-halogenated hydrocarbons.

^c Analyzed by EPA Method 8021.

^d Model Toxics Control Act (MTCA) Method A Soil Cleanup Level for Unrestricted Land Uses taken from Table 740-1 of Washington Administrative Code Chapter 170-340-900.

^e No value established for MTCA Method A, MTCA Method B Cleanup Level from Cleanup Levels and Risk Calculations (CLARC) database used instead.

NVE No value established.

-- Sample was not analyzed for this compound.

* Samples collected by G-Logics as supplement to RI

Compounds:

DRO Diesel-range organics

ORO Oil-range organics

Table 4
Groundwater Analytical Results
Remedial Investigation Report
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Sample ID	Sample Date	Total Petroleum Hydrocarbons ^a		Volatile Organic Compounds ^b								Semivolatile Organic Compounds ^c				
		DRO	ORO	Ethylbenzene	Total Xylenes	n-Butylbenzene	sec-Butylbenzene	n-Propylbenzene	4-Isopropyltoluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Naphthalene	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	
B-1	5/20/2013	43,000	<2500	--	--	--	--	--	--	--	--	--	--	--	--	
B-3	5/20/2013	<270	<430	--	--	--	--	--	--	--	--	--	--	--	--	
B-4	5/20/2013	2,600	<430	--	--	--	--	--	--	--	--	--	--	--	--	
B-5	5/20/2013	3,900	<420	--	--	--	--	--	--	--	--	--	--	--	--	
B-6	5/20/2013	<260	<420	--	--	--	--	--	--	--	--	--	--	--	--	
B-7	5/21/2013	<260	<420	--	--	--	--	--	--	--	--	--	--	--	--	
B-8	11/20/2013	1,080	<100	--	--	--	--	--	--	--	--	--	--	--	--	
B-9	11/20/2013	<50	<100	--	--	--	--	--	--	--	--	--	--	--	--	
B-10	11/20/2013	190	<100	--	--	--	--	--	--	--	--	--	--	--	--	
B-11	11/19/2013	959	<100	--	--	--	--	--	--	--	--	--	--	--	--	
B-12	11/19/2013	616	<100	--	--	--	--	--	--	--	--	--	--	--	--	
B-13	2/17/2014	170	270	--	--	--	--	--	--	--	--	--	--	--	--	
B-14	2/17/2014	3,200	570	--	--	--	--	--	--	--	--	--	0.1	0.026	0.031	
MW-1	5/21/2013	9,300	<950	--	--	--	--	--	--	--	--	--	--	--	--	
	11/21/2013	1,280	<100	--	--	--	--	--	--	--	--	--	--	--	--	
	3/4/2014	1,700	<250	--	--	--	--	--	--	--	--	--	3.2	7.0	6.0	
	8/5/2016	457	<100	--	--	--	--	--	--	--	--	5.35	--	--	--	
	11/30/2016	832	<99.5	--	--	--	--	--	--	--	--	3.32	--	--	--	
	10/9/2018	578	<99.6	--	--	--	--	--	--	--	--	<1.0	--	--	--	
	1/23/2020	651	<49.5	--	--	--	--	--	--	--	--	<1.0	--	--	--	
5/19/2020*	519	<99.4	<1.00	<2.00	--	--	--	--	--	--	<1.00	--	--	--	--	
MW-2	5/21/2013	LNAPL PRESENT		--	--	--	--	--	--	--	--	--	--	--	--	
	11/21/2013	LNAPL PRESENT		--	--	--	--	--	--	--	--	--	--	--	--	--
	3/4/2014	LNAPL PRESENT		--	--	--	--	--	--	--	--	--	--	--	--	--
	8/5/2016	LNAPL PRESENT		--	--	--	--	--	--	--	--	--	--	--	--	--
	11/30/2016	LNAPL PRESENT		--	--	--	--	--	--	--	--	--	--	--	--	--
	10/9/2018	LNAPL PRESENT		--	--	--	--	--	--	--	--	--	--	--	--	--
	1/23/2020	LNAPL PRESENT		--	--	--	--	--	--	--	--	--	--	--	--	--
5/19/2020*	LNAPL PRESENT		--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	5/20/2013	11,000	<570	--	--	--	--	--	--	--	--	--	--	--	--	
	11/21/2013	2,010	<100	--	--	--	--	--	--	--	--	--	--	--	--	
	3/4/2014	1,100	<250	--	--	--	--	--	--	--	--	--	0.067	0.35	0.069	
	9/15/2015	604	<99.8	--	--	--	--	--	--	--	--	--	<0.10	<0.10	<0.10	
	1/22/2016 & DUP1	895/532	<99.9/<100	--	--	--	--	--	--	--	--	<1.0/<1.0	--	--	--	
	8/5/2016	3,010	<99.9	--	--	--	--	--	--	--	--	<1.0	--	--	--	
	11/30/2016	439	<99.7	--	--	--	--	--	--	--	--	<1.0	--	--	--	
	10/9/2018	712	<99.7	--	--	--	--	--	--	--	--	<1.0	<0.0991	0.396	<0.0991	
	1/23/2020	425	<49.9	--	--	--	--	--	--	--	--	<1.0	<0.0993	0.145	<0.0993	
	5/19/2020*	613	<99.7	<1.00	<2.00	--	--	--	--	--	--	<1.00	--	--	--	--
MW-4	5/21/2013	22,000	<1,100	--	--	--	--	--	--	--	--	--	--	--	--	
	11/21/2013	29,800	185	--	--	--	--	--	--	--	--	--	--	--	--	
	3/4/2014	1,300	340	--	--	--	--	--	--	--	--	--	0.026	<0.020	<0.020	
	9/15/2015	3,860	<101	--	--	--	--	--	--	--	--	--	0.566	0.181	0.406	
	1/22/2016	255	<99.8	--	--	--	--	--	--	--	--	<1.0	--	--	--	
	8/5/2016	783	<99.5	--	--	--	--	--	--	--	--	1.50	--	--	--	
	11/30/2016	609	<99.5	--	--	--	--	--	--	--	--	<1.0	--	--	--	
	10/9/2018	5,130	<99.7	--	--	--	--	--	--	--	--	<1.0	0.575	0.498	0.106	
	1/23/2020 & DUP1	115/96.9	<49.8/<49.8	--	--	--	--	--	--	--	--	<1.0/<1.0	<0.0999	<0.0999	<0.0999	
5/19/2020*	1,060	<98.5	<1.00	<2.00	--	--	--	--	--	--	1.40	--	--	--	--	
MW-5Recon	11/19/2013	2,080	<100	--	--	--	--	--	--	--	--	--	--	--	--	
MW-5	11/21/2013	1,250	<100	1.59	3.7	4.29	2.92	4.44	1.88	22.4	2.34	9.66	--	--	--	
	3/4/2014	Not Sampled Due to Lake Level														
	9/15/2015	209	206	--	--	--	--	--	--	--	--	--	<0.0998	<0.0998	0.714	--
	1/22/2016	377	<99.8	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	8/5/2016	160	<99.8	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	11/30/2016	437	<99.4	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	10/9/2018	764	<99.7	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	1/23/2020	Not Sampled Due to Lake Level														
	5/19/2020* & DUP1	<49.4/49.9	<98.8/<99.5	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-6Recon	11/19/2013	1,450	<100	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	11/21/2013	1,120	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.04	<1.0	1.11	--	--	--	
	3/4/2014	400	<250	--	--	--	--	--	--	--	--	--	--	--	--	
	9/15/2015	117	261	--	--	--	--	--	--	--	--	--	<0.0999	<0.0999	0.568	
	1/22/2016	199	<100	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	8/5/2016	126	<100	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	11/30/2016	136	<99.5	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	10/9/2018	642	<99.4	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	1/23/2020	60.6	<49.9	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
5/19/2020*	51.2	<99.4	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	3/4/2014	<130	<250	--	--	--	--	--	--	--	--	--	--	--	--	--
	10/9/2018	<49.9	<99.7	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	1/23/2020	<49.5	<98.9	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	5/19/2020*	<48.8	<97.6	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	3/4/2014	<130	<250	--	--	--	--	--	--	--	--	--	--	--	--	--
	10/9/2018	<49.8	<99.7	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	1/23/2020	<49.5	<99.1	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	5/19/2020*	<49.7	<99.5	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	5/19/2020*	125	<98.7	--	--	--	--	--	--	--	--	--	--	--	--	
Site-Specific Cleanup Groundwater Levels^d		500	NVE	12	57	NVE	NVE	NVE	NVE	NVE	NVE	8.93	8.93	NVE	NVE	
MTCA Method A Groundwater Cleanup Levels^e		500	500	700	1,000	400 ^f	800	800	NVE	NVE	80	160	160	1.5 ^f	32 ^f	

Notes:

All results presented in micrograms per liter (µg/L).

- Bold** Bold results indicate that the compound was detected.
- Shaded results exceed the cleanup level.
- ^a Analyzed by Method NWTPH-Dx/Dx Extended.
- ^b Analyzed by EPA Method 8260 reporting only non-halogenated hydrocarbons (except Naphthalenes as indicated).
- ^c Analyzed by EPA Method 8270 SIM.
- ^d Groundwater Cleanup Level (CUL) is the lower of the Groundwater Screening Level for Indoor Air and the Surface Water CUL.
- ^e Model Toxics Control Act (MTCA) Method A Groundwater Cleanup Levels, WAC 173-340-900, Table 720-1.
- ^f When no MTCA Method A established, MTCA Method B Groundwater Cleanup Levels from Cleanup Levels and Risk Calculations (CLARC) spreadsheet used. Where cleanup levels based on carcinogenic and non-carcinogenic risk were available, the lower value is listed.
- NVE No value established.
- Sample was not analyzed for this compound.
- * May 19, 2020 information provided by G-Logics.

Compounds:
 DRO Diesel-range organics
 ORO Oil-range organics

Table 5
Soil Gas and Indoor Air Analytical Results
Remedial Investigation Report
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Sample Type	Sample Location	Sample Date	Acetone	Benzene	Carbon Disulfide	Dichloro-difluoro-methane (CFC-12)	Hexane	Naphthalene	Propylene	Tetrachloro-ethylene (PCE)	Toluene	1,1,1-Trichloro-ethane	m,p-Xylenes
Mossman Sub-Slab Soil Gas	A-1ss	11/26/2013	4.13	<0.639	<0.623	2.13	<0.705	3.50	<0.861	2.75	<0.754	<1.09	<0.868
	A-2ss	11/26/2013	4.33	<0.639	<0.623	2.19	<0.705	2.59	<0.861	3.67	<0.754	<1.09	<0.868
	A-3ss	11/26/2013	4.99	1.29	0.920	2.25	<0.705	5.73	<0.861	3.31	<0.754	1.15	<0.868
MTCA Method B Soil Gas Screening Level based on carcinogenic or noncarcinogenic risk driver^a			NVE	10.7	10,700	1520	10,700	2.45	NVE	321	76,200	76,200	1520
Mossman Indoor Air	A-1IA	11/26/2013	4.93	1.24	<0.623	2.32	0.854	<1.57	5.04	<2.03	2.79	<1.09	1.11
	A-1IA _{adj} ^a		1.39	0.445	<0.623	0.05	0.854	<1.57	5.04	<2.03	1.00	<1.09	0.213
	A-2IA	11/26/2013	6.24	1.18	<0.623	2.39	0.773	<1.57	4.19	<2.03	3.06	<1.09	1.16
	A-2IA _{adj} ^a		2.7	0.385	<0.623	0.12	0.773	<1.57	4.19	<2.03	1.27	<1.09	0.263
	A-3IA	11/26/2013	5.58	1.14	<0.623	2.21	0.787	<1.57	4.86	<2.03	2.65	<1.09	1.06
	A-3IA _{adj} ^a		2.04	0.345	<0.623	--	0.787	<1.57	4.86	<2.03	0.86	<1.09	0.163
Rainwater Residence Crawlspace	A-4cs	11/26/2013	<1.00	0.842	<0.623	3.26	<0.705	<1.57	<0.861	<2.03	1.98	<1.09	1.05
	A-4cs _{adj} ^a		<1.00	0.047	<0.623	0.99	<0.705	<1.57	<0.861	<2.03	0.19	<1.09	0.153
Outdoor Ambient	A-5AM	11/26/2013	3.54	0.795	<0.623	2.27	<0.705	<1.57	<0.861	<2.03	1.79	<1.09	0.897
MTCA Method B Indoor Air Cleanup Level based on carcinogenic or noncarcinogenic risk driver^b			14,200	0.32	320	46	320	0.0735	NVE	9.62	2,290	2,290	46

Notes:

All results presented in micrograms per cubic meters (µg/m³).

All samples collected using a 6-Liter Summa Cannister with an 8-hour inlet.

All samples analyzed using EPA Method TO-15.

Bold Bold results indicate that the compound was detected.

Shaded Shaded results exceed the cleanup level.

^a Sample was adjusted by subtracting the ambient air constituent concentrations from the indoor air/crawlspace concentrations.

Table 6
Sediment Analytical Results
Remedial Investigation Report
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Sample ID	Sample Date	Total Petroleum Hydrocarbons ^a		Naphthalene ^b	1-Methyl-naphthalene ^b	2-Methyl-naphthalene ^b
		DRO	ORO			
SS-1	9/15/2015	<24.2	<60.4	<0.0633	<0.0633	<0.0633
SS-2	9/15/2015	<21.9	<54.7	<0.0587	<0.0587	<0.0587
SS-3	9/15/2015	<20.4	<50.9	<0.0574	<0.0574	<0.0574
SS-4	9/15/2015	<22.5	<56.3	<0.0611	<0.0611	<0.0611
SS-5	9/15/2015	<25.2	<62.9	<0.0629	<0.0629	<0.0629
Sediment Cleanup Screening Levels^b		510	NVE	6,240	NVE	NVE
Sediment Cleanup Objectives^c		340	NVE	624	NVE	NVE

Notes:

All results presented in milligrams per kilogram (mg/kg) dry weight.

a Analyzed by Method NWTPH-Dx

b Analyzed by EPA Method 200.8.

c Cleanup Screening Levels based on Freshwater Marine/Benthic Screening Levels (WAC 173-204-562 and -563).

d Cleanup Objectives based on Freshwater Marine/Benthic Sediment Cleanup Objectives (WAC 173-204-562 and -563).

NVE No value established.

Compounds:

DRO Diesel-range organics

ORO Oil-range organics

Table 7
Sediment Cleanup Levels
Remedial Investigation Report
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Compound of Potential Concern	Sediment Cleanup Objective (mg/kg Dry Weight) ^a					
	Natural Background WAC 173-204-505(11)	Practical Quantitation Limit WAC 173-204-505(15) ^c	Risk-Based Concentration WAC 173-204-560(3)(a) ^b			
			Freshwater Benthic SCO WAC 173-204-563	Human Health Risk WAC 173-204-561(2)(a)	Higher Trophic Level Risk WAC 173-204-564	Applicable Laws WAC 173-204-505(2)
Diesel-Range Organics	NVE	18.3	340	NVE	NA	NVE
Naphthalene	NVE	0.006	NVE	624	NA	NVE

Notes:

SCO Sediment Cleanup Objective.

Selected Sediment Cleanup Objective.

NVE No value established.

NA Not applicable. Because the Site qualifies for an exclusion from the terrestrial ecological evaluation, ecological risk-based concentrations were not developed.

a The SCO is the *highest* value of (i) Natural Background, (ii) PQL, and (iii) Risk-Based Concentration as described in Note b.

b The Risk-Based Concentration is the *lowest* value of (i) Freshwater Benthic SCO, (ii) Human Health Risk, (iii) Higher Trophic Level Risk, and (iv) Applicable Laws.

c PQL values taken from Sediment Cleanup Users Manual II, Appendix D.

Compound of Potential Concern	Cleanup Screening Level (mg/kg Dry Weight) ^a					
	Regional Background WAC 173-204-505(11)	Practical Quantitation Limit WAC 173-204-505(15) ^c	Risk-Based Concentration WAC 173-204-560(3)(a) ^b			
			Freshwater Benthic CSL WAC 173-204-563	Human Health Risk WAC 173-204-561(3)(b)	Higher Trophic Level Risk WAC 173-204-564	Applicable Laws WAC 173-204-505(2)
Diesel-Range Organics	NVE	18.3	510	NVE	NA	NVE
Naphthalene	NVE	0.006	NVE	6,240	NA	NVE

Notes:

CSL Cleanup Screening Level.

Selected Cleanup Screening Level.

NVE No value established.

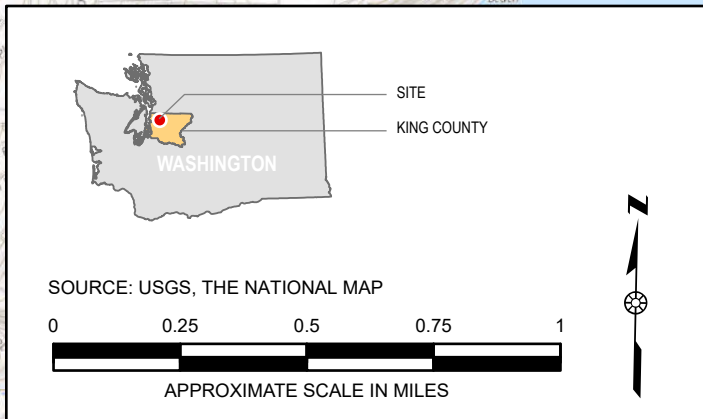
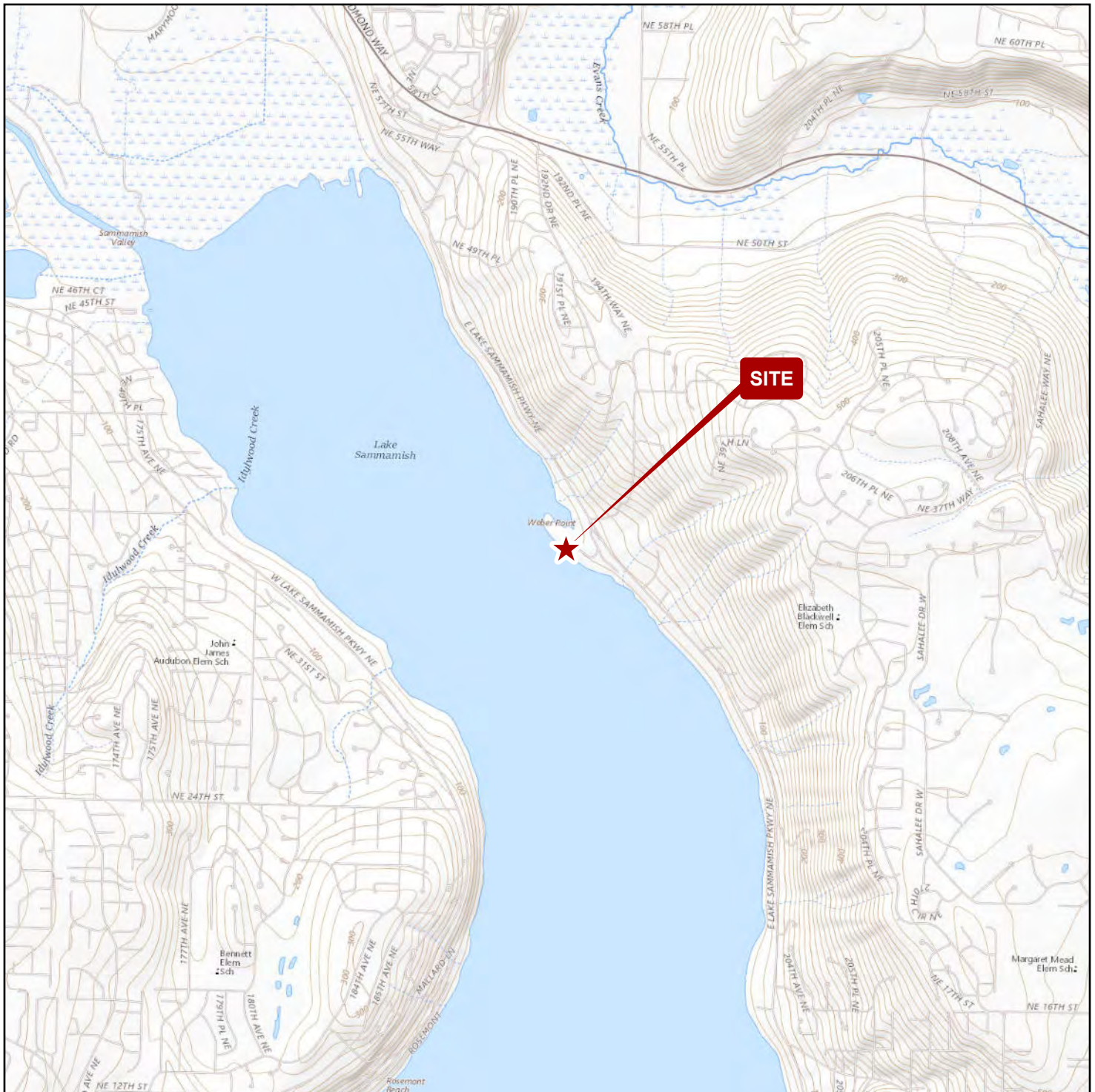
NA Not applicable. Because the Site qualifies for an exclusion from the terrestrial ecological evaluation, ecological risk-based concentrations were not developed.

a The CSL is the *highest* value of (i) Regional Background, (ii) PQL, and (iii) Risk-Based Concentration as described in Note b.

b The Risk-Based Concentration is the *lowest* value of (i) Freshwater Benthic CSL, (ii) Human Health Risk, (iii) Higher Trophic Level Risk, and (iv) Applicable Laws.

c PQL values taken from Sediment Cleanup Users Manual II, Appendix D

Figures



1180 NW MAPLE ST, SUITE 310
 ISSAQUAH, WA 98027
 425.395.0010
 WWW.TRCCOMPANIES.COM

FIGURE 1
GENERAL VICINITY MAP

REPORT
 REMEDIAL INVESTIGATION
 REPORT

PREPARED FOR
 MR. MIKE MOSSMAN

LOCATION
 3461 E LAKE SAMMAMISH SHORE LN
 NE SAMMAMISH, WASHINGTON

PROJECT NUMBER
 015364.0007

DATE 4/22/21
DRAWN BY VPB
REVIEWED BY SPT

FIGURE 2

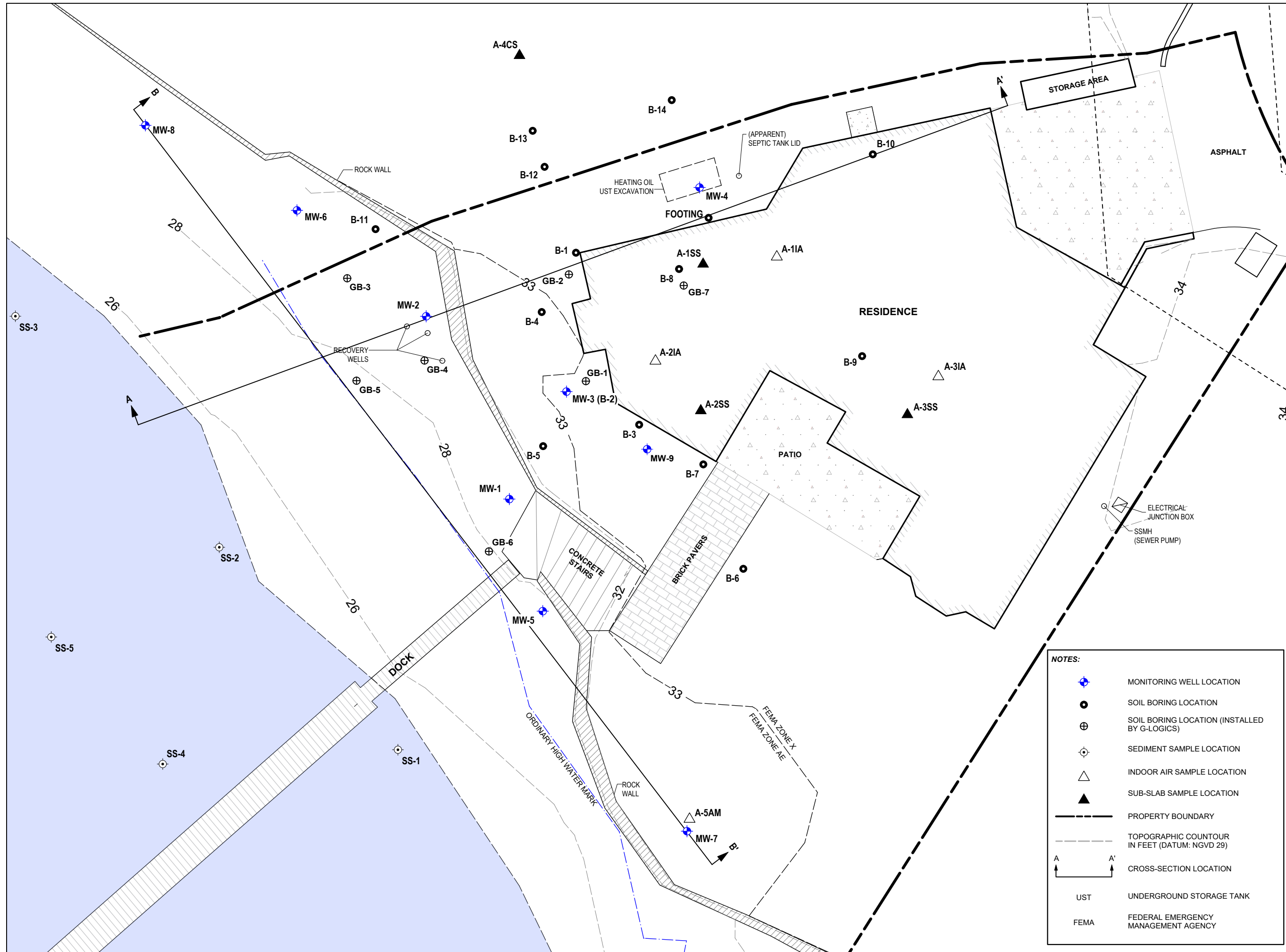
SITE REPRESENTATION
 WITH SAMPLE LOCATIONS
 AND CROSS-SECTION
 LOCATIONS

REPORT
 REMEDIAL INVESTIGATION REPORT

LOCATION
 3461 E LAKE SAMMAMISH SHORE LN NE
 SAMMAMISH, WASHINGTON

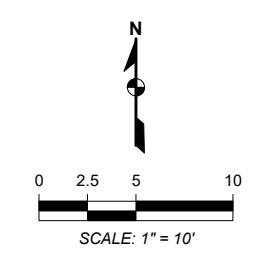
PREPARED FOR
 MR. MIKE MOSSMAN

PROJECT NUMBER
 015364.0007



NOTES:

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- SOIL BORING LOCATION (INSTALLED BY G-LOGICS)
- SEDIMENT SAMPLE LOCATION
- INDOOR AIR SAMPLE LOCATION
- SUB-SLAB SAMPLE LOCATION
- PROPERTY BOUNDARY
- TOPOGRAPHIC COUNTOUR IN FEET (DATUM: NGVD 29)
- CROSS-SECTION LOCATION
- UST UNDERGROUND STORAGE TANK
- FEMA FEDERAL EMERGENCY MANAGEMENT AGENCY



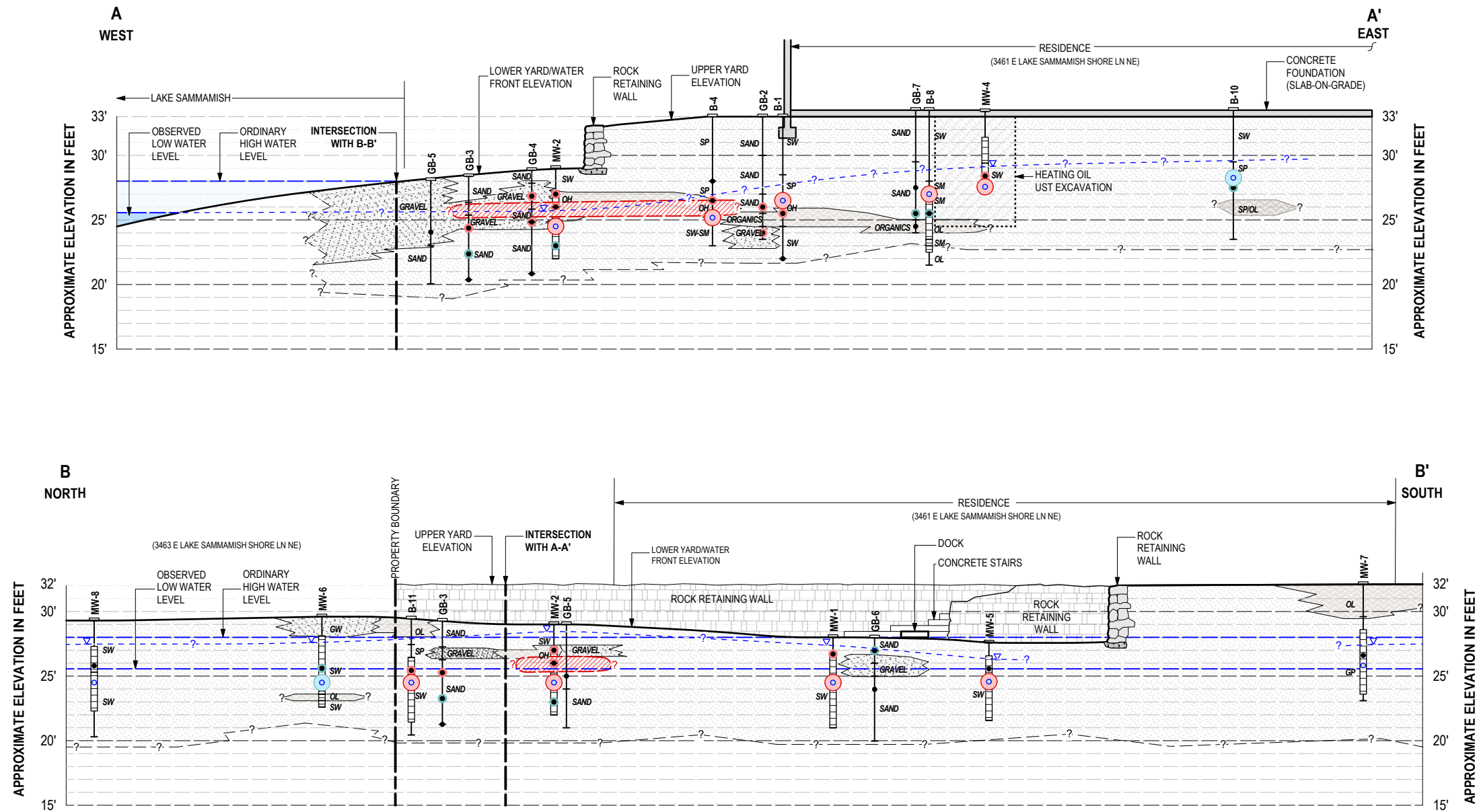


FIGURE 3
 INTERPRETIVE CROSS-SECTIONS A-A' AND B-B'

REPORT
 REMEDIAL INVESTIGATION REPORT

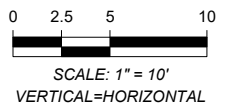
LOCATION
 3461 E LAKE SAMMAMISH SHORE LN NE
 SAMMAMISH, WASHINGTON

PREPARED FOR
 MR. MIKE MOSSMAN

PROJECT NUMBER
 015364.0007

NOTES:

	SOIL BORING/WELL LOCATION		GP POORLY GRADED GRAVEL		INDICATES ONE OR MORE COMPOUNDS IN SOIL EXCEEDS CLEANUP LEVELS (CULs)
	LITHOLOGY DESIGNATIONS		GW GRAVEL		INDICATES ONE OR MORE COMPOUNDS IN SOIL EXCEEDS LABORATORY REPORTING LIMITS
	LITHOLOGY CONTACT		OH ORGANIC CLAY		INDICATES ONE OR MORE COMPOUNDS IN GROUNDWATER EXCEEDS CLEANUP LEVELS (CULs)
	SOIL SAMPLE LOCATION		OL ORGANIC SILT		INDICATES ONE OR MORE COMPOUNDS IN GROUNDWATER EXCEEDS LABORATORY REPORTING LIMITS
	OBSERVED GROUNDWATER ELEVATION		SP POORLY GRADED SAND		ESTIMATED EXTENT OF LNAPL, QUERIED WHERE UNKNOWN
	GROUNDWATER SAMPLE LOCATION		SW WELL-GRADED SAND		LNAPL LIGHT NON-AQUEOUS PHASE LIQUID
	WELL SCREEN INTERVAL				
	TOTAL DEPTH				



DATE 4/22/21
DRAWN BY VPB
REVIEWED BY SPT

FIGURE 4

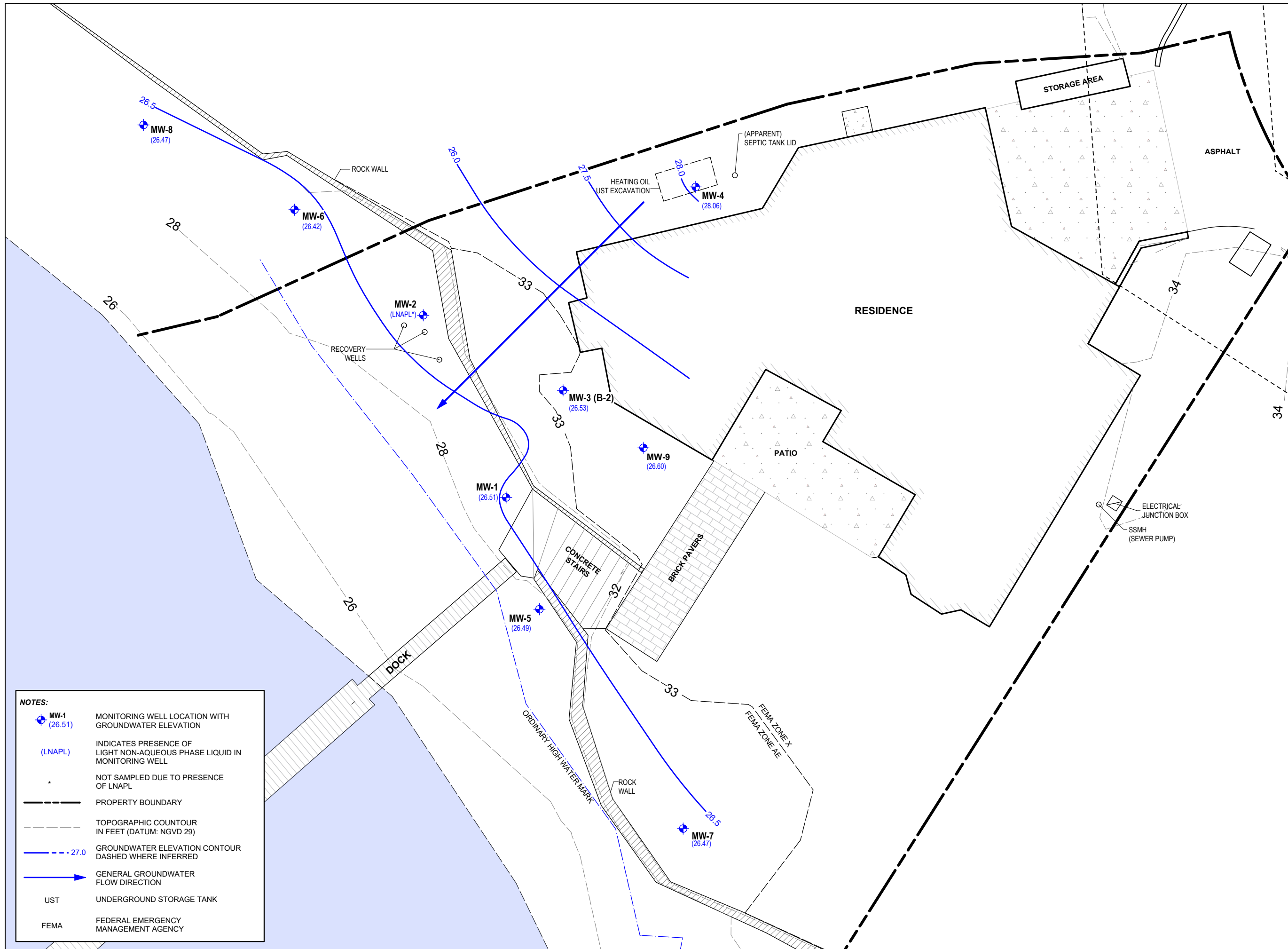
**WATER TABLE
 PIEZOMETRIC
 CONTOURS FOR
 MAY 2020**

REPORT
 REMEDIAL INVESTIGATION REPORT

LOCATION
 3461 E LAKE SAMMAMISH SHORE LN NE
 SAMMAMISH, WASHINGTON

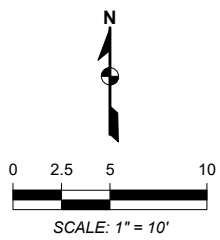
PREPARED FOR
 MR. MIKE MOSSMAN

PROJECT NUMBER
 015364.0007



NOTES:

	MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION
	INDICATES PRESENCE OF LIGHT NON-AQUEOUS PHASE LIQUID IN MONITORING WELL
	NOT SAMPLED DUE TO PRESENCE OF LNAPL
	PROPERTY BOUNDARY
	TOPOGRAPHIC CONTOUR IN FEET (DATUM: NGVD 29)
	GROUNDWATER ELEVATION CONTOUR DASHED WHERE INFERRED
	GENERAL GROUNDWATER FLOW DIRECTION
	UNDERGROUND STORAGE TANK
	FEDERAL EMERGENCY MANAGEMENT AGENCY



DATE 4/22/21
DRAWN BY VPB
REVIEWED BY SPT

FIGURE 5

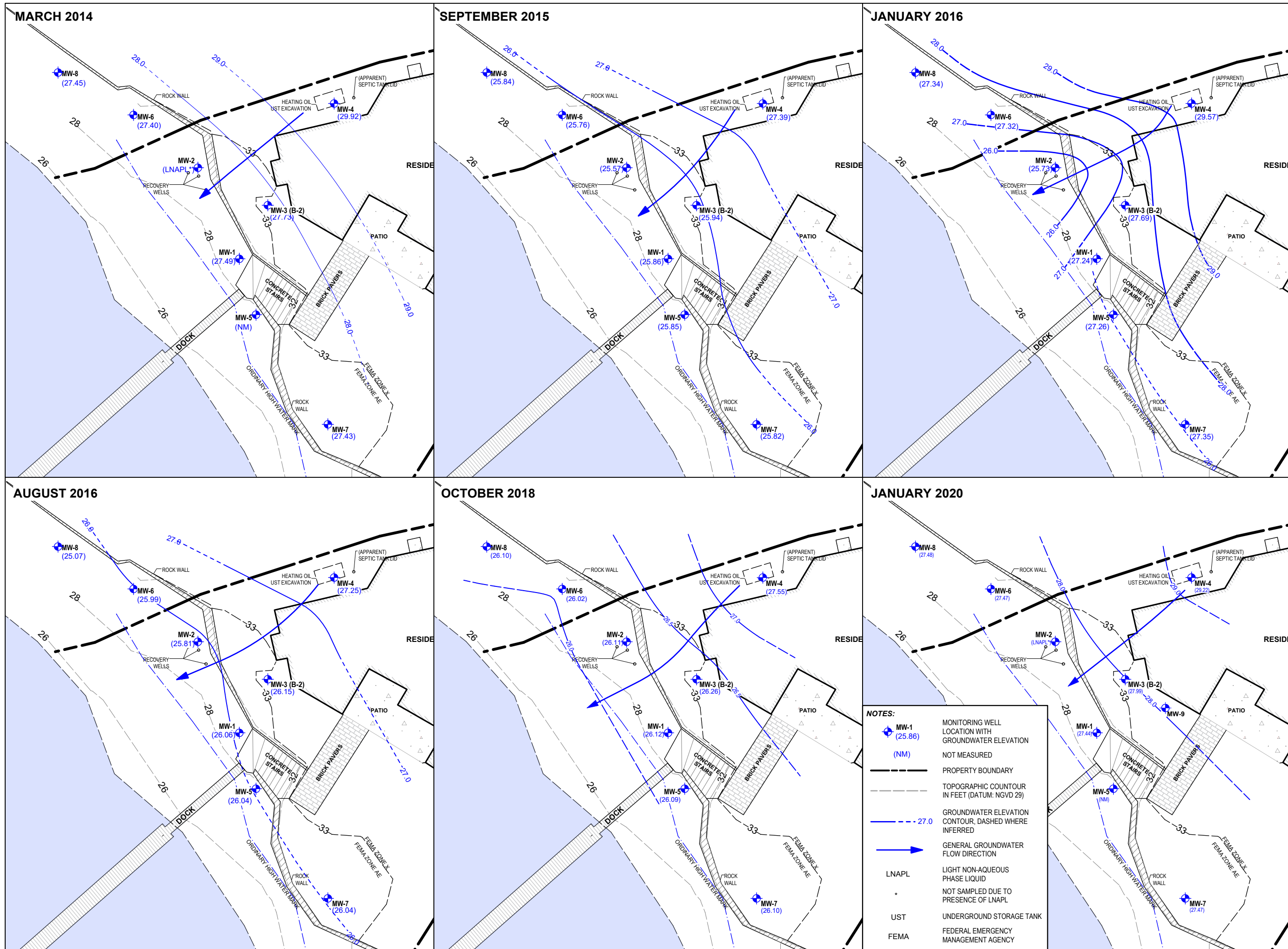
WATER TABLE
 PIEZOMETRIC CONTOURS
 FOR MARCH 2014 -
 JANUARY 2020

REPORT
 REMEDIAL INVESTIGATION REPORT

LOCATION
 3461 E LAKE SAMMAMISH SHORE LN NE
 SAMMAMISH, WASHINGTON

PREPARED FOR
 MR. MIKE MOSSMAN

PROJECT NUMBER
 015364.0007



NOTES:

- MW-1 (25.86)
- (NM) NOT MEASURED
- PROPERTY BOUNDARY
- TOPOGRAPHIC CONTOUR IN FEET (DATUM: NGVD 29)
- GROUNDWATER ELEVATION CONTOUR, DASHED WHERE INFERRED
- GENERAL GROUNDWATER FLOW DIRECTION
- LNAPL LIGHT NON-AQUEOUS PHASE LIQUID
- UST NOT SAMPLED DUE TO PRESENCE OF LNAPL
- FEMA UNDERGROUND STORAGE TANK
- FEMA FEDERAL EMERGENCY MANAGEMENT AGENCY

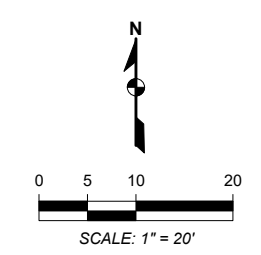


FIGURE 6

SOIL AND SEDIMENT ANALYTICAL RESULTS
 PETROLEUM
 HYDROCARBONS (mg/kg)

REPORT
 REMEDIAL INVESTIGATION REPORT

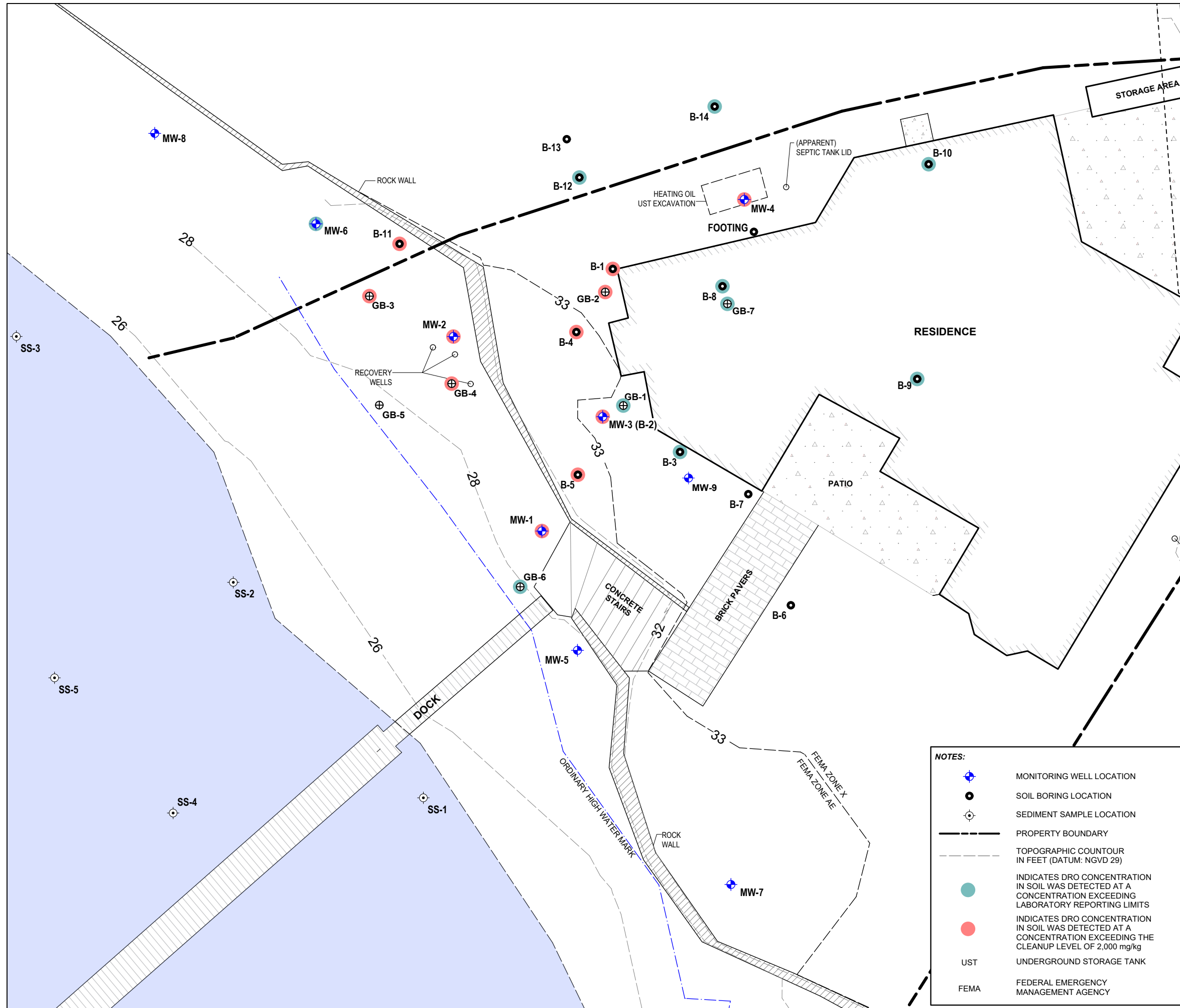
LOCATION
 3461 E LAKE SAMMAMISH SHORE LN NE
 SAMMAMISH, WASHINGTON

PREPARED FOR
 MR. MIKE MOSSMAN

PROJECT NUMBER
 015364.0007

SOIL SAMPLING RESULTS			
SAMPLE	DATE	DRO	ORO
B-1:7.5	5/20/13	27,000	<1,500
B-1:11	5/20/13	<20	<50
B-2:5	5/20/13	<30	<60
B-2:7.5	5/20/13	4,800	<400
B-3:4	5/20/13	<20	<53
B-3:6.5	5/20/13	49	350
B-4:5	5/20/13	<20	<50
B-4:6.5	5/20/13	7,600	<910
B-5:4	5/20/13	<20	<50
B-5:6.5	5/20/13	6,700	<350
B-6:3.5	5/20/13	<20	<50
B-6:5.5	5/20/13	<30	<60
MW-1:1.3	5/21/13	32,000	<1,800
MW-2:2	5/21/13	13,000	<890
MW-2:3	5/21/13	43,000	<1,600
MW-2:6	5/21/13	300	1,000
B-7:6	5/21/13	<30	<60
MW-4:5	5/21/13	26,000	<1,500
Footings:1.5	5/21/13	<20	<50
B-8:8	11/20/13	1,910	<68.0
B-9:8	11/20/13	372	<70
B-10:6	11/20/13	502	<65.0
B-11:4	11/19/13	3,480	<49.0
B-12:7	11/19/13	54.1	<69.0
B-13:7.7	2/17/14	<20	<50
B-14:7	2/17/14	640	<50
MW-5:2	11/19/13	<21.0	<53.0
MW-6:4	11/19/13	228	<52.0
MW-7:5.5	2/17/14	<20	<50
MW-8:3.5	2/17/14	<20	<50
MW-9:7	5/14/20	<31.6	180
MW-9:10	5/14/20	<21.6	<54.0
GB-1:7	5/14/20	1,540	174
GB-1:9	5/14/20	947	<52.6
GB-2:7	5/14/20	13,800	<68.3
GB-2:9	5/14/20	7,410	178
GB-3:4	5/14/20	3,740	<51.8
GB-3:6	5/14/20	64.9	<49.5
GB-3:8	5/14/20	<21.3	<53.3
GB-4:2	5/14/20	30,900	<47.5
GB-4:4	5/14/20	28,900	<55.4
GB-4:8	5/14/20	<21.8	<54.5
GB-5:4	5/14/20	<21.7	<54.3
GB-6:1	5/14/20	105	<59.4
GB-6:4	5/14/20	<23.1	<57.7
GB-7:6	5/14/20	<20.5	<51.2
GB-7:8	5/14/20	1,530	<62.9
GB-7:9	5/14/20	<31.6	<79.0

SEDIMENT SAMPLING RESULTS			
SAMPLE	DATE	DRO	ORO
SS-1	9/15/15	<24.2	<60.4
SS-2	9/15/15	<21.9	<54.7
SS-3	9/15/15	<20.4	<50.9
SS-4	9/15/15	<22.5	<56.3
SS-5	9/15/15	<25.2	<62.9



NOTES:

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- SEDIMENT SAMPLE LOCATION
- PROPERTY BOUNDARY
- TOPOGRAPHIC COUNTOUR IN FEET (DATUM: NGVD 29)
- INDICATES DRO CONCENTRATION IN SOIL WAS DETECTED AT A CONCENTRATION EXCEEDING LABORATORY REPORTING LIMITS
- INDICATES DRO CONCENTRATION IN SOIL WAS DETECTED AT A CONCENTRATION EXCEEDING THE CLEANUP LEVEL OF 2,000 mg/kg
- UST UNDERGROUND STORAGE TANK
- FEMA FEDERAL EMERGENCY MANAGEMENT AGENCY
- ORO OIL-RANGE ORGANICS
- DRO DIESEL-RANGE ORGANICS

BOLD RESULTS INDICATE THAT THE COMPOUND WAS DETECTED, BUT CONCENTRATION IS LESS THAN APPLICABLE CLEANUP LEVEL

BOLD RESULTS WITH GRAY BACKGROUND EXCEED THE CLEANUP LEVEL

ALL RESULTS PRESENTED IN MILLIGRAMS PER KILOGRAM (mg/kg)

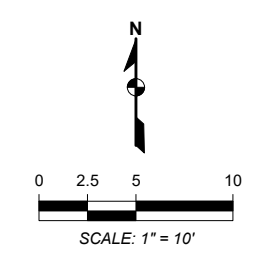


FIGURE 7

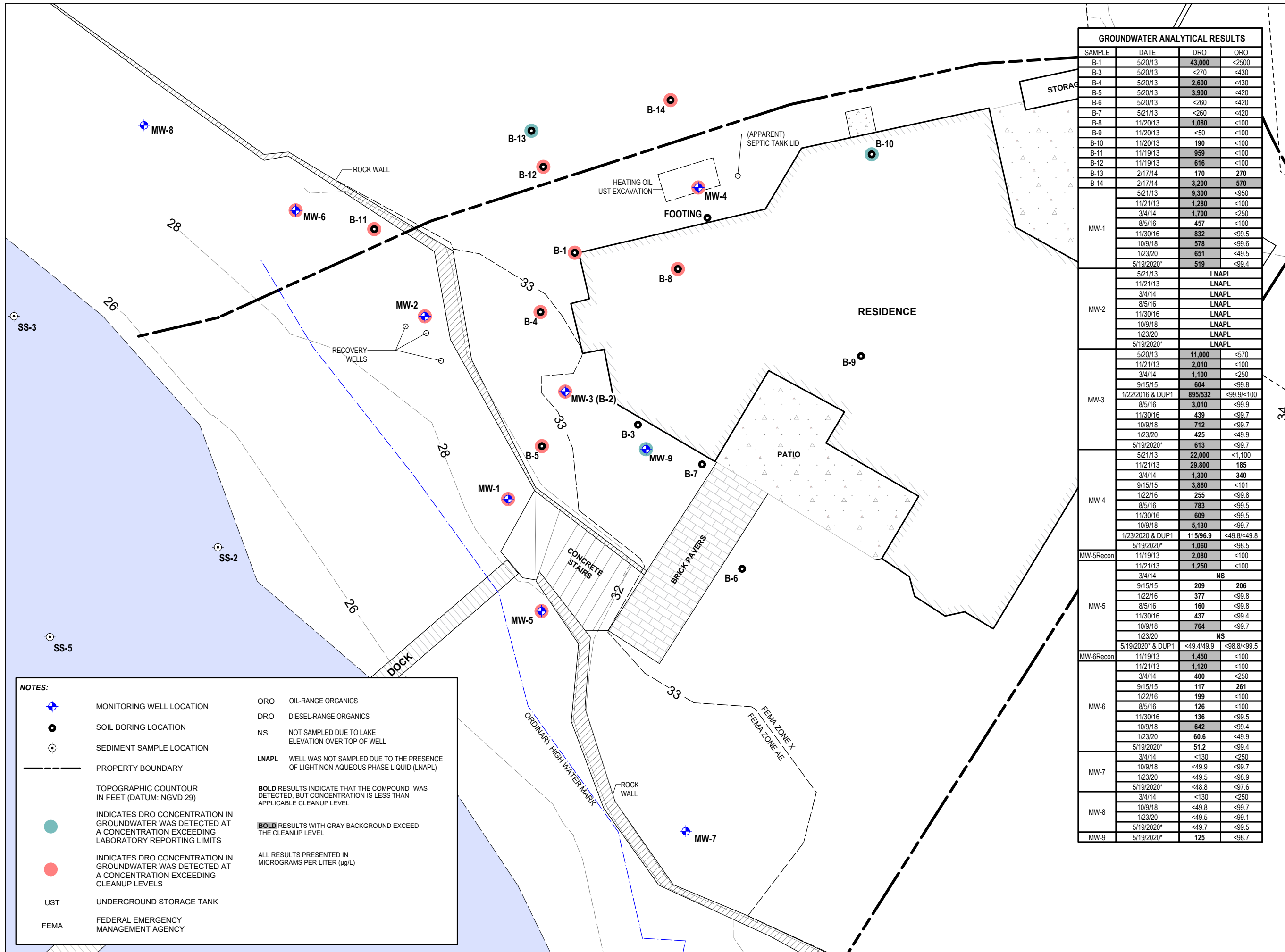
GROUNDWATER ANALYTICAL RESULTS
PETROLEUM
HYDROCARBONS (µg/L)

REPORT
REMEDIAL INVESTIGATION REPORT

LOCATION
3461 E LAKE SAMMAMISH SHORE LN NE
SAMMAMISH, WASHINGTON

PREPARED FOR
MR. MIKE MOSSMAN

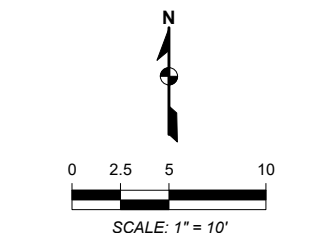
PROJECT NUMBER
015364.0007



GROUNDWATER ANALYTICAL RESULTS			
SAMPLE	DATE	DRO	ORO
B-1	5/20/13	43,000	<2500
B-3	5/20/13	<270	<430
B-4	5/20/13	2,600	<430
B-5	5/20/13	3,900	<420
B-6	5/20/13	<260	<420
B-7	5/21/13	<260	<420
B-8	11/20/13	1,080	<100
B-9	11/20/13	<50	<100
B-10	11/20/13	190	<100
B-11	11/19/13	959	<100
B-12	11/19/13	616	<100
B-13	2/17/14	170	270
B-14	2/17/14	3,200	570
MW-1	5/21/13	9,300	<950
MW-1	11/21/13	1,280	<100
MW-1	3/4/14	1,700	<250
MW-1	8/5/16	457	<100
MW-1	11/30/16	832	<99.5
MW-1	10/9/18	578	<99.6
MW-1	1/23/20	651	<49.5
MW-1	5/19/2020*	519	<99.4
MW-2	5/21/13	LNAPL	LNAPL
MW-2	11/21/13	LNAPL	LNAPL
MW-2	3/4/14	LNAPL	LNAPL
MW-2	8/5/16	LNAPL	LNAPL
MW-2	11/30/16	LNAPL	LNAPL
MW-2	10/9/18	LNAPL	LNAPL
MW-2	1/23/20	LNAPL	LNAPL
MW-2	5/19/2020*	LNAPL	LNAPL
MW-3	5/20/13	11,000	<570
MW-3	11/21/13	2,010	<100
MW-3	3/4/14	1,100	<250
MW-3	9/15/15	604	<99.8
MW-3	1/22/2016 & DUP1	895/532	<99.9/<100
MW-3	8/5/16	3,010	<99.9
MW-3	11/30/16	439	<99.7
MW-3	10/9/18	712	<99.7
MW-3	1/23/20	425	<49.9
MW-3	5/19/2020*	613	<99.7
MW-4	5/21/13	22,000	<1,100
MW-4	11/21/13	29,800	185
MW-4	3/4/14	1,300	340
MW-4	9/15/15	3,860	<101
MW-4	1/22/16	255	<99.8
MW-4	8/5/16	783	<99.5
MW-4	11/30/16	609	<99.5
MW-4	10/9/18	5,130	<99.7
MW-4	1/23/2020 & DUP1	115/96.9	<49.8/<49.8
MW-5Recon	5/19/2020*	1,060	<98.5
MW-5	11/19/13	2,080	<100
MW-5	11/21/13	1,250	<100
MW-5	3/4/14	NS	NS
MW-5	9/15/15	209	206
MW-5	1/22/16	377	<99.8
MW-5	8/5/16	160	<99.8
MW-5	11/30/16	437	<99.4
MW-5	10/9/18	764	<99.7
MW-5	1/23/20	NS	NS
MW-5	5/19/2020* & DUP1	<49.4/<49.9	<98.8/<99.5
MW-6Recon	11/19/13	1,450	<100
MW-6	11/21/13	1,120	<100
MW-6	3/4/14	400	<250
MW-6	9/15/15	117	261
MW-6	1/22/16	199	<100
MW-6	8/5/16	126	<100
MW-6	11/30/16	136	<99.5
MW-6	10/9/18	642	<99.4
MW-6	1/23/20	60.6	<49.9
MW-6	5/19/2020*	51.2	<99.4
MW-7	3/4/14	<130	<250
MW-7	10/9/18	<49.9	<99.7
MW-7	1/23/20	<49.5	<98.9
MW-7	5/19/2020*	<48.8	<97.6
MW-8	3/4/14	<130	<250
MW-8	10/9/18	<49.8	<99.7
MW-8	1/23/20	<49.5	<99.1
MW-8	5/19/2020*	<49.7	<99.5
MW-9	5/19/2020*	125	<98.7

NOTES:

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- SEDIMENT SAMPLE LOCATION
- PROPERTY BOUNDARY
- TOPOGRAPHIC CONTOUR IN FEET (DATUM: NGVD 29)
- INDICATES DRO CONCENTRATION IN GROUNDWATER WAS DETECTED AT A CONCENTRATION EXCEEDING LABORATORY REPORTING LIMITS
- INDICATES ORO CONCENTRATION IN GROUNDWATER WAS DETECTED AT A CONCENTRATION EXCEEDING CLEANUP LEVELS
- UST UNDERGROUND STORAGE TANK
- FEMA FEDERAL EMERGENCY MANAGEMENT AGENCY
- ORO OIL-RANGE ORGANICS
- DRO DIESEL-RANGE ORGANICS
- NS NOT SAMPLED DUE TO LAKE ELEVATION OVER TOP OF WELL
- LNAPL WELL WAS NOT SAMPLED DUE TO THE PRESENCE OF LIGHT NON-AQUEOUS PHASE LIQUID (LNAPL)
- BOLD** RESULTS INDICATE THAT THE COMPOUND WAS DETECTED, BUT CONCENTRATION IS LESS THAN APPLICABLE CLEANUP LEVEL
- BOLD** RESULTS WITH GRAY BACKGROUND EXCEED THE CLEANUP LEVEL
- ALL RESULTS PRESENTED IN MICROGRAMS PER LITER (µg/L)



DATE 4/22/21
DRAWN BY VPB
REVIEWED BY SPT

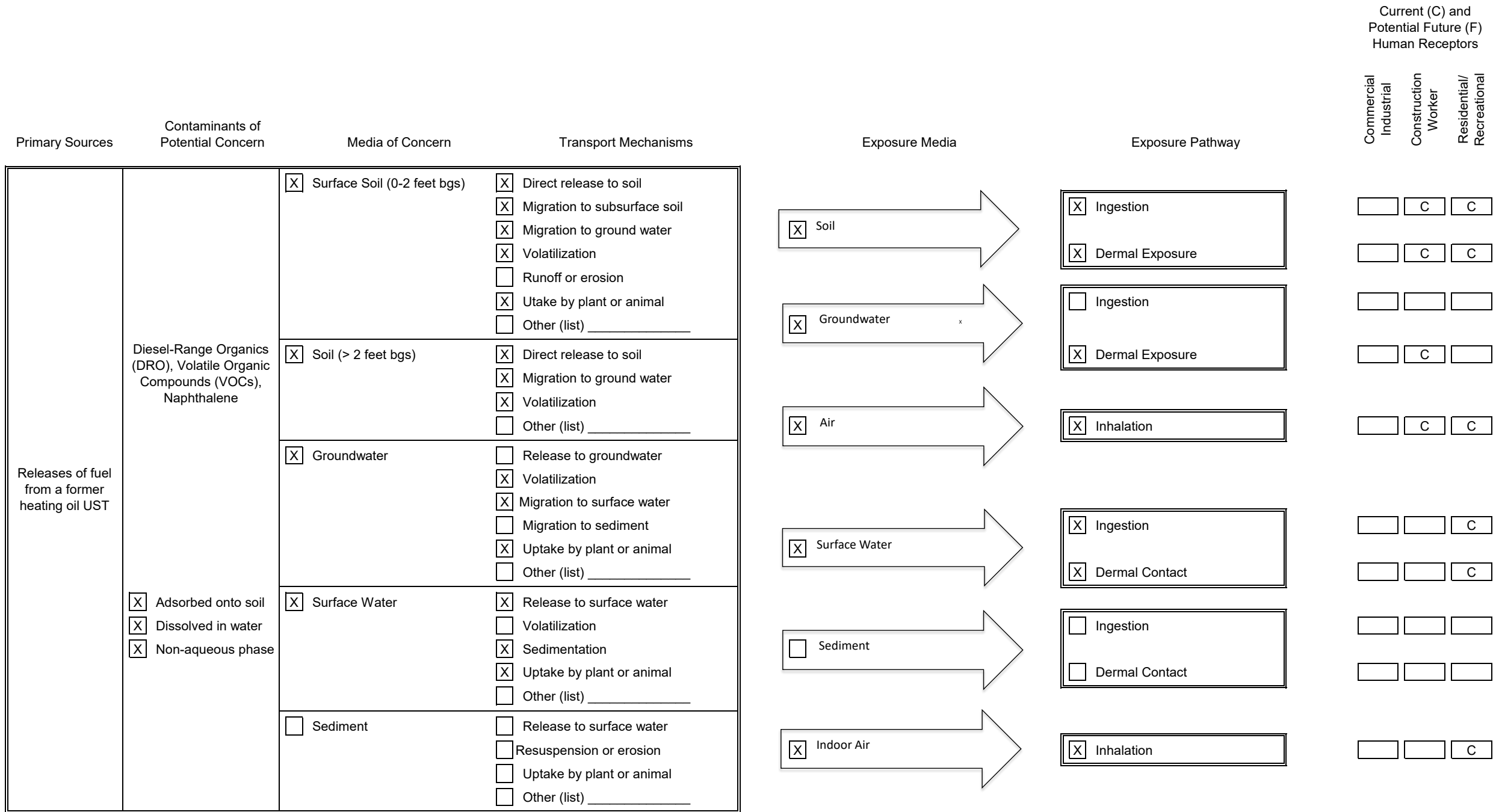
FIGURE 8
CONCEPTUAL SITE MODEL

REPORT
 REMEDIAL INVESTIGATION REPORT

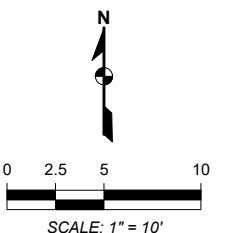
LOCATION
 3461 E LAKE SAMMAMISH SHORE LN NE
 SAMMAMISH, WASHINGTON

PREPARED FOR
 MR. MIKE MOSSMAN

PROJECT NUMBER
 015364.0007



NOTES:
 UST UNDERGROUND STORAGE TANK



DATE 4/22/21
DRAWN BY VPB
REVIEWED BY SPT

FIGURE 9

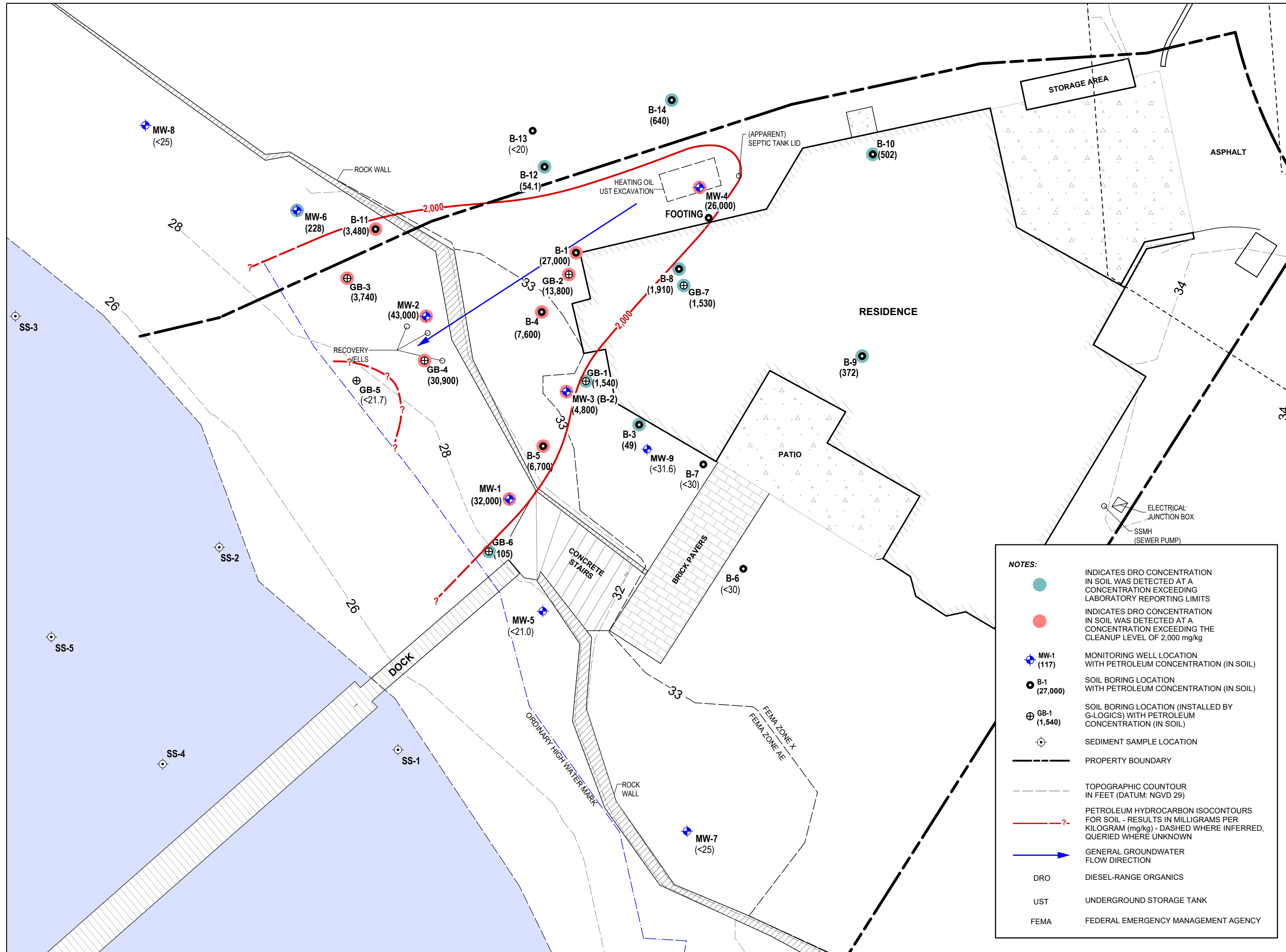
**SOIL PETROLEUM
 HYDROCARBON
 ISOCONTOURS**

REPORT
 REMEDIAL INVESTIGATION REPORT

LOCATION
 3461 E LAKE SAMMAMISH SHORE LN NE
 SAMMAMISH, WASHINGTON

PREPARED FOR
 MR. MIKE MOSSMAN

PROJECT NUMBER
 015364.0007



NOTES:

- INDICATES DRO CONCENTRATION IN SOIL WAS DETECTED AT A CONCENTRATION EXCEEDING LABORATORY REPORTING LIMITS
- INDICATES DRO CONCENTRATION IN SOIL WAS DETECTED AT A CONCENTRATION EXCEEDING THE CLEANUP LEVEL OF 2,000 mg/kg
- ⊕ MW-1 (117) MONITORING WELL LOCATION WITH PETROLEUM CONCENTRATION (IN SOIL)
- B-1 (27,000) SOIL BORING LOCATION WITH PETROLEUM CONCENTRATION (IN SOIL)
- ⊕ GB-1 (1,540) SOIL BORING LOCATION (INSTALLED BY G-LOGICS) WITH PETROLEUM CONCENTRATION (IN SOIL)
- ⊙ SEDIMENT SAMPLE LOCATION
- PROPERTY BOUNDARY
- - - TOPOGRAPHIC CONTOUR IN FEET (DATUM: NGVD 29)
- PETROLEUM HYDROCARBON ISOCONTOURS FOR SOIL - RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg) - DASHED WHERE INFERRED, QUERIED WHERE UNKNOWN
- GENERAL GROUNDWATER FLOW DIRECTION
- DRO DIESEL-RANGE ORGANICS
- UST UNDERGROUND STORAGE TANK
- FEMA FEDERAL EMERGENCY MANAGEMENT AGENCY

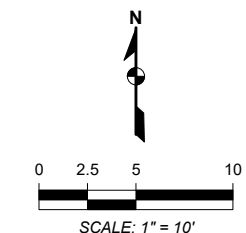


FIGURE 10

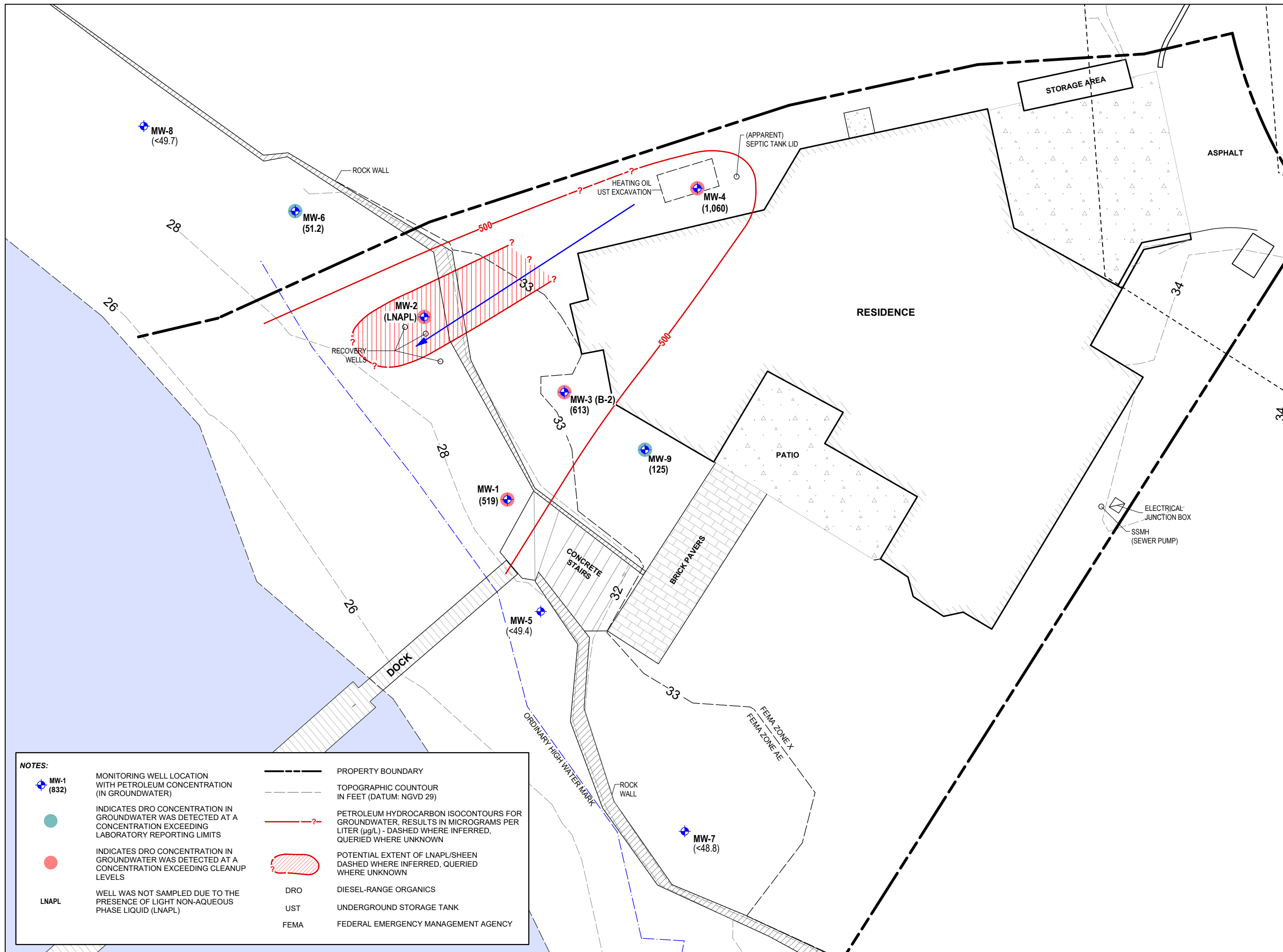
GROUNDWATER
 PETROLEUM
 HYDROCARBON
 ISOCONTOURS FOR
 MAY 2020

REPORT
 REMEDIAL INVESTIGATION REPORT

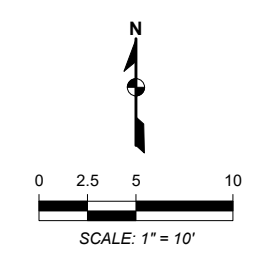
LOCATION
 3461 E LAKE SAMMAMISH SHORE LN NE
 SAMMAMISH, WASHINGTON

PREPARED FOR
 MR. MIKE MOSSMAN

PROJECT NUMBER
 015364.0007



NOTES:	
	MONITORING WELL LOCATION WITH PETROLEUM CONCENTRATION (IN GROUNDWATER)
	INDICATES DRO CONCENTRATION IN GROUNDWATER WAS DETECTED AT A CONCENTRATION EXCEEDING LABORATORY REPORTING LIMITS
	INDICATES DRO CONCENTRATION IN GROUNDWATER WAS DETECTED AT A CONCENTRATION EXCEEDING CLEANUP LEVELS
LNAPL	WELL WAS NOT SAMPLED DUE TO THE PRESENCE OF LIGHT NON-AQUEOUS PHASE LIQUID (LNAPL)
	PROPERTY BOUNDARY
	TOPOGRAPHIC CONTOUR IN FEET (DATUM: NGVD 29)
	PETROLEUM HYDROCARBON ISOCONTOURS FOR GROUNDWATER, RESULTS IN MICROGRAMS PER LITER (µg/L) - DASHED WHERE INFERRED, QUERIED WHERE UNKNOWN
	POTENTIAL EXTENT OF LNAPL/SHEEN DASHED WHERE INFERRED, QUERIED WHERE UNKNOWN
DRO	DIESEL-RANGE ORGANICS
UST	UNDERGROUND STORAGE TANK
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY



DATE 4/22/21
DRAWN BY VPB
REVIEWED BY SPT

Attachment A
Underground Storage Tank Site Assessment Report



Underground Storage Tank Site Assessment Report

**Mossman Residence
3461 E. Lake Sammamish Shore Lane
Sammamish, Washington**

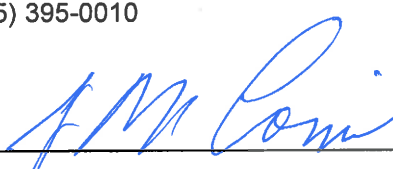
Prepared For:

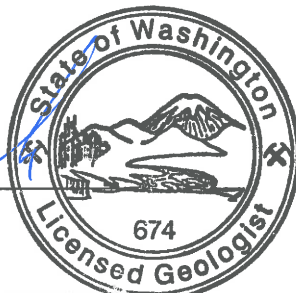
**Mr. Michael Mossman
3461 E. Lake Sammamish Shore Lane
Sammamish, Washington**

February 4, 2013

Prepared By:

Environmental Partners, Inc.
295 NE Gilman Boulevard, Suite 201
Issaquah, Washington 98027
(425) 395-0010


Greg McCormick, L.G.
Senior Geologist
WA Site Assessor No. 1052439-U7



GREGORY A. McCORMICK

Project Number: 65201.0

QR TM TR TM

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Table 2	Summary of DRO and HRO Results in Ground Water

FIGURES

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ATTACHMENTS

Attachment A	UST Inspection Letter
Attachment B	City of Sammamish Permit
Attachment C	UST Disposal Certification
Attachment D	Underground Storage Tank Closure and Site Assessment Notice
Attachment E	Site Check/Site Assessment Checklist Form
Attachment F	Analytical Report

1.0 INTRODUCTION

Environmental Partners, Inc. (EPI) is pleased to present this Underground Storage Tank (UST) Site Assessment Report (Report) for the Mossman Residence located at 3461 E. Lake Sammamish Shore Lane in Sammamish, Washington (Mossman Residence or Site). This UST Report presents the actions and findings of the removal of a 550-gallon heating oil UST from the Site. The general location of the Site is shown on Figure 1.

The work presented herein was performed with the objective of documenting current conditions in the vicinity of the UST according to the *Guidance for Site Checks and Site Assessments for Underground Storage Tanks*, published by the Washington State Department of Ecology (Ecology) Underground Storage Tank Program in February 1991, revised April 2003. This UST Report has been prepared in general accordance with applicable guidance provided in the Model Toxics Control Act Cleanup Regulations (MTCA; Washington Administrative Code [WAC] 173-340) and to meet the reporting requirements of WAC 173-340-300.

1.1 Background

The Mossman Residence is a single-family home located on the eastern shore of Lake Sammamish near Weber Point. According to Mr. Mike Mossman, the property owner, the house was constructed in about 1949 with slab-on-grade construction. The UST was located on the north side of the house and appears to have been original.

Mr. Mossman requested an inspection of the UST on July 5, 2012 prior to purchasing the property in early August. Pacific Heating Oil Company determined there were approximately 12.5 inches, or about 113 gallons of residual heating oil in the UST and noted that there was an approximately 0.25-inch layer of water in the UST. Pacific Heating Oil indicated that the water was likely the result of condensation and tightness testing was not conducted. The inspection letter is included as Attachment A.

Mr. Mossman converted the home to natural gas heat in October 2012 and planned to decommission the UST following the conversion. Because of the limited access to the area of the UST, Mr. Mossman initially hired Filco Company, Inc. (Filco) to decommission the UST in-place. After cleaning, but before the in-place decommissioning, Mr. Mossman noted an apparent hydrocarbon sheen on the surface of Lake Sammamish in the immediate vicinity of stairs that provide access to the lakeshore near his boat dock. The source of the sheen appeared to be seepage of ground water from his property at the lakeshore. The area of sheen was relatively limited and appeared to originate from a small area. Mr. Mossman reported the sheen to Ecology using the Emergency Reporting and Notification System (ERNS) and on November 28, 2012 members of the Spill Response division of Ecology were dispatched to the Site.

Upon inspection the Ecology personnel indicated to Mr. Mossman that the sheen appeared to be consistent with a hydrocarbon fuel and that the most likely source of that fuel would be the area of the UST on his property. Ecology also recommended that, due to the very shallow depth to water, Mr. Mossman use hand equipment to excavate three small test pits at the foot of the retaining wall on the

east side of the beach to determine if sheen or product were visible on ground water between his house and the lakeshore.

On December 1, Mr. Mossman excavated three test pits to a depth of about 18 inches and encountered ground water at a depth of about 12 inches below grade. One of those test pits contained a thin layer of separate-phase hydrocarbons (SPH).

Based upon the observed conditions at the Site, Mr. Mossman directed Filco to remove the UST, rather than decommissioning it in-place, at the next available opportunity. EPI was retained by Mr. Mossman to conduct the accompanying UST Site Assessment and to evaluate subsurface conditions near the UST.

1.2 Objectives

The work documented herein had the following objectives:

- Document the removal of one 550-gallon heating oil UST;
- Collect representative soil samples to document and assess the existing soil conditions at the bottom and sidewalls of the UST excavation;
- Collect a representative ground water sample to assess the existing ground water conditions in the area of the UST; and
- Summarize analytical results for soil and ground water samples and compare those data to applicable regulatory criteria.

2.0 UST REMOVAL AND SOIL SAMPLING

2.1 UST Decommissioning

As noted above, Filco was retained by Mr. Mossman to decommission the UST and EPI was retained to perform the UST Site Assessment.

2.1.1 Site-Specific Contaminants of Concern

The available information indicates that the UST was only ever used to store heating oil and no other petroleum products were identified. The following analyses were requested for the soil and ground water samples required by MTCA, WAC 173-340-900, Table 830-1:

- Diesel-Range Organics (DRO) and Higher-Range Organics (HRO) using the Northwest Total Petroleum Hydrocarbons as Diesel-Extended (NWTPH-Dx) Method.

All soil and ground water samples collected during this UST assessment were submitted to an Ecology-accredited analytical laboratory, OnSite Environmental, Inc. (OnSite) in Redmond, Washington, for DRO

and HRO analyses. Upon collection all samples were immediately placed in an iced cooler and transported to OnSite under standard chain-of-custody protocols.

2.1.2 Site-Specific Cleanup Levels

Ecology's MTCA Method A Cleanup Levels (CULs) are applicable and appropriate for the Site. Comparison to these CULs was used to assess the soil and ground water conditions in the vicinity of the UST.

MTCA Method A Soil CULs for Unrestricted Land Uses (WAC 173-340-740) were used for evaluating impacts to soil and MTCA Method A Ground Water CULs (WAC 173-340-720) were used for evaluating impacts to ground water. The specific cleanup level values are presented in the summary tables of analytical results, which are discussed below.

2.2 Ecology Notification and Permitting

Home heating oil USTs are exempt from registration and notification requirements under Washington State UST regulations; therefore, Filco was not required to submit the 30-Day Notification of Intent for UST decommissioning to Ecology. Filco obtained a Building Permit from the City of Sammamish on November 15, 2012 for the decommissioning. The City of Sammamish permitting official indicated that Fire Department personnel would not need to observe the decommissioning. A copy of this permit is included as Attachment B.

2.2.1 UST Removal Process

The residual product and water were removed from the UST by Filco on November 21, 2012. The UST removal excavation began on December 11, 2012. Due to access restrictions along the north side of the residence, all excavation and UST removal was performed using hand tools. All excavated soils were placed on plastic sheeting beside the excavation.

During initial excavation utility piping for the residential septic system were encountered above the UST and required relocation prior to full excavation and removal of the UST. After the utility lines were relocated, additional soil surrounding the UST was excavated and the UST was removed from the ground. A block and tackle assembly was required to hoist the UST from the excavation.

The UST was constructed of welded steel and measured 6 feet long by 4 feet in diameter giving it a capacity of approximately 550 gallons. Due to the limited access to the area of the UST, it was necessary to cut the UST into pieces in order to remove it from the Site. After cutting, the pieces were cleaned and placed in the back of a flat bed truck for inspection. Filco currently is in possession of the pieces of the UST.

Each of the pieces of the UST was inspected following removal and cleaning. The bottom half of the UST was heavily corroded and numerous small- to medium-sized (0.25-inch diameter) holes were observed. The top section of the UST was in relatively good condition with less corrosion and no observed holes.

The pieces of the UST were transported to Filco's yard in Seattle for disposal as scrap metal in accordance with the requirements of WAC 173-360-385. The UST Disposal Certificate is included in Attachment C.

EPI completed the Ecology Underground Storage Tank Closure and Site Assessment Notice included as Attachment D and the Site Check/Site Assessment Checklist form included as Attachment E.

2.2.2 UST Excavation and Assessment Sampling

During excavation, Mr. Greg McCormick, L.G. of EPI (WA Site Assessor No. 1052439-U7), worked directly with Filco to monitor soil conditions throughout the excavation process. EPI observed and documented the soil conditions using olfactory and visual indicators. A photoionization detector (PID) was used to field screen the overburden material and to assess general conditions in the sidewalls, and bottom of the excavation.

The soil above and surrounding the UST consisted of light gray Silty Sand with Gravel. No petroleum impacts were indicated either by odor or discoloration or by screening with the PID. Soil at the base of the excavation, at a depth of 6 feet below ground surface (bgs), also consisted of light gray silty sand and had a distinct petroleum odor but was not obviously discolored. There was no ground water present in the UST excavation at 6 feet bgs at the time the UST was removed.

Soil samples were collected from the four sidewalls of the excavation at a depth of about 4 feet bgs. A sample of the soil at the base of the UST excavation was collected from a depth of 6 feet bgs. The locations of the soil samples are depicted in Figure 2.

After collection, soil samples were immediately placed in an iced cooler and transported to OnSite under standard chain-of-custody protocols. Soil samples were submitted for analysis of DRO and HRO using the NWTPH-Dx Method under standard turnaround time.

DRO was detected in all of the soil samples with the exception of the east sidewall sample. Detected DRO concentrations ranged from 200 milligrams per kilogram (mg/kg) in the west sidewall to 20,000 mg/kg in the bottom of the excavation. The analytical results for the sample from the south sidewall (2,000 mg/kg) and from the bottom of the excavation (20,000 mg/kg) equaled or exceeded the MTCA Method A Soil CUL of 2,000 mg/kg.

HRO was not detected in any of the sidewall or base samples at the Practical Quantitation Limit (PQL) of the analytical method.

Analytical results for the soil samples are summarized in Table 1 and the full laboratory analytical report is presented in Attachment F.

3.0 GROUND WATER SAMPLING AND ANALYSIS

According to Ecology publication 90-52, *Guidance for Site Checks and Site Assessments for Underground Storage Tanks*, if a release has occurred within 2 feet of the seasonal high water table, a ground water sample must be collected. It was determined that collection of a ground water sample was appropriate at the subject property for the following reasons:

- Prior observations of sheen on the lake surface;
- The apparent shallow depth to ground water and the inferred direction of ground water migration toward the lake; and
- The apparent high concentrations of hydrocarbons at the base of the UST removal excavation.

To allow collection of a ground water sample, EPI personnel used a shovel to excavate a test pit an additional 2 feet below the base of the excavation. Ground water was encountered at a depth of about 7 feet bgs, or about 1 foot below the bottom of the former UST. The water within this test pit was observed to have an apparent hydrocarbon sheen.

3.1 Ground Water Sampling Methods

One grab ground water sample was collected from the test pit using a laboratory-supplied glass sample bottle. The ground water sample was labeled with the sample information and sampling time and immediately placed in an iced cooler pending submittal to OnSite for analysis of DRO and HRO using the NWTPH-Dx Method. The ground water sample was transported under standard chain-of-custody protocols and submitted for expedited 24-hour turnaround.

3.2 Ground Water Sampling Results

DRO was detected in the ground water sample at a concentration of 60,000 micrograms per liter ($\mu\text{g/L}$). This concentration exceeded the MTCA Method A Ground Water CUL of 500 $\mu\text{g/L}$.

HRO was detected in the ground water sample, but the detection limit was elevated due to the presence of high concentrations of DRO. The absence of detectable HRO in the soil sample suggests that HRO is unlikely to be present in ground water.

A summary of DRO and HRO sampling results for the ground water sample is presented in Table 2. The final laboratory analytical report is included as Attachment F.

4.0 SITE RESTORATION

The following sections describe current site conditions.

4.1 Soil Stockpile

As noted above, the soil overlying and surrounding the UST was removed using hand tools and placed on plastic sheeting beside the excavation. The total volume of soil in the stockpile is estimated to be 8 cubic yards.

Following removal of the UST, the soil stockpile was covered with plastic sheeting. The UST excavation remains open as of the date of this report. Based on the confirmed presence of contamination at the Site, the disposition of the stockpiled soils is being evaluated along with the remedial alternatives for the Site.

5.0 CONCLUSIONS

The following conclusions are supported by the findings of the UST removal and assessment actions:

- One 550-gallon UST formerly containing heating oil was decommissioned and removed in a manner consistent with the requirements of the MTCA regulation and applicable Ecology guidance.
- The UST has leaked and has impacted soil and ground water with DRO at concentrations exceeding MTCA Method A CULs. Based on location and access, the UST appears to be original to the home. Overall, the UST was in poor condition with the bottom heavily corroded with numerous holes. DRO concentrations in soil were as high as 20,000 mg/kg and DRO concentrations in water were as high as 60,000 µg/L.
- The release from the UST is the likely source of the sheen noted by Mr. Mossman on the lake and near the shoreline. Based on the distribution of impacts from the UST and the anticipated direction of ground water migration there is likely a continuous plume of sheen and dissolved-phase DRO in ground water between the UST and the shoreline. This plume likely extends beneath the Mossman Residence. There is also likely some volume of impacted soil beneath the northern side of the house that extends some undetermined distance beneath the structure.
- Evaluating the full extent of impacts to soil and ground water at the Site will require additional investigation. Upon completion of the characterization of the extent of contamination it will be possible to evaluate remedial alternatives for the restoration of the Site.
- The intermittent presence of sheen on the lake and SPH in shallow ground water adjacent to the lake likely represents a threat to human health or the environment. The impacts to ground water and surface water at the Site have been reported to Ecology and Ecology personnel have visited the Site and are fully aware of site conditions. The reporting performed to date,

and the submittal of this report to Ecology, likely meets Mr. Mossman's current reporting requirements under WAC 173-340-300 and -450. EPI recommends consulting legal counsel regarding ongoing and future reporting requirements.

6.0 LIMITATIONS

The preparation of this report has required the application of best professional judgment and the employment of scientific principles, and certain results of this work have been based on subjective interpretation. We make no warranties, express or implied including and without limitation, warranties as to merchantability or fitness of this report for a particular purpose. The information provided in this report is not to be construed as legal advice.

This report was prepared solely for use by Mr. Mike Mossman and his affiliates, and the contents herein may not be used or relied upon by any other entity without the express written consent and authorization of Environmental Partners, Inc.

Tables

Table 1
Summary of DRO and HRO Results in Soil
UST Site Assessment
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Sample Identification	Collection Date	Depth (Feet)	Petroleum Hydrocarbons	
			Diesel-Range Petroleum Hydrocarbons (DRO) ^a	Higher-Range Petroleum Hydrocarbons (HRO) ^a
North Sidewall	12/11/12	4	340	<76
South Sidewall	12/11/12	4	2,000	<260
West Sidewall	12/11/12	4	200	<60
East Sidewall	12/11/12	4	<28	<56
Base	12/11/12	6	20,000	<1,100
MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses (in mg/kg)			2,000	2,000

Notes:

- a Using NWTPH-Dx Methods. All concentrations shown in milligrams per kilogram (mg/kg).
- < Not detected at the listed reporting limit

Bold Indicates a detection above the Method Detection Limit

Bold & Shaded Exceeds applicable cleanup level

Table 2
Summary of DRO and HRO Results in Ground Water
UST Site Assessment
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Sample Identification	Collection Date	Petroleum Hydrocarbons	
		Diesel-Range Petroleum Hydrocarbons (DRO) ^a	Higher-Range Petroleum Hydrocarbons (HRO) ^a
UST 1 Water	12/11/12	60,000	<4,200
MTCA Method A Cleanup Levels for Ground Water (in µg/L)		500	500

Notes:

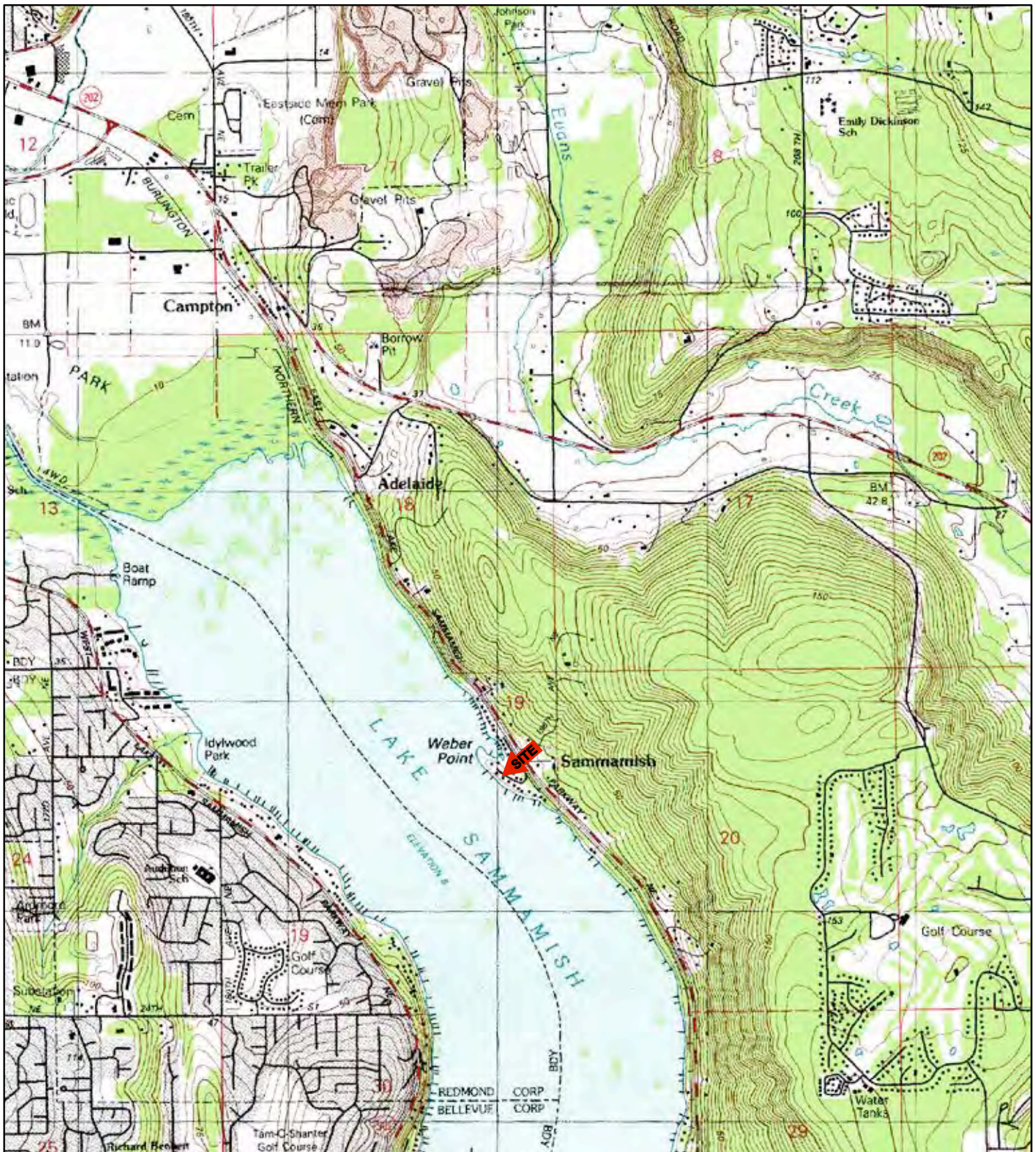
a Using NWTPH-Dx Methods. All concentrations shown in micrograms per liter (µg/L).

< Not detected at the listed reporting limit

Bold Indicates a detection greater than the Method Detection Limit

Bold & Shaded Exceeds applicable cleanup level

Figures



KEY:

SOURCE: USGS 7.5 MINUTE QUADRANGLE
(TOPOGRAPHIC)

BELLEVUE NORTH, WA
1982



SCALE = 1:25,000

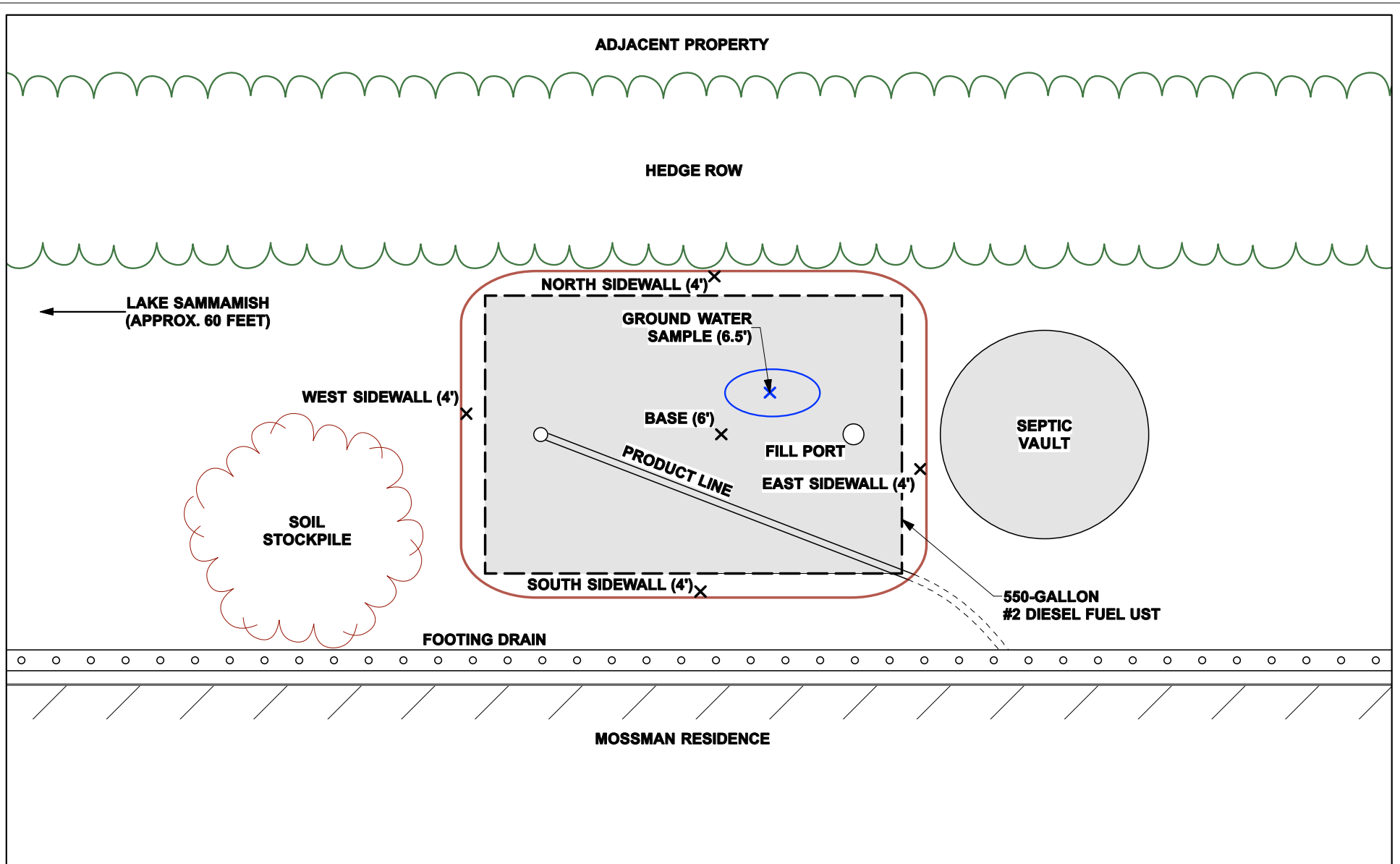
ept ENVIRONMENTAL
PARTNERS INC

295 NE Gilman Boulevard, Suite 201
Issaquah, Washington 98027

FIGURE 1

GENERAL VICINITY MAP

PROJECT	65201.0
PREPARED FOR	MOSSMAN RESIDENCE
LOCATION	3461 E. LAKE SAMMAMISH SHORE LANE SAMMAMISH, WASHINGTON
SHEET	DRAWN BY REVIEWED BY DATE
1 of 1	ALW GAM 1/17/13



KEY:



- ✕ - SOIL SAMPLE LOCATION
- ✕ - GROUNDWATER SAMPLE LOCATION



APPROXIMATE SCALE: 1" = 2'



ENVIRONMENTAL PARTNERS INC

295 NE Gilman Boulevard, Suite 201
Issaquah, Washington 98027

FIGURE 2

SAMPLE LOCATION MAP

PROJECT	65201.0		
PREPARED FOR	MOSSMAN RESIDENCE UST		
LOCATION	3461 E. LAKE SAMMAMISH SHORE LANE SAMMAMISH, WASHINGTON		
SHEET	DRAWN BY	REVIEWED BY	DATE
1 of 1	ALW	GAM	1/18/13

Attachments

Attachment A
UST Inspection Letter

PACIFIC

"Serving Greater Seattle Since 1927"

HEATING OIL COMPANY

July 5th, 2012

To: Christina Roberts

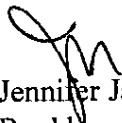
Fax: 425-820-6318

RE: 3461 E Lk Samm Shore Lane NE, Sammamish

Hello,

The tank at the above address was measured and checked for water. There are approximately 12.5 inches of oil and approximately ¼ inch of water. Calvin Caley, owner of Pacific Heating Oil, believes the water is due to condensation. If you have questions, you may call him in the office Friday, July 6th.

Regards,



Jennifer James
Bookkeeper
206.632.1966

PACIFIC

"Serving Greater Seattle Since 1927"

HEATING OIL COMPANY

To: Christina Roberts

Date: 7/5/12

Windermere

Log #: _____

425-820-6318

Address: 3461 E Lk Samm Shoreline NE, Samm.

Owner/Manager: Young

Former Name: _____

New Name: _____

You have approximately 12.5 inches or 113 gallons.

At \$3.759 per gallon, this amounts to: \$424.77

Sales Tax \$40.36

Total \$465.13

Measured By: _____

OIL/GAS INSTALLATION • SERVICE • FLEET FUELING

Attachment B
City of Sammamish Permit

Building Permit Number BLD2012-01101
Application Date: 11/15/2012
Date Permit Issued: 11/15/2012
Date Permit Expires: 11/15/2014

Building Permit



For Inspections Call: (425) 295-0625
or go to: www.ci.sammamish.wa.us

Site Address:
3461 E LK SAMM SH LN NE

Parcel Number:
1925069042

Contractor Information
Filco Co. Inc.

Contractor License Number
FILCO1080RU

Owner Name / Address:
Michael Mossman
() -
3461 E LK SAMM SH LN NE
Sammamish, WA 98074

Plan Bin Number:

(206) 547-8347
P.O. Box 31228
Seattle, WA 98103

Type of Work	OTH	Occupancy Group Type	Type of Permit	UST	Zoning:
Type of Use	r				

Street Setbacks:

House:
Garage:

Interior Setbacks:

Rear:
Side:

Max. Height:

Number of Units
Number of Stories
Building Square Footage

Subdivision:
Lot:

Project Description

550 gallon residential heating tank decommission

Fee

COUNTER SERVICE - TYPE 1 \$ 116.00

Total Fees: \$116.00

Lender Information:

Name: _____
Address: _____
Phone / Fax: _____

Permit Validity. The issuance or granting of a permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of the Sammamish Municipal Code or any other State or Federal Laws.

The permit may be renewed once for a time not to exceed one additional year provided a renewal fee equal one-half the amount of the original building permit fee is paid to the City of Sammamish Permit Center.

The Building Official is authorized to suspend or revoke a permit, in writing, whenever a permit is issued in error or on the basis of incorrect information supplied, or in violation of any ordinance or regulation.

Owner / Agent Signature
Filco Contractor

DATE 11/15/12
Building Permit Number BLD2012-01101

Attachment C
UST Disposal Certification



FILCO COMPANY INC.

P.O. Box 31228 • Seattle, WA 98103 • Ph: (206) 547-8347 • Fax: (206) 548-9352

www.FilcoEnviro.com • Lic# FILCOCI080RU

LETTER OF CERTIFICATION

December 11th, 2012

Michael Mossman
5400 256th Avenue NE
Redmond, Washington 98053

RE: Residential Underground Heating Oil Tank at 3461 E Lake Sammamish
Shorelane NE, Sammamish, WA 98074

Filco Company Inc. has removed one approximate 550 gallon residential underground heating oil tank from the above named property. The tank and its contents were disposed of according to the codes and guidelines set forth by the Washington State Department of Ecology and E.P.A. regulations and the decommissioned tank meets these standards.

Phil Suetens

Phil Suetens
Filco Co., Inc.

Attachment D
*Underground Storage Tank Closure and
Site Assessment Notice*



UNDERGROUND STORAGE TANK Closure and Site Assessment Notice

FOR OFFICE USE ONLY

Site ID #: _____

Facility Site ID #: _____

See back of form for instructions

Please the appropriate box(es)

- Temporary Tank Closure
- Change-In-Service
- Permanent Tank Closure
- Site Check/Site Assessment

Site Information

Owner Information

Site ID Number N/A
(Available from Ecology if the tanks are registered)

UST Owner/Operator Mr. Mike Mossman

Site/Business Name Mossman Residence
Street

Mailing Address 3461 E Lake Sammamish Shore
Street Lane

Site Address 3461 E Lake Sammamish Shore Lane

City/State Sammamish WA

City/State Sammamish, WA
P.O. Box

Zip Code 98074 Telephone (206) 985-1873

Zip Code 98074 Telephone ()

Owners Signature Michael Mossman

Tank Closure/Change-In-Service Company

Service Company Filco Company, Inc.

Certified Supervisor NATHAN MONTGOMERY Decommissioning Certification No. 5050940

Supervisor's Signature NATHAN MONTGOMERY Date 1/11/13

Address P.O. Box 31228

Street
Seattle, WA
City State

P.O. Box
98103
Zip Code

Telephone (206) 547-8347

Site Check/Site Assessor

Certified Site Assessor GREG MCCORMICK / Environmental Partners Inc.

Address 295 NE Gilman Blvd

Street
Issaquah Washington
City State

P.O. Box
98027
Zip Code

Telephone (425) 395-0026

Tank Information

Tank ID	Closure Date	Closure Method	Tank Capacity	Substance Stored
<u>VST No. 1</u>	<u>12/1/12</u>	<u>Removal</u>	<u>550-gallons</u>	<u>Heating Oil</u>

Contamination Present at the Time of Closure

Yes No Unknown
 Check unknown if no obvious contamination was observed and sample results have not yet been received from analytical lab.

Yes No
 If contamination is present, has the release been reported to the appropriate regional office?

To receive this document in an alternative format, contact the Toxics Cleanup Program at 360-407-7175 (voice) or 1-800-833-6383 OR 711 (TTY)

Attachment E
Site Check/Site Assessment Checklist Form



UNDERGROUND STORAGE TANK Site Check/Site Assessment Checklist

FOR OFFICE USE ONLY
Site #: _____
Facility Site ID #: _____

INSTRUCTIONS

When a release has not been confirmed and reported, this Site Check/Site Assessment Checklist must be completed and signed by a person certified by ICC or a Washington registered professional engineer who is competent, by means of examination, experience, or education, to perform site assessments. **The results of the site check or site assessment must be included with this checklist.** This form must be submitted to Ecology at the address shown below within 30 days after completion of the site check/site assessment.

SITE INFORMATION: Include the Ecology site ID number if the tanks are registered with Ecology. This number may be found on the tank owner's invoice or tank permit.

TANK INFORMATION: Please list all tanks for which the site check or site assessment is being conducted. Use the owner's tank ID numbers if available, and indicate tank capacity and substance stored.

REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT: Please check the appropriate item.

CHECKLIST: Please initial each item in the appropriate box.

SITE ASSESSOR INFORMATION: This information must be signed by the registered site assessor who is responsible for conducting the site check/site assessment.

Underground Storage Tank Section
Department of Ecology
PO Box 47655
Olympia WA 98504-7655

SITE INFORMATION

Site ID Number (Available from Ecology if the tanks are registered): N/A

Site/Business Name: Mossman Residence

Site Address: 3461 E. Lake Sammamish Shore Lane Telephone: (425) 985-1873

Sammamish City Washington State 98074 Zip Code

TANK INFORMATION

Tank ID No.	Tank Capacity	Substance Stored
<u>UST No. 1</u>	<u>550-gallons</u>	<u>Heating Oil</u>

REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

Investigate suspected release due to on-site environmental contamination.

Investigate suspected release due to off-site environmental contamination.

Extend temporary closure of UST system for more than 12 months.

UST system undergoing change-in-service.

UST system permanently closed with tank removed.

Abandoned tank containing product.

Required by Ecology or delegated agency for UST system closed before 12/22/88.

Other (describe): _____

CHECKLIST

Each item of the following checklist shall be initialed by the person registered with the Department of Ecology whose signature appears below.

	YES	NO
1. The location of the UST site is shown on a vicinity map.	GMC	
2. A brief summary of information obtained during the site inspection is provided. (see Section 3.2 in site assessment guidance)	GMC	
3. A summary of UST system data is provided. (see Section 3.1.)	GMC	
4. The soils characteristics at the UST site are described. (see Section 5.2)	GMC	
5. Is there any apparent groundwater in the tank excavation?	GMC	
6. A brief description of the surrounding land use is provided. (see Section 3.1)	GMC	
7. Information has been provided indicating the number and types of samples collected, methods used to collect and analyze the samples, and the name and address of the laboratory used to perform the analyses.	GMC	
8. A sketch or sketches showing the following items is provided:		
- location and ID number for all field samples collected	GMC	
- groundwater samples distinguished from soil samples (if applicable)	GMC	
- samples collected from stockpiled excavated soil		GMC
- tank and piping locations and limits of excavation pit	GMC	
- adjacent structures and streets		
- approximate locations of any on-site and nearby utilities	GMC	
9. If sampling procedures different from those specified in the guidance were used, has justification for using these alternative sampling procedures been provided? (see Section 3.4)	GMC	
10. A table is provided showing laboratory results for each sample collected including; sample ID number, constituents analyzed for and corresponding concentration, analytical method and detection limit for that method.	GMC	
11. Any factors that may have compromised the quality of the data or validity of the results are described.	GMC	
12. The results of this site check/site assessment indicate that a confirmed release of a regulated substance has occurred.	GMC	

SITE ASSESSOR INFORMATION

Greg McCormick Person registered with Ecology Environmental Partners, Inc. Firm Affiliated with
 Business Address: 295 NE Gilman Blvd #201 Telephone: (425) 395-0010
Issaquah Washington 98027
 City State Zip Code

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above. Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

12/27/12 Date [Signature] Signature of Person Registered with Ecology

If you need this publication in an alternate format, please contact Toxics Cleanup Program at (360) 407-7170. For persons with a speech or hearing impairment call 711 for relay service or 800-833-6388 for TTY.

Attachment F
Analytical Report



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

December 18, 2012

Greg McCormick
Environmental Partners, Inc.
295 NE Gilman Blvd, Suite 201
Issaquah, WA 98027

Re: Analytical Data for Project Mossman UST
Laboratory Reference No. 1212-074

Dear Greg:

Enclosed are the analytical results and associated quality control data for samples submitted on December 11, 2012.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: December 18, 2012
Samples Submitted: December 11, 2012
Laboratory Reference: 1212-074
Project: Mossman UST

Case Narrative

Samples were collected on December 11, 2012 and received by the laboratory on December 11, 2012. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: December 18, 2012
 Samples Submitted: December 11, 2012
 Laboratory Reference: 1212-074
 Project: Mossman UST

NWTPH-Dx
 (with acid/silica gel clean-up)

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	North Sidewall (4')					
Laboratory ID:	12-074-01					
Diesel Fuel #2	340	28	NWTPH-Dx	12-12-12	12-12-12	
Lube Oil Range Organics	ND	76	NWTPH-Dx	12-12-12	12-12-12	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	99	50-150				
Client ID:	South Sidewall (4')					
Laboratory ID:	12-074-02					
Diesel Range Organics	2000	29	NWTPH-Dx	12-12-12	12-12-12	
Lube Oil Range Organics	ND	260	NWTPH-Dx	12-12-12	12-12-12	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	117	50-150				
Client ID:	West Sidewall (4')					
Laboratory ID:	12-074-03					
Diesel Range Organics	200	30	NWTPH-Dx	12-12-12	12-12-12	
Lube Oil Range Organics	ND	60	NWTPH-Dx	12-12-12	12-12-12	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	98	50-150				
Client ID:	East Sidewall (4')					
Laboratory ID:	12-074-04					
Diesel Range Organics	ND	28	NWTPH-Dx	12-12-12	12-12-12	
Lube Oil Range Organics	ND	56	NWTPH-Dx	12-12-12	12-12-12	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	99	50-150				
Client ID:	Base (6')					
Laboratory ID:	12-074-05					
Diesel Fuel #2	20000	320	NWTPH-Dx	12-12-12	12-13-12	
Lube Oil Range Organics	ND	1100	NWTPH-Dx	12-12-12	12-13-12	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	---	50-150				S

Date of Report: December 18, 2012
 Samples Submitted: December 11, 2012
 Laboratory Reference: 1212-074
 Project: Mossman UST

**NWTPH-Dx
 QUALITY CONTROL
 (with acid/silica gel clean-up)**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1212S1					
Diesel Range Organics	ND	25	NWTPH-Dx	12-12-12	12-12-12	
Lube Oil Range Organics	ND	50	NWTPH-Dx	12-12-12	12-12-12	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	109	50-150				

Analyte	Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE						
Laboratory ID:	12-074-01					
	ORIG	DUP				
Diesel Fuel #2	305	138		75	NA	
Lube Oil Range Organics	ND	ND		NA	NA	U1
<i>Surrogate:</i>						
<i>o-Terphenyl</i>			99 104	50-150		

Date of Report: December 18, 2012
 Samples Submitted: December 11, 2012
 Laboratory Reference: 1212-074
 Project: Mossman UST

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Water					
Laboratory ID:	12-074-06					
Diesel Fuel #2	60	1.2	NWTPH-Dx	12-14-12	12-17-12	
Lube Oil Range Organics	ND	4.2	NWTPH-Dx	12-14-12	12-17-12	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	<i>103</i>	<i>50-150</i>				

Date of Report: December 18, 2012
 Samples Submitted: December 11, 2012
 Laboratory Reference: 1212-074
 Project: Mossman UST

**NWTPH-Dx
 QUALITY CONTROL
 (with acid/silica gel clean-up)**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1214W1					
Diesel Range Organics	ND	0.13	NWTPH-Dx	12-14-12	12-14-12	
Lube Oil Range Organics	ND	0.20	NWTPH-Dx	12-14-12	12-14-12	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	74	50-150				

Analyte	Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE						
Laboratory ID:	12-095-01					
	ORIG	DUP				
Diesel Range Organics	ND	ND		NA	NA	
Lube Oil Range Organics	ND	ND		NA	NA	
<i>Surrogate:</i>						
<i>o-Terphenyl</i>			87 84	50-150		

Date of Report: December 18, 2012
Samples Submitted: December 11, 2012
Laboratory Reference: 1212-074
Project: Mossman UST

% MOISTURE

Date Analyzed: 12-12-12

Client ID	Lab ID	% Moisture
North Sidewall (4')	12-074-01	10
South Sidewall (4')	12-074-02	12
West Sidewall (4')	12-074-03	17
East Sidewall (4')	12-074-04	10
Base (6')	12-074-05	22



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
 - B - The analyte indicated was also found in the blank sample.
 - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
 - E - The value reported exceeds the quantitation range and is an estimate.
 - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
 - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
 - I - Compound recovery is outside of the control limits.
 - J - The value reported was below the practical quantitation limit. The value is an estimate.
 - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
 - L - The RPD is outside of the control limits.
 - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
 - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
 - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
 - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
 - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
 - P - The RPD of the detected concentrations between the two columns is greater than 40.
 - Q - Surrogate recovery is outside of the control limits.
 - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
 - T - The sample chromatogram is not similar to a typical _____.
 - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
 - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
 - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
 - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
 - X - Sample extract treated with a mercury cleanup procedure.
 - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
 - Z -
- ND - Not Detected at PQL
 PQL - Practical Quantitation Limit
 RPD - Relative Percent Difference

Chain of Custody

Company: Environmental Partners
 Project Number: _____
 Project Name: Mossman UST
 Project Manager: Greg McCormick
 Sampled by: Greg McCormick

Turnaround Request
(in working days)

(Check One)

Same Day 1 Day
 2 Days 3 Days
 Standard (7 Days)
 (TPH analysis 5 Days)

_____ (other)

Laboratory Number:

12-074

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total PCRA Metals/ MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664A	% Moisture	
1	North Sidewall (4')	12/11/12	2:30	S	1				X													
2	South Sidewall (4')		2:30	S	1				X													
3	West Sidewall (4')		2:30	S	1				X													
4	East Sidewall (4')		2:30	S	1				X													
5	Base (6')		2:45	S	1				X													
6	Water		2:50	W	1				X													

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished		EPI	12/11/12	3:30	
Received			12/11/12	1530	
Relinquished					
Received					
Relinquished					
Received					
Reviewed/Date		Reviewed/Date			Chromatograms with final report <input type="checkbox"/>

Attachment B
Phase II Environmental Site Assessment



July 1, 2013

Mr. Mike Mossman
3461 East Lake Sammamish Shore Lane
Sammamish, Washington 98074

Re: Phase II Environmental Site Assessment
Mossman Residence
3461 East Lake Sammamish Shore Lane
Sammamish, Washington

EPI Project Number: 65201.1

Dear Mr. Mossman:

Environmental Partners, Inc. (EPI) is pleased to submit this letter report for Phase II Environmental Site Assessment (ESA) at the Mossman Residence located at 3461 East Lake Sammamish Shore Lane in Sammamish, Washington (subject property). EPI submitted an *Underground Storage Tank Site Assessment Report*, dated February 4, 2013, that summarized the removal of a 560-gallon heating oil underground storage tank (UST). This letter report for Phase II investigation is a necessary continuation of the investigation of the subject property to characterize the previously identified contamination originating from the leaking UST. The purpose of the work described herein is to further assess the lateral extent of soil and ground water impacts at the subject property.

This letter report was requested in support of your ongoing efforts to address the pre-existing contamination at the subject property and to comply with the assessment and reporting requirements of the Model Toxics Control Act (70.105D) and its implementing regulations (Washington Administrative Code [WAC] 173-340; collectively MTCA). The requirements for ongoing assessment and reporting for the subject property are contained within WAC 173-340-300, -310, 350, and -450.

BACKGROUND

The subject property is a single-family home located on the eastern shore of Lake Sammamish near Weber Point (Figure 1). The house was built as a slab-on-grade construction in about 1949 with a heating oil UST located on the north side of the house. Mr. Mossman recently purchased the home and converted the house to natural gas, never operating the heating-oil-fueled heating system. In November 2012, Mr. Mossman observed an oily sheen near his boat dock located approximately 60 feet from the UST. Mr. Mossman reported the sheen to the Spill Response Division of Washington State Department of Ecology (Ecology). On November 28, 2012, during a site visit to confirm the report, Ecology provided absorbent booms to contain the sheen to the dock area. On a visit conducted December 4, 2012 to evaluate the release, EPI personnel observed an oily sheen on ground water in a hand-excavated test hole closest to the dock and noted a strong petroleum odor.

Based upon the observed conditions at the subject property, Mr. Mossman hired Filco to remove the UST. EPI was retained by Mr. Mossman to conduct a UST Site Assessment and to evaluate subsurface conditions near the UST.

Filco removed one 560-gallon UST from the north side of the building in a manner consistent with the requirements of MTCA and other applicable regulations. The condition of the UST appeared to be poor with numerous holes in the bottom of the tank. EPI conducted soil and ground water sampling when the UST was removed. Laboratory analysis of samples collected from the bottom, west, north, and south sides of the UST excavation detected concentrations of diesel-range organics (DRO), with the concentrations in the samples from the west side and bottom of the excavation exceeding the MTCA Method A Soil Cleanup Level for Unrestricted Land Uses (CUL) of 2,000 milligrams/kilogram (mg/kg). The ground water samples collected from below the UST excavation also contained DRO at a concentration that exceeded the MTCA Method A Ground Water CUL. The *Underground Storage Tank Site Assessment Report* provides a detailed discussion of the actions performed during the UST removal and the findings of those actions.

OBJECTIVE

The objective of the scope of services described herein is to further characterize the distribution of impacts originating from the removed leaking UST. Such characterization is necessary to better understand the areas of impact, the extent of impacts at concentrations exceeding CULs and to provide information necessary to evaluate and select potential remedial action alternatives.

SUBSURFACE INVESTIGATION

The following sections describe the actions performed during the Phase II ESA and the findings of those actions.

Prior to any subsurface exploration, EPI notified the public utility locate system and also subcontracted with a private utility locating firm to attempt to identify utilities within the planned investigation area.

On May 20 and 21, 2013, EPI supervised the drilling of 10 vertical soil borings using a rubber track direct-push technology (DPT) probe rig and one angled hand auger boring.

The probes were advanced to terminal depths of between 7 to 12 feet. Each boring was continuously sampled using a 4-foot-long core barrel. The unsaturated/saturated interface (i.e., water table) was encountered at depths ranging from about 5 to 8 feet on the portion of the property east of the retaining wall, and from 1 to 3 feet on the portion of the property west of the retaining wall closer to the shoreline.

At least one soil sample from each boring was collected from above the apparent unsaturated/saturated interface in order to assess the potential presence of a "smear zone." A "smear zone" is the vertical interval that represents normal annual change in the ground water table elevation. If separate-phase hydrocarbons (SPH or "free product") is, or has been, present on ground water, the SPH will be present in soil within this interval at relatively high concentrations. Such smear zone impacts can serve as a long-term source of dissolution of hydrocarbons to ground water. A smear zone is typically situated beneath otherwise unimpacted soils.

One angled boring was advanced to the south below the house footing within the UST excavation. The boring was located 3 feet below the surrounding ground surface, centered within the southern UST excavation wall. The boring was angled at approximately 30 degrees from horizontal and advanced 1.5 feet below the footing of the house.

The soil conditions encountered in each boring were described using the Unified Soil Classification System (USCS) with the visual-manual techniques (ASTM 2488D). All observed soils were examined for indications of impacts using visual and olfactory techniques and selected soils were screened for the presence of ionizable vapors using a photoionization detector (PID). Soil samples selected and retained for laboratory analysis were placed into jars provided by the laboratory, labeled, and stored into an iced cooler pending submittal to the analytical laboratory. All soil samples were submitted for analysis of DRO and oil-range organics (ORO) using the Northwest Total Petroleum Hydrocarbons as Diesel-Extended (NWTPH-Dx) Method.

Sample MW-4:5, located within the UST excavation (i.e., former source area), was also submitted for analysis of aromatic fuel compounds (benzene, toluene, ethylbenzene, and total xylenes; BTEX) and naphthalene by EPA Method 8260C, and extractable petroleum hydrocarbons by the Northwest Extractable Petroleum Hydrocarbons (EPH) Method. These analyses were required in order to evaluate the potential development of site-specific CULs using MTCA Method B (WAC 173-340-740 (3)).

Ground water samples were collected from each of the 10 vertical borings. Seven of the borings (B-1 through B-7) were initially sampled using standard DPT ground water sampling methods. One of the borings (B-2) was converted to a monitoring well (MW-3) and three other borings were completed as monitoring wells (MW-1, MW-2, and MW-4).

All ground water samples were collected using low-flow sampling techniques and were submitted for analysis of DRO and ORO using the NWTPH-Dx Method.

Monitoring wells were constructed of ¾-inch diameter Schedule 40 PVC with a 0.01-inch slot pre-packed well screen. The well screens were 5 feet in length and installed to intersect the unsaturated/saturate interface throughout the anticipated annual range of water table elevation. Each well was completed with a 4-inch steel monument at ground surface. An irrigation cover was placed over the steel monuments for aesthetic purposes. MW-4 will be completed with a steel monument after the UST excavation has been backfilled. MW-4 is currently sealed with bentonite for a temporary surface seal.

All soil generated during drilling was added to the existing stockpile of soil from the UST removal excavation, which is located on the north side of the residence. All purged ground water was placed in a labeled 35-gallon drum and remains on-site pending analytical results and proper disposal approval.

The wellhead elevations were surveyed to a relative datum by a licensed civil engineer using standard rod and level techniques. Water level measurements were then used to calculate relative water level elevations in each well to allow calculation of a local piezometric gradient.

FINDINGS

Subsurface Conditions

Subsurface conditions at the subject property consist of poorly-graded to well-graded Sand overlying a layer of Sandy Organic Soil ranging from 1 to 2 feet in thickness. Underlying the Sandy Organic Soil is Well-Graded Sand with Silt and Gravel that extended to the terminal depth of excavation. Boring logs are presented in Attachment A.

Ground water was encountered at depths ranging from 1.5 to 6.5 feet, depending on location relative to the retaining wall. Hydrogeologic principles and local conditions indicate that the direction of ground water migration is generally to the southwest and perpendicular to the lakeshore. The water table elevation at the subject property is influenced by the surface water elevation in Lake Sammamish, with water levels generally being higher during the late winter and spring and lowest in the late summer. Figure 2 presents the piezometric contours developed from water level elevations for the four wells.

Analytical Results

Soil

Nineteen soil samples were submitted for laboratory analysis. Soil sample analytical results are summarized in Tables 1 and 2 and the locations of samples and analytical results are represented on Figure 3. Final laboratory reports with chain-of-custody documentation are presented in Attachment B.

DRO was detected in 10 samples at concentrations ranging from 49 mg/kg to 43,000 mg/kg. Eight of the samples contained a concentration exceeding the MTCA Method A Soil Cleanup Level for Unrestricted Land Use (CUL) of 2,000 mg/kg.

ORO were detected in two samples at concentrations of 350 mg/kg and 1,000 mg/kg. Neither of these concentrations exceeds the MTCA Method A Soil CUL of 2,000 mg/kg.

The sample from the UST source area was submitted for BTEX, naphthalene, and EPH analyses. This sample contained 26,000 mg/kg of DRO and the additional analyses were performed to fully characterize the potential contaminants of concern associated with the release and to allow evaluation of potential site-specific CULs using MTCA Method B.

Benzene was detected in this sample at a concentration of 0.14 mg/kg. This concentration exceeds the MTCA Method A Soil CUL of 0.03 mg/kg

Total xylenes were detected at a concentration of 15.6 mg/kg, which exceeds the MTCA Method A CUL of 9 mg/kg.

Total naphthalenes were also detected in the sample at concentrations of 7.2 mg/kg, which exceeds the MTCA Method A CUL of 5 mg/kg.

Ground Water

Ten ground water samples were submitted for laboratory analysis. Ground water analytical results are summarized in Table 3 and on Figure 4. Final laboratory reports with chain-of custody forms are presented in Attachment B.

DRO was detected in seven samples at concentrations ranging from 2,600 micrograms/liter ($\mu\text{g/L}$) to 1,500,000 $\mu\text{g/L}$. These concentrations exceed the MTCA Method A CUL for Ground Water of 500 $\mu\text{g/L}$.

ORO was not detected at a concentration greater than the practical quantitation limit in any of the ground water samples submitted.

EXTENT OF CONTAMINATION

During inspection of the continuous core samples, EPI observed conditions consistent with the presence of a smear zone. The apparent smear zone impacts were present in an approximately 2- to 3-foot interval near the unsaturated-saturated interface at the time of drilling. The smear zone soils were, as demonstrated by the analytical results for soil, significantly impacted at concentrations that likely exceed residual saturation.

Figure 5 presents a representation of the maximum detected DRO concentrations in soil at each boring. These maximum concentrations are interpreted to be representative of the smear zone. Figure 5 also presents interpolated isoconcentration contours for 2,000 mg/kg (i.e., MTCA Method A Soil CUL) and 10,000 mg/kg (i.e., conservative estimate of residual saturation).

Figure 5 indicates that the northern extent of DRO impacts have not been characterized along the property boundary with the northern property or along the lakeshore. The highest detected DRO concentration in soil was in soil near the lakeshore at the approximate northern property boundary. Figure 5 also indicates that the southern extent of DRO impacts has not been characterized along the lakeshore. It is not anticipated that these impacts are likely to extend significantly to the north or south, but further characterization is required to fully assess those extents. It also appears that DRO is present in soil beneath the residence at concentrations exceeding 10,000 mg/kg.

Figure 6 presents a representation of DRO concentration in ground water for both the reconnaissance samples and the samples from monitoring wells. Figure 6 also presents interpolated isoconcentration contours for dissolved-phase DRO at 500 mg/kg (i.e., MTCA Method A CUL) and 10,000 $\mu\text{g/L}$ (i.e., conservative estimate of saturation concentration).

Impacts to ground water appear to generally coincide with the smear zone soil impacts. The highest DRO concentrations in ground water correlate with the highest concentrations in soil. As with soil, the highest DRO concentration in ground water was detected in the sample near the lakeshore at the northern property boundary. The northern extent of impacts to ground water are not fully characterized to the north and onto the adjacent property. The southern extent of impacts to ground water are also not fully characterized near the lakeshore. As with impacts to soil, the elevated DRO concentrations in ground water also appear to extend beneath the residence.

PRELIMINARY SITE-SPECIFIC SCREENING LEVELS

For the purposes of this Phase II ESA it is assumed that MTCA Method A Soil and Ground Water CULs are applicable for the purposes of characterizing the extent of contamination. These CULs are generally considered by Ecology to be protective of the following exposure pathways:

- Direct contact with soil;
- Protection of ground water as a drinking water source (i.e., soil-to-ground water); and
- Human ingestion of ground water.

MTCA requires that all potential exposure pathways be addressed. Additional screening levels have been evaluated that may be appropriate for addressing those exposure pathways for which MTCA Method A CULs may not be fully protective.

The Phase II ESA data indicate that there is an exposure pathway from ground water to fresh water surface water (Lake Sammamish) and ground water to fresh water sediment and suggests the potential for a vapor intrusion (VI) exposure within the on-property residence. The setting of the subject property also indicates that it will be necessary to perform a site-specific Terrestrial Ecological Evaluation (TEE; WAC 173-340-7490) and that the site will not qualify for either an exclusion from the TEE or a Simplified TEE.

DRO does not have a dissolved-phase surface water standard, but is subject to aesthetic standards such as the presence of sheen or odor. The only component of DRO that has a surface water standard is naphthalene. The MTCA Method B Surface Water CUL for naphthalene is 4,900 µg/L. Samples from monitoring wells completed immediately adjacent to the lakeshore contained DRO concentrations (1,500,000 µg/L and 32,000 µg/L) that suggest that naphthalenes have the potential to be present in ground water at a concentration exceeding the surface water cleanup level. For the purposes of site characterization, a screening level for naphthalene for protection of surface water of 4,900 µg/L will be considered.

MTCA (WAC 173-340-740 (3)(vi)) indicates that the VI pathway shall be evaluated when DRO concentrations exceed 10,000 mg/kg in soil. Samples immediately adjacent to the residence exceed the 10,000 mg/kg threshold for VI assessment. For the purposes of site characterization, a screening level of 10,000 mg/kg for DRO in soil for protection of the VI pathway will be considered.

Naphthalene is a component of DRO and has a ground water screening level that is considered protective of the VI pathway. Table B-1 in Appendix 9 of *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*, dated October 2009 (Draft VI Guidance) presents a screening level for naphthalene in ground water of 170 µg/L. For the purposes of site characterization, a screening level of 170 µg/L for naphthalene in ground water for protection of the VI pathway will be considered.

The TEE will require an evaluation of potential ecological exposures such as terrestrial soil biota, plants, and wildlife. DRO has an Ecological Indicator Soil Concentration (Table 749-3) of 200 mg/kg for protection of soil biota and 6,000 mg/kg for protection of wildlife. Those concentrations apply to soils

shallower than 6 feet. For the purpose of site characterization, a screening level for DRO for protection of terrestrial ecological exposures of 200 mg/kg will be considered.

No other compounds present in typical heating oil are listed on the Ecological Indicator Soil Concentration for Protections of Terrestrial Plants and Animals (WAC 173-340-900, Table 749-3).

The following table summarizes the screening levels, in addition to MTCA Method A CULs, to be used during further characterization of soil and ground water impacts at the subject property.

Summary of Additional Screening Levels^a

Compound	Matrix	Screening Level	Basis
DRO	Soil	10,000 mg/kg	Threshold for VI Assessment ^(b)
		200 mg/kg	Ecological Indicator Soil Concentration for Protection of Soil Biota ^(c)
Naphthalene	Groundwater	4,900 µg/L	MTCA Method B Surface Water CUL ^(d)
		170 µg/L	Vapor Intrusion—Ground Water Screening Level ^e

Notes:

- a For those potential exposure pathways not addressed by MTCA Method A CULs.
- b WAC 173-340-740 (3)(C)(iv).
- c WAC 173-340-7490 and WAC 173-340-900, Table 749-3.
- d Cleanup Levels and Risk Calculation Database.
- e Guidance for Evaluating Soil Vapor Intrusion in Washington State; Investigation and Remedial Action (October 2009) Appendix 8, Table B-1.

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions are supported by the findings of the Phase II ESA:

- Soil at the subject property is impacted with DRO at concentrations exceeding MTCA Method A Soil CULs. DRO impacts to soil are present primarily within a smear zone that appears to extend to the west toward Lake Sammamish from the location of the former UST. The impacted soils appear to extend beneath the on-property residence. The northern extent of smear zone impacts at concentrations greater than the MTCA Method A Soil CUL have not been characterized and appear to extend onto the adjacent property. The southern extent of the smear zone has also not been characterized near the lakeshore.
- DRO impacts to soil exceed a screening level that triggers the need for assessment of the VI pathway into the on-property residence. Additional assessment of the concentrations of potential contaminants in soil gas and potentially indoor air is required to further evaluate this potential exposure pathway.

- Ground water at the subject property is impacted with DRO at concentrations exceeding MTCA Method A Ground Water CULs. Ground water impacts appear associated with the smear zone impacts to soil and extend to the west from the location of the former UST. As with impacts to soil, DRO impacts to ground water extend beneath the residence and appear to extend onto the northern adjacent property. Neither the northern nor southern extent of DRO impacts to ground water have been fully characterized.
- Several data gaps exist in the characterization of the subject property relative to potential cleanup levels and screening levels. These data gaps include:
 - Evaluating the presence and, if present, the concentrations of contaminants of concern in soil gas that could represent a VI threat. These compounds include components of heating oil including naphthalene, 1-methylnaphthalene and 2-methylnaphthalene. This evaluation would also include the development of site-specific soil and ground water cleanup levels that are protective of the VI pathway.
 - Evaluation of the presence of naphthalene in ground water at concentrations exceeding the MTCA Method B Surface Water CUL.
 - Evaluating the northern extent of DRO and other compounds in soil and ground water on the northern adjacent property.
 - Evaluating the southern extent of DRO and other compounds in soil and ground water south of MW-1 along the lakeshore.
 - Performance of a site-specific TEE will be required. This may require the performance of a bioassay to determine site-specific cleanup levels protective of terrestrial exposures or development of a bioattenuation factor (BAF) in calculate site-specific cleanup levels.
- Additional characterization of the subject property is necessary prior to considering the investigation sufficiently complete to perform a meaningful evaluation of remedial action alternatives.
- Upon completion of the characterization it will be possible to evaluate and develop the final cleanup levels for the subject property.
- Some form of active remediation will likely be required to bring the subject property into compliance with MTCA within a reasonable restoration time frame.

Based on our current understanding of the subject property EPI recommends that our client discuss with counsel the enrollment of the subject property into the Ecology Voluntary Cleanup Program (VCP). Enrollment in the VCP will allow our client to solicit advisory opinions from Ecology regarding the adequacy of any site characterization and assessment, selected remedial actions, and the likelihood that such actions will meet the requirements of MTCA and lead to meaningful regulatory closure.

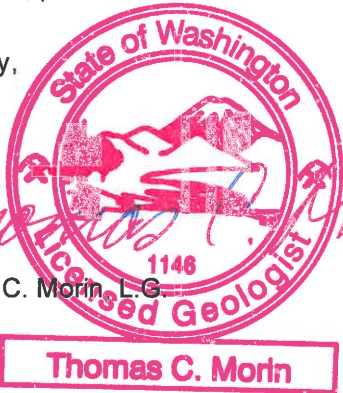
DISCLAIMER

To the extent that preparation of this Phase II ESA has required the application of best professional judgment and the employment of scientific principles, certain results of this work were based on subjective interpretation. EPI makes no warranties, express or implied, including and without limitation warranties as to merchantability or fitness for a particular purpose. The information provided herein is not to be construed as legal advice.


This Phase II ESA was prepared solely for Mr. Mike Mossman and counsel, and the contents herein may not be used or relied upon by any other person without the express written consent and authorization of EPI.

EPI appreciates the opportunity to be of assistance on this project. If you have any questions or comments, please do not hesitate to contact us at (425) 395-0010.

Sincerely,



Thomas C. Morin, L.G.
Principal
Thomas C. Morin



Kristin Addis, L.G.
Senior Geologist
KRISTIN L. ADDIS

ENCLOSURES

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Attachments

Attachment A	Boring Logs
Attachment B	Laboratory Analytical Reports

Tables

Table 1
Soil Analytical Results (in mg/kg)
Phase II Environmental Site Assessment Report
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Sample ID	Sample Depth (feet)	Sample Date	Diesel-Range Organics ^a	Oil-Range Organics ^a	Benzene ^b	Toluene ^b	Ethylbenzene ^b	Total Xylenes ^b	Napthalene ^b
B-1:7.5	7.5	5/20/13	27,000	<1,500	--	--	--	--	--
B-1:11	11	5/20/13	<29	<57	--	--	--	--	--
B-2:5	5	5/20/13	<30	<60	--	--	--	--	--
B-2:7.5	7.5	5/20/13	4,800	<400	--	--	--	--	--
B-3:4	4	5/20/13	<27	<53	--	--	--	--	--
B-3:6.5	6.5	5/20/13	49	350	--	--	--	--	--
B-4:5	5	5/20/13	<29	<59	--	--	--	--	--
B-4:6.5	6.5	5/20/13	7,600	<910	--	--	--	--	--
B-5:4	4	5/20/13	<27	<54	--	--	--	--	--
B-5:6.5	6.5	5/20/13	6,700	<350	--	--	--	--	--
B-6:3.5	3.5	5/20/13	<27	<53	--	--	--	--	--
B-6:5.5	5.5	5/20/13	<31	<61	--	--	--	--	--
MW-1:1.3	1.3	5/21/13	32,000	<1,800	--	--	--	--	--
MW-2:2	2	5/21/13	13,000	<890	--	--	--	--	--
MW-2:3	3	5/21/13	43,000	<1,600	--	--	--	--	--
MW-2:6	6	5/21/13	300	1,000	--	--	--	--	--
B-7:6	6	5/21/13	<30	<60	--	--	--	--	--
MW-4:5	5	5/21/13	26,000	<1,500	0.14	0.40	3.1	15.6	7.2
Footing:1.5	1.5	5/21/13	<27	<53	--	--	--	--	--
MTCA Method A Soil Cleanup Level for Unrestricted Land Uses^c			2,000	2,000	0.03	7	6	9	5
Screening Level			10,000^(d)/200^(e)	NVE	NVE	NVE	NVE	NVE	NVE

Notes:

All results presented in milligrams per kilogram (mg/kg).



- Bold** Bold results indicate that the compound was detected at a concentration greater than the laboratory practical quantitation limit.
-  Gray shaded cells indicate that result exceeded the cleanup level.
-  Orange shaded cells indicate that result exceeds the screening level.
- Sample was not analyzed for this compound.
- a Analyzed by NWTPH-Dx.
- b Analyzed by EPA Method 8260C.
- c Model Toxics Control Act (MTCA) Method A Soil Cleanup Level for Unrestricted Land Uses (WAC 173-340-900, Table 740-1).
- d WAC 173-340-740 (3)(C)(iv)
- e WAC 173-340-7490 and WAC 173-340-900, Table 749-3

Table 2
Extended Range Petroleum Hydrocarbon Analytical Results (in mg/kg)
Phase II Environmental Site Assessment Report
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

EPH Range ^a	MW-4:5
>C8-C10 Aliphatics	830
>C10-C12 Aliphatics	2,100
>C12-C16 Aliphatics	5,500
>C16-C21 Aliphatics	6,000
>C21-C34 Aliphatics	1,000
>C8-C10 Aromatics	220
>C10-C12 Aromatics	630
>C12-C16 Aromatics	1,800
>C16-C21 Aromatics	4,000
>C21-C34 Aromatics	550

Notes:

All results presented in milligrams per kilogram (mg/kg).

Bold Bold results indicate that the compound was detected at a concentration greater than the laboratory practical quantitation limit.

a Analyzed by NWEPH.

Table 3
Ground Water Analytical Results (in µg/L)
Phase II Environmental Site Assessment Report
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Sample ID	Sample Date	Diesel-Range Organics ^a	Oil-Range Organics ^a
B-1W	5/20/13	43,000	<2500
B-2W(MW-3)	5/20/13	11,000	<570
B-3W	5/20/13	<270	<430
B-4W	5/20/13	2,600	<430
B-5W	5/20/13	3,900	<420
B-6W	5/20/13	<260	<420
B-7W	5/21/13	<260	<420
MW-1W	5/21/13	9,300	<950
MW-2W	5/21/13	1,500,000	<830
MW-4W	5/21/13	22,000	<1,100
MTCA Method A Cleanup Level for Ground Water^b		500	500

Notes:

All results presented in milligrams per kilogram (µg/L).

Bold Bold results indicate that the compound was detected at a concentration greater than the laboratory practical quantitation limit.

Shaded cells indicate that result exceeded the cleanup level.

a Analyzed by NWTPH-Dx.

b Model Toxics Control Act (MTCA) Method A Ground Water Cleanup Level (WAC 173-340-900, Table 720-1).

Figures

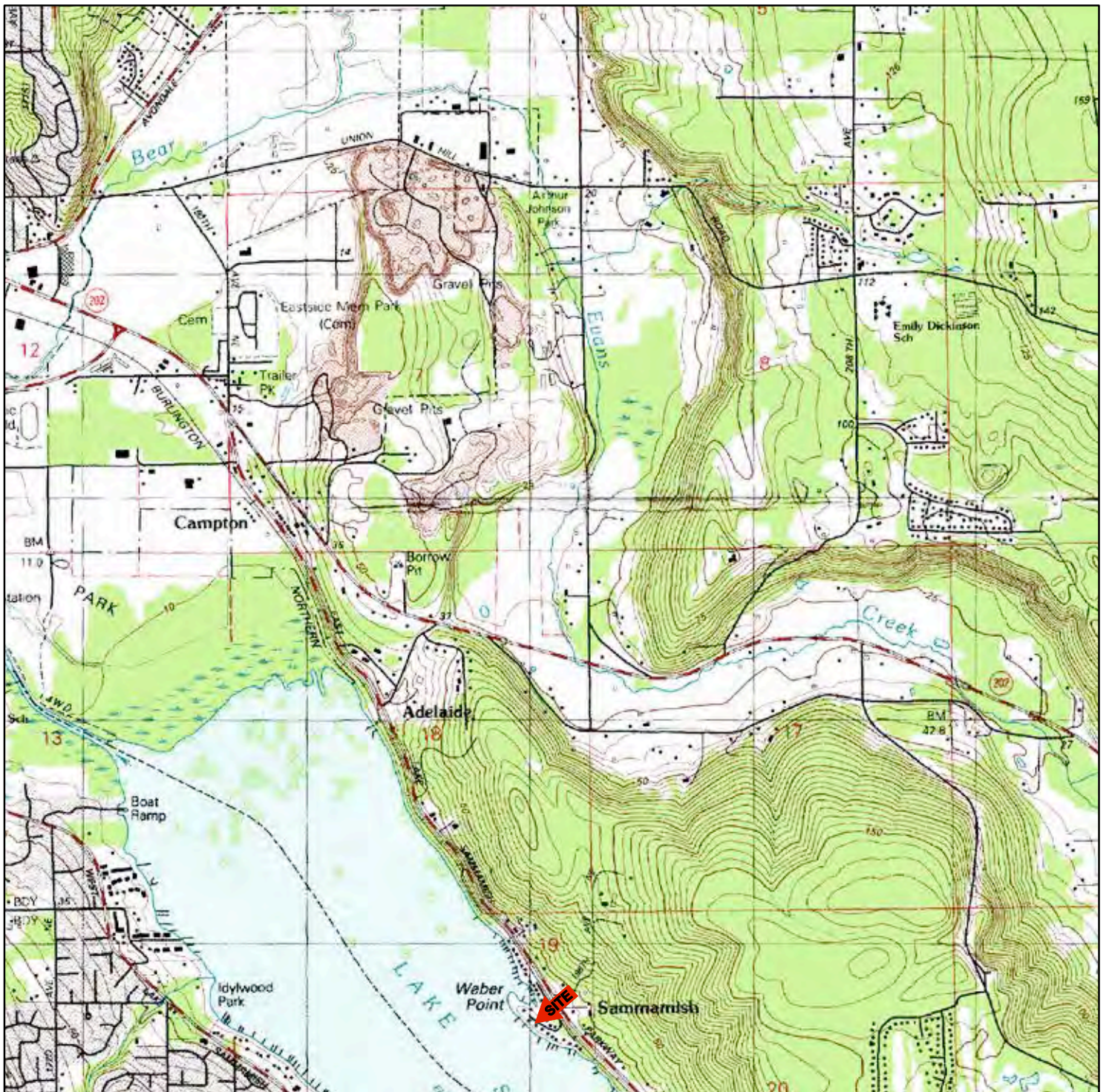



FIGURE 1
GENERAL VICINITY MAP

PREPARED BY	 ENVIRONMENTAL PARTNERS INC		
REPORT	PHASE II ENVIRONMENTAL SITE ASSESSMENT		
LOCATION	MOSSMAN RESIDENCE 3461 EAST LAKE SAMMAMISH SHORE LANE NE SAMMAMISH, WASHINGTON		
PREPARED FOR	MR. MIKE MOSSMAN		
DATE	DRAWN BY	REVIEWED BY	PROJECT NUMBER
6/21/13	ALW	KLA	65201.1

NOTES:

SOURCE: USGS 7.5 MINUTE QUADRANGLE (TOPOGRAPHIC)

BELLEVUE NORTH, WA
1982

N
↑
0

SCALE = 1:25,000



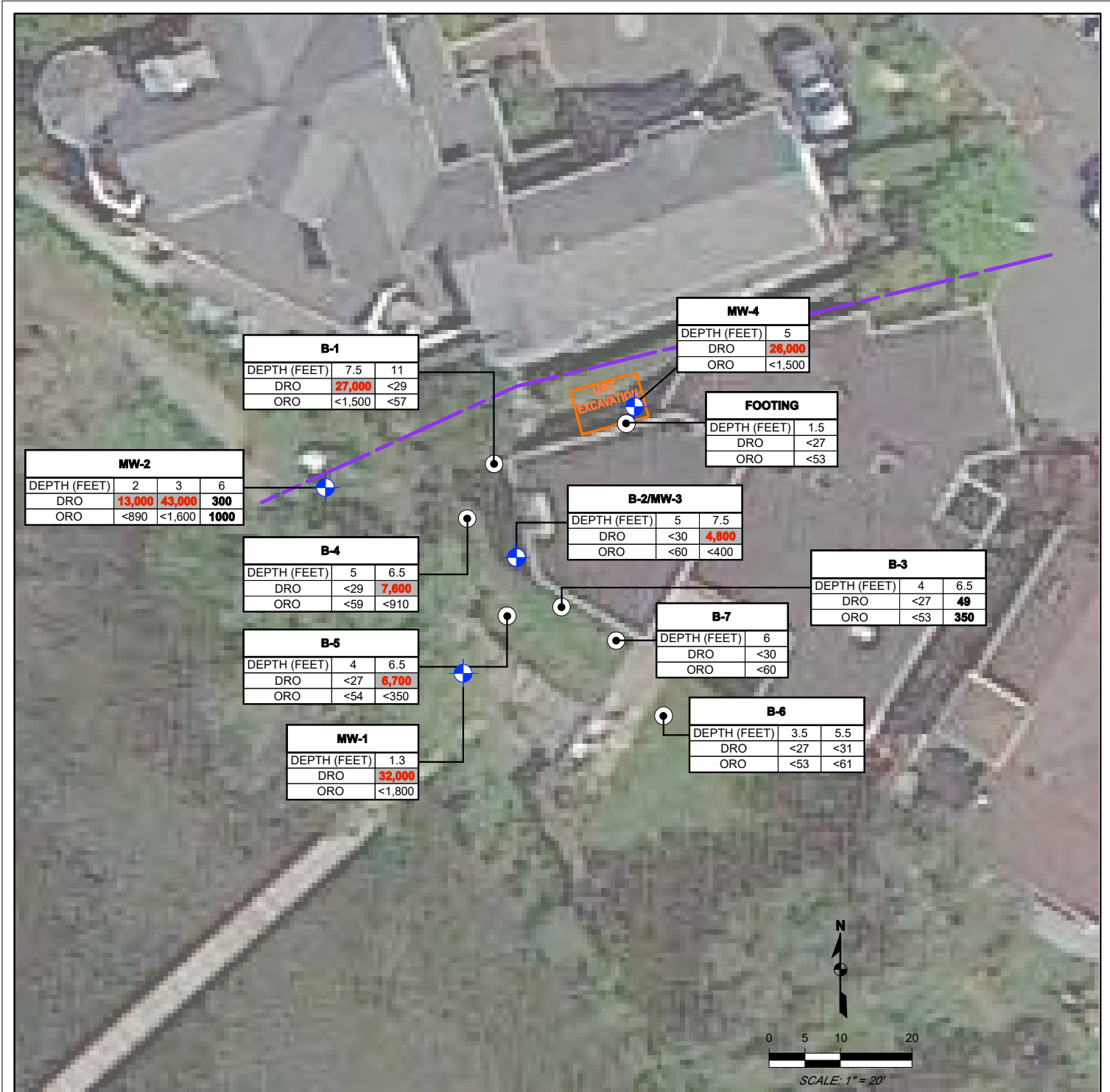
NOTES:

- - - APPROXIMATE SUBJECT PROPERTY BOUNDARY
- - - EXISTING UST EXCAVATION
- SOIL BORING
- MONITORING WELL AND GROUND WATER ELEVATION
- - - PIEZOMETRIC CONTOUR

MW-1 (31.31)

ALL GROUND WATER ELEVATIONS ARE APPROXIMATE.
 MW-4 ASSIGNED APPROXIMATE ELEVATION OF 38'.
 GROUND WATER COLLECTED ON MAY 22, 2013.

FIGURE 2			
PIEZOMETRIC CONTOURS AND GROUND WATER MONITORING WELL LOCATIONS			
PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	PHASE II ENVIRONMENTAL SITE ASSESSMENT		
LOCATION	MOSSMAN RESIDENCE 3461 EAST LAKE SAMMAMISH SHORE LANE NE SAMMAMISH, WASHINGTON		
PREPARED FOR	MR. MIKE MOSSMAN		
DATE	DRAWN BY	REVIEWED BY	PROJECT NUMBER
6/26/13	ALW	KLA	65201.1



SAMPLE NAME	B-4		
	DEPTH (FEET)	5	6.5
DIESEL-RANGE ORGANICS	DRO	<29	7,600
OIL-RANGE ORGANICS	ORO	<59	1000

RED AND SHADED= CONCENTRATION IS GREATER THAN MTCA METHOD A CLEANUP LEVEL FOR GROUND WATER.
BOLD= DETECTED CONCENTRATION GREATER THAN PRACTICAL QUANTITATION LIMIT (PQL).
 ALL SAMPLE RESULTS IN mg/kg.

- NOTES:**
- APPROXIMATE SUBJECT PROPERTY BOUNDARY
 - EXISTING UST EXCAVATION
 - SOIL BORING
 - MONITORING WELL

FIGURE 3
 PROBE LOCATIONS WITH
 SOIL ANALYTICAL RESULTS

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	PHASE II ENVIRONMENTAL SITE ASSESSMENT		
LOCATION	MOSSMAN RESIDENCE 3461 EAST LAKE SAMMAMISH SHORE LANE NE SAMMAMISH, WASHINGTON		
PREPARED FOR	MR. MIKE MOSSMAN		
DATE	DRAWN BY	REVIEWED BY	PROJECT NUMBER
6/21/13	ALW	KLA	65201.1



SAMPLE NAME	B-4	
DEPTH (FEET)	5	6.5
DIESEL-RANGE ORGANICS	DRO	<29 7,600
OIL-RANGE ORGANICS	ORO	<59 1000

RED AND SHADED= CONCENTRATION IS GREATER THAN MTCA METHOD A CLEANUP LEVEL FOR GROUND WATER.
BOLD= DETECTED CONCENTRATION GREATER THAN PRACTICAL QUANTITATION LIMIT.
 ALL SAMPLE RESULTS IN µg/L.

- NOTES:**
- APPROXIMATE SUBJECT PROPERTY BOUNDARY
 - EXISTING UST EXCAVATION
 - SOIL BORING
 - MONITORING WELL

FIGURE 4 GROUND WATER SAMPLE ANALYTICAL RESULTS			
PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	PHASE II ENVIRONMENTAL SITE ASSESSMENT		
LOCATION	MOSSMAN RESIDENCE 3461 EAST LAKE SAMMAMISH SHORE LANE NE SAMMAMISH, WASHINGTON		
PREPARED FOR	MR. MIKE MOSSMAN		
DATE	DRAWN BY	REVIEWED BY	PROJECT NUMBER
6/26/13	ALW/KLA	KLA	65201.1



NOTES:













	APPROXIMATE SUBJECT PROPERTY BOUNDARY
	ISOCONCENTRATION CONTOUR
	EXISTING UST EXCAVATION
	SOIL BORING
	MONITORING WELL

FIGURE 5 APPARENT EXTENT OF SMEAR ZONE IMPACTS TO SOIL			
PREPARED BY	 ENVIRONMENTAL PARTNERS INC		
REPORT	PHASE II ENVIRONMENTAL SITE ASSESSMENT		
LOCATION	MOSSMAN RESIDENCE 3461 EAST LAKE SAMMAMISH SHORE LANE NE SAMMAMISH, WASHINGTON		
PREPARED FOR	MR. MIKE MOSSMAN		
DATE	DRAWN BY	REVIEWED BY	PROJECT NUMBER
6/26/13	ALW	KLA	65201.1



NOTES:

	APPROXIMATE SUBJECT PROPERTY BOUNDARY
	ISOCONCENTRATION CONTOUR
	EXISTING UST EXCAVATION
	SOIL BORING
	MONITORING WELL

<p align="center">FIGURE 6 APPARENT EXTENT OF DRO IMPACT TO GROUND WATER</p>			
PREPARED BY	 ENVIRONMENTAL PARTNERS INC		
REPORT	PHASE II ENVIRONMENTAL SITE ASSESSMENT		
LOCATION	MOSSMAN RESIDENCE 3461 EAST LAKE SAMMAMISH SHORE LANE NE SAMMAMISH, WASHINGTON		
PREPARED FOR	MR. MIKE MOSSMAN		
DATE	DRAWN BY	REVIEWED BY	PROJECT NUMBER
6/26/13	ALW/KLA	KLA	65201.1

Attachment A
Boring Logs

SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" stainless steel
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 20, 2013	SCREEN INTERVAL: 5 - 10
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: none
LOGGED BY: K. Addis		TOTAL DEPTH: 11	FILTER PACK INTERVAL: none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			Grass over topsoil					
1			WELL-GRADED SAND WITH GRAVEL; Light brown; damp; mostly fine to coarse sand with some gravel				0	
2	SW			50				
3								
4							46	
5	SP		POORLY-GRADED SAND; Green-gray; moist to wet; mostly fine sand; Mottled; Strong odor					
6				70			106	
7	OH		SANDY ORGANIC SOIL WITH GRAVEL; Dark gray to gray; wet; mostly organic with some sand and minor gravel; Strong odor			B-1:7.5		
8							44	
9	SW		WELL-GRADED SAND WITH GRAVEL; Brown; wet; mostly fine to coarse sand with some gravel; slight odor					
10				70				
11						B-1:11		
12								

NOTES:

SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" Pre-pack PVC
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 20, 2013	SCREEN INTERVAL: 5 - 10
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: Pre-pack silica sand
LOGGED BY: K. Addis		TOTAL DEPTH: 12	FILTER PACK INTERVAL: 5-10

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			Grass over topsoil					
1			WELL-GRADED SAND WITH GRAVEL; Light brown; damp; mostly fine to coarse sand with some gravel					
2				50				
3	SW						1.4	
4								
5						B-2:5	100	
6	SP		POORLY-GRADED SAND; Dark gray; moist to wet; mostly fine sand with few gravel; Mottled; Strong odor	70		B-2W		
7								
8	OH		SANDY ORGANIC SOIL; Dark gray to gray; wet; mostly organic with some sand; Strong odor			B-2:7.5		
9			WELL-GRADED SAND WITH SILT AND GRAVEL; Dark gray; wet; mostly fine to coarse sand with minor gravel and few silt				0	
10	SW-SM			70				
11								
12								

NOTES:



SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" stainless steel
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 20, 2013	SCREEN INTERVAL: 5 - 10
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: none
LOGGED BY: K. Addis		TOTAL DEPTH: 10	FILTER PACK INTERVAL: none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			Grass over topsoil					
1	SW		WELL-GRADED SAND WITH GRAVEL; Light brown; damp; mostly fine to coarse sand with some gravel	50			0	
2								
3								
4								
5	SP		POORLY-GRADED SAND; Light gray; moist to wet; mostly fine sand; Mottled	80		B-3:4	0.2	
6								
7	OH		SANDY ORGANIC SOIL; Dark gray to gray; wet; mostly organic with some sand			B-3:6.5 B-3W	2.5	
8								
9	SM		SILTY SAND; Gray; wet; mostly fine sand with minor silt	100				
10								
11								
12								

NOTES:



SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" stainless steel
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 20, 2013	SCREEN INTERVAL: 5 - 10
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: none
LOGGED BY: K. Addis		TOTAL DEPTH: 10	FILTER PACK INTERVAL: none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			Grass over topsoil					
1			WELL-GRADED SAND WITH GRAVEL; Light brown; damp; mostly fine to coarse sand with some gravel					
2	SP			50				
3							3.8	
4								
5	SP		POORLY-GRADED SAND; Light gray; moist to wet; mostly fine sand; Mottled			B-4:5	40	
6				80				
7	OH		SANDY ORGANIC SOIL; Dark gray to gray; wet; mostly organic with some sand			B-4:6.5	0.3	
8						B-4W		
9	SW-SM		WELL-GRADED SAND WITH SILT AND GRAVEL; Dark gray; wet; mostly fine to coarse sand with minor gravel and few silt					
10				100			0	
11								
12								

NOTES:



SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" stainless steel
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 20, 2013	SCREEN INTERVAL: 5 - 10
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: none
LOGGED BY: K. Addis		TOTAL DEPTH: 8	FILTER PACK INTERVAL: none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			Grass over topsoil					
1	SW		WELL-GRADED SAND WITH GRAVEL; Light brown; damp; mostly fine to coarse sand with some gravel	50			0	
2								
3								
4								
5	SP		POORLY-GRADED SAND; Light gray; moist to wet; mostly fine sand; Mottled; Odor at 5 -8ft	100		B-5:4	0.3	
6								
7								
8								
9								
10								
11								
12								

NOTES:

SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" stainless steel
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 20, 2013	SCREEN INTERVAL: 5 - 10
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: none
LOGGED BY: K. Addis		TOTAL DEPTH: 10	FILTER PACK INTERVAL: none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			Grass over topsoil					
1	SW		WELL-GRADED SAND WITH GRAVEL; Orange; damp; mostly fine to coarse sand with some gravel	30			0	
2								
3			B-6:3.5					
4	SP		POORLY-GRADED SAND; Light gray; moist to wet; mostly fine sand; Mottled				13	
5			B-6:5.5			18		
6	OH		SANDY ORGANIC SOIL; Dark brown; wet; mostly organic with some sand and trace gravel	80				
7			B-6W			7		
8	OH		ORGANIC SOIL; Dark gray; wet; mostly organic silt	100			2.4	
9						9		
10								
11								
12								

NOTES:

SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" stainless steel
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 21, 2013	SCREEN INTERVAL: 5 - 10
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: none
LOGGED BY: K. Addis		TOTAL DEPTH: 10	FILTER PACK INTERVAL: none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction	
0			Grass over topsoil						
1			WELL-GRADED SAND WITH GRAVEL; Brown; moist; mostly fine to coarse sand with some gravel; no odor				0.1		
2	SW			60					
3									
4									
5	OH		SANDY ORGANIC SOIL; Dark brown; wet; mostly organic with some sand and minor gravel						
6	SP		POORLY-GRADED SAND; Light brown; moist to wet; mostly fine sand; Mottled	70		B-7:6	0.2		
7						B-7W			
8	SW		WELL-GRADED SAND WITH GRAVEL; Brown; wet; mostly fine to coarse sand with minor gravel; no odor				0		
9	GW		WELL-GRADED GRAVEL WITH SAND; Brown; wet; mostly fine to medium gravel with some sand and trace organics	100					
10									
11									
12									

NOTES:

SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" Pre-pack PVC
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 21, 2013	SCREEN INTERVAL: 2 - 7
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: Pre-pack silica sand
LOGGED BY: K. Addis		TOTAL DEPTH: 7	FILTER PACK INTERVAL: 1.5 - 7

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0	SW		WELL-GRADED SAND WITH GRAVEL; brown; moist to wet; mostly fine to coarse sand with some gravel; Odor at 1.4'; becomes gray at 4'	50				
1						MW-1:1.3	95	
2						MW-1W	40	
3								
4							51	
5								
6							36	
7								
8								
9								
10								
11								
12								

NOTES:

SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" Pre-pack PVC
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 21, 2013	SCREEN INTERVAL: 2 - 7
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: Pre-pack silica sand
LOGGED BY: K. Addis		TOTAL DEPTH: 7	FILTER PACK INTERVAL: 1.5 - 7

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0	SW		WELL-GRADED SAND WITH GRAVEL; brown; moist to wet; mostly fine to coarse sand with some gravel; Odor at 1.8'	50			187	
1								
2	OH		SANDY ORGANIC SOIL WITH GRAVEL; Dark brown; wet; mostly organic with some sand and some gravel; Strong odor	80		MW-2:2	117	
3						MW-2:3		
4						MW-2W		
5	SW		WELL-GRADED SAND WITH GRAVEL; Brown; wet; mostly fine to coarse sand with minor gravel; Odor; Product staining at 5.75 - 6.0	100			87	
6								MW-2:6
7								
8								
9								
10								
11								
12								

NOTES:



SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" Pre-pack PVC
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 21, 2013	SCREEN INTERVAL: 1 - 6
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL: 38	FILTER PACK: Pre-pack silica sand
LOGGED BY: K. Addis		TOTAL DEPTH: 6	FILTER PACK INTERVAL: 0.5 - 6

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0								
1								
2								
3								
4								
5			WELL-GRADED SAND WITH GRAVEL; Light brown; damp; mostly fine to coarse sand with some gravel; Odor			MW-4:5	95	
6						MW-4W		
7	SW							
8								
9								
10								
11								
12								

NOTES:

Attachment B
Laboratory Analytical Reports



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

May 31, 2013

Thom Morin
Environmental Partners, Inc.
295 NE Gilman Blvd, Suite 201
Issaquah, WA 98027

Re: Analytical Data for Project 65201.0
Laboratory Reference No. 1305-192

Dear Thom:

Enclosed are the analytical results and associated quality control data for samples submitted on May 21, 2013.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal stroke extending to the right.

David Baumeister
Project Manager

Enclosures

Date of Report: May 31, 2013
Samples Submitted: May 21, 2013
Laboratory Reference: 1305-192
Project: 65201.0

Case Narrative

Samples were collected on May 20 and 21, 2013 and received by the laboratory on May 21, 2013. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

NWTPH-Dx

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	B-1:7.5					
Laboratory ID:	05-192-01					
Diesel Fuel #2	27000	490	NWTPH-Dx	5-24-13	5-28-13	
Lube Oil Range Organics	ND	1500	NWTPH-Dx	5-24-13	5-28-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	---	50-150				S
Client ID:	B-1:11					
Laboratory ID:	05-192-02					
Diesel Range Organics	ND	29	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	57	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	93	50-150				
Client ID:	B-2:5					
Laboratory ID:	05-192-04					
Diesel Range Organics	ND	30	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	60	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	75	50-150				
Client ID:	B-2:7.5					
Laboratory ID:	05-192-05					
Diesel Fuel #2	4800	39	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	400	NWTPH-Dx	5-24-13	5-24-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	78	50-150				
Client ID:	B-3:4					
Laboratory ID:	05-192-07					
Diesel Range Organics	ND	27	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	53	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	86	50-150				
Client ID:	B-3:6.5					
Laboratory ID:	05-192-08					
Diesel Range Organics	49	42	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	350	84	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	102	50-150				

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

NWTPH-Dx

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	B-4:5					
Laboratory ID:	05-192-10					
Diesel Range Organics	ND	29	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	59	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	85	50-150				
Client ID:	B-4:6.5					
Laboratory ID:	05-192-11					
Diesel Fuel #2	7600	150	NWTPH-Dx	5-24-13	5-28-13	
Lube Oil Range Organics	ND	910	NWTPH-Dx	5-24-13	5-28-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	91	50-150				
Client ID:	B-5:4					
Laboratory ID:	05-192-13					
Diesel Range Organics	ND	27	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	54	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	83	50-150				
Client ID:	B-5:6.5					
Laboratory ID:	05-192-14					
Diesel Fuel #2	6700	150	NWTPH-Dx	5-24-13	5-28-13	
Lube Oil Range Organics	ND	350	NWTPH-Dx	5-24-13	5-28-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	86	50-150				
Client ID:	B-6:3.5					
Laboratory ID:	05-192-16					
Diesel Range Organics	ND	27	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	53	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	88	50-150				
Client ID:	B-6:5.5					
Laboratory ID:	05-192-17					
Diesel Range Organics	ND	31	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	61	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	78	50-150				

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

NWTPH-Dx

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-1:1.3					
Laboratory ID:	05-192-19					
Diesel Fuel #2	32000	290	NWTPH-Dx	5-24-13	5-28-13	
Lube Oil Range Organics	ND	1800	NWTPH-Dx	5-24-13	5-28-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	---	50-150				S
Client ID:	MW-2:2					
Laboratory ID:	05-192-20					
Diesel Fuel #2	13000	160	NWTPH-Dx	5-24-13	5-28-13	
Lube Oil Range Organics	ND	890	NWTPH-Dx	5-24-13	5-28-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	128	50-150				
Client ID:	MW-2:3					
Laboratory ID:	05-192-21					
Diesel Fuel #2	43000	280	NWTPH-Dx	5-24-13	5-28-13	
Lube Oil Range Organics	ND	1600	NWTPH-Dx	5-24-13	5-28-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	---	50-150				S
Client ID:	MW-2:6					
Laboratory ID:	05-192-22					
Diesel Range Organics	300	33	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	1000	66	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	101	50-150				
Client ID:	B-7:6					
Laboratory ID:	05-192-23					
Diesel Range Organics	ND	30	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	60	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	91	50-150				
Client ID:	MW-4:5					
Laboratory ID:	05-192-25					
Diesel Fuel #2	26000	320	NWTPH-Dx	5-24-13	5-28-13	
Lube Oil Range Organics	ND	1500	NWTPH-Dx	5-24-13	5-28-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	---	50-150				S

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

NWTPH-Dx

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Footing:1.5					
Laboratory ID:	05-192-26					
Diesel Range Organics	ND	27	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	53	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	88	50-150				

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

**NWTPH-Dx
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0524S1					
Diesel Range Organics	ND	25	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	50	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	86	50-150				

Analyte	Result		Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE							
Laboratory ID:	05-192-04						
	ORIG	DUP					
Diesel Range Organics	ND	ND			NA	NA	
Lube Oil Range Organics	ND	ND			NA	NA	
<i>Surrogate:</i>							
<i>o-Terphenyl</i>			75	88	50-150		
Laboratory ID:	05-214-01						
	ORIG	DUP					
Diesel Range Organics	ND	ND			NA	NA	U1
Lube Oil	1430	1020			33	NA	
<i>Surrogate:</i>							
<i>o-Terphenyl</i>			94	96	50-150		

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

NWTPH-Dx

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: B-1W						
Laboratory ID: 05-192-03						
Diesel Fuel #2	43	0.26	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	2.5	NWTPH-Dx	5-23-13	5-23-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	69	50-150				
Client ID: B-2W						
Laboratory ID: 05-192-06						
Diesel Fuel #2	11	0.26	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	0.57	NWTPH-Dx	5-23-13	5-23-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	89	50-150				
Client ID: B-3W						
Laboratory ID: 05-192-09						
Diesel Range Organics	ND	0.27	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	0.43	NWTPH-Dx	5-23-13	5-23-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	80	50-150				
Client ID: B-4W						
Laboratory ID: 05-192-12						
Diesel Fuel #2	2.6	0.27	NWTPH-Dx	5-23-13	5-23-13	M1
Lube Oil Range Organics	ND	0.43	NWTPH-Dx	5-23-13	5-23-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	88	50-150				
Client ID: B-5W						
Laboratory ID: 05-192-15						
Diesel Fuel #2	3.9	0.26	NWTPH-Dx	5-23-13	5-23-13	M1
Lube Oil Range Organics	ND	0.42	NWTPH-Dx	5-23-13	5-23-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	82	50-150				
Client ID: B-6W						
Laboratory ID: 05-192-18						
Diesel Range Organics	ND	0.26	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	0.42	NWTPH-Dx	5-23-13	5-23-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	73	50-150				

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

NWTPH-Dx

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	B-7W					
Laboratory ID:	05-192-24					
Diesel Range Organics	ND	0.26	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	0.42	NWTPH-Dx	5-23-13	5-23-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	76	50-150				

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

**NWTPH-Dx
 QUALITY CONTROL**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0523W1					
Diesel Range Organics	ND	0.25	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	0.40	NWTPH-Dx	5-23-13	5-23-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	<i>87</i>	<i>50-150</i>				

Analyte	Result		Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE							
Laboratory ID:	05-192-03						
	ORIG	DUP					
Diesel Fuel #2	43.0	31.6			31	NA	
Lube Oil Range Organics	ND	ND			NA	NA	U1
<i>Surrogate:</i>							
<i>o-Terphenyl</i>			69	86	50-150		

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

VOLATILES by EPA 8260C

Matrix: Soil
 Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-4:5					
Laboratory ID:	05-192-25					
Benzene	0.14	0.064	EPA 8260C	5-22-13	5-22-13	
Toluene	0.40	0.32	EPA 8260C	5-22-13	5-22-13	
Ethylbenzene	3.1	0.064	EPA 8260C	5-22-13	5-22-13	
m,p-Xylene	10	0.13	EPA 8260C	5-22-13	5-22-13	
o-Xylene	5.6	0.064	EPA 8260C	5-22-13	5-22-13	
Naphthalene	7.2	0.064	EPA 8260C	5-22-13	5-22-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>98</i>	<i>63-127</i>				
<i>Toluene-d8</i>	<i>105</i>	<i>65-129</i>				
<i>4-Bromofluorobenzene</i>	<i>105</i>	<i>52-125</i>				

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

**VOLATILES by EPA 8260C
 METHOD BLANK QUALITY CONTROL**

Matrix: Soil
 Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0522S1					
Benzene	ND	0.0010	EPA 8260C	5-22-13	5-22-13	
Toluene	ND	0.0050	EPA 8260C	5-22-13	5-22-13	
Ethylbenzene	ND	0.0010	EPA 8260C	5-22-13	5-22-13	
m,p-Xylene	ND	0.0020	EPA 8260C	5-22-13	5-22-13	
o-Xylene	ND	0.0010	EPA 8260C	5-22-13	5-22-13	
Naphthalene	ND	0.0010	EPA 8260C	5-22-13	5-22-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>121</i>	<i>63-127</i>				
<i>Toluene-d8</i>	<i>117</i>	<i>65-129</i>				
<i>4-Bromofluorobenzene</i>	<i>118</i>	<i>52-125</i>				

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

**VOLATILES by EPA 8260C
 SB/SBD QUALITY CONTROL**

Matrix: Soil
 Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery	RPD		Flags
					Recovery	Limits	RPD	Limit		
SPIKE BLANKS										
Laboratory ID:	SB0522S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	0.0562	0.0557	0.0500	0.0500	112	111	65-141	1	15	
Benzene	0.0514	0.0509	0.0500	0.0500	103	102	69-121	1	15	
Trichloroethene	0.0544	0.0522	0.0500	0.0500	109	104	75-120	4	15	
Toluene	0.0528	0.0521	0.0500	0.0500	106	104	75-120	1	15	
Chlorobenzene	0.0545	0.0549	0.0500	0.0500	109	110	75-120	1	15	
<i>Surrogate:</i>										
<i>Dibromofluoromethane</i>					<i>109</i>	<i>108</i>	<i>63-127</i>			
<i>Toluene-d8</i>					<i>107</i>	<i>105</i>	<i>65-129</i>			
<i>4-Bromofluorobenzene</i>					<i>106</i>	<i>105</i>	<i>52-125</i>			

Date of Report: May 31, 2013
Samples Submitted: May 21, 2013
Laboratory Reference: 1305-192
Project: 65201.0

% MOISTURE

Date Analyzed: 5-22&24-13

Client ID	Lab ID	% Moisture
B-1:7.5	05-192-01	49
B-1:11	05-192-02	13
B-2:5	05-192-04	17
B-2:7.5	05-192-05	36
B-3:4	05-192-07	6
B-3:6.5	05-192-08	41
B-4:5	05-192-10	15
B-4:6.5	05-192-11	17
B-5:4	05-192-13	7
B-5:6.5	05-192-14	16
B-6:3.5	05-192-16	6
B-6:5.5	05-192-17	18
MW-1:1.3	05-192-19	15
MW-2:2	05-192-20	21
MW-2:3	05-192-21	10
MW-2:6	05-192-22	24
B-7:6	05-192-23	16
MW-4:5	05-192-25	21
Footing:1.5	05-192-26	6



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
 - B - The analyte indicated was also found in the blank sample.
 - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
 - E - The value reported exceeds the quantitation range and is an estimate.
 - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
 - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
 - I - Compound recovery is outside of the control limits.
 - J - The value reported was below the practical quantitation limit. The value is an estimate.
 - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
 - L - The RPD is outside of the control limits.
 - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
 - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
 - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
 - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
 - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
 - P - The RPD of the detected concentrations between the two columns is greater than 40.
 - Q - Surrogate recovery is outside of the control limits.
 - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
 - T - The sample chromatogram is not similar to a typical _____.
 - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
 - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
 - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
 - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
 - X - Sample extract treated with a mercury cleanup procedure.
 - X1 - Sample extract treated with a Sulfuric acid/Silica gel cleanup procedure.
 - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
 - Z -
- ND - Not Detected at PQL
 PQL - Practical Quantitation Limit
 RPD - Relative Percent Difference



May 30, 2013

Mr. David Baumeister
OnSite Environmental Inc.
14648 NE 95th Street
Redmond, WA 98052

Dear Mr. Baumeister,

On May 22nd, 1 sample was received by our laboratory and assigned our laboratory project number EV13050126. The project was identified as your Proj #65201.0 / Lab Ref #05-192. The sample identification and requested analyses are outlined on the attached chain of custody record.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director



CERTIFICATE OF ANALYSIS

CLIENT: OnSite Environmental Inc. DATE: 5/30/2013
14648 NE 95th Street ALS JOB#: EV13050126
Redmond, WA 98052 WDOE ACCREDITATION: C601
CLIENT CONTACT: David Baumeister
CLIENT PROJECT: Proj #65201.0 / Lab Ref #05-192

CASE NARRATIVE

No sample abnormalities were qualified in this report.



CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc. 14648 NE 95th Street Redmond, WA 98052	DATE:	5/30/2013
CLIENT CONTACT:	David Baumeister	ALS JOB#:	EV13050126
CLIENT PROJECT:	Proj #65201.0 / Lab Ref #05-192	ALS SAMPLE#:	-01
CLIENT SAMPLE ID	MW-4:5	DATE RECEIVED:	5/22/2013
		COLLECTION DATE:	5/21/2013 1:35:00 PM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aliphatics	NWEPH	830	25	5	MG/KG	05/24/2013	EBS
>C10-C12 Aliphatics	NWEPH	2100	25	5	MG/KG	05/24/2013	EBS
>C12-C16 Aliphatics	NWEPH	5500	25	5	MG/KG	05/24/2013	EBS
>C16-C21 Aliphatics	NWEPH	6000	25	5	MG/KG	05/24/2013	EBS
>C21-C34 Aliphatics	NWEPH	1000	25	5	MG/KG	05/24/2013	EBS
>C8-C10 Aromatics	NWEPH	220	10	2	MG/KG	05/28/2013	EBS
>C10-C12 Aromatics	NWEPH	630	10	2	MG/KG	05/28/2013	EBS
>C12-C16 Aromatics	NWEPH	1800	10	2	MG/KG	05/28/2013	EBS
>C16-C21 Aromatics	NWEPH	4000	10	2	MG/KG	05/28/2013	EBS
>C21-C34 Aromatics	NWEPH	550	10	2	MG/KG	05/28/2013	EBS

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25 5X Dilution	NWEPH	118	05/24/2013	EBS
p-Terphenyl 2X Dilution	NWEPH	105	05/28/2013	EBS



CERTIFICATE OF ANALYSIS

CLIENT: OnSite Environmental Inc. DATE: 5/30/2013
14648 NE 95th Street ALS SDG#: EV13050126
Redmond, WA 98052 WDOE ACCREDITATION: C601
CLIENT CONTACT: David Baumeister
CLIENT PROJECT: Proj #65201.0 / Lab Ref #05-192

LABORATORY BLANK RESULTS

MBLK-5242013 - Batch R81533 - Soil by NWEPH

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aliphatics	NWEPH	U	5.0	1	MG/KG	05/24/2013	EBS
>C10-C12 Aliphatics	NWEPH	U	5.0	1	MG/KG	05/24/2013	EBS
>C12-C16 Aliphatics	NWEPH	U	5.0	1	MG/KG	05/24/2013	EBS
>C16-C21 Aliphatics	NWEPH	U	5.0	1	MG/KG	05/24/2013	EBS
>C21-C34 Aliphatics	NWEPH	U	5.0	1	MG/KG	05/24/2013	EBS

MBLK-5282013 - Batch R81534 - Soil by NWEPH

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aromatics	NWEPH	U	5.0	1	MG/KG	05/28/2013	EBS
>C10-C12 Aromatics	NWEPH	U	5.0	1	MG/KG	05/28/2013	EBS
>C12-C16 Aromatics	NWEPH	U	5.0	1	MG/KG	05/28/2013	EBS
>C16-C21 Aromatics	NWEPH	U	5.0	1	MG/KG	05/28/2013	EBS
>C21-C34 Aromatics	NWEPH	U	5.0	1	MG/KG	05/28/2013	EBS



CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc. 14648 NE 95th Street Redmond, WA 98052	DATE:	5/30/2013
CLIENT CONTACT:	David Baumeister	ALS SDG#:	EV13050126
CLIENT PROJECT:	Proj #65201.0 / Lab Ref #05-192	WDOE ACCREDITATION:	C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: R81533 - Soil by NWEPH

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aliphatics - BS	NWEPH	82.0			05/24/2013	EBS
>C8-C10 Aliphatics - BSD	NWEPH	88.0	7		05/24/2013	EBS
>C10-C12 Aliphatics - BS	NWEPH	86.0			05/24/2013	EBS
>C10-C12 Aliphatics - BSD	NWEPH	91.0	6		05/24/2013	EBS
>C12-C16 Aliphatics - BS	NWEPH	85.0			05/24/2013	EBS
>C12-C16 Aliphatics - BSD	NWEPH	91.0	7		05/24/2013	EBS
>C16-C21 Aliphatics - BS	NWEPH	85.0			05/24/2013	EBS
>C16-C21 Aliphatics - BSD	NWEPH	91.0	7		05/24/2013	EBS
>C21-C34 Aliphatics - BS	NWEPH	93.0			05/24/2013	EBS
>C21-C34 Aliphatics - BSD	NWEPH	99.0	6		05/24/2013	EBS

ALS Test Batch ID: R81534 - Soil by NWEPH

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aromatics - BS	NWEPH	94.0			05/28/2013	EBS
>C8-C10 Aromatics - BSD	NWEPH	91.0	3		05/28/2013	EBS
>C10-C12 Aromatics - BS	NWEPH	94.0			05/28/2013	EBS
>C10-C12 Aromatics - BSD	NWEPH	91.0	3		05/28/2013	EBS
>C12-C16 Aromatics - BS	NWEPH	95.0			05/28/2013	EBS
>C12-C16 Aromatics - BSD	NWEPH	93.0	2		05/28/2013	EBS
>C16-C21 Aromatics - BS	NWEPH	94.0			05/28/2013	EBS
>C16-C21 Aromatics - BSD	NWEPH	93.0	1		05/28/2013	EBS
>C21-C34 Aromatics - BS	NWEPH	89.0			05/28/2013	EBS
>C21-C34 Aromatics - BSD	NWEPH	88.0	1		05/28/2013	EBS

APPROVED BY

Laboratory Director

EV13050126



14648 NE 95th Street, Redmond, WA 98052 · (425) 883-3881

Subcontract Laboratory: ALS Environmental

Attention: Rick Bagan

8620 Holly Drive Everett, WA 98208

Phone Number: (425) 356-2600

Date/Time: _____

Turnaround Request:

1 Day 2 Day 3 Day

Standard

Other: _____

Laboratory Reference #: 05-192

Project Manager: David Baumeister

email: dbaumeister@onsite-env.com

Project Number: 65201.0

Project Name: _____

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analysis
	MW-4:5	5/21/13	1335	S	1	EPH
Signature		Company	Date	Time	Comments/Special Instructions	
Relinquished by:		OS&E Env	5/22/13	1350		
Received by:		Speedy	5/22/13	13 ¹⁵		
Relinquished by:		Speedy	5/22/13	14 ²⁶		
Received by:		ALS	5/22/13	14:26		
Relinquished by:						
Received by:						

Chain of Custody

Laboratory Number: **05-192**

Company: Environmental Partners
 Project Number: 65201,0
 Project Name: Mossman Property
 Project Manager: T. Morin / K. Addis
 Sampled by: K. Addis

Turnaround Request (in working days)

(Check One)

Same Day 1 Day
 2 Days 3 Days
 Standard (7 Days) (TPH analysis 5 Days)
 _____ (other)

Number of Containers	Analysis Methods																							
	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals/ MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664A						% Moisture			
1				X																				X
1				X																				X
2				X																				X
2				X																				X
2				X																				X
2				X																				X
2				X																				X
2				X																				X

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals/ MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664A					% Moisture	
1	B-1:7.5	5/20/13	0911	Soil	1				X																	
2	B-1:11		0925	↓	1				X																	←
3	B-1W		0946	Water	2				X																	
4	B-2:5		1022	Soil	2				X																	
5	B-2:7.5		1026	↓	2				X																	←
6	B-2W		1050	Water	2				X																	
7	B-3:4		1113	Soil	2				X																	
8	B-3:6.5		1118	↓	2				X																	←
9	B-3W		1155	Water	2				X																	
10	B-4:5		1309	Soil	2				X																	

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	<u>K. Addis</u>	<u>EPI</u>	<u>5/21/13</u>	<u>1540</u>	
Received	<u>[Signature]</u>	<u>[Signature]</u>	<u>5/21/13</u>	<u>1540</u>	
Relinquished					
Received					
Relinquished					
Received					
Reviewed/Date		Reviewed/Date			Chromatograms with final report <input type="checkbox"/>



Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Company: Environmental Partners
 Project Number: 65201.0
 Project Name: Mossman Property
 Project Manager: T. Morin, K. Addis
 Sampled by: K. Addis

Turnaround Request
(in working days)

(Check One)

Same Day 1 Day
 2 Days 3 Days
 Standard (7 Days)
 (TPH analysis 5 Days)
 _____ (other)

Laboratory Number: **05-192**

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	Laboratory Number: 05-192														% Moisture			
						NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total PCRA Metals/ MTCA Metals (circle one)	TCLP Metals		HEM (oil and grease) 1664A		
21	MW-2:3	5/21/13	0952	Soil	1																		
22	MW-2:6	↓	1011	Soil	1							X											
23	B-7:6		1115	Soil	1							X											↓
24	B-7W		1120	Water	2							X											
25	MW-4:5	↓	1335	Soil	6							X											X X X
26	Footing: 1:5	↓	1343	Soil	10							X											

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	<u>Kristina Addis</u>	<u>EPI</u>	<u>5/21/13</u>	<u>1540</u>	
Received	<u>[Signature]</u>	<u>OSE</u>	<u>5/21/13</u>	<u>1540</u>	
Relinquished					
Received					
Relinquished					
Received					
Reviewed/Date		Reviewed/Date			Chromatograms with final report <input type="checkbox"/>



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

May 31, 2013

Thom Morin
Environmental Partners, Inc.
295 NE Gilman Blvd, Suite 201
Issaquah, WA 98027

Re: Analytical Data for Project 65201.0
Laboratory Reference No. 1305-206

Dear Thom:

Enclosed are the analytical results and associated quality control data for samples submitted on May 22, 2013.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal flourish extending to the right.

David Baumeister
Project Manager

Enclosures

Date of Report: May 31, 2013
Samples Submitted: May 22, 2013
Laboratory Reference: 1305-206
Project: 65201.0

Case Narrative

Samples were collected on May 22, 2013 and received by the laboratory on May 22, 2013. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: May 31, 2013
 Samples Submitted: May 22, 2013
 Laboratory Reference: 1305-206
 Project: 65201.0

NWTPH-Dx

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-1W					
Laboratory ID:	05-206-01					
Diesel Fuel #2	9.3	0.28	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	0.95	NWTPH-Dx	5-23-13	5-23-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	136	50-150				
Client ID:	MW-2W					
Laboratory ID:	05-206-02					
Diesel Fuel #2	1500	52	NWTPH-Dx	5-23-13	5-24-13	
Lube Oil Range Organics	ND	83	NWTPH-Dx	5-23-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	---	50-150				S
Client ID:	MW-4W					
Laboratory ID:	05-206-03					
Diesel Fuel #2	22	0.27	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	1.1	NWTPH-Dx	5-23-13	5-23-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	91	50-150				

Date of Report: May 31, 2013
 Samples Submitted: May 22, 2013
 Laboratory Reference: 1305-206
 Project: 65201.0

**NWTPH-Dx
 QUALITY CONTROL**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0523W1					
Diesel Range Organics	ND	0.25	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	0.40	NWTPH-Dx	5-23-13	5-23-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	<i>87</i>	<i>50-150</i>				

Analyte	Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags	
DUPLICATE							
Laboratory ID:	05-193-01						
	ORIG	DUP					
Diesel Range Organics	ND	ND			NA	NA	X1
Lube Oil Range Organics	ND	ND			NA	NA	X1
<i>Surrogate:</i>							
<i>o-Terphenyl</i>	<i>105</i>	<i>93</i>	<i>50-150</i>				



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
 - B - The analyte indicated was also found in the blank sample.
 - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
 - E - The value reported exceeds the quantitation range and is an estimate.
 - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
 - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
 - I - Compound recovery is outside of the control limits.
 - J - The value reported was below the practical quantitation limit. The value is an estimate.
 - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
 - L - The RPD is outside of the control limits.
 - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
 - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
 - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
 - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
 - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
 - P - The RPD of the detected concentrations between the two columns is greater than 40.
 - Q - Surrogate recovery is outside of the control limits.
 - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
 - T - The sample chromatogram is not similar to a typical _____.
 - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
 - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
 - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
 - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
 - X - Sample extract treated with a mercury cleanup procedure.
 - X1 - Sample extract treated with a Sulfuric acid/Silica gel cleanup procedure.
 - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
 - Z -
- ND - Not Detected at PQL
 PQL - Practical Quantitation Limit
 RPD - Relative Percent Difference

Chain of Custody

Laboratory Number: **05-206**

Company:	Environmental Partners
Project Number:	65201.0
Project Name:	Mossman Residence
Project Manager:	T. Morin, K. Addis
Sampled by:	K. Addis

Turnaround Request (in working days)	
(Check One)	
<input type="checkbox"/> Same Day	<input type="checkbox"/> 1 Day
<input type="checkbox"/> 2 Days	<input type="checkbox"/> 3 Days
<input checked="" type="checkbox"/> Standard (7 Days) (TPH analysis 5 Days)	
<input type="checkbox"/> _____ (other)	

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	Analytical Parameters																
						NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total PCRA Metals/ MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664A	% Moisture	
1	MW-1W	5/22/13	0858	Water	2				X													
2	MW-2W	↓	0912	↓	2				X													
3	MW-4W	↓	0935	↓	2				X													

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	<i>Kristen L. Addis</i>	EPI	5/22/13	1610	
Received	<i>[Signature]</i>	ORE	5/22/13	1610	
Relinquished					
Received					
Relinquished					
Received					
Reviewed/Date		Reviewed/Date	Chromatograms with final report <input type="checkbox"/>		

Attachment C
Additional Site Characterization
June 29,2020
G-Logics, Inc.



**Additional Site Characterization
3461 East Lake Sammamish Shore Lane NE
Sammamish, WA 98074**

Prepared for: Mr. Mark Myers
Williams Kastner
601 Union Street, Suite 4100
Seattle, WA 98101-2380

Prepared by: G-Logics, Inc.
40 2nd Avenue SE
Issaquah, WA 98027

Telephone: (425) 391-6874
Facsimile: (425) 313-3074

June 29, 2020

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June 29, 2020
G-Logics Project 01-0864-B

Mr. Mark Myers
Williams Kastner
601 Union Street, Suite 4100
Seattle, WA 98101-2380

**Subject: Additional Site Characterization
3461 East Lake Sammamish Shore Lane NE
Sammamish, WA 98074**

Dear Mr. Myers:

This report presents the purpose, approach, and results of G-Logics soil and groundwater sampling performed at the above-referenced property (the "Property"). We trust the information presented in this report meets your needs at this time. Should you require additional information or have any questions, please contact us at your convenience. Thank you again for this opportunity to be of service.

Sincerely,
G-Logics, Inc.

A handwritten signature in black ink that reads 'Rory Galloway'.

Rory L. Galloway, LG, LHG
Principal



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Appendix D:	Groundwater Sampling Forms

ATTACHMENTS

Attachment A:	Permission and Conditions for Use and Copying
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1.0 INTRODUCTION

G-Logics has completed an additional site characterization at the Property located at 3461 East Lake Sammamish Shore Lane NE, in Sammamish, WA (Figures 1 and 2). The scope of this exploration was based on the results of G-Logics review of previous exploration information provided by TRC (formerly Environmental Partners Inc.).

This exploration work was requested due to the known presence of petroleum contaminated soil and groundwater at the Property resulting from previous releases of a home heating-oil tank. This report documents a subsurface exploration designed to assess the current soil and groundwater conditions and two provide additional site characterization information to further delineate the extent of contamination.

Our work was performed in accordance with our workplan dated July 19, 2019. The results of our site exploration are presented in this report and are subject to the report's limitations. The findings of this report can be used Mossman Parties and by the Rodden Parties (Users).

2.0 BACKGROUND

The Property is located on the eastern shore of Lake Sammamish and is occupied by a single-family home. The home was built as a slab-on-grade construction in the late 1940s and was understood to have been heated by an oil-burning furnace. Oil for the furnace was stored in an underground storage tank (UST), previously located on the north side of the house. It is understood that the Mossman's purchased the home in August 2012 and converted the home's heating system to natural gas in October 2012.

In November 2012, Mr. Mossman observed an oily sheen on the surface of Lake Sammamish near his property. Based on a UST Site Assessment Report prepared by Environmental Partners Inc. (EPI), Mr. Mossman reported the sheen to the Spill Response Division of Washington State Department of Ecology (Ecology). On November 28, 2012, during a site visit to confirm the report, Ecology provided absorbent booms to contain the sheen to the dock area. Subsequently, the heating-oil UST on the Mossman Property was removed and the Mossman's retained EPI as an environmental consultant on their behalf.

In May 2013, an environmental site assessment was performed by EPI to assess the presence of petroleum hydrocarbons in the soil and groundwater on the Property. The assessment found that heating-oil contaminants were present on the Property and also had migrated onto the north-adjointing property. EPI concluded in their report that the exposure pathway from groundwater to freshwater surface water (Lake Sammamish) was complete (EPI, *Phase II Environmental Site Assessment*, dated July 1, 2013). Using soil and groundwater data from the 2013 Phase II and subsequent Site characterization efforts, EPI provided cost estimates to conduct a remedial excavation in a *Technical Memorandum*, dated November 16, 2018.

G-Logics understands that EPI (now TRC) periodically has collected groundwater samples and been actively removing liquid non-aqueous phase liquids (LNAPL) from extraction wells located near MW-2 (location shown on Figure 2).

2.1 Regulatory Background

The law that guides the soil remediation process at sites located within Washington State is the Model Toxics Control Act (MTCA). The regulations implementing MTCA are in the Washington Administrative Code (WAC), Chapter 173-340. This regulation is administered by the Washington Department of Ecology (Ecology). MTCA “establishes administrative processes and standards to identify, investigate, and cleanup facilities where hazardous substances have come to be located” (WAC 173-340-100). MTCA regulations also list prescriptive, numerical “Method A Cleanup Levels” that “provide conservative cleanup levels for sites undergoing routine cleanup actions or for sites with relatively few hazardous substances”. However, the regulations also state that Method A Cleanup Levels should not automatically be used to define cleanup levels that must be met for financial, real estate, insurance coverage, or similar purposes. Additionally, exceeding MTCA published cleanup levels does not necessarily mandate a cleanup action for a site.

3.0 SITE EXPLORATION ACTIVITIES

To provide updated information on soil and groundwater contamination on the Property, eight soil borings and one groundwater-monitoring well were completed at the Site. Our drilling subcontractor (Standard Probe) used pneumatic jack-hammer equipment (direct-push) to complete the borings. A G-Logics professional was present at the Property during the exploration to observe and document site conditions.

The following tasks were performed by G-Logics under this scope of services:

- Performed utility locating services including thermal imaging to locate the hydronic-heating system in the floor of the residence at the Property.
- Completed eight-soil borings at the Property. One of the borings was finished as a groundwater monitoring well.
- Performed a vertical survey of the newly installed monitoring well.
- Collected groundwater samples from the monitoring-well network.
- Retained a carpet-repair contractor to reattach the carpet after completing the drilling work.
- This draft report was prepared documenting our findings and recommendations.

Exploration work conducted at this Property is further described below. A description of our site-exploration methods is presented in Appendix A. The boring logs are presented in Appendix B. Each boring log presents soil types/field descriptions, sample-screening results, general observations, and a schematic of the monitoring well installed.

3.1 Soil Borings

On May 14 2020, eight direct-push borings were drilled (GB-1, GB-2, GB-3, GB-4, GB-5, GB-6, GB-7, and MW-9), with MW-9 completed as a groundwater-monitoring well (Figure 2). Boring locations were selected based on the findings of the previously completed site exploration work performed by EPI and their mapped locations of contaminated soils.

During drilling, soil samples were collected for soil identification and chemical analysis. A photoionization detector (PID) was used during drilling to screen for volatile-organic compounds (VOCs) in collected soil samples, with the results measured in parts per million by volume (ppmv) and noted on the boring logs. Soil conditions encountered during drilling are further described in Section 4.1 below.

Selected soil samples were submitted to the analytical laboratory and analyzed for diesel-range organics (DRO). Based on the DRO results, selected samples were analyzed for BTEX (benzene, toluene, ethylbenzene, and xylenes), and/or petroleum fractionation. Results of these analyses are presented in Section 4.2 of this report.

3.2 Groundwater Monitoring Wells

One groundwater monitoring well was installed into the completed boring MW-9 to obtain information regarding the extent of groundwater contamination in this area of the Property. The well was developed and purged prior to collecting groundwater samples (as described in Appendix A).

Groundwater samples were collected from the entire monitoring-well network (eight wells in total). A groundwater sample was not collected from MW-2 due to the presence of LNAPL. Groundwater-geochemical parameters, including pH, oxidation-reduction potential, conductivity, dissolved-oxygen content, and temperature, were collected during purging using a water-quality meter and flow-through cell.

Collected samples from each well were submitted to the analytical laboratory and analyzed for DRO and/or BTEX, petroleum fractionation. Geochemical parameter and analytical results are presented in Section 4.3 of this report.

3.3 Quality Assurance/Quality Control

Quality Assurance/Quality Control (QA/QC) included generally accepted procedures for sample collection, storage, tracking, and documentation. All non-dedicated sampling equipment was washed and rinsed before the collection of the samples. All samples were labeled with a sample number, date, time, and sampler name, and were stored in an ice chest containing ice.

Appropriate chain-of-custody documentation was completed and is attached as Appendix C. The laboratory conducted matrix spike and matrix-spike duplicate analyses. Laboratory QA/QC information also is included (with the laboratory report) in Appendix C.

In addition, one groundwater sample was collected and submitted as a blind-field duplicate to the laboratory for analysis (collected from MW-5). QA/QC results are further discussed in Section 4.5 of this report.

3.4 Groundwater Depth Measurements

The static water level was measured in each monitoring well (MW-1 through MW-9) on May 19th, 2020. Groundwater-depth measurements were converted to elevations in order to prepare groundwater-elevation contours. Results of these measurements are presented in Section 4.4 of this report. Appendix A also presents details of the groundwater depth-measurement procedures.

4.0 SITE EXPLORATION OBSERVATIONS AND FINDINGS

The findings of this site exploration are presented below. Analytical results obtained during this exploration are presented on Tables 1 through 4. The analytical laboratory reports for the analyzed soil samples are attached as Appendix C of this report. Chain-of custody forms also are included in Appendix C.

4.1 Soil Boring Findings

The borings completed during the site exploration were advanced to depths ranging from 8 to 10 feet below ground surface. These borings generally encountered brown and gray sands and gravels to the explored depths. Depths to groundwater above the retaining wall (near the Mossman residence) were approximately 7 feet below the ground surface. Depths to groundwater below the retaining wall were approximately 1 to 2 feet. Moderate petroleum-hydrocarbon odors were observed in soil borings GB-2 and GB-4.

4.2 Soil Analytical Results

Soil analytical results from this exploration are summarized in our Table 1 (prior analytical results are presented in EPI Table 1). Findings from our work are summarized below.

4.2.1 Petroleum Hydrocarbons

Diesel-range organics were reported exceeding the MTCA Method A Cleanup Level (2,000 mg/kg) in soil samples from borings GB-2, GB-3, and GB-4. The samples are located west of the home, downgradient of the former UST. DRO was not found above cleanup levels in the remaining borings. One notable finding, nondetectable to very low concentrations were found in GB-5 and GB-6, both located on the shoreline of the property.

4.2.2 Volatile Organic Compounds

After receiving the DRO results, two soil samples with the highest detected concentrations (one from each boring) also were analyzed for volatile organics (BTEX), petroleum fractions, and naphthalene. Detected concentrations also are presented on Table 1. These analytical results, and chromatograms from the two analyses, indicate the DRO (heating oil) is significantly weathered (communication with Fremont Analytical). Accordingly, the Ecology Draft Implementation Memorandum No. 23, proposed guidance relating to “fresh diesel” releases, does not appear to apply to this Site.

4.2.3 Soil-Concentration Comparisons

Additionally, for locations where new borings were completed near previous-sampling locations, analytical results from the previous explorations have been compared to the recent analytical results. This information is summarized in Table 2, with the highest DRO concentrations from all explorations presented on Figure 3. This information indicates soil concentrations have decreased since 2013/14, with significant concentration reductions noted in shoreline areas, where oxygen levels are expected to be higher.

4.3 Groundwater Monitoring Well Results

Analytical groundwater data collected from the groundwater-monitoring wells is presented in Table 3 and on Figures 4 and 4a. Groundwater geochemical-parameter field forms are attached in Appendix D. Groundwater analytical results are summarized below.

4.3.1 Petroleum Hydrocarbons

DRO was reported at concentrations above the MTCA Method A Cleanup Level (500 ug/L) in groundwater samples from monitoring wells MW-1, MW-3, and MW-4. Liquid non-aqueous phase liquid (LNAPL) was observed in MW-2 (0.06 feet), which was not sampled.

Analytical data provided by TRC (attached Table 3) shows declining diesel-range hydrocarbon concentrations in groundwater since their installation of monitoring wells in 2013. When comparing recent results to prior groundwater-sample results, DRO concentrations have significantly dropped, most notable in shoreline areas. Except in MW-4 (former UST location) and in MW-2 (LNAPL area), detected groundwater concentrations are now below or only slightly above the Method A Cleanup Level.

This information is summarized on Figure 4a. When comparing this mapping to the initial mapping (Figure 6c) prepared by EPI in March 2014, it is apparent that groundwater concentrations have significantly decreased, and the area of concentrations above MTCA cleanup levels is now much smaller.

4.3.2 Volatile Organic Compounds

After receiving the DRO results, three groundwater samples with the highest detected concentrations also were analyzed for volatile organics (BTEX) and naphthalene. Only one sample contained detectable concentrations, that being naphthalene at 1.4 ug/L in well MW-4, near the former UST. This concentration is two orders of magnitude below the published cleanup level of 160 ug/L.

4.4 Groundwater Depth Measurement Findings

The depths to groundwater were measured in monitoring well network (9 wells in total). Measurements are presented in Table 4 of this report. Measured groundwater elevations for these wells have been plotted on Figure 5, which includes an interpretation of groundwater-flow directions. The plotted groundwater elevations indicate flow directions toward the southwest (into Lake Sammamish).

As seen in Table 4, LNAPL (as measurable thickness or sheen) now only remains in MW-2. Additionally, the thickness (as measured by EPI and G-Logics) shows variability but overall, the LNAPL presence is decreasing.

4.5 Quality Assurance/Quality Control Findings

In addition to the blind-duplicate sample collected in the field (groundwater sample DUP-1, collected at MW-5), the laboratory also conducted matrix-spike analyses, matrix-spike duplicate analyses, laboratory-control, and method-blank analyses. These analyses indicated that analytical results were within acceptable limits. Laboratory QA/QC information is included (with the laboratory report) in Appendix C.

5.0 CONCLUSIONS

Information collected from G-Logics exploration indicates that petroleum concentrations in soil and groundwater have significantly decreased from when they were first detected approximately seven years ago. This reduction likely is due to ongoing natural-attenuation processes, which is degrading the fuel oil in the subsurface. Measurable amounts of LNAPL also are now smaller, likely due to the same processes and the LNAPL-recovery efforts conducted by EPI.

Given these findings, G-Logics believes it is prudent to revisit remedial options at the Property. Remedial options also should consider soil gas (possible vapor intrusion), which was beyond the scope of this conducted exploration.

6.0 LIMITATIONS

The scope of work on this project was presented in our identified workplan, as subsequently approved. Please be aware our scope of work was limited to those items specifically identified in the workplan. Other activities not specifically included in the presented scope of work (in the workplan, correspondence, or this report) are excluded and are therefore not part of our services.

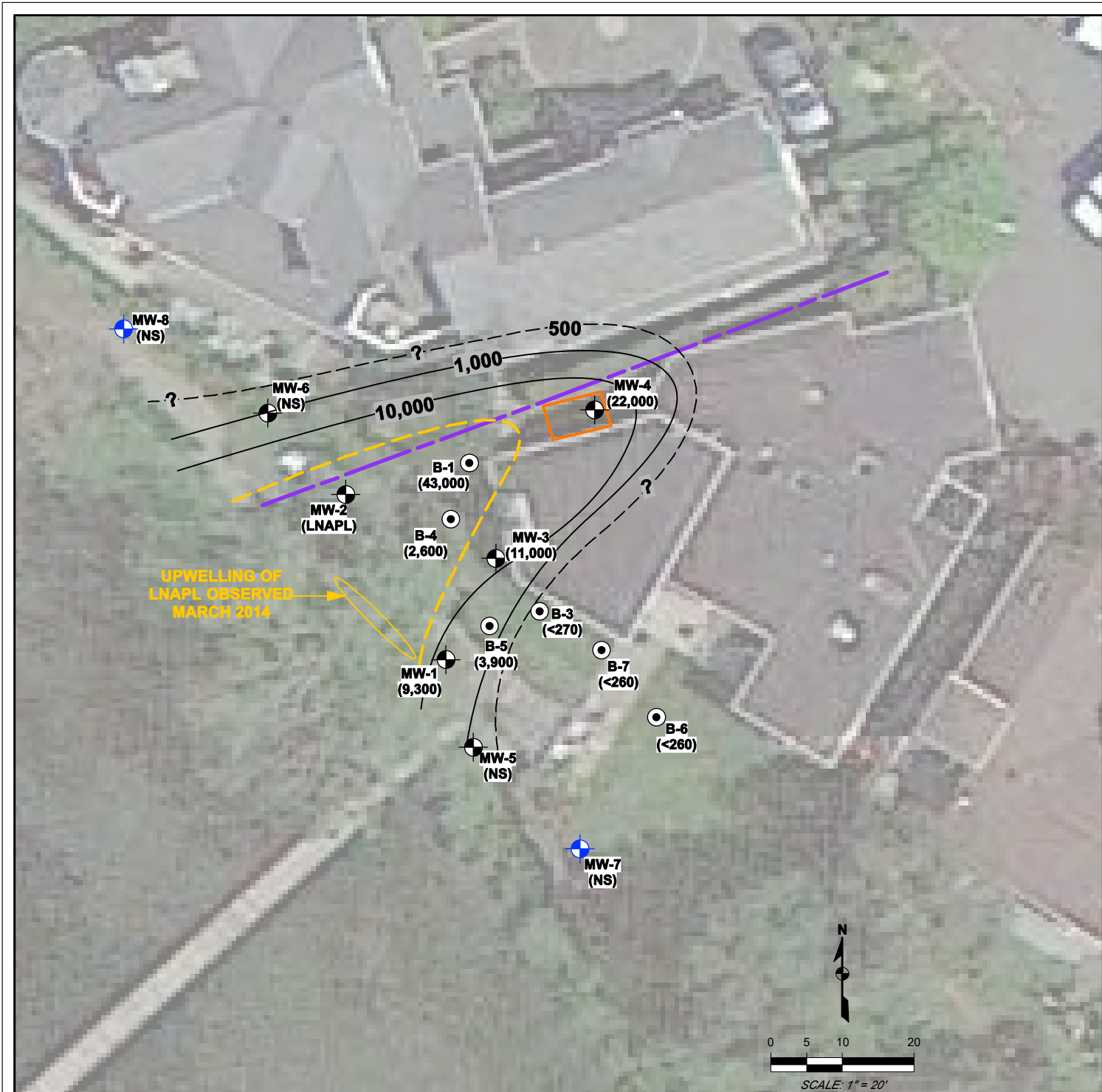
Land use, site conditions (both on-site and off-site), and other factors will change over time. Since site activities and regulations beyond our control could change at any time after the completion of this report, our observations, findings, and opinions can be considered valid only as of the date of the site visit.

G-Logics assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury which results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials.

This report is prepared for the sole use of our client and the Users identified in Section 1.0 of this report. The scope of services performed during this effort may not be appropriate for the needs of other parties. Re-use of this document or the findings, conclusions, or recommendations presented herein, are at the sole risk of said party(ies). Our client and regulatory agencies also may make additional copies of this document for their internal and public use, or as required by law. All other users of this document must acknowledge our copyright and indicate that permission to use has been received from G-Logics and our Client. Any party other than our client who would like to use this report shall notify G-Logics of such intended use by executing the “Permission and Conditions for Use and Copying” contained in this document. Based on the intended use of the report, G-Logics may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements will release G-Logics from any liability resulting from the use of this report by any unauthorized party.

No warranty, either express or implied, is made.

FIGURES










NOTES:	
 10,000	DIESEL CONCENTRATION CONTOURS DASHED WHERE INFERRED
	ESTIMATED EXTENT OF LIGHT NON-AQUEOUS PHASE LIQUID (LNAPL)
	APPROXIMATE SUBJECT PROPERTY BOUNDARY
	EXISTING UST EXCAVATION
	APPROXIMATE SHORELINE
	SOIL BORING
MW-3 (31.13)	MONITORING WELL WITH DIESEL CONCENTRATION
MW-7 (NS)	NEW MONITORING WELL INSTALLED FEBRUARY 2014

FIGURE 6c			
DIESEL-RANGE HYDROCARBON CONCENTRATION CONTOURS IN µg/L FOR MAY 2013			
PREPARED BY	 ENVIRONMENTAL PARTNERS INC		
REPORT	REMEDIAL INVESTIGATION REPORT		
LOCATION	MOSSMAN RESIDENCE 3461 EAST LAKE SAMMAMISH SHORE LANE NE SAMMAMISH, WASHINGTON		
PREPARED FOR	MR. MIKE MOSSMAN		
DATE	DRAWN BY	REVIEWED BY	PROJECT NUMBER
03/25/14	KLA	TCM	65201.4



Project File: 01-0864-B.F1.vsd

g-logics

Site Location Maps

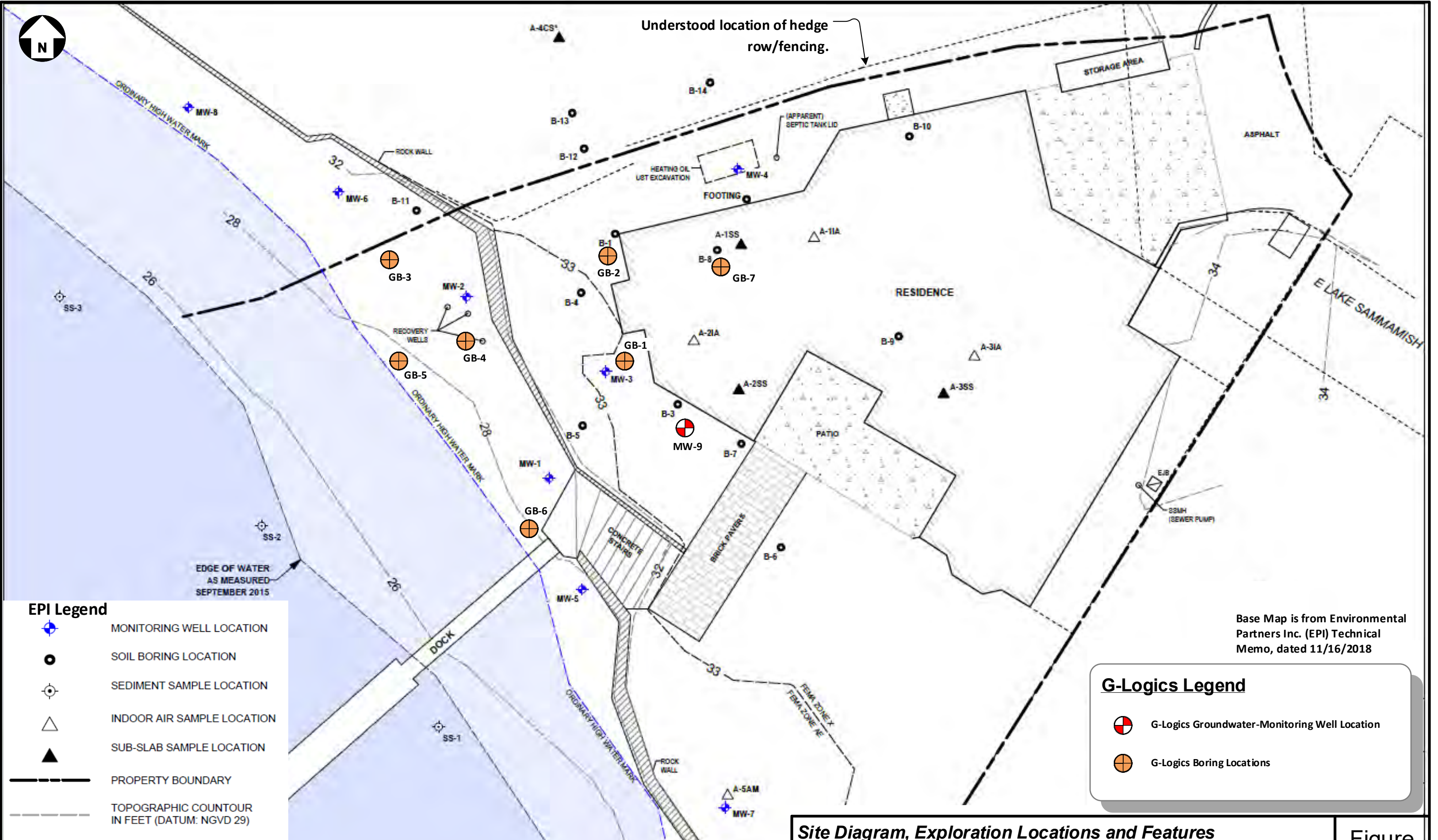
Mossman Residence

3461 East Lake Sammamish Shore Lane NE








Sammamish, Washington

Figure



1



EPI Legend

-  MONITORING WELL LOCATION
-  SOIL BORING LOCATION
-  SEDIMENT SAMPLE LOCATION
-  INDOOR AIR SAMPLE LOCATION
-  SUB-SLAB SAMPLE LOCATION
-  PROPERTY BOUNDARY
-  TOPOGRAPHIC COUNTOUR IN FEET (DATUM: NGVD 29)

G-Logics Legend

-  G-Logics Groundwater-Monitoring Well Location
-  G-Logics Boring Locations

Base Map is from Environmental Partners Inc. (EPI) Technical Memo, dated 11/16/2018

Site Diagram, Exploration Locations and Features

Mossman Residence, Heating-oil Site
 3461 East Lake Sammamish Shore Lane NE
 Sammamish, WA

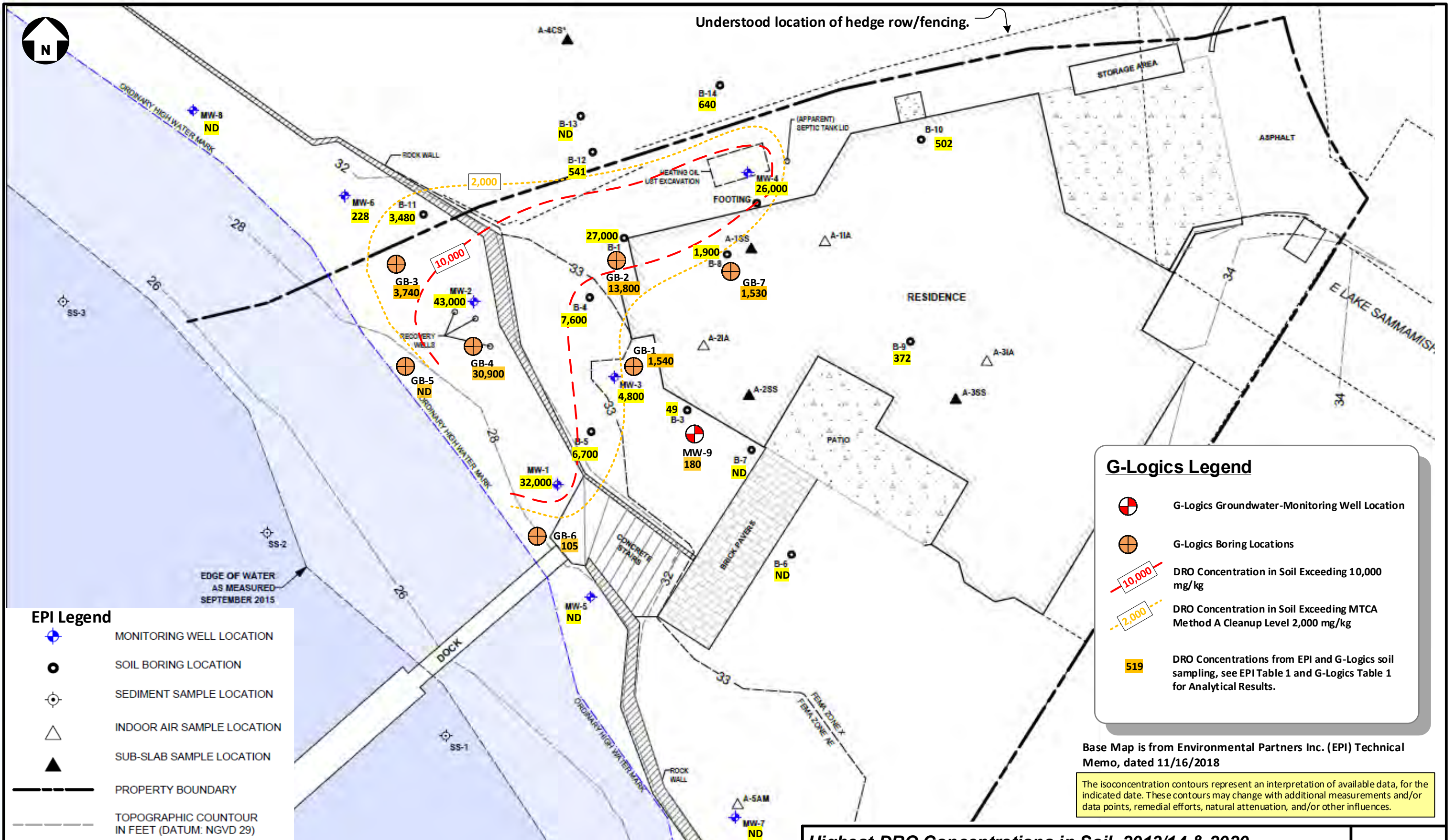
Figure
 2

Project File: 01-0864-B F2.vsd



Approximate Drawing Scale: 1" = 10'
 0 ft. 6 ft. 10 ft. 20 ft.

Note: This figure contains information in color. Black & white photocopies may not be suitable for review.



EPI Legend

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- SEDIMENT SAMPLE LOCATION
- INDOOR AIR SAMPLE LOCATION
- SUB-SLAB SAMPLE LOCATION
- PROPERTY BOUNDARY
- TOPOGRAPHIC CONTOUR IN FEET (DATUM: NGVD 29)

G-Logics Legend

- G-Logics Groundwater-Monitoring Well Location
- G-Logics Boring Locations
- DRO Concentration in Soil Exceeding 10,000 mg/kg
- DRO Concentration in Soil Exceeding MTCA Method A Cleanup Level 2,000 mg/kg
- DRO Concentrations from EPI and G-Logics soil sampling, see EPI Table 1 and G-Logics Table 1 for Analytical Results.

Base Map is from Environmental Partners Inc. (EPI) Technical Memo, dated 11/16/2018

The isoconcentration contours represent an interpretation of available data, for the indicated date. These contours may change with additional measurements and/or data points, remedial efforts, natural attenuation, and/or other influences.

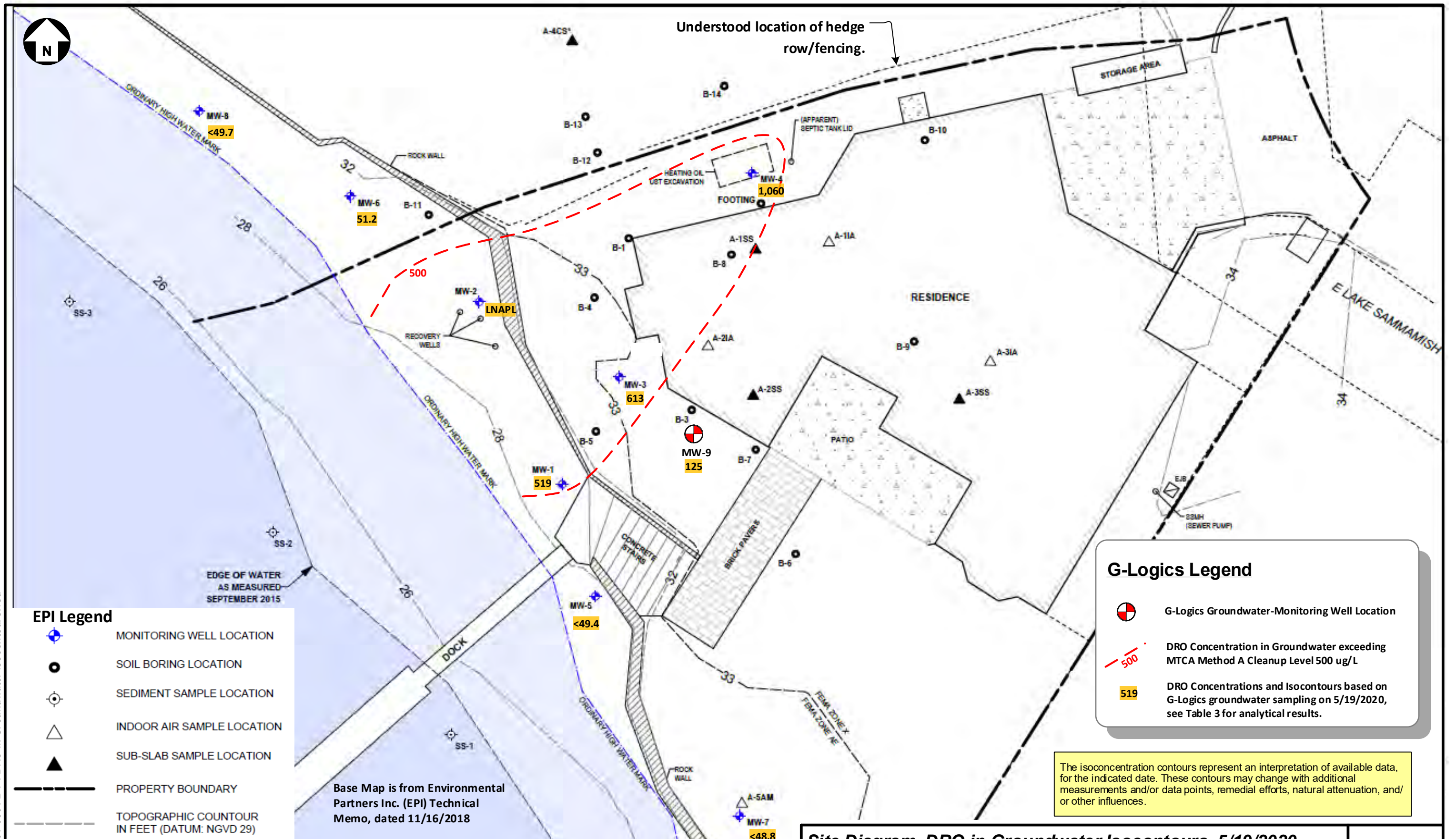
Highest DRO Concentrations in Soil, 2013/14 & 2020
Mossman Residence, Heating-oil Site
3461 East Lake Sammamish Shore Lane NE
Sammamish, WA

Figure 3



Approximate Drawing Scale: 1" = 10'
 0 ft. 6 ft. 10 ft. 20 ft.

Note: This figure contains information in color. Black & white photocopies may not be suitable for review.



EPI Legend

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- SEDIMENT SAMPLE LOCATION
- INDOOR AIR SAMPLE LOCATION
- SUB-SLAB SAMPLE LOCATION
- PROPERTY BOUNDARY
- TOPOGRAPHIC CONTOUR IN FEET (DATUM: NGVD 29)

G-Logics Legend

- G-Logics Groundwater-Monitoring Well Location
- DRO Concentration in Groundwater exceeding MTCA Method A Cleanup Level 500 ug/L
- DRO Concentrations and Isocontours based on G-Logics groundwater sampling on 5/19/2020, see Table 3 for analytical results.

The isoconcentration contours represent an interpretation of available data, for the indicated date. These contours may change with additional measurements and/or data points, remedial efforts, natural attenuation, and/or other influences.

Base Map is from Environmental Partners Inc. (EPI) Technical Memo, dated 11/16/2018

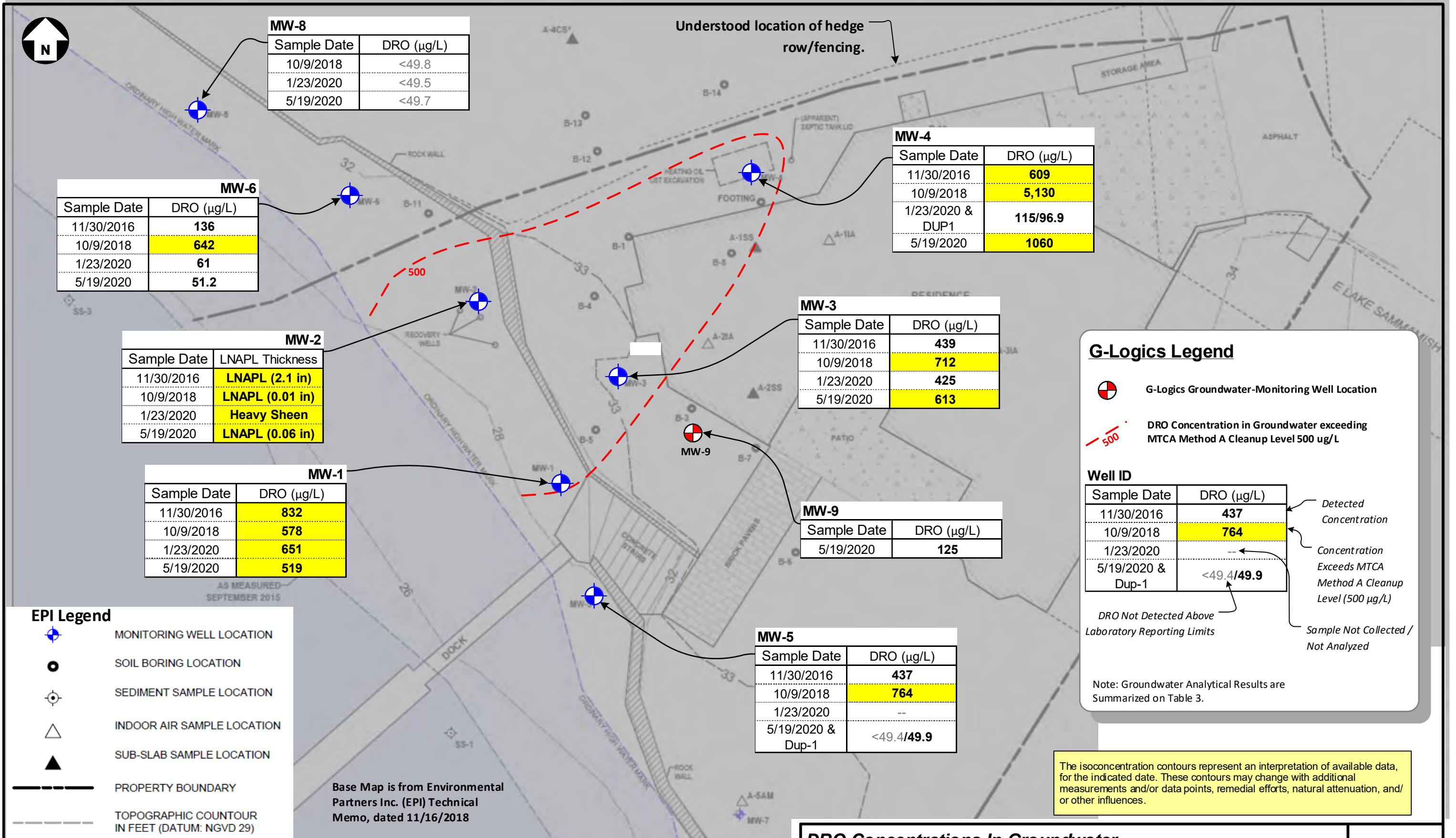


Approximate Drawing Scale: 1" = 10'
 0 ft. 6 ft. 10 ft. 20 ft.

Note: This figure contains information in color. Black & white photocopies may not be suitable for review.

Site Diagram, DRO in Groundwater Isocontours, 5/19/2020
 Mossman Residence, Heating-oil Site
 3461 East Lake Sammamish Shore Lane NE
 Sammamish, WA

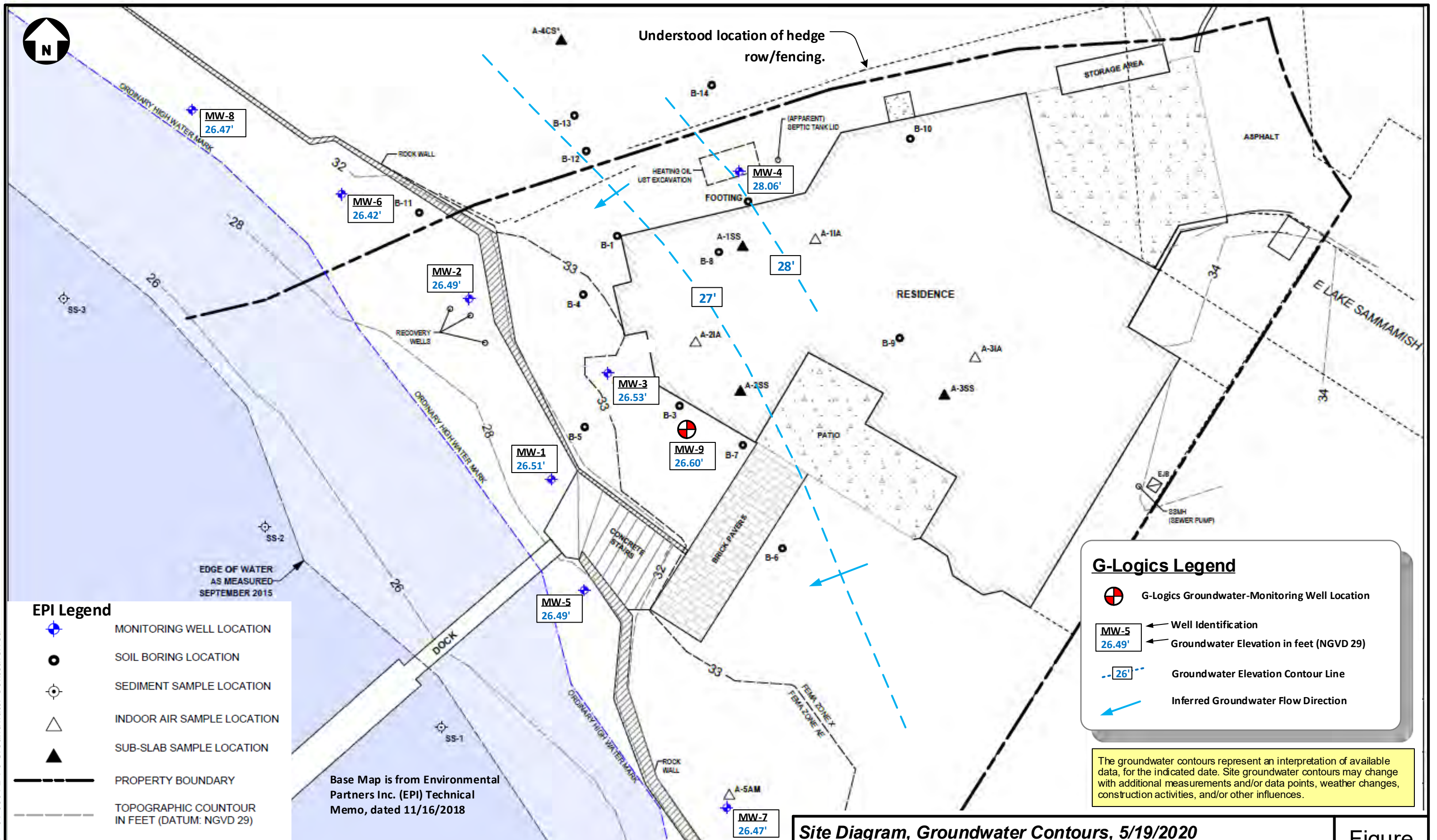
Figure 4



DRO Concentrations In Groundwater
Mossman Residence, Heating-oil Site
3461 East Lake Sammamish Shore Lane NE
Sammamish, WA

Figure
4a





EPI Legend

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- SEDIMENT SAMPLE LOCATION
- INDOOR AIR SAMPLE LOCATION
- SUB-SLAB SAMPLE LOCATION
- PROPERTY BOUNDARY
- TOPOGRAPHIC CONTOUR IN FEET (DATUM: NGVD 29)

G-Logics Legend

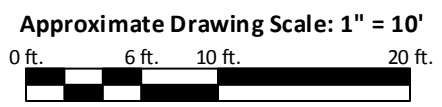
- G-Logics Groundwater-Monitoring Well Location
- Well Identification
- Groundwater Elevation in feet (NGVD 29)
- Groundwater Elevation Contour Line
- Inferred Groundwater Flow Direction

The groundwater contours represent an interpretation of available data, for the indicated date. Site groundwater contours may change with additional measurements and/or data points, weather changes, construction activities, and/or other influences.

Base Map is from Environmental Partners Inc. (EPI) Technical Memo, dated 11/16/2018

Site Diagram, Groundwater Contours, 5/19/2020
 Mossman Residence, Heating-oil Site
 3461 East Lake Sammamish Shore Lane NE
 Sammamish, WA

Figure 5



Note: This figure contains information in color. Black & white photocopies may not be suitable for review.

TABLES

Table 1
Soil Sampling Analytical Results (in mg/kg)
Remedial Investigation Report
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Report	Sample ID	Sample Date	Total petroleum Hydrocarbons ^(a)		Volatile Organic Compounds ^(b)											
			Diesel-Range	Oil-Range	Benzene	Toluene	Ethylbenzene	Total xylenes	m,p-Xylene	n-Propylbenzene	1,3,5-Trimethylbenzene	sec-butylbenzene	4-Isopropyltoluene	n-Butylbenzene	1,2,4-Trimethylbenzene	Napthalene
Remedial Investigation	B-8:8	11/20/2013	1,910	ND (<68.3)	ND (<0.0232)	ND (<0.0232)	ND (<0.0348)	--	ND (<0.0232)	ND (<0.0232)	ND (<0.0232)	0.258	0.0848	ND (<0.0232)	0.0322	ND (<0.0348)
	B-9:8	11/20/2013	372	ND (<71)	--	--	--	--	--	--	--	--	--	--	--	--
	B-10:6	11/20/2013	502	ND (<65.7)	--	--	--	--	--	--	--	--	--	--	--	--
	B-11:4	11/19/2013	3,480	ND (<49.4)	--	--	--	--	--	--	--	--	--	--	--	--
	B-12:7	11/19/2013	54.1	ND (<69.2)	--	--	--	--	--	--	--	--	--	--	--	--
	B-13:7.7	2/17/2014	ND (<26)	ND(<53)	--	--	--	--	--	--	--	--	--	--	--	--
	B-14:7	2/17/2014	640	ND (<56)	--	--	--	--	--	--	--	--	--	--	--	--
	MW-5:2	11/19/2013	ND (<21.3)	ND (<53.2)	--	--	--	--	--	--	--	--	--	--	--	--
	MW-6:4	11/19/2013	228	ND (<52.7)	ND (<0.0225)	ND (<0.0225)	ND (<0.0337)	--	0.0373	0.0735	0.0608	0.0537	0.0400	0.146	0.311	0.0852
	MW-7:5.5	2/17/2014	ND(<25)	ND(<50)	--	--	--	--	--	--	--	--	--	--	--	--
MW-8:3.5	2/17/2014	ND(<25)	ND(<50)	--	--	--	--	--	--	--	--	--	--	--	--	
Method A Soil Cleanup Levels for Unrestricted Land Uses			2,000	2,000	0.03	7	6	9	9	NVE	NVE	NVE	NVE	NVE	NVE	5

Notes:

All samples collected during the November 2013 event analyzed at Fremont Analytical in Seattle, Washington
All samples collected during May 2013 and February/March 2014 events were analyzed at ALS Environmental Laboratories in Everett Washington
(a) Analyzed by Method NWTPH-Dx
(b) Analyzed by EPA Method 8260 reporting only non-halogenated hydrocarbons
(c) Analyzed by EPA Method 8021

- Bold** Bold results indicate that the compound was detected, but concentration is less than applicable cleanup level
- Cells shaded gray indicate that the compound was detected at a concentration greater than the cleanup level
- No analysis requested
- NVE** No value established

TABLE 1
Soil Sample Analyses, Petroleum Hydrocarbons
Mossman Residence
3461 East Lake Sammamish Shore Lane NE
Sammamish, WA

Exploration Location	Sample Date	Sample Number	Surface Elevation (ft)	Sample Depth (ft)	Sample Elevation† (ft)	PID Reading (ppmv) (1)	Diesel Range Organics	Heavy Oil Range Organics	Benzene	Toluene	Ethylbenzene	Xylenes	EC 5-6 Aliphatics	EC 6-8 Aliphatics	APH [EC 8-10 aliphatics] Fraction	APH [EC 10-12 aliphatics] Fraction	APH [EC8-10 aromatics] Fraction	Naphthalene
MTCA Method A Cleanup Level (2)						*	2,000	2,000	0.03	7	6	9	*	*	*	*	*	5
(units in mg/kg)																		
GB-1	5/14/2020	GB-1-4	33	4	29	0	---	---	---	---	---	---	---	---	---	---	---	---
	5/14/2020	GB-1-6		6	27	0	---	---	---	---	---	---	---	---	---	---	---	---
	5/14/2020	GB-1-7		7	26	33	1,540	174	---	---	---	---	---	---	---	---	---	---
	5/14/2020	GB-1-9		9	24	35	947	<52.6	---	---	---	---	---	---	---	---	---	---
GB-2	5/14/2020	GB-2-4	33	4	29	0	---	---	---	---	---	---	---	---	---	---	---	---
	5/14/2020	GB-2-7		7	26	360	13,800 D	<68.3	<0.881	<1.03	2.81	16.26	<2.57	6.08	87.8	306	136	45.6
	5/14/2020	GB-2-9		9	24	196	7,410 D	<137	---	---	---	---	---	---	---	---	---	---
GB-3	5/14/2020	GB-3-2	29	2	27	1	---	---	---	---	---	---	---	---	---	---	---	---
	5/14/2020	GB-3-4		4	25	7	3,740 D	<51.8	---	---	---	---	---	---	---	---	---	---
	5/14/2020	GB-3-6		6	23	5	64.9	<49.5	---	---	---	---	---	---	---	---	---	---
	5/14/2020	GB-3-8		8	21	3	<21.3	<53.3	---	---	---	---	---	---	---	---	---	---
GB-4	5/14/2020	GB-4-2	29	2	27	5	30,900 D	<47.5	<0.719	<0.839	<0.839	<1.56	<2.10	<3.00	<1.68	35.6	<3.60	7.41
	5/14/2020	GB-4-4		4	25	242	28,900 D	<55.4	---	---	---	---	---	---	---	---	---	---
	5/14/2020	GB-4-8		8	21	8	<21.8	<54.5	---	---	---	---	---	---	---	---	---	---
GB-5	5/14/2020	GB-5-4	28	4	24	0	<21.7	<54.3	---	---	---	---	---	---	---	---	---	---
	5/14/2020	GB-5-7		7	21	0	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 1
Soil Sample Analyses, Petroleum Hydrocarbons
Mossman Residence
3461 East Lake Sammamish Shore Lane NE
Sammamish, WA

Exploration Location	Sample Date	Sample Number	Surface Elevation (ft)	Sample Depth (ft)	Sample Elevation† (ft)	PID Reading (ppmv) (1)	Diesel Range Organics	Heavy Oil Range Organics	Benzene	Toluene	Ethylbenzene	Xylenes	EC 5-6 Aliphatics	EC 6-8 Aliphatics	APH [EC 8-10 aliphatics] Fraction	APH [EC 10-12 aliphatics] Fraction	APH [EC8-10 aromatics] Fraction	Naphthalene
MTCA Method A Cleanup Level (2)						*	2,000	2,000	0.03	7	6	9	*	*	*	*	*	5
(units in mg/kg)																		
GB-6	5/14/2020	GB-6-1	28	1	27	2	105	<59.4	---	---	---	---	---	---	---	---	---	---
	5/14/2020	GB-6-4		4	24	0	<23.1	<57.7	---	---	---	---	---	---	---	---	---	---
	5/14/2020	GB-6-6		6	22	0	---	---	---	---	---	---	---	---	---	---	---	---
GB-7	5/14/2020	GB-7-6	33	6	27	3	<20.5	<51.2	---	---	---	---	---	---	---	---	---	---
	5/14/2020	GB-7-8		8	25	63	1,530	<25.2	---	---	---	---	---	---	---	---	---	---
	5/14/2020	GB-7-9		9	24	1	<31.6	<79.0	---	---	---	---	---	---	---	---	---	---
MW-9	5/14/2020	MW-9-4	33	4	29	0	---	---	---	---	---	---	---	---	---	---	---	---
	5/14/2020	MW-9-7		7	26	0	<31.6	180	---	---	---	---	---	---	---	---	---	---
	5/14/2020	MW-9-10		10	23	0	<21.6	<54.0	---	---	---	---	---	---	---	---	---	---

Notes: Refer to site diagram(s) for sampling locations. Refer to laboratory reports for analytical methods.

- (1) Soil samples were field screened using a PID to record VOCs. Headspace VOC concentrations were recorded after placing the soil in a sealed plastic bag and allowing air inside the bag to equilibrate.
- (2) MTCA Standard Method A Soil Cleanup Levels based on residential use, provided in the Ecology cleanup levels and risk calculation (CLARC) database
- † Surface elevations are estimated based on October 15, 2015 survey by Triad Associates based on NGVD 29 (provided by Environmental Partners Inc.)
- * Not Applicable/ Cleanup/Screening Level Not Established.
- Sample not analyzed.
- nd Not Detected (data gathered from historical reports, lab analysis reporting limits not available).
- <1.07 The analyte was not detected at a concentration above the indicated reporting limit.
- 12.0** Bold Number(s) indicates contaminant detected.
- 419** Bold Number(s) and Yellow Shading indicates concentration exceeds applicable cleanup level.
- D The Sample was diluted. Detection Limits were raised and surrogate recoveries may not be meaningful.

TABLE 2
Soil Sample DRO Concentrations and Comparison to Previous Results
Mossman Residence
3461 East Lake Sammamish Shore Lane NE
Sammamish, WA

G-Logics Borings, 2020

EPI Borings, 2013

Exploration Location	Sample Date	Sample Number	Sample Depth (ft)	G-Logics Borings, 2020			EPI Borings, 2013					
				PID Reading (ppmv) (1)	Diesel Range Organics	Heavy Oil Range Organics	Exploration Location	Sample Date	Sample Number	Sample Depth (ft)	Diesel Range Organics	Heavy Oil Range Organics
(units in mg/kg)				(units in mg/kg)								
GB-1	5/14/2020	GB-1-4	4	0	---	---	B-2/MW-3	5/20/2013	B-2:5	5	<30	<60
	5/14/2020	GB-1-7	7	33	1,540	174		5/20/2013	B-2:7.5	7.5	4,800	<400
GB-2	5/14/2020	GB-2-7	7	360	13,800 D	<68.3	B-1	5/20/2013	B-1:7.5	7.5	27,000	<1,500
	5/14/2020	GB-2-9	9	196	7,410 D	<137		5/20/2013	B-1:11	11	<29	<57
GB-3	5/14/2020	GB-3-4	4	7	3,740 D	<51.8	MW-6	5/20/2013	MW-6:4	4	228	<52.7
GB-4	5/14/2020	GB-4-2	2	5	30,900 D	<47.5	MW-2	5/20/2013	MW-2:2	2	13,000	<890
	5/14/2020	GB-4-4	4	242	28,900 D	<55.4		5/20/2013	MW-2:3	3	43,000	<1,600
	5/14/2020	GB-4-8	8	8	<21.8	<54.5		5/20/2013	MW-2:6	6	300	1,000
GB-6	5/14/2020	GB-6-1	1	2	105	<59.4	MW-1	5/20/2013	MW-1:1.3	1.3	32,000	<1,800
	5/14/2020	GB-6-4	4	0	<23.1	<57.7	MW-5	5/20/2013	MW-5:2	2	<21.3	<53.2
GB-7	5/14/2020	GB-7-8	8	63	1,530	<25.2	B-8	5/20/2013	B-8:8	8	1,910	<68.3
MW-9	5/14/2020	MW-9-4	4	0	---	---	B-3	5/20/2013	B-3:4	4	<27	<53
	5/14/2020	MW-9-7	7	0	<31.6	180		5/20/2013	B-3:6.5	6.5	49	350
MTCA Method A Cleanup Level (2)				*	2,000	2,000				2,000	2,000	

Notes: Refer to site diagram(s) for sampling locations. Refer to laboratory reports for analytical methods.

- (1) Soil samples were field screened using a PID to record VOCs. Headspace VOC concentrations were recorded after placing the soil in a sealed plastic bag and allowing air inside the bag to equilibrate.
- (2) MTCA Standard Method A Soil Cleanup Levels Based on Residential Use, Provided in the Ecology Cleanup Levels and Risk Calculation (CLARC) Database.
- * Not Applicable/ Cleanup/Screening Level Not Established.
- Sample not analyzed.
- nd Not Detected (data gathered from historical reports, lab analysis reporting limits not available).
- <1.07 The analyte was not detected at a concentration above the indicated reporting limit.
- 12.0** Bold Number(s) indicates contaminant detected.
- 419** Bold Number(s) and Yellow Shading indicates concentration exceeds applicable cleanup level.
- D The Sample was diluted. Detection Limits were raised and surrogate recoveries may not be meaningful.

Table 3
Summary of Groundwater Analytical Results
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Sample ID	Sample Date	Total Petroleum Hydrocarbons ^a		Volatile Organic Compounds ^b											Semivolatile Organic Compounds ^c		
		DRO	ORO	Ethyl-benzene	Total Xylenes	Benzene	n-Butyl-benzene	sec-Butyl-benzene	n-Propyl-benzene	Toluene	4-Isopropyl-toluene	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	Naphthalene	Naphthalene	1-Methyl-naphthalene	2-Methyl-naphthalene
Method A CUL		500	500	700	1,000	5	*	*	*	1,000	*	*	*	160	160	*	*
Method B N-C CUL				800	1,600	32	400	800	800	640	*	80.0	80.0	160	160	560	32.0
B-1	5/20/2013	43,000	<2500	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-3	5/20/2013	<270	<430	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-4	5/20/2013	2,600	<430	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-5	5/20/2013	3,900	<420	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-6	5/20/2013	<260	<420	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-7	5/21/2013	<260	<420	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-8	11/20/2013	1,080	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-9	11/20/2013	<50	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-10	11/20/2013	190	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-11	11/19/2013	959	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-12	11/19/2013	616	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-13	2/17/2014	170	270	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-14	2/17/2014	3,200	570	--	--	--	--	--	--	--	--	--	--	0.1	0.026	0.031	
MW-1	5/21/2013	9,300	<950	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/21/2013	1,280	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3/4/2014	1,700	<250	--	--	--	--	--	--	--	--	--	--	3.2	7.0	6.0	
	8/5/2016	457	<100	--	--	--	--	--	--	--	--	--	--	5.35	--	--	--
	11/30/2016	832	<99.5	--	--	--	--	--	--	--	--	--	--	3.32	--	--	--
	10/9/2018	578	<99.6	--	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	1/23/2020	651	<49.5	--	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	5/19/2020	519	<99.4	<1	<1	<1	--	--	--	<1	--	--	--	<1	--	--	--
MW-2	5/21/2013	LNAPL PRESENT		--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/21/2013	LNAPL PRESENT		--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3/4/2014	LNAPL PRESENT		--	--	--	--	--	--	--	--	--	--	--	--	--	--
	8/5/2016	LNAPL PRESENT		--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/30/2016	LNAPL PRESENT		--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10/9/2018	LNAPL PRESENT		--	--	--	--	--	--	--	--	--	--	--	--	--	--
	1/23/2020	LNAPL PRESENT		--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5/19/2020	LNAPL PRESENT**		--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 3
 Summary of Groundwater Analytical Results
 Mossman Residence
 3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Sample ID	Sample Date	Total Petroleum Hydrocarbons ^a		Volatile Organic Compounds ^b										Semivolatile Organic Compounds ^c			
		DRO	ORO	Ethyl-benzene	Total Xylenes	Benzene	n-Butyl-benzene	sec-Butyl-benzene	n-Propyl-benzene	Toluene	4-Isopropyl-toluene	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	Naphthalene	Naphthalene	1-Methyl-naphthalene	2-Methyl-naphthalene
Method A CUL		500	500	700	1,000	5	*	*	*	1,000	*	*	*	160	160	*	*
Method B N-C CUL				800	1,600	32	400	800	800	640	*	80.0	80.0	160	160	560	32.0
MW-3	5/20/2013	11,000	<570	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/21/2013	2,010	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3/4/2014	1,100	<250	--	--	--	--	--	--	--	--	--	--	0.067	0.35	0.069	
	9/15/2015	604	<99.8	--	--	--	--	--	--	--	--	--	--	<0.10	<0.10	<0.10	
	1/22/2016 & DUP1	895/532	<99.9/<100	--	--	--	--	--	--	--	--	--	<1.0/<1.0	--	--	--	
	8/5/2016	3,010	<99.9	--	--	--	--	--	--	--	--	--	--	<1.0	--	--	
	11/30/2016	439	<99.7	--	--	--	--	--	--	--	--	--	--	<1.0	--	--	
	10/9/2018	712	<99.7	--	--	--	--	--	--	--	--	--	--	<1.0	<0.0991	0.396	<0.0991
	1/23/2020	425	<49.9	--	--	--	--	--	--	--	--	--	--	<1.0	<0.0993	0.145	<0.0993
	5/19/2020	613	<99.7	<1	<1	<1	--	--	--	<1	--	--	--	<1	--	--	--
MW-4	5/21/2013	22,000	<1,100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/21/2013	29,800	185	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3/4/2014	1,300	340	--	--	--	--	--	--	--	--	--	--	0.026	<0.020	<0.020	
	9/15/2015	3,860	<101	--	--	--	--	--	--	--	--	--	--	0.566	0.181	0.406	
	1/22/2016	255	<99.8	--	--	--	--	--	--	--	--	--	<1.0	--	--	--	
	8/5/2016	783	<99.5	--	--	--	--	--	--	--	--	--	1.50	--	--	--	
	11/30/2016	609	<99.5	--	--	--	--	--	--	--	--	--	<1.0	--	--	--	
	10/9/2018	5,130	<99.7	--	--	--	--	--	--	--	--	--	<1.0	0.575	0.498	0.106	
	1/23/2020 & DUP1	115/96.9	<49.8/<49.8	--	--	--	--	--	--	--	--	--	<1.0/<1.0	<0.0999	<0.0999	<0.0999	
	5/19/2020	1,060	<98.5	<1	<1	<1	--	--	--	<1	--	--	--	1.4	--	--	--
MW-5 Recon	11/19/2013	2,080	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	11/21/2013	1,250	<100	1.59	3.7	--	4.29	2.92	4.44	--	1.88	22.4	2.34	9.66	--	--	--
	3/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9/15/2015	209	206	--	--	--	--	--	--	--	--	--	--	<0.0998	<0.0998	0.714	
	1/22/2016	377	<99.8	--	--	--	--	--	--	--	--	--	<1.0	--	--	--	
	8/5/2016	160	<99.8	--	--	--	--	--	--	--	--	--	<1.0	--	--	--	
	11/30/2016	437	<99.4	--	--	--	--	--	--	--	--	--	<1.0	--	--	--	
	10/9/2018	764	<99.7	--	--	--	--	--	--	--	--	--	<1.0	--	--	--	
	1/23/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5/19/2020 & Dup-1	<49.4/49.9	<98.8/<99.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Table 3
Summary of Groundwater Analytical Results
Mossman Residence
3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Sample ID	Sample Date	Total Petroleum Hydrocarbons ^a		Volatile Organic Compounds ^b											Semivolatile Organic Compounds ^c		
		DRO	ORO	Ethyl-benzene	Total Xylenes	Benzene	n-Butyl-benzene	sec-Butyl-benzene	n-Propyl-benzene	Toluene	4-Isopropyl-toluene	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	Naphthalene	Naphthalene	1-Methyl-naphthalene	2-Methyl-naphthalene
Method A CUL		500	500	700	1,000	5	*	*	*	1,000	*	*	*	160	160	*	*
Method B N-C CUL				800	1,600	32	400	800	800	640	*	80.0	80.0	160	160	560	32.0
MW-6 Recon	11/19/2013	1,450	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-6	11/21/2013	1,120	<100	<1.0	<1.0	--	<1.0	<1.0	<1.0	--	<1.0	6.04	<1.0	1.11	--	--	--
	3/4/2014	400	<250	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9/15/2015	117	261	--	--	--	--	--	--	--	--	--	--	<0.0999	<0.0999	0.568	
	1/22/2016	199	<100	--	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	8/5/2016	126	<100	--	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	11/30/2016	136	<99.5	--	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	10/9/2018	642	<99.4	--	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	1/23/2020	60.6	<49.9	--	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
5/19/2020	51.2	<99.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	3/4/2014	<130	<250	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10/9/2018	<49.9	<99.7	--	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	1/23/2020	<49.5	<98.9	--	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	5/19/2020	<48.8	<97.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	3/4/2014	<130	<250	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10/9/2018	<49.8	<99.7	--	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	1/23/2020	<49.5	<99.1	--	--	--	--	--	--	--	--	--	--	<1.0	--	--	--
	5/19/2020	<49.7	<99.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	5/19/2020	125	<98.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

All results presented in micrograms per liter (µg/L).

- Bold** Bold results indicate that the compound was detected.
- a Analyzed by Method NWTPH-Dx/Dx Extended.
- b Analyzed by EPA Method 8260 reporting only non-halogenated hydrocarbons (except Naphthalenes as indicated).
- c Analyzed by EPA Method 8270 SIM.
- Sample was not analyzed for this compound.
- * Not Applicable/ Cleanup/Screening Level Not Established.
- ** Well containing LNAPL was not sampled

642 Bold Number(s) and Yellow Shading indicates concentration exceeds MTCA Methods A cleanup level.

5/19/2020 Most recent sampling event

Table 4
Groundwater Elevation Data
Remedial Investigation Report
Mossman Residence

3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Well ID	Date	Ground Elevation	PVC Casing Elevation ^a	Depth to Water ^b	LNAPL Thickness ^c	Water Table Elevation ^d
MW-1	5/21/2013	28.02	27.74	0.01	--	27.73
	11/21/2013			0.80	--	26.94
	3/4/2014			0.25	--	27.49
	9/15/2015			1.89	0.01	25.85
	1/22/2016			0.50	--	27.24
	8/5/2016			1.68	--	26.06
	11/30/2016			0.50	--	27.24
	10/12/2018			1.62	--	26.12
	1/23/2020			0.30*	--	27.44
	5/19/2020			1.23	0.0	26.51
MW-2	5/21/2013	29.09	28.75	2.00	--	26.75
	11/21/2013			3.20	--	25.55
	3/4/2014			---	LNAPL^e	---
	9/15/2015			3.20	0.31	25.57
	1/22/2016			3.20	2.21	25.73
	8/5/2016			2.96	0.21	25.81
	11/30/2016			3.25	2.1	25.67
	10/12/2018			2.64	0.01	26.11
	1/23/2020			0.80*	Heavy Sheen	28.67
	5/19/2020			2.31	0.06	26.49
MW-3	5/21/2013	33.03	32.82	4.96	--	27.86
	11/21/2013			5.40	--	27.42
	3/4/2014			5.09	--	27.73
	9/15/2015			6.88	--	25.94
	1/22/2016			5.13	--	27.69
	8/5/2016			6.67	--	26.15
	11/30/2016			5.20	--	27.62
	10/12/2018			6.56	--	26.26
	1/23/2020			4.83	--	27.99
	5/19/2020			6.29	0.0	26.53

Table 4
Groundwater Elevation Data
Remedial Investigation Report
Mossman Residence

3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Well ID	Date	Ground Elevation	PVC Casing Elevation ^a	Depth to Water ^b	LNAPL Thickness ^c	Water Table Elevation ^d
MW-4	5/21/2013	33.40	33.30	3.88	--	29.42
	11/21/2013			5.19	--	28.11
	3/4/2014			3.38	--	29.92
	9/15/2015			5.91	--	27.39
	1/22/2016			3.73	--	29.57
	8/5/2016			6.05	--	27.25
	11/30/2016			4.14	--	29.16
	10/12/2018			5.75	--	27.55
	1/23/2020			4.08	--	29.22
	5/19/2020			5.24	0.0	28.06
MW-5	11/21/2013	27.57	27.36	0.40	--	26.96
	3/4/2014			---	--	---
	9/15/2015			1.51	--	25.85
	1/22/2016			0.10	--	27.26
	8/5/2016			1.32	--	26.04
	11/30/2016			0.00	--	27.36
	10/12/2018			1.27	--	26.09
	1/23/2020			---	--	---
	5/19/2020			0.87	0.0	26.49
MW-6	11/21/2013	29.60	29.29	2.38	--	26.91
	3/4/2014			1.89	--	27.40
	9/15/2015			3.53	--	25.76
	1/22/2016			1.97	--	27.32
	8/5/2016			3.30	--	25.99
	11/30/2016			1.30	Sheen	27.99
	10/12/2018			3.27	--	26.02
	1/23/2020			1.82	--	27.47
	5/19/2020			2.87	0.0	26.42

Table 4
Groundwater Elevation Data
Remedial Investigation Report
Mossman Residence

3461 E. Lake Sammamish Shore Lane, Sammamish, Washington

Well ID	Date	Ground Elevation	PVC Casing Elevation ^a	Depth to Water ^b	LNAPL Thickness ^c	Water Table Elevation ^d
MW-7	3/4/2014	32.10	31.89	4.46	--	27.43
	9/15/2015			6.07	--	25.82
	1/22/2016			4.54	--	27.35
	8/5/2016			5.85	--	26.04
	11/30/2016			4.53	--	27.36
	10/12/2018			5.79	--	26.10
	1/23/2020			4.42	--	27.47
5/19/2020	5.42	0.0	26.47			
MW-8	3/4/2014	29.30	29.05	1.60	--	27.45
	9/15/2015			3.21	--	25.84
	1/22/2016			1.71	--	27.34
	8/5/2016			3.98	--	25.07
	11/30/2016			1.68	--	27.37
	10/12/2018			2.95	--	26.10
	1/23/2020			1.57	--	27.48
5/19/2020	2.58	0.0	26.47			
MW-9	5/19/2020	--	33.11	6.51	0.0	26.60

Notes:

All measurements are in feet. Elevations are in feet above mean sea level (AMSL).

- a Polyvinyl chloride (PVC) casing elevation on the north side of the well casing.
 - Survey Coordinate System and Zone: Washington State Plane, North Zone coordinates.
 - Horizontal Datum: NAD 83(91) US feet (horizontal accuracy: 0.1').
 - Vertical Datum: NGVD 29 (vertical accuracy: 0.01').
- To convert from NGVD 29 to NAVD 88, add 3.58 feet to elevations.
- Survey completed October 5, 2015 by Triad Associates.
- b Depth to groundwater measured from top of well casing.
- c LNAPL thickness = [Depth to LNAPL] - [Depth to Water]; measured from top of well casing using an electronic oil-water interface probe. Bold value indicates measurable thickness.
- d Water table elevations adjusted for the presence of LNAPL using the following formula and assumed LNAPL specific gravity of 0.8: [Water Table Elevation] = [PVC Casing Elevation] - [Depth to Water] + [LNAPL Thickness x 0.80].
- e LNAPL present; however, thickness and depth to water not recorded.
- f Groundwater surface was greater than PVC casing at this location on the date measured.
- Not recorded.
- * Depth to groundwater measurement is an estimate.
- LNAPL Light non-aqueous phase liquid.
- 6.51 Information added by G-Logics, most recent measurements.
Elevation for MW-9 was derived from MW-3 casing elevation.

APPENDIX A

APPENDIX A

FIELD EXPLORATION METHODS

G-Logics performed subsurface soil and groundwater sampling during the assessment conducted on the subject property. The sampling activities were conducted in general accordance with Washington Department of Ecology (Ecology) guidelines and regulations.

Health and Safety Plan

A site-specific Health and Safety Plan was developed for the field activities completed at the subject property. All field personnel reviewed the plan and implemented the procedures while conducting the on-site field activities. Health and safety procedures for COVID-19 pandemic issues also were followed.

Underground Utility Clearance

Before conducting the subsurface exploration, G-Logics contacted a service that notifies public utilities of proposed subsurface investigations. Additionally, on-site private utilities were located by a private locating company to identify on-site utilities as well as specific areas of concern. Consequently, the below-grade utility locations were identified by marking their inferred location on the ground surface. This information was used to aid in identifying sampling locations.

Quality Assurance Quality Control

Quality Assurance/Quality Control (QA/QC) for the presented scope of work included generally accepted procedures for sample collection, storage, tracking, and documentation. All sampling equipment was washed and rinsed before the collection of the samples. All samples were labeled with a sample number, date, time, and sampler name, and were stored in an ice chest containing frozen “blue ice”. Appropriate chain-of-custody documentation was completed.

Direct-Push Technologies Soil Borings

A G-Logics employee was present during the drilling and assisted in obtaining samples of the subsurface materials, maintained a log of the borings, made detailed observations of site conditions, and provided technical assistance, as required. Soil borings were advanced using jack hammer-mounted direct-push probe, provided by our drilling subcontractor. Soil samples were collected using a 2-inch diameter stainless steel sampler, in lengths of four feet. Continuous soil samples were obtained by driving/pushing this sampler, containing an acrylic liner, to the sampling depth. After reaching the required depth, the sampler was retrieved and opened.

Soil Sampling Procedures

During this effort, soil samples were collected for soil identification and chemical analysis. A photoionization detector (PID) was used during drilling to screen for volatile organic compounds (VOCs) in collected soil samples. A portion of each soil sample was placed into a plastic zip-lock bag and allowed to develop for 15 minutes (to allow contaminants to volatilize). Vapors then were drawn through the PID for qualitative screening of VOCs. The results were measured in parts per million by volume (ppmv) and noted on the boring logs. A new plastic bag was used each time a sample was screened.

The soils were then observed and categorized for grain-size, color, presence of artifacts, moisture, odor, staining, sheen, and any other indications of contamination and documented on boring logs (attached). A portion of each soil sample was placed into a container with clean water and observed for the presence of an oil sheen.

Samples were collected where indications of contamination were observed or from where contamination would likely be present (i.e., at the groundwater interface). The collected soils contained within the acrylic liner were removed and placed into laboratory-provided sample containers (prepared by the contract laboratory to conform to EPA-recommended preservation techniques for the analytes of concern).

Soil samples for volatile analyses were collected from the soil core using an Easy Draw Syringe and Powerstop Handle, and extruded directly into a 40 ml VOA Vial containing methanol preservative. Sample containers were open only as long as necessary to collect the samples. The stainless-steel sampler then was washed and new liners were used for each sampling attempt.

Collected samples were labeled with a sample number, date, time, and sampler's name and stored in an ice chest containing frozen "blue ice". Chain-of-custody procedures were followed to document sample handling.

Upon completion of each soil boring the resulting hole was either backfilled with bentonite (hydrated with a small amount of water) and the ground surface restored to match original surface, or a monitoring well was installed. All soil cuttings were collected and placed into a waste drum to be disposed at an off-site disposal facility (determined by analytical results).

Groundwater Monitoring Well Construction, Direct-Push Probe Methods

Soil borings completed as groundwater monitoring wells were constructed in the following manner:

- The well casing materials consisted of 3/4-inch-diameter, flush-threaded, schedule 40 PVC pipe. All PVC casing materials were cleaned at the factory before installation.
- Well screen intervals were constructed with five-foot lengths of well screen, as shown on the boring logs. The screened interval of the well casing was perforated with 0.020-inch factory-cut slots.
- The bottom of the well casing was sealed with a threaded sediment cup. Blank (non-slotted) riser casing was used to extend the well from the top of the screened interval to ground surface. The length of the screened interval is identified on the boring logs.
- Well construction was accomplished by lowering the well casing into the completed boring through the inside of the probe casing. The casing was withdrawn from the boring about three feet, and the resulting annular space around the well screen was backfilled with sand (poured through the top of the casing). This process was repeated until the filter pack was installed to about two feet above the top of the screened interval. The casing was completely withdrawn from the boring, and the annular space around the blank riser was backfilled with granulated bentonite to the depth shown on the boring logs.
- The filter pack for the well consisted of clean, 10/20 Colorado Silica Sand.
- The annular seal of the well consisted of granulated bentonite.
- The well casing was sealed at the ground surface with a watertight expansion cap or PVC slip cap.

- A tamper-resistant steel cover was set over the well, flush to the ground surface. The cover was grouted in place with concrete.
- A reference point was marked on the top of the PVC well casing for consistent groundwater depth measurements.
- The well identification was written on a waterproof tag and was placed inside the well box.

Well Development

After monitoring-well construction and prior to purging the wells for sampling, the wells were developed using a peristaltic pump. A swab/surge development technique utilizing the 1/4 inch tubing was used. This movement was created by both lifting and lowering the pump, and by periodically turning the pump off and allowing the suspended water column to rapidly flow back down into the well. Well development continued until the initially turbid water turned nearly clear. This process was repeated until approximately 3 gallons of groundwater had been removed.

Water Level Measurements in Wells

Water level measurements were referenced to the top of the well casing. The static water level was measured in each monitoring well using a conductivity type, water-level probe (Solinst, Mini Interface Meter). The conductivity probe on the water level meter was lowered into the well until the instrument detected water. The tape on the probe was used to obtain a depth-to-water measurement, from the reference point, to within 0.01 feet.

Measurement of LNAPL Thickness in Wells

In monitoring wells where light non aqueous phase liquid (LNAPL) was present, the thickness of the LNAPL was measured using an interface probe (Solinst Mini Interface Meter). When the interface probe reached LNAPL, a solid beep from the instrument sounded and continued as the probe passed through it. The probe was slowly lowered past the LNAPL until the constant beep stopped and an intermittent beeping occurred (indicating the probe is in water). The measurement to static water level was then recorded. The probe was then slowly pulled up from the static water level by pinching the measuring tape at the reference point. The tape was then pulled through the LNAPL until the solid beep was silenced and a thickness measurement was obtained from the tape at the reference point (depth to static water level subtracted by depth to LNAPL). Since passing the probe through

LNAPL can coat the probe (thereby providing unreliable measurements), the thickness measurement was repeated multiple times until a confident field reading was obtained. The thickness was then recorded with a precision of 0.01 feet. If a constant beep occurred but no measurable thickness was present, the LNAPL thickness is considered as either trace amount, or considered to be a sheen.

Monitoring Well Purging and Sampling, Low-Flow Purge and Sample Method

A G-Logics employee sampled groundwater wells using low-flow techniques in accordance with the following protocol:

- For this sampling event, a peristaltic pump was used to sample all on-site monitoring wells.
- During purging, the flow rate was set between 150 and 500 mL/minute in order to maintain minimal drawdown in the well.
- Groundwater was directed through a flow-through cell with a multiparameter probe (YSI 556) in order to collect geochemical parameter measurements (pH, conductivity, temperature, dissolved oxygen, and oxidation-reduction potential) during sampling. Readings were recorded at approximately 5-minute intervals. A field log was maintained during purging/sampling and included parameter measurements, times, purge volume, and descriptions of appearance (color/turbidity), odor, and other notes.
- Once parameters stabilized, or once three well-casing volumes were removed from the well (whichever came first), groundwater samples were collected directly into laboratory-provided sample containers. Parameters are considered stable when 3 consecutive readings are within the following criteria:
 - Temperature: +/- 0.1°C
 - pH: +/- 0.1 pH units
 - Dissolved Oxygen (DO): +/- 0.3 mg/L
 - Oxidation-Reduction Potential (ORP): +/- 10 millivolts
 - Turbidity: +/- 10%
- If the well is low yield and/or low recovery and purges dry, shut the pump off and allow the well to recover at least once prior to sampling. If possible, purge the well a second time and allow it to recover before sampling. Samples should be collected within 24 hours of the purge/recovery.
- Sample containers were open only as long as necessary to collect the samples.

- The contract laboratory prepared the sample containers to conform to EPA-recommended preservation techniques for the analytes of concern.
- All purge water was collected and placed into waste drums for proper disposal (determined by analytical results).
- Collected samples were labeled with a sample number, date, time, and sampler's name and stored in an ice chest containing frozen "blue ice". Chain-of-custody procedures were followed to document sample handling.
- Dedicated tubing was used at each sampling location.
- Before use, the sampling equipment was washed and rinsed.

Vertical Survey

The top of the new well casing (MW-9) was surveyed to determine its relative elevation. The well casing was surveyed using a LaserMark LMH laser level and graduated survey rod using standard elevation-leveling techniques. The elevation of adjacent well MW-3 was used to establish this elevation.

APPENDIX B

Unified Soil Classification System (USCS)

PRIMARY DIVISIONS		SYMBOL	DESCRIPTIONS	
COARSE GRAINED SOILS Sands & Gravels, Over 50% retained on #200 sieve	GRAVELS Over 50% of coarse material retained on #4 sieve	CLEAN GRAVEL Less than 5% passing #200 sieve	GW Well graded gravel, many different particle sizes, little or no fines	
		GRAVEL WITH FINES	GP Poorly graded, few different particle sizes, little or no fines	
			GM Silty gravels, gravel-sand-silt mixtures	
		GC Clayey gravels, gravel-sand-clay mixtures		
	SAND Over 50% of coarse material passed #4 sieve	CLEAN SANDS Less than 5% passing #200 sieve	SW Well graded gravel, many different particle sizes, little or no fines	
			SP Poorly graded, few different particle sizes, little or no fines	
		SAND WITH FINES	SM Silty gravels, gravel-sand-silt mixtures	
			SC Clayey gravels, gravel-sand-clay mixtures	
			FINE GRAINED SOILS Silts & Clays, Over 50% passing the #200 sieve	
			SILTS AND CLAYS Liquid limit is less than 50 %	
SILTS AND CLAYS Liquid limit is more than 50 %	ML Inorganic silts, slight to no plasticity			
	CL Inorganic clays, low to moderate plasticity			
	OL Organic silts and clays of low plasticity			
Highly Organic Soils		MH Inorganic silts, moderate to high plasticity		
		CH Inorganic clays, high plasticity, fat clays		
		OH Organic silts and clays of high plasticity		
		PT Peat and other highly organic soils		

Soil Samples



Disturbed, bag, bulk, or grab sample



Standard penetration split spoon sample



Cuttings



Continuous-Core Sample

Field Measurements



Water Level Observed During Drilling



Photoionization Detector



Parts Per Million by Volume



End of Boring (E.O.B)

Note: Blows per foot is the number of blows used to drive a split-spoon (2" OD) sampler through the last 12 inches of an 18-inch sampling attempt. One blow is a 30-inch fall of a 140-pound hammer.

Note: The line separating strata on the logs represents approximate boundaries only. The actual transition may be gradual. No warranty is provided as to the continuity of the strata between exploration locations. Logs represent the soil section observed at the exploration location on the date of exploration only.

ExplorationLogLegend.pub

g-logics

Exploration Log Legend

INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0		Grass surface				No well Installed
	GB-1-4	0-3': Brown SAND, well graded, fine to coarse grain, little gravel, dry, no odor, fill material	70	SW	0	
5	GB-1-6	3-7': Brown/gray SAND, poorly graded, medium grain, trace gravel, moist, slight petroleum odor at 6 feet	100	SP	0	
	GB-1-7	7-8': Gray SAND, poorly graded, fine grain, trace gravel, wet, moderate odor	100		33	
	GB-1-9	8-8.5': ORGANICS with sand, trace gravel, wet, odor 8.5-9': Gray GRAVEL, well graded, fine to coarse grain, with sand, clay lens, wet, odor		PT GW	35	
10		Refusal at 9 feet				
15						
20						
25						
30						

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Boring backfilled with Bentonite
Drilling Company: Standard	Weather: Rain	
Boring Diameter: Two Inches	Page <u>1</u> of <u>1</u>	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	GB-1
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INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0		Grass surface				No well Installed
0-3'		Brown SAND, well graded, fine to coarse grain, little gravel, dry, no odor, fill material	70	SW	0	
3-6'	GB-2-4	Brown/gray SAND, poorly graded, medium grain, trace gravel, moist, slight petroleum odor at 6 feet		SP	2	
6-7.5'	GB-2-7	Gray SAND, poorly graded, fine grain, trace gravel, wet, moderate odor	100		360	
8-8.5'	GB-2-9	ORGANICS with sand, trace gravel, wet, odor		PT	196	
8.5-9.5'		Gray GRAVEL, well graded, fine to coarse grain, with sand, wet, odor		GW		
		Refusal at 9.5 feet				
15						
20						
25						
30						

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Boring backfilled with Bentonite
Drilling Company: Standard	Weather: Rain	
Boring Diameter: Two Inches	Page <u>1</u> of <u>1</u>	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	GB-2
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INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0		Beach surface				
	GB-3-2	0-2': Brown SAND, poorly graded, fine to medium grain, little gravel, moist	50	SP	1	No well Installed
	GB-3-4	2-3': Gray GRAVEL, poorly graded, wet at 2 feet, slight petroleum odor		GP	1	
	GB-3-6	3-8': Gray SAND, poorly graded, fine to coarse grain, wet, slight petroleum odor		SP	7	
	GB-3-8	Refusal at 8 feet	100		5	
10					3	
15						
20						
25						
30						

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Boring backfilled with Bentonite
Drilling Company: Standard	Weather: Rain	
Boring Diameter: Two Inches	Page <u>1</u> of <u>1</u>	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	GB-3
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INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0		Beach surface				
0-1'	GB-4-2	Gray, SAND, well graded, fine to coarse grain, little gravel, moist, no odor	50	SW	5	No well Installed
1-3'	GB-4-4	Gray, GRAVEL, well graded, with sand, wet at 2 feet, slight petroleum odor		GW		
3-4'		Gray SAND, poorly graded, medium to coarse grain, wet at 7', moderate odor	SP	242		
4-8'	GB-4-8	Gray SAND, well graded, fine to coarse grain, little gravel, wet, moderate odor	SW	284		
			100		44	
					8	
		Refusal at 8 feet				
10						
15						
20						
25						
30						

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Boring backfilled with Bentonite
Drilling Company: Standard	Weather: Overcast	
Boring Diameter: Two Inches	Page <u>1</u> of <u>1</u>	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	GB-4
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INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0		Beach surface				
		0-5': Gray GRAVEL, well graded, wet 1 foot, no odor	50	GW	0	No well Installed
	GB-5-4				0	
5		5-8': Gray SAND, well graded, fine to coarse grain, trace gravel, wet, no odor	100	SW	0	
	GB-5-7				0	
		Refusal at 8 feet				
10						
15						
20						
25						
30						

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Boring backfilled with Bentonite
Drilling Company: Standard	Weather: Rain	
Boring Diameter: Two Inches	Page <u>1</u> of <u>1</u>	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	GB-5
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INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0	GB-6-1	Beach surface 0-1': Gray SAND, poorly graded, medium grain, wet, slight odor	40	SP	2	No well Installed
	GB-6-4	2-3': Gray GRAVEL, poorly graded, medium grain, trace gravel, wet		GP	0	
	GB-6-6	3-8': Gray SAND, poorly graded, medium grain, little gravel, wet, no odor	90	SP	0	
		Trace gravel			0	
10		Refusal at 8 feet				
15						
20						
25						
30						

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Boring backfilled with Bentonite
Drilling Company: Standard	Weather: Rain	
Boring Diameter: Two Inches	Page <u>1</u> of <u>1</u>	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	GB-6
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INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0		Concrete surface				No well Installed
0-4'		Brown/gray SAND, poorly graded, fine grain, little gravel, very poor recovery	<10	SP	0	
4-8.5'	GB-7-6	Brown/gray SAND, poorly graded, fine to medium grain, few silt, wet at 7 feet, becomes gray at 8 feet, slight petroleum odor at 8 feet	100		3	
8.5-9'	GB-7-8 GB-7-9	ORGANICS, with Sand and silt, woody debris and peat		PT	63 1	
10		Refusal at 9.5 feet				
15						
20						
25						
30						

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Boring backfilled with Bentonite
Drilling Company: Standard	Weather: Rain	
Boring Diameter: Two Inches	Page <u>1</u> of <u>1</u>	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	GB-7
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INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0		Grass surface				<p>2" Boring</p> <p>5" Well Box</p> <p>Well Cap</p> <p>Concrete Seal</p> <p>0.75" PVC Blank</p> <p>Bentonite Seal</p> <p>10/20 Sand</p> <p>1" O.D. (0.75" I.D.) 10 Slot Well Screen</p> <p>Casing</p>
0-3'		Brown SAND, well graded, fine to coarse grain, little gravel, dry, no odor	75	SW	0	
3-7'	MW-9-4	Brown/gray SAND, poorly graded, medium grain, trace gravel, moist, wet at 7', no odor	100	SP	0	
7-9'	MW-9-7	Gray SAND, poorly graded, fine grain, trace gravel, moist, wet, no odor, organics at 9' (peat/wood), clay lens		PT	0	
9-10'	MW-9-10	Gray GRAVEL, well graded, fine to coarse grain, with sand, wet, no odor		GW	0	
		E.O.B. at 10 feet				

30 Depth in feet

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Well Tag # BJP-750
Drilling Company: Standard	Weather: Rain	
Boring Diameter: Two Inches	Page 1 of 1	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	MW-9
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APPENDIX C



3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

G-Logics

Jon Stordahl
40 Second Ave. SE
Issaquah, WA 98027

RE: Mossman

Work Order Number: 2005187

June 03, 2020

Attention Jon Stordahl:

Fremont Analytical, Inc. received 25 sample(s) on 5/15/2020 for the analyses presented in the following report.

***Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Sample Moisture (Percent Moisture)
Volatile Petroleum Hydrocarbons by NWVPH***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

CLIENT: G-Logics
Project: Mossman
Work Order: 2005187

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2005187-001	MW-9-4	05/14/2020 8:50 AM	05/15/2020 10:50 AM
2005187-002	MW-9-7	05/14/2020 9:15 AM	05/15/2020 10:50 AM
2005187-003	MW-9-10	05/14/2020 9:20 AM	05/15/2020 10:50 AM
2005187-004	GB-1-4	05/14/2020 10:00 AM	05/15/2020 10:50 AM
2005187-005	GB-1-6	05/14/2020 10:10 AM	05/15/2020 10:50 AM
2005187-006	GB-1-7	05/14/2020 10:15 AM	05/15/2020 10:50 AM
2005187-007	GB-1-9	05/14/2020 10:20 AM	05/15/2020 10:50 AM
2005187-008	GB-2-4	05/14/2020 10:25 AM	05/15/2020 10:50 AM
2005187-009	GB-2-7	05/14/2020 10:45 AM	05/15/2020 10:50 AM
2005187-010	GB-2-9	05/14/2020 10:50 AM	05/15/2020 10:50 AM
2005187-011	GB-3-2	05/14/2020 11:10 AM	05/15/2020 10:50 AM
2005187-012	GB-3-4	05/14/2020 11:00 AM	05/15/2020 10:50 AM
2005187-013	GB-3-6	05/14/2020 11:20 AM	05/15/2020 10:50 AM
2005187-014	GB-3-8	05/14/2020 11:25 AM	05/15/2020 10:50 AM
2005187-015	GB-4-2	05/14/2020 11:45 AM	05/15/2020 10:50 AM
2005187-016	GB-4-4	05/14/2020 11:40 AM	05/15/2020 10:50 AM
2005187-017	GB-4-8	05/14/2020 12:10 PM	05/15/2020 10:50 AM
2005187-018	GB-5-4	05/14/2020 12:30 PM	05/15/2020 10:50 AM
2005187-019	GB-5-7	05/14/2020 12:45 PM	05/15/2020 10:50 AM
2005187-020	GB-6-1	05/14/2020 12:50 PM	05/15/2020 10:50 AM
2005187-021	GB-6-4	05/14/2020 12:55 PM	05/15/2020 10:50 AM
2005187-022	GB-6-6	05/14/2020 1:00 PM	05/15/2020 10:50 AM
2005187-023	GB-7-6	05/14/2020 2:05 PM	05/15/2020 10:50 AM
2005187-024	GB-7-8	05/14/2020 2:00 PM	05/15/2020 10:50 AM
2005187-025	GB-7-9	05/14/2020 2:15 PM	05/15/2020 10:50 AM

CLIENT: G-Logics

Project: Mossman

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

6/3/2020: Revision 1 includes additional analysis requested by client.

Qualifiers:

- * - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



Client: G-Logics

Collection Date: 5/14/2020 9:15:00 AM

Project: Mossman

Lab ID: 2005187-002

Matrix: Soil

Client Sample ID: MW-9-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28384

Analyst: DW

Diesel (Fuel Oil)	ND	31.6		mg/Kg-dry	1	5/21/2020 2:57:27 AM
Heavy Oil	ND	79.1		mg/Kg-dry	1	5/21/2020 2:57:27 AM
Heavy Oil Range Organics (C24-37)	180	79.1		mg/Kg-dry	1	5/21/2020 2:57:27 AM
Surr: 2-Fluorobiphenyl	36.0	50 - 150	S	%Rec	1	5/21/2020 2:57:27 AM
Surr: o-Terphenyl	36.4	50 - 150	S	%Rec	1	5/21/2020 2:57:27 AM

NOTES:

S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Heavy Oil Range Organics - Indicates unresolved compounds in the Oil range inconsistent with a known petroleum standard.

Sample Moisture (Percent Moisture)

Batch ID: R59252

Analyst: EH

Percent Moisture	43.1	0.500		wt%	1	5/19/2020 12:14:02 PM
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Client: G-Logics

Collection Date: 5/14/2020 9:20:00 AM

Project: Mossman

Lab ID: 2005187-003

Matrix: Soil

Client Sample ID: MW-9-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28384	Analyst: DW
Diesel (Fuel Oil)	ND	21.6		mg/Kg-dry	1	5/21/2020 4:56:12 AM
Heavy Oil	ND	54.0		mg/Kg-dry	1	5/21/2020 4:56:12 AM
Surr: 2-Fluorobiphenyl	101	50 - 150		%Rec	1	5/21/2020 4:56:12 AM
Surr: o-Terphenyl	103	50 - 150		%Rec	1	5/21/2020 4:56:12 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R59252	Analyst: EH
Percent Moisture	9.09	0.500		wt%	1	5/19/2020 12:14:02 PM



Client: G-Logics

Collection Date: 5/14/2020 10:15:00 AM

Project: Mossman

Lab ID: 2005187-006

Matrix: Soil

Client Sample ID: GB-1-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28384

Analyst: DW

Diesel (Fuel Oil)	1,540	34.4		mg/Kg-dry	1	5/21/2020 5:25:52 AM
Heavy Oil	ND	85.9		mg/Kg-dry	1	5/21/2020 5:25:52 AM
Heavy Oil Range Organics (C24-37)	174	85.9		mg/Kg-dry	1	5/21/2020 5:25:52 AM
Surr: 2-Fluorobiphenyl	107	50 - 150		%Rec	1	5/21/2020 5:25:52 AM
Surr: o-Terphenyl	114	50 - 150		%Rec	1	5/21/2020 5:25:52 AM

NOTES:

Heavy Oil Range Organics - Indicates unresolved compounds in the Oil range inconsistent with a known petroleum standard.

Sample Moisture (Percent Moisture)

Batch ID: R59252

Analyst: EH

Percent Moisture	43.9	0.500		wt%	1	5/19/2020 12:14:02 PM
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Client: G-Logics
Project: Mossman
Lab ID: 2005187-007
Client Sample ID: GB-1-9

Collection Date: 5/14/2020 10:20:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>				Batch ID: 28384		Analyst: DW
Diesel (Fuel Oil)	947	21.0		mg/Kg-dry	1	5/21/2020 5:55:37 AM
Heavy Oil	ND	52.6		mg/Kg-dry	1	5/21/2020 5:55:37 AM
Surr: 2-Fluorobiphenyl	99.6	50 - 150		%Rec	1	5/21/2020 5:55:37 AM
Surr: o-Terphenyl	104	50 - 150		%Rec	1	5/21/2020 5:55:37 AM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R59252		Analyst: EH
Percent Moisture	14.6	0.500		wt%	1	5/19/2020 12:14:02 PM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-009
Client Sample ID: GB-2-7

Collection Date: 5/14/2020 10:45:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28384 Analyst: DW

Diesel (Fuel Oil)	13,800	547	D	mg/Kg-dry	20	5/21/2020 5:50:27 PM
Heavy Oil	ND	68.3		mg/Kg-dry	1	5/21/2020 6:25:12 AM
Surr: 2-Fluorobiphenyl	103	50 - 150		%Rec	1	5/21/2020 6:25:12 AM
Surr: o-Terphenyl	112	50 - 150		%Rec	1	5/21/2020 6:25:12 AM

Volatile Petroleum Hydrocarbons by NWVPH

Batch ID: 28493 Analyst: CR

Aliphatic Hydrocarbon (C5-C6)	ND	2.57	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Aliphatic Hydrocarbon (C6-C8)	6.08	3.67	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Aliphatic Hydrocarbon (C8-C10)	87.8	2.06	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Aliphatic Hydrocarbon (C10-C12)	306	44.1	DH	mg/Kg-dry	20	6/1/2020 6:51:59 PM
Aromatic Hydrocarbon (C8-C10)	136	4.41	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Benzene	ND	0.881	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Toluene	ND	1.03	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Ethylbenzene	2.81	1.03	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
m,p-Xylene	9.67	1.91	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
o-Xylene	6.59	0.881	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Naphthalene	45.6	0.734	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Surr: 1,4-Difluorobenzene	98.4	65 - 140	H	%Rec	1	6/2/2020 12:29:04 AM
Surr: Bromofluorobenzene	120	65 - 140	H	%Rec	1	6/2/2020 12:29:04 AM

Sample Moisture (Percent Moisture)

Batch ID: R59252 Analyst: EH

Percent Moisture	30.1	0.500		wt%	1	5/19/2020 12:14:02 PM
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Client: G-Logics

Collection Date: 5/14/2020 10:50:00 AM

Project: Mossman

Lab ID: 2005187-010

Matrix: Soil

Client Sample ID: GB-2-9

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28384

Analyst: DW

Diesel (Fuel Oil)	7,410	550	D	mg/Kg-dry	10	5/21/2020 6:50:01 PM
Heavy Oil	ND	137		mg/Kg-dry	1	5/21/2020 6:54:55 AM
Heavy Oil Range Organics (C24-37)	178	137		mg/Kg-dry	1	5/21/2020 6:54:55 AM
Surr: 2-Fluorobiphenyl	113	50 - 150		%Rec	1	5/21/2020 6:54:55 AM
Surr: o-Terphenyl	109	50 - 150		%Rec	1	5/21/2020 6:54:55 AM

NOTES:

Heavy Oil Range Organics - Indicates unresolved compounds in the Oil range inconsistent with a known petroleum standard.

Sample Moisture (Percent Moisture)

Batch ID: R59252

Analyst: EH

Percent Moisture	64.9	0.500		wt%	1	5/19/2020 12:14:02 PM
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Client: G-Logics
Project: Mossman
Lab ID: 2005187-012
Client Sample ID: GB-3-4

Collection Date: 5/14/2020 11:00:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28384	Analyst: DW
Diesel (Fuel Oil)	3,740	207	D	mg/Kg-dry	10	5/21/2020 7:19:43 PM
Heavy Oil	ND	51.8		mg/Kg-dry	1	5/21/2020 7:24:36 AM
Surr: 2-Fluorobiphenyl	92.4	50 - 150		%Rec	1	5/21/2020 7:24:36 AM
Surr: o-Terphenyl	113	50 - 150		%Rec	1	5/21/2020 7:24:36 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R59252	Analyst: EH
Percent Moisture	7.53	0.500		wt%	1	5/19/2020 12:14:02 PM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-013
Client Sample ID: GB-3-6

Collection Date: 5/14/2020 11:20:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>				Batch ID: 28384		Analyst: DW
Diesel (Fuel Oil)	64.9	19.8		mg/Kg-dry	1	5/21/2020 7:54:15 AM
Heavy Oil	ND	49.5		mg/Kg-dry	1	5/21/2020 7:54:15 AM
Surr: 2-Fluorobiphenyl	109	50 - 150		%Rec	1	5/21/2020 7:54:15 AM
Surr: o-Terphenyl	111	50 - 150		%Rec	1	5/21/2020 7:54:15 AM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R59252		Analyst: EH
Percent Moisture	8.76	0.500		wt%	1	5/19/2020 12:14:02 PM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-014
Client Sample ID: GB-3-8

Collection Date: 5/14/2020 11:25:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28384	Analyst: DW
Diesel (Fuel Oil)	ND	21.3		mg/Kg-dry	1	5/21/2020 8:23:54 AM
Heavy Oil	ND	53.3		mg/Kg-dry	1	5/21/2020 8:23:54 AM
Surr: 2-Fluorobiphenyl	100	50 - 150		%Rec	1	5/21/2020 8:23:54 AM
Surr: o-Terphenyl	103	50 - 150		%Rec	1	5/21/2020 8:23:54 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R59252	Analyst: EH
Percent Moisture	7.96	0.500		wt%	1	5/19/2020 12:14:02 PM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-015
Client Sample ID: GB-4-2

Collection Date: 5/14/2020 11:45:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28384 Analyst: DW

Diesel (Fuel Oil)	30,900	380	D	mg/Kg-dry	20	5/21/2020 7:49:25 PM
Heavy Oil	ND	47.5		mg/Kg-dry	1	5/21/2020 10:22:49 AM
Surr: 2-Fluorobiphenyl	165	50 - 150	S	%Rec	1	5/21/2020 10:22:49 AM
Surr: o-Terphenyl	97.3	50 - 150		%Rec	1	5/21/2020 10:22:49 AM

NOTES:

S - Outlying surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Volatile Petroleum Hydrocarbons by NWVPH

Batch ID: 28493 Analyst: CR

Aliphatic Hydrocarbon (C5-C6)	ND	2.10	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Aliphatic Hydrocarbon (C6-C8)	ND	3.00	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Aliphatic Hydrocarbon (C8-C10)	ND	1.68	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Aliphatic Hydrocarbon (C10-C12)	35.6	1.80	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Aromatic Hydrocarbon (C8-C10)	ND	3.60	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Benzene	ND	0.719	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Toluene	ND	0.839	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Ethylbenzene	ND	0.839	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
m,p-Xylene	ND	1.56	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
o-Xylene	ND	0.719	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Naphthalene	7.41	0.599	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Surr: 1,4-Difluorobenzene	95.4	65 - 140	H	%Rec	1	6/1/2020 10:22:36 PM
Surr: Bromofluorobenzene	102	65 - 140	H	%Rec	1	6/1/2020 10:22:36 PM

Sample Moisture (Percent Moisture)

Batch ID: R59252 Analyst: EH

Percent Moisture	8.69	0.500		wt%	1	5/19/2020 12:14:02 PM
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Client: G-Logics
Project: Mossman
Lab ID: 2005187-016
Client Sample ID: GB-4-4

Collection Date: 5/14/2020 11:40:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28384 Analyst: DW

Diesel (Fuel Oil)	28,900	443	D	mg/Kg-dry	20	5/21/2020 8:19:06 PM
Heavy Oil	ND	55.4		mg/Kg-dry	1	5/21/2020 10:52:44 AM
Surr: 2-Fluorobiphenyl	173	50 - 150	S	%Rec	1	5/21/2020 10:52:44 AM
Surr: o-Terphenyl	152	50 - 150	S	%Rec	1	5/21/2020 10:52:44 AM

NOTES:

S - Outlying surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Sample Moisture (Percent Moisture)

Batch ID: R59252 Analyst: EH

Percent Moisture	11.5	0.500		wt%	1	5/19/2020 12:14:02 PM
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Client: G-Logics
Project: Mossman
Lab ID: 2005187-017
Client Sample ID: GB-4-8

Collection Date: 5/14/2020 12:10:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28384	Analyst: DW
Diesel (Fuel Oil)	ND	21.8		mg/Kg-dry	1	5/21/2020 11:22:31 AM
Heavy Oil	ND	54.5		mg/Kg-dry	1	5/21/2020 11:22:31 AM
Surr: 2-Fluorobiphenyl	104	50 - 150		%Rec	1	5/21/2020 11:22:31 AM
Surr: o-Terphenyl	105	50 - 150		%Rec	1	5/21/2020 11:22:31 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R59252	Analyst: EH
Percent Moisture	8.23	0.500		wt%	1	5/19/2020 12:14:02 PM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-018
Client Sample ID: GB-5-4

Collection Date: 5/14/2020 12:30:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>				Batch ID: 28384		Analyst: DW
Diesel (Fuel Oil)	ND	21.7		mg/Kg-dry	1	5/21/2020 11:52:19 AM
Heavy Oil	ND	54.3		mg/Kg-dry	1	5/21/2020 11:52:19 AM
Surr: 2-Fluorobiphenyl	111	50 - 150		%Rec	1	5/21/2020 11:52:19 AM
Surr: o-Terphenyl	113	50 - 150		%Rec	1	5/21/2020 11:52:19 AM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R59292		Analyst: CJ
Percent Moisture	10.3	0.500		wt%	1	5/21/2020 8:55:29 AM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-020
Client Sample ID: GB-6-1

Collection Date: 5/14/2020 12:50:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28384	Analyst: DW
Diesel (Fuel Oil)	105	23.7		mg/Kg-dry	1	5/21/2020 12:22:13 PM
Heavy Oil	ND	59.4		mg/Kg-dry	1	5/21/2020 12:22:13 PM
Surr: 2-Fluorobiphenyl	104	50 - 150		%Rec	1	5/21/2020 12:22:13 PM
Surr: o-Terphenyl	107	50 - 150		%Rec	1	5/21/2020 12:22:13 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R59292	Analyst: CJ
Percent Moisture	20.5	0.500		wt%	1	5/21/2020 8:55:29 AM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-021
Client Sample ID: GB-6-4

Collection Date: 5/14/2020 12:55:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28384	Analyst: DW
Diesel (Fuel Oil)	ND	23.1		mg/Kg-dry	1	5/21/2020 12:52:01 PM
Heavy Oil	ND	57.7		mg/Kg-dry	1	5/21/2020 12:52:01 PM
Surr: 2-Fluorobiphenyl	98.7	50 - 150		%Rec	1	5/21/2020 12:52:01 PM
Surr: o-Terphenyl	101	50 - 150		%Rec	1	5/21/2020 12:52:01 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R59292	Analyst: CJ
Percent Moisture	18.1	0.500		wt%	1	5/21/2020 8:55:29 AM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-023
Client Sample ID: GB-7-6

Collection Date: 5/14/2020 2:05:00 PM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28384	Analyst: DW
Diesel (Fuel Oil)	ND	20.5		mg/Kg-dry	1	5/21/2020 1:21:46 PM
Heavy Oil	ND	51.2		mg/Kg-dry	1	5/21/2020 1:21:46 PM
Surr: 2-Fluorobiphenyl	112	50 - 150		%Rec	1	5/21/2020 1:21:46 PM
Surr: o-Terphenyl	114	50 - 150		%Rec	1	5/21/2020 1:21:46 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R59292	Analyst: CJ
Percent Moisture	7.79	0.500		wt%	1	5/21/2020 8:55:29 AM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-024
Client Sample ID: GB-7-8

Collection Date: 5/14/2020 2:00:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28384	Analyst: DW
Diesel (Fuel Oil)	1,530	25.2		mg/Kg-dry	1	5/21/2020 1:51:33 PM
Heavy Oil	ND	62.9		mg/Kg-dry	1	5/21/2020 1:51:33 PM
Surr: 2-Fluorobiphenyl	115	50 - 150		%Rec	1	5/21/2020 1:51:33 PM
Surr: o-Terphenyl	118	50 - 150		%Rec	1	5/21/2020 1:51:33 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R59292	Analyst: CJ
Percent Moisture	27.7	0.500		wt%	1	5/21/2020 8:55:29 AM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-025
Client Sample ID: GB-7-9

Collection Date: 5/14/2020 2:15:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28403	Analyst: DW
Diesel (Fuel Oil)	ND	31.6		mg/Kg-dry	1	5/21/2020 11:17:45 PM
Heavy Oil	ND	79.0		mg/Kg-dry	1	5/21/2020 11:17:45 PM
Surr: 2-Fluorobiphenyl	79.1	50 - 150		%Rec	1	5/21/2020 11:17:45 PM
Surr: o-Terphenyl	81.9	50 - 150		%Rec	1	5/21/2020 11:17:45 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R59292	Analyst: CJ
Percent Moisture	44.8	0.500		wt%	1	5/21/2020 8:55:29 AM

Work Order: 2005187
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
 Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: MB-28403	SampType: MBLK	Units: mg/Kg	Prep Date: 5/21/2020	RunNo: 59334							
Client ID: MBLKS	Batch ID: 28403		Analysis Date: 5/21/2020	SeqNo: 1186030							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	16.0		20.00		79.8	50	150				
Surr: o-Terphenyl	16.7		20.00		83.6	50	150				

Sample ID: LCS-28403	SampType: LCS	Units: mg/Kg	Prep Date: 5/21/2020	RunNo: 59334							
Client ID: LCSS	Batch ID: 28403		Analysis Date: 5/21/2020	SeqNo: 1186031							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	460	20.0	500.0	0	92.1	65	135				
Surr: 2-Fluorobiphenyl	16.7		20.00		83.6	50	150				
Surr: o-Terphenyl	17.5		20.00		87.7	50	150				

Sample ID: 2005257-003ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 5/21/2020	RunNo: 59334							
Client ID: BATCH	Batch ID: 28403		Analysis Date: 5/22/2020	SeqNo: 1186040							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	22.6						0		30	
Heavy Oil	ND	56.6						0		30	
Surr: 2-Fluorobiphenyl	20.0		22.65		88.2	50	150		0		
Surr: o-Terphenyl	20.7		22.65		91.3	50	150		0		

Sample ID: 2005257-003AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 5/21/2020	RunNo: 59334							
Client ID: BATCH	Batch ID: 28403		Analysis Date: 5/22/2020	SeqNo: 1186041							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	461	22.8	570.5	0	80.7	65	135				
Surr: 2-Fluorobiphenyl	23.2		22.82		102	50	150				
Surr: o-Terphenyl	22.2		22.82		97.2	50	150				

Work Order: 2005187
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
 Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: 2005257-003AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 5/21/2020	RunNo: 59334							
Client ID: BATCH	Batch ID: 28403	Analysis Date: 5/22/2020	SeqNo: 1186041								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 2005257-003AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 5/21/2020	RunNo: 59334							
Client ID: BATCH	Batch ID: 28403	Analysis Date: 5/22/2020	SeqNo: 1186042								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	472	20.4	510.9	0	92.4	65	135	460.5	2.52	30	
Surr: 2-Fluorobiphenyl	18.7		20.44		91.4	50	150		0		
Surr: o-Terphenyl	19.7		20.44		96.3	50	150		0		

Work Order: 2005187
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
 Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: MB-28384	SampType: MBLK	Units: mg/Kg				Prep Date: 5/19/2020	RunNo: 59327				
Client ID: MBLKS	Batch ID: 28384					Analysis Date: 5/21/2020	SeqNo: 1185828				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	19.4		20.00		97.0	50	150				
Surr: o-Terphenyl	19.8		20.00		98.8	50	150				

Sample ID: LCS-28384	SampType: LCS	Units: mg/Kg				Prep Date: 5/19/2020	RunNo: 59327				
Client ID: LCSS	Batch ID: 28384					Analysis Date: 5/21/2020	SeqNo: 1185829				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	475	20.0	500.0	0	95.1	65	135				
Surr: 2-Fluorobiphenyl	21.3		20.00		106	50	150				
Surr: o-Terphenyl	20.9		20.00		105	50	150				

Sample ID: 2005187-002ADUP	SampType: DUP	Units: mg/Kg-dry				Prep Date: 5/19/2020	RunNo: 59327				
Client ID: MW-9-7	Batch ID: 28384					Analysis Date: 5/21/2020	SeqNo: 1185831				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	31.6						0		30	
Heavy Oil	ND	79.0						179.6	7.12	30	
Heavy Oil Range Organics (C24-37)	167	79.0						179.6	7.12	30	
Surr: 2-Fluorobiphenyl	30.4		31.59		96.2	50	150		0		
Surr: o-Terphenyl	31.0		31.59		98.1	50	150		0		

NOTES:

Heavy Oil Range Organics - Indicates unresolved compounds in the Oil range inconsistent with a known petroleum standard.

Sample ID: 2005187-002AMS	SampType: MS	Units: mg/Kg-dry				Prep Date: 5/19/2020	RunNo: 59327				
Client ID: MW-9-7	Batch ID: 28384					Analysis Date: 5/21/2020	SeqNo: 1185832				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	506	32.0	799.8	0	63.2	65	135				S

Work Order: 2005187
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
 Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: 2005187-002AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 5/19/2020	RunNo: 59327							
Client ID: MW-9-7	Batch ID: 28384		Analysis Date: 5/21/2020	SeqNo: 1185832							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: 2-Fluorobiphenyl	18.0		31.99		56.4	50	150				
Surr: o-Terphenyl	17.8		31.99		55.7	50	150				

NOTES:

S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID: 2005187-002AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 5/19/2020	RunNo: 59327							
Client ID: MW-9-7	Batch ID: 28384		Analysis Date: 5/21/2020	SeqNo: 1185833							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	608	31.8	796.2	0	76.4	65	135	505.7	18.4	30	
Surr: 2-Fluorobiphenyl	22.5		31.85		70.7	50	150		0		
Surr: o-Terphenyl	21.1		31.85		66.3	50	150		0		

Sample ID: 2005191-002ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 5/19/2020	RunNo: 59327							
Client ID: BATCH	Batch ID: 28384		Analysis Date: 5/21/2020	SeqNo: 1185855							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	21.2						24.33	65.5	30	
Heavy Oil	ND	53.0						0		30	
Surr: 2-Fluorobiphenyl	21.1		21.19		99.8	50	150		0		
Surr: o-Terphenyl	21.3		21.19		101	50	150		0		

Work Order: 2005187
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: LCS-28493	SampType: LCS	Units: mg/Kg				Prep Date: 5/29/2020	RunNo: 59556				
Client ID: LCSS	Batch ID: 28493					Analysis Date: 6/1/2020	SeqNo: 1190984				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	29.9	1.75	30.00	0	99.6	70	130				
Aliphatic Hydrocarbon (C6-C8)	9.63	2.50	10.00	0	96.3	70	130				
Aliphatic Hydrocarbon (C8-C10)	10.2	1.40	10.00	0	102	70	130				
Aliphatic Hydrocarbon (C10-C12)	10.3	1.50	10.00	0	103	70	130				
Aromatic Hydrocarbon (C8-C10)	43.2	3.00	40.00	0	108	70	130				
Benzene	10.3	0.600	10.00	0	103	70	130				
Toluene	10.3	0.700	10.00	0	103	70	130				
Ethylbenzene	10.5	0.700	10.00	0	105	70	130				
m,p-Xylene	21.2	1.30	20.00	0	106	70	130				
o-Xylene	10.6	0.600	10.00	0	106	70	130				
Naphthalene	12.7	0.500	10.00	0	127	70	130				
Surr: 1,4-Difluorobenzene	2.50		2.500		100	65	140				
Surr: Bromofluorobenzene	2.65		2.500		106	65	140				

Sample ID: MB-28493	SampType: MBLK	Units: mg/Kg				Prep Date: 5/29/2020	RunNo: 59556				
Client ID: MBLKS	Batch ID: 28493					Analysis Date: 6/1/2020	SeqNo: 1190985				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	1.75		0	0						
Aliphatic Hydrocarbon (C6-C8)	ND	2.50		0	0						
Aliphatic Hydrocarbon (C8-C10)	ND	1.40		0	0						
Aliphatic Hydrocarbon (C10-C12)	ND	1.50		0	0						
Aromatic Hydrocarbon (C8-C10)	ND	3.00		0	0						
Benzene	ND	0.600		0	0						
Toluene	ND	0.700		0	0						
Ethylbenzene	ND	0.700		0	0						
m,p-Xylene	ND	1.30		0	0						
o-Xylene	ND	0.600		0	0						
Naphthalene	ND	0.500		0	0						
Surr: 1,4-Difluorobenzene	2.25		2.500		90.0	65	140				

Work Order: 2005187
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: MB-28493	SampType: MBLK	Units: mg/Kg	Prep Date: 5/29/2020	RunNo: 59556							
Client ID: MBLKS	Batch ID: 28493		Analysis Date: 6/1/2020	SeqNo: 1190985							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: Bromofluorobenzene 2.43 2.500 97.3 65 140

Sample ID: 2005187-009BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 5/29/2020	RunNo: 59556							
Client ID: GB-2-7	Batch ID: 28493		Analysis Date: 6/1/2020	SeqNo: 1190978							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aliphatic Hydrocarbon (C5-C6)	ND	51.4		0	0			0		25	DH
Aliphatic Hydrocarbon (C6-C8)	ND	73.4		0	0			0		25	DH
Aliphatic Hydrocarbon (C8-C10)	43.8	41.1		0	0			77.55	55.5	25	DH
Aliphatic Hydrocarbon (C10-C12)	335	44.1		0	0			305.8	9.08	25	DH
Aromatic Hydrocarbon (C8-C10)	ND	88.1		0	0			0		25	DH
Benzene	ND	17.6		0	0			0		25	DH
Toluene	ND	20.6		0	0			0		25	DH
Ethylbenzene	ND	20.6		0	0			0		25	DH
m,p-Xylene	ND	38.2		0	0			0		25	DH
o-Xylene	ND	17.6		0	0			0		25	DH
Naphthalene	45.0	14.7		0	0			46.44	3.09	25	DH
Surr: 1,4-Difluorobenzene	68.6		73.42		93.4	65	140		0		DH
Surr: Bromofluorobenzene	73.7		73.42		100	65	140		0		DH

Sample ID: 2005187-015BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 5/29/2020	RunNo: 59556							
Client ID: GB-4-2	Batch ID: 28493		Analysis Date: 6/1/2020	SeqNo: 1190981							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aliphatic Hydrocarbon (C5-C6)	337	21.0	359.7	0	93.7	70	130				DH
Aliphatic Hydrocarbon (C6-C8)	123	30.0	119.9	0	103	70	130				DH
Aliphatic Hydrocarbon (C8-C10)	124	16.8	119.9	0	103	70	130				DH
Aliphatic Hydrocarbon (C10-C12)	127	18.0	119.9	17.44	91.8	70	130				DH
Aromatic Hydrocarbon (C8-C10)	494	36.0	479.6	0	103	70	130				DH
Benzene	124	7.19	119.9	0	103	70	130				DH

Work Order: 2005187
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: 2005187-015BMS	SampType: MS	Units: mg/Kg-dry				Prep Date: 5/29/2020	RunNo: 59556				
Client ID: GB-4-2	Batch ID: 28493					Analysis Date: 6/1/2020	SeqNo: 1190981				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	124	8.39	119.9	0	104	70	130				DH
Ethylbenzene	124	8.39	119.9	0	103	70	130				DH
m,p-Xylene	249	15.6	239.8	0	104	70	130				DH
o-Xylene	125	7.19	119.9	0	104	70	130				DH
Naphthalene	110	5.99	119.9	15.84	78.8	70	130				DH
Surr: 1,4-Difluorobenzene	30.1		29.97		101	65	140				DH
Surr: Bromofluorobenzene	30.0		29.97		99.9	65	140				DH

Sample ID: 2005187-015BMSD	SampType: MSD	Units: mg/Kg-dry				Prep Date: 5/29/2020	RunNo: 59556				
Client ID: GB-4-2	Batch ID: 28493					Analysis Date: 6/1/2020	SeqNo: 1190975				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	337	21.0	359.7	0	93.6	70	130	337.1	0.163	30	DH
Aliphatic Hydrocarbon (C6-C8)	121	30.0	119.9	0	101	70	130	123.5	1.95	30	DH
Aliphatic Hydrocarbon (C8-C10)	123	16.8	119.9	0	102	70	130	123.6	0.860	30	DH
Aliphatic Hydrocarbon (C10-C12)	120	18.0	119.9	17.44	85.3	70	130	127.5	6.27	30	DH
Aromatic Hydrocarbon (C8-C10)	471	36.0	479.6	0	98.3	70	130	493.9	4.69	30	DH
Benzene	114	7.19	119.9	0	95.4	70	130	123.7	7.83	30	DH
Toluene	115	8.39	119.9	0	95.8	70	130	124.3	7.91	30	DH
Ethylbenzene	115	8.39	119.9	0	96.0	70	130	123.7	7.14	30	DH
m,p-Xylene	232	15.6	239.8	0	96.8	70	130	249.0	7.00	30	DH
o-Xylene	117	7.19	119.9	0	97.9	70	130	125.1	6.46	30	DH
Naphthalene	133	5.99	119.9	15.84	97.5	70	130	110.3	18.5	30	DH
Surr: 1,4-Difluorobenzene	30.1		29.97		100	65	140		0		DH
Surr: Bromofluorobenzene	30.3		29.97		101	65	140		0		DH

Client Name: **GL**
 Logged by: **Carissa True**

Work Order Number: **2005187**
 Date Received: **5/15/2020 10:50:00 AM**

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
 2. How was the sample delivered? Client

Log In

3. Coolers are present? Yes No NA
 4. Shipping container/cooler in good condition? Yes No
 5. Custody Seals present on shipping container/cooler?
 (Refer to comments for Custody Seals not intact) Yes No Not Present
 6. Was an attempt made to cool the samples? Yes No NA
 7. Were all items received at a temperature of >2°C to 6°C * Yes No NA
 8. Sample(s) in proper container(s)? Yes No
 9. Sufficient sample volume for indicated test(s)? Yes No
 10. Are samples properly preserved? Yes No
 11. Was preservative added to bottles? Yes No NA
 12. Is there headspace in the VOA vials? Yes No NA
 13. Did all samples containers arrive in good condition(unbroken)? Yes No
 14. Does paperwork match bottle labels? Yes No
 15. Are matrices correctly identified on Chain of Custody? Yes No
 16. Is it clear what analyses were requested? Yes No
 17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text" value="Rorv Galloway"/>	Date:	<input type="text" value="5/27/2020"/>
By Whom:	<input type="text" value="Clare Griqgs"/>	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="Hold times may be expired for added analysis."/>		
Client Instructions:	<input type="text" value="OK to proceed out of hold."/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler 1	1.9
Sample1	5.9
Temp Blank 1	1.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Client: **G-LOGICS**

Date: **5/14/20**

Page: **2** of **3**

Laboratory Project No (internal): **2005187**

Address:

Project Name: **MOSSMAN**

Special Remarks:

City, State, Zip:

Project No: **01-0864-B**

Collected by: **JS**

Location:

Report To (PM): **Jon STORPALLE**

Sample Disposal: Return to client Disposal by lab (after 30 days)

Telephone:

PM Email: **jons@qlogics.com**

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	Analytes										Comments										
				VOCs (EPA 8260 / 524)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HID)	Diesel/Heavy Oil Range Organics (DH)	SVOCS (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8282 / 608)	Metals** (EPA 6020 / 200.9)		Total (T) Dissolved (D)	Anions (C)***	EDB (8011)							
1 GB-3-2	5/14/20	1110	S																					
2 GB-3-4		1100							X															
3 GB-3-6		1120							X															
4 GB-3-8		1125							X															
5 GB-4-2		1145							X															X
6 GB-4-4		1140							X															
7 GB-4-8		1210							X															
8 GB-5-4		1230							X															
9 GB-5-7		1245							X															
10 GB-6-1	↓	1250	↓						X															

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water
 **Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl U V Zn
 ***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide D-Phosphate Fluoride Nitrate-Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
<i>[Signature]</i>	5/15/20 1035	<i>[Signature]</i>	5/15/20 050
Relinquished	Date/Time	Received	Date/Time

Turn-around Time:
 Standard
 3 Day
 2 Day
 Next Day
 Same Day (specify)

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3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

G-Logics

Jon Stordahl
40 Second Ave. SE
Issaquah, WA 98027

RE: Mossman

Work Order Number: 2005249

June 03, 2020

Attention Jon Stordahl:

Fremont Analytical, Inc. received 10 sample(s) on 5/20/2020 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Volatile Organic Compounds by EPA Method 8260D

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

CLIENT: G-Logics
Project: Mossman
Work Order: 2005249

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2005249-001	MW-7	05/19/2020 10:30 AM	05/20/2020 11:02 AM
2005249-002	MW-8	05/19/2020 11:15 AM	05/20/2020 11:02 AM
2005249-003	MW-6	05/19/2020 12:00 PM	05/20/2020 11:02 AM
2005249-004	MW-4	05/19/2020 12:50 PM	05/20/2020 11:02 AM
2005249-005	MW-3	05/19/2020 2:00 PM	05/20/2020 11:02 AM
2005249-006	MW-1	05/19/2020 2:50 PM	05/20/2020 11:02 AM
2005249-007	MW-5	05/19/2020 3:40 PM	05/20/2020 11:02 AM
2005249-008	MW-9	05/19/2020 4:35 PM	05/20/2020 11:02 AM
2005249-009	Dup-1	05/19/2020 12:00 AM	05/20/2020 11:02 AM
2005249-010	Trip Blank	05/07/2020 9:37 AM	05/20/2020 11:02 AM

CLIENT: G-Logics

Project: Mossman

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

6/3/2020: Revision 1 includes additional analysis requested by client.

Qualifiers:

- * - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



CLIENT: G-Logics
Project: Mossman

Lab ID: 2005249-001
Client Sample ID: MW-7

Collection Date: 5/19/2020 10:30:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28418	Analyst: DW
Diesel (Fuel Oil)	ND	48.8		µg/L	1	5/27/2020 2:22:59 PM
Heavy Oil	ND	97.6		µg/L	1	5/27/2020 2:22:59 PM
Surr: 2-Fluorobiphenyl	87.4	50 - 150		%Rec	1	5/27/2020 2:22:59 PM
Surr: o-Terphenyl	96.2	50 - 150		%Rec	1	5/27/2020 2:22:59 PM

Lab ID: 2005249-002
Client Sample ID: MW-8

Collection Date: 5/19/2020 11:15:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28418	Analyst: DW
Diesel (Fuel Oil)	ND	49.7		µg/L	1	5/27/2020 2:52:47 PM
Heavy Oil	ND	99.5		µg/L	1	5/27/2020 2:52:47 PM
Surr: 2-Fluorobiphenyl	92.1	50 - 150		%Rec	1	5/27/2020 2:52:47 PM
Surr: o-Terphenyl	98.7	50 - 150		%Rec	1	5/27/2020 2:52:47 PM

Lab ID: 2005249-003
Client Sample ID: MW-6

Collection Date: 5/19/2020 12:00:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28418	Analyst: DW
Diesel (Fuel Oil)	ND	49.7		µg/L	1	5/27/2020 3:22:29 PM
Diesel Range Organics (C12-C24)	51.2	49.7		µg/L	1	5/27/2020 3:22:29 PM
Heavy Oil	ND	99.4		µg/L	1	5/27/2020 3:22:29 PM
Surr: 2-Fluorobiphenyl	84.0	50 - 150		%Rec	1	5/27/2020 3:22:29 PM
Surr: o-Terphenyl	88.3	50 - 150		%Rec	1	5/27/2020 3:22:29 PM

NOTES:

Diesel Range Organics - Indicates the presence of unresolved organic compounds between Carbon Ranges C12-C24.



CLIENT: G-Logics
Project: Mossman

Lab ID: 2005249-004
Client Sample ID: MW-4

Collection Date: 5/19/2020 12:50:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28418 Analyst: DW

Diesel (Fuel Oil)	ND	49.3		µg/L	1	5/27/2020 3:52:13 PM
Diesel Range Organics (C12-C24)	1,060	49.3		µg/L	1	5/27/2020 3:52:13 PM
Heavy Oil	ND	98.5		µg/L	1	5/27/2020 3:52:13 PM
Surr: 2-Fluorobiphenyl	92.4	50 - 150		%Rec	1	5/27/2020 3:52:13 PM
Surr: o-Terphenyl	92.8	50 - 150		%Rec	1	5/27/2020 3:52:13 PM

NOTES:

Diesel Range Organics - Indicates the presence of unresolved organic compounds between Carbon Ranges C12-C24.

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 28479 Analyst: KT

Benzene	ND	1.00		µg/L	1	5/30/2020 8:24:01 PM
Toluene	ND	1.00		µg/L	1	5/30/2020 8:24:01 PM
Ethylbenzene	ND	1.00		µg/L	1	5/30/2020 8:24:01 PM
m,p-Xylene	ND	1.00		µg/L	1	5/30/2020 8:24:01 PM
o-Xylene	ND	1.00		µg/L	1	5/30/2020 8:24:01 PM
Naphthalene	1.40	1.00		µg/L	1	5/30/2020 8:24:01 PM
Surr: Dibromofluoromethane	94.7	83.7 - 117		%Rec	1	5/30/2020 8:24:01 PM
Surr: Toluene-d8	97.4	87.6 - 113		%Rec	1	5/30/2020 8:24:01 PM
Surr: 1-Bromo-4-fluorobenzene	99.3	81.2 - 113		%Rec	1	5/30/2020 8:24:01 PM



CLIENT: G-Logics
Project: Mossman

Lab ID: 2005249-005
Client Sample ID: MW-3

Collection Date: 5/19/2020 2:00:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28418 Analyst: DW

Diesel (Fuel Oil)	ND	49.9		µg/L	1	5/27/2020 4:22:02 PM
Diesel Range Organics (C12-C24)	613	49.9		µg/L	1	5/27/2020 4:22:02 PM
Heavy Oil	ND	99.7		µg/L	1	5/27/2020 4:22:02 PM
Surr: 2-Fluorobiphenyl	80.9	50 - 150		%Rec	1	5/27/2020 4:22:02 PM
Surr: o-Terphenyl	93.5	50 - 150		%Rec	1	5/27/2020 4:22:02 PM

NOTES:

Diesel Range Organics - Indicates the presence of unresolved organic compounds between Carbon Ranges C12-C24.

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 28479 Analyst: KT

Benzene	ND	1.00		µg/L	1	5/30/2020 8:54:12 PM
Toluene	ND	1.00		µg/L	1	5/30/2020 8:54:12 PM
Ethylbenzene	ND	1.00		µg/L	1	5/30/2020 8:54:12 PM
m,p-Xylene	ND	1.00		µg/L	1	5/30/2020 8:54:12 PM
o-Xylene	ND	1.00		µg/L	1	5/30/2020 8:54:12 PM
Naphthalene	ND	1.00		µg/L	1	5/30/2020 8:54:12 PM
Surr: Dibromofluoromethane	93.4	83.7 - 117		%Rec	1	5/30/2020 8:54:12 PM
Surr: Toluene-d8	96.7	87.6 - 113		%Rec	1	5/30/2020 8:54:12 PM
Surr: 1-Bromo-4-fluorobenzene	99.4	81.2 - 113		%Rec	1	5/30/2020 8:54:12 PM



CLIENT: G-Logics
Project: Mossman

Lab ID: 2005249-006
Client Sample ID: MW-1

Collection Date: 5/19/2020 2:50:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28418 Analyst: DW

Diesel (Fuel Oil)	ND	49.7		µg/L	1	5/27/2020 4:51:50 PM
Diesel Range Organics (C12-C24)	519	49.7		µg/L	1	5/27/2020 4:51:50 PM
Heavy Oil	ND	99.4		µg/L	1	5/27/2020 4:51:50 PM
Surr: 2-Fluorobiphenyl	96.6	50 - 150		%Rec	1	5/27/2020 4:51:50 PM
Surr: o-Terphenyl	99.7	50 - 150		%Rec	1	5/27/2020 4:51:50 PM

NOTES:

Diesel Range Organics - Indicates the presence of unresolved organic compounds between Carbon Ranges C12-C24.

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 28479 Analyst: KT

Benzene	ND	1.00		µg/L	1	5/30/2020 9:24:18 PM
Toluene	ND	1.00		µg/L	1	5/30/2020 9:24:18 PM
Ethylbenzene	ND	1.00		µg/L	1	5/30/2020 9:24:18 PM
m,p-Xylene	ND	1.00		µg/L	1	5/30/2020 9:24:18 PM
o-Xylene	ND	1.00		µg/L	1	5/30/2020 9:24:18 PM
Naphthalene	ND	1.00		µg/L	1	5/30/2020 9:24:18 PM
Surr: Dibromofluoromethane	93.9	83.7 - 117		%Rec	1	5/30/2020 9:24:18 PM
Surr: Toluene-d8	97.4	87.6 - 113		%Rec	1	5/30/2020 9:24:18 PM
Surr: 1-Bromo-4-fluorobenzene	99.8	81.2 - 113		%Rec	1	5/30/2020 9:24:18 PM

Lab ID: 2005249-007
Client Sample ID: MW-5

Collection Date: 5/19/2020 3:40:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28418 Analyst: DW

Diesel (Fuel Oil)	ND	49.4		µg/L	1	5/27/2020 5:21:40 PM
Heavy Oil	ND	98.8		µg/L	1	5/27/2020 5:21:40 PM
Surr: 2-Fluorobiphenyl	65.2	50 - 150		%Rec	1	5/27/2020 5:21:40 PM
Surr: o-Terphenyl	103	50 - 150		%Rec	1	5/27/2020 5:21:40 PM



CLIENT: G-Logics
Project: Mossman

Lab ID: 2005249-008
Client Sample ID: MW-9

Collection Date: 5/19/2020 4:35:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28418 Analyst: DW

Diesel (Fuel Oil)	ND	49.3		µg/L	1	5/27/2020 5:51:29 PM
Diesel Range Organics (C12-C24)	125	49.3		µg/L	1	5/27/2020 5:51:29 PM
Heavy Oil	ND	98.7		µg/L	1	5/27/2020 5:51:29 PM
Surr: 2-Fluorobiphenyl	69.1	50 - 150		%Rec	1	5/27/2020 5:51:29 PM
Surr: o-Terphenyl	80.2	50 - 150		%Rec	1	5/27/2020 5:51:29 PM

NOTES:

Diesel Range Organics - Indicates the presence of unresolved organic compounds between Carbon Ranges C12-C24.

Lab ID: 2005249-009
Client Sample ID: Dup-1

Collection Date: 5/19/2020
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28418 Analyst: DW

Diesel (Fuel Oil)	ND	49.8		µg/L	1	5/27/2020 6:21:19 PM
Diesel Range Organics (C12-C24)	49.9	49.8		µg/L	1	5/27/2020 6:21:19 PM
Heavy Oil	ND	99.5		µg/L	1	5/27/2020 6:21:19 PM
Surr: 2-Fluorobiphenyl	81.3	50 - 150		%Rec	1	5/27/2020 6:21:19 PM
Surr: o-Terphenyl	93.9	50 - 150		%Rec	1	5/27/2020 6:21:19 PM

NOTES:

Diesel Range Organics - Indicates the presence of unresolved organic compounds between Carbon Ranges C12-C24.

Work Order: 2005249
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
 Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: MB-28418	SampType: MBLK	Units: µg/L			Prep Date: 5/22/2020	RunNo: 59384					
Client ID: MBLKW	Batch ID: 28418				Analysis Date: 5/26/2020	SeqNo: 1186782					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	99.9									
Surr: 2-Fluorobiphenyl	65.0		79.95		81.3	50	150				
Surr: o-Terphenyl	68.0		79.95		85.0	50	150				

Sample ID: LCS-28418	SampType: LCS	Units: µg/L			Prep Date: 5/22/2020	RunNo: 59384					
Client ID: LCSW	Batch ID: 28418				Analysis Date: 5/26/2020	SeqNo: 1186783					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	1,550	49.8	1,992	0	77.7	52	107				
Surr: 2-Fluorobiphenyl	150		159.3		94.0	50	150				
Surr: o-Terphenyl	152		159.3		95.6	50	150				

Sample ID: 2005219-001ADUP	SampType: DUP	Units: µg/L			Prep Date: 5/22/2020	RunNo: 59384					
Client ID: BATCH	Batch ID: 28418				Analysis Date: 5/26/2020	SeqNo: 1186786					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	49.8						0		30	
Heavy Oil	ND	99.6						0		30	
Surr: 2-Fluorobiphenyl	59.7		79.68		74.9	50	150		0		
Surr: o-Terphenyl	62.2		79.68		78.1	50	150		0		

Sample ID: 2005258-001BDUP	SampType: DUP	Units: µg/L			Prep Date: 5/22/2020	RunNo: 59384					
Client ID: BATCH	Batch ID: 28418				Analysis Date: 5/27/2020	SeqNo: 1187446					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel 1/ Kerosene	1,440	49.6						1,620	11.7	30	
Diesel (Fuel Oil)	ND	49.6						1,620	11.7	30	
Heavy Oil	ND	99.2						0		30	



Work Order: 2005249
CLIENT: G-Logics
Project: Mossman

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: 2005258-001BDUP	SampType: DUP	Units: µg/L			Prep Date: 5/22/2020	RunNo: 59384					
Client ID: BATCH	Batch ID: 28418				Analysis Date: 5/27/2020	SeqNo: 1187446					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	69.9		79.37		88.1	50	150		0		
Surr: o-Terphenyl	62.3		79.37		78.4	50	150		0		

Work Order: 2005249
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260D

Sample ID: LCS-28479	SampType: LCS	Units: µg/L	Prep Date: 5/29/2020	RunNo: 59499							
Client ID: LCSW	Batch ID: 28479		Analysis Date: 5/30/2020	SeqNo: 1189528							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.0	1.00	20.00	0	90.2	89	112				
Toluene	18.2	1.00	20.00	0	90.8	86.7	115				
Ethylbenzene	18.0	1.00	20.00	0	90.1	86.8	114				
m,p-Xylene	35.6	1.00	40.00	0	89.1	85.3	116				
o-Xylene	18.2	1.00	20.00	0	91.2	84.9	115				
Naphthalene	19.3	1.00	20.00	0	96.5	73.7	135				
Surr: Dibromofluoromethane	25.4		25.00		102	83.7	117				
Surr: Toluene-d8	25.0		25.00		99.9	87.6	113				
Surr: 1-Bromo-4-fluorobenzene	25.5		25.00		102	81.2	113				

Sample ID: MB-28479	SampType: MBLK	Units: µg/L	Prep Date: 5/29/2020	RunNo: 59499							
Client ID: MBLKW	Batch ID: 28479		Analysis Date: 5/30/2020	SeqNo: 1189529							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0747									MDL
Toluene	ND	0.0912									MDL
Ethylbenzene	ND	0.0868									MDL
m,p-Xylene	ND	0.173									MDL
o-Xylene	ND	0.0688									MDL
Naphthalene	ND	1.00									
Surr: Dibromofluoromethane	23.6		25.00		94.4	83.7	117				
Surr: Toluene-d8	24.4		25.00		97.7	87.6	113				
Surr: 1-Bromo-4-fluorobenzene	24.6		25.00		98.4	81.2	113				

NOTES:
 MDL - Analyte reported to Method Detection Limit (MDL)

Sample ID: 2005378-002ADUP	SampType: DUP	Units: µg/L	Prep Date: 5/29/2020	RunNo: 59499							
Client ID: BATCH	Batch ID: 28479		Analysis Date: 5/30/2020	SeqNo: 1189526							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00						0		30	

Work Order: 2005249
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260D

Sample ID: 2005378-002ADUP	SampType: DUP	Units: µg/L	Prep Date: 5/29/2020	RunNo: 59499							
Client ID: BATCH	Batch ID: 28479		Analysis Date: 5/30/2020	SeqNo: 1189526							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	1.00						0		30	
Ethylbenzene	ND	1.00						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	1.00						0		30	
Naphthalene	ND	1.00						0		30	
Surr: Dibromofluoromethane	24.4		25.00		97.8	83.7	117		0		
Surr: Toluene-d8	24.2		25.00		96.8	87.6	113		0		
Surr: 1-Bromo-4-fluorobenzene	24.6		25.00		98.5	81.2	113		0		

Sample ID: LCS D-28479	SampType: LCS D	Units: µg/L	Prep Date: 5/29/2020	RunNo: 59499							
Client ID: LCSW02	Batch ID: 28479		Analysis Date: 6/1/2020	SeqNo: 1189726							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	17.9	1.00	20.00	0	89.7	89	112	18.05	0.572	20	
Toluene	18.5	1.00	20.00	0	92.5	86.7	115	18.16	1.83	20	
Ethylbenzene	18.7	1.00	20.00	0	93.7	86.8	114	18.02	3.94	20	
m,p-Xylene	38.2	1.00	40.00	0	95.4	85.3	116	35.63	6.87	20	
o-Xylene	19.0	1.00	20.00	0	95.2	84.9	115	18.25	4.23	20	
Naphthalene	19.3	1.00	20.00	0	96.4	73.7	135	19.30	0.109	20	
Surr: Dibromofluoromethane	24.8		25.00		99.1	83.7	117		0		
Surr: Toluene-d8	24.5		25.00		98.0	87.6	113		0		
Surr: 1-Bromo-4-fluorobenzene	25.4		25.00		102	81.2	113		0		

Client Name: **GL**
 Logged by: **Carissa True**

Work Order Number: **2005249**
 Date Received: **5/20/2020 11:02:00 AM**

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
 2. How was the sample delivered? Client

Log In

3. Coolers are present? Yes No NA
 4. Shipping container/cooler in good condition? Yes No
 5. Custody Seals present on shipping container/cooler?
 (Refer to comments for Custody Seals not intact) Yes No Not Present
 6. Was an attempt made to cool the samples? Yes No NA
 7. Were all items received at a temperature of >2°C to 6°C * Yes No NA
 8. Sample(s) in proper container(s)? Yes No
 9. Sufficient sample volume for indicated test(s)? Yes No
 10. Are samples properly preserved? Yes No
 11. Was preservative added to bottles? Yes No NA
 12. Is there headspace in the VOA vials? Yes No NA
 13. Did all samples containers arrive in good condition(unbroken)? Yes No
 14. Does paperwork match bottle labels? Yes No
 15. Are matrices correctly identified on Chain of Custody? Yes No
 16. Is it clear what analyses were requested? Yes No
 17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text" value="Jon Stordahl"/>	Date:	<input type="text" value="5/20/2020"/>
By Whom:	<input type="text" value="Carissa True"/>	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input dup-1"="" received"="" type="text" value="Additional " volume=""/>		
Client Instructions:	<input type="text" value="See updated COC"/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler 1	4.9
Sample 1	5.0
Temp Blank 1	3.0

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



3600 Fremont Ave N
Seattle, WA 98103
Tel: 206.452.3790
Fax: 206.452.7178

Chain of Custody Record & Laboratory Services Agreement

Date: 5/19/20 Page 1 of 1

Laboratory Project No (internal): 2005249

Client: G-Logics

Project Name: MOSSMAN

Special Requests:
Hold VOAs for additional analyses

Address:

Project No: 01-0864-B

City, State, Zip:

Collected by:

Edits by LB 5/20 per J.S.

Telephone:

Location:

Report To (PM):

Jon Stordahl

Fax:

PM Email:

jons@g-logics.com

Sample Name	Sample Date	Sample Time	Sample Type/Matrix	ANALYTES														
				Asbestos (Bulk)	Asbestos (Air)	Barium	Beryllium	Cadmium	Chromium (VI)	Copper	Lead	Manganese	Mercury (Total)	Nickel	Selenium	Silver	Sulfate	Tin
MW-7	5/19/20	1030	W															X
MW-8		1115																X
MW-6		1200																X
MW-4		1250																X
MW-3		1400																X
MW-1		1450																X
MW-5		1540																X
MW-9		1635																X
Dup-1	5/19	24:00																X

BTEX + Naph.

⊗ Add per J.S. 5/20/20
Std. Org.

Matrix: A-Air, B-Biosolids, C-Clean, D-Dust, E-Drinking Water, F-Ferrous, G-Flux, H-Industrial Water, I-Inflow, J-Inflow, K-Inflow, L-Inflow, M-Inflow, N-Inflow, O-Inflow, P-Inflow, Q-Inflow, R-Inflow, S-Inflow, T-Inflow, U-Inflow, V-Inflow, W-Inflow, X-Inflow, Y-Inflow, Z-Inflow

Turn around Time:
 Standard
 1 Day
 2 Day
 Next Day
 Same Day

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Requested by: [Signature] Date/Time: 5/20/20 0950

Received by: [Signature] Date/Time: 5/20/20 1102

APPENDIX D

Well Number: MW-1

Project Name: Mossman

Project Number: 0864-B	Date: 5/19/20	Weather: Partly cloudy
Development / Purge Method: PERI	Well Screen Interval: _____ to _____	Tidally Influenced?
Logged By: JS	Water Depth Start: 1.23	Field Comments: Pump intake 4'
Purge Water Disposal Method:	Water Depth Finish:	Purge rate = 250 mL/min
Purge Water Disposal Volume:	Bails Dry? Yes No What Volume?	Well Conditions: (OK) Not OK
		Explain:

Well Development / Purging (circle one)

Casing Volume in Gallons: 1" Diam = 0.041 gal/ft, 2" Diam = 0.163 gal/ft, 4" Diam = 0.653 gal/ft
Purge Volumes: 1" Diam 0.041 * 3 casings * 10' screen = 1.23 gallons, 2" Diam 0.163 * 3 casings * 10' screen = 4.89 gallons

Time	1415	1430	1440	1450				
Water Level (ft)	1.23	-	-	-				
± 0.1 pH	6.51	6.49	6.47	6.46				
±10 Conductivity (mS/cm)	0.207	0.189	0.181	0.176				
±0.1 Temperature (°C)	15.63	15.53	15.40	15.52				
±10 ORP (mV)	-26.2	-28.8	-28.7	-28.5				
<10 Turbidity (NTUs)	V. LOW	V. LOW	V. LOW	V. LOW				
±0.2 Diss. Ox. (mg/L.%)	2.64	1.80	3.64	3.41				
Color	clear	clear	clear	clear				
Purge Volume				2.5 gal				

Well Sampling Information (complete if well is sampled)

Decon Method: _____

Water Level Start: _____

Sampling Method: _____

Filter Type: _____

Sample Number: _____

Water Level Finish: _____

Field comments: _____



Well Number: MW-3

Project Name: Mossman

Project Number: 0864-B	Date: 5/19/20	Weather: Partly Cloudy
Development / Purge Method: PERI	Well Screen Interval: 5 to 10'	Tidally Influenced?
Logged By: JS	Water Depth Start: 6.29	Field Comments: well depth 9.5' pump intake 8'
Purge Water Disposal Method:	Water Depth Finish:	Purge rate = 200 ml/min
Purge Water Disposal Volume:	Bails Dry? Yes No What Volume?	Well Conditions: <input checked="" type="radio"/> OK Not OK
		Explain:

Well Development / Purging (circle one)

Casing Volume in Gallons: 1" Diam = 0.041 gal/ft, 2" Diam = 0.163 gal/ft, 4" Diam = 0.653 gal/ft
Purge Volumes: 1" Diam 0.041 * 3 casings * 10' screen = 1.23 gallons, 2" Diam 0.163 * 3 casings * 10' screen = 4.89 gallons

Time	1320	1330	1340	1350	1400			
Water Level (ft)	6.29	-	-	-				
± 0.1 pH	6.31	6.31	6.33	6.36	6.36			
±10 Conductivity (mS/cm)	0.130	0.164	0.187	0.187	0.190			
±0.1 Temperature (°C)	14.41	13.83	13.86	14.02	14.08			
±10 ORP (mV)	24.9	-10.8	-3.0	2.3	-1.1			
<10 Turbidity (NTUs)	mod	Low	Low	Low	Low			
±0.2 Diss. Ox. (mg/L,%)	9.40	2.79	3.04	3.51	2.64			
Color	clear	clear	clear	clear	clear			
Purge Volume					2 gal			

Well Sampling Information (complete if well is sampled)

Decon Method: _____
 Water Level Start: _____
 Sampling Method: _____
 Filter Type: _____

Sample Number: _____
 Water Level Finish: _____
 Field comments: _____



Well Number: MW-4

Project Name:

Project Number: 01-0864	Date: 5/17/20	Weather: Cloudy
Development / Purge Method: PERI	Well Screen Interval: 3 to 8	Tidally Influenced?
Logged By: JS	Water Depth Start: 5.24	Field Comments: Pump intake 8'
Purge Water Disposal Method:	Water Depth Finish:	Purge rate ~ 200 ml/min
Purge Water Disposal Volume:	Bails Dry? Yes No What Volume?	Well Conditions: <input checked="" type="radio"/> OK <input type="radio"/> Not OK
		Explain:

Well Development / Purging (circle one)

Casing Volume in Gallons: 1" Diam = 0.041 gal/ft, 2" Diam = 0.163 gal/ft, 4" Diam = 0.653 gal/ft
 Purge Volumes: 1" Diam 0.041 * 3 casings * 10' screen = 1.23 gallons, 2" Diam 0.163 * 3 casings * 10' screen = 4.89 gallons

Slowed Purge

Time	1220	1230	1240	1250				
Water Level (ft)	5.24							
± 0.1 pH	6.50	6.61	6.57	6.55				
±10 Conductivity (mS/cm)	0.102	0.125	0.127	0.128				
±0.1 Temperature (°C)	13.03	12.84	12.91	12.81				
±10 ORP (mV)	22.7	15.1	16.9	17.7				
<10 Turbidity (NTUs)	Low	V. Low	V. Low	V. Low				
±0.2 Diss. Ox. (mg/L,%)	8.68	7.78	7.70	6.85				
Color	Clear	Clear	Clear	Clear				
Purge Volume				~ 1.5 gal				

Well Sampling Information (complete if well is sampled)

Decon Method: _____
 Water Level Start: _____
 Sampling Method: _____
 Filter Type: _____

Sample Number: _____
 Water Level Finish: _____
 Field comments: purge rate slowed 100-150 ml/min
 draw down



Well Number: MW-5

Project Name:

Project Number: 0864-B	Date: 5/19/20	Weather: partly cloudy
Development / Purge Method: PERC	Well Screen Interval: _____ to _____?	Tidally Influenced?
Logged By: JS	Water Depth Start:	Field Comments: Pump intake 4'
Purge Water Disposal Method:	Water Depth Finish:	Purge rate ~ 200ml/min
Purge Water Disposal Volume:	Bails Dry? Yes No What Volume?	Well Conditions: OK Not OK
		Explain:

Well Development / Purging (circle one)

Casing Volume in Gallons: 1" Diam = 0.041 gal/ft, 2" Diam = 0.163 gal/ft, 4" Diam = 0.653 gal/ft
 Purge Volumes: 1" Diam 0.041 * 3 casings * 10' screen = 1.23 gallons, 2" Diam 0.163 * 3 casings * 10' screen = 4.89 gallons

Time	1505	1515	1525	1535	1540		
Water Level (ft)							
± 0.1 pH	6.74	6.73	6.72	6.71	6.71		
±10 Conductivity (mS/cm)	0.332	0.327	0.323	0.318	0.316		
±0.1 Temperature °C	15.41	15.35	15.32	15.26	15.20		
±10 ORP (mV)	-31.7	-56.0	-63.8	-67.7	-69.4		
<10 Turbidity (NTUs)	LOW	V. LOW	V. LOW	V. LOW	V. LOW		
±0.2 Diss. Ox. (mg/L.%)	2.91	2.39	1.81	-1.19	2.11		
Color	clear	clear	clear	clear	clear		
Purge Volume					~3 gal		

Well Sampling Information (complete if well is sampled)

Decon Method: _____

Water Level Start: _____

Sampling Method: _____

Filter Type: _____

Sample Number: _____

Water Level Finish: _____

Field comments: _____



Well Number: MW-4

Project Name: Mossman

Project Number: 0864-B	Date: 5/19/20	Weather: cloudy
Development / Purge Method: PERI	Well Screen Interval: _____ to _____	Tidally Influenced?
Logged By: JS	Water Depth Start: 2.87	Field Comments: Pump intake 5'
Purge Water Disposal Method:	Water Depth Finish:	Purge rate ~200 ml/min
Purge Water Disposal Volume:	Bails Dry? Yes No What Volume?	Well Conditions: (OK) Not OK
		Explain:

Well Development / Purging (circle one)

Casing Volume in Gallons: 1" Diam = 0.041 gal/ft, 2" Diam = 0.163 gal/ft, 4" Diam = 0.653 gal/ft
Purge Volumes: 1" Diam 0.041 * 3 casings * 10' screen = 1.23 gallons, 2" Diam 0.163 * 3 casings * 10' screen = 4.89 gallons

Time	1130	1140	1150	1200				
Water Level (ft)	2.87							
± 0.1 pH	6.37	6.37	6.38	6.38				
±10 Conductivity (mS/cm)	0.389	0.355	0.327	0.317				
±0.1 Temperature (°C)	14.84	14.65	14.63	14.64				
±10 ORP (mV)	18.1	9.1	8.3	7.0				
<10 Turbidity (NTUs)	Low	Low	V. Low	V. Low				
±0.2 Diss. Ox. (mg/L,%)	33.8	5.30	2.90	2.39				
Color	Clear	clear	Clear	clear				
Purge Volume				-2 gal				

Well Sampling Information (complete if well is sampled)

Decon Method: _____

Water Level Start: _____

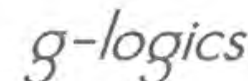
Sampling Method: _____

Filter Type: _____

Sample Number: _____

Water Level Finish: _____

Field comments: _____



Well Number: MW-7

Project Name: Mossman

Project Number: 01-0864-B	Date: 5/19/20	Weather: cloudy
Development / Purge Method: PPR	Well Screen Interval: 3 to 8	Tidally Influenced?
Logged By: JS	Water Depth Start: 5.42	Field Comments: casing vol 0.123 Pump intake 8'
Purge Water Disposal Method:	Water Depth Finish:	Purge rate 200 ml/min 6L = ~1.5 gal
Purge Water Disposal Volume:	Bails Dry? Yes No What Volume?	Well Conditions: <input checked="" type="radio"/> OK <input type="radio"/> Not OK
		Explain:

Well Development / Purging (circle one)

Casing Volume in Gallons: 1" Diam = 0.041 gal/ft, 2" Diam = 0.163 gal/ft, 4" Diam = 0.653 gal/ft
 Purge Volumes: 1" Diam 0.041 * 3 casings * 10' screen = 1.23 gallons, 2" Diam 0.163 * 3 casings * 10' screen = 4.89 gallons

Time	1000	1030						
Water Level (ft)	5.42							
± 0.1 pH								
±10 Conductivity (mS/cm)								
±0.1 Temperature (F)								
±10 ORP (mV)								
<10 Turbidity (NTUs)	mod.	low						
±0.2 Diss. Ox. (mg/L,%)								
Color		clear						
Purge Volume		~1.5 gal						

Well Sampling Information (complete if well is sampled)

Decon Method: _____
 Water Level Start: _____
 Sampling Method: _____
 Filter Type: _____

Sample Number: _____
 Water Level Finish: _____
 Field comments: YSE flowcell failure, waiting for replacement



Well Number: MW-8

Project Name: Mossman

Project Number: 01-0864-15	Date: 5/19/20	Weather: Cloudy
Development / Purge Method: PERI	Well Screen Interval: ? to	Tidally Influenced?
Logged By: JS	Water Depth Start: 2.58	Field Comments: casing vol ? Pump intake 5' / purge rate 200 ml/min
Purge Water Disposal Method:	Water Depth Finish:	
Purge Water Disposal Volume:	Bails Dry? Yes No What Volume?	Well Conditions: (OK) Not OK
		Explain:

Well Development / Purging (circle one)

Casing Volume in Gallons: 1" Diam = 0.041 gal/ft, 2" Diam = 0.163 gal/ft, 4" Diam = 0.653 gal/ft
Purge Volumes: 1" Diam 0.041 * 3 casings * 10' screen = 1.23 gallons, 2" Diam 0.163 * 3 casings * 10' screen = 4.89 gallons

Time	1045	1115						
Water Level (ft)	2.58							
± 0.1 pH								
±10 Conductivity (mS/cm)								
±0.1 Temperature (F)								
±10 ORP (mV)								
<10 Turbidity (NTUs)	low	low						
±0.2 Diss. Ox. (mg/L,%)								
Color	Clear	Clear						
Purge Volume		1.5 gal						

Well Sampling Information (complete if well is sampled)

Decon Method: _____

Water Level Start: _____

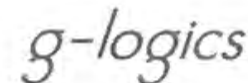
Sampling Method: _____

Filter Type: _____

Sample Number: _____

Water Level Finish: _____

Field comments: waiting for YSI flow cell



Well Number: MW-9

Project Name: Mossman

Project Number: 0864-B	Date: 5/19/20	Weather:
Development / Purge Method: PERI	Well Screen Interval: _____ to _____	Tidally Influenced?
Logged By: JS	Water Depth Start: 6.51	Field Comments: pump intake 9' purge rate ~200ml/min
Purge Water Disposal Method:	Water Depth Finish:	Well Conditions: <input checked="" type="radio"/> OK <input type="radio"/> Not OK
Purge Water Disposal Volume:	Bails Dry? Yes No What Volume?	Explain:

Well Development / Purging (circle one)

Casing Volume in Gallons: 1" Diam = 0.041 gal/ft, 2" Diam = 0.163 gal/ft, 4" Diam = 0.653 gal/ft
 Purge Volumes: 1" Diam 0.041 * 3 casings * 10' screen = 1.23 gallons, 2" Diam 0.163 * 3 casings * 10' screen = 4.89 gallons

Time	1600	1610	1620	1630	1635		
Water Level (ft)	6.51	-	-	-			
± 0.1 pH	6.44	6.43	6.43	6.43			
±10 Conductivity (mS/cm)	0.173	0.182	0.184	0.184			
±0.1 Temperature (°C)	14.69	14.65	14.60	14.58			
±10 ORP (mV)	-31.8	-34.5	-51.7	-54.1			
<10 Turbidity (NTUs)	HIGH	MOD	LOW	V. LOW			
±0.2 Diss. Ox. (mg/L.%)	4.37	2.33	1.70	1.75			
Color	OPAQUE/BRN	OPAQUE	CLEAR	clear			
Purge Volume					~2.5 gal		

Well Sampling Information (complete if well is sampled)

Decon Method: _____	Sample Number: _____
Water Level Start: _____	Water Level Finish: _____
Sampling Method: _____	Field comments: _____
Filter Type: _____	



ATTACHMENTS

Permission and Conditions for Use and Copying Form

**Additional Site Characterization, 3461 East Lake Sammamish Shore Lane NE
Sammamish, WA 98074**

**G-Logics Project 01-0864-B
June 29, 2020**

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- I recognize that G-Logics has prepared this Document only for their Client and/or other user(s), only for the purposes stated in the Document and subject to any identified and contractual limitations.
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- I am advised that the Document is a qualitative evaluation of site conditions and should not be used to estimate site-remediation costs if cleanup is necessary. Remediation cost estimates would require additional data beyond what is presented in the Document.
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With your information and signature above, please fax to G-Logics (425-313-3074) for approval review. G-Logics will share your request with our Client for their approval.

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Per the notification of G-Logics, I, the Client, have reviewed this request for copying/use of this Document, have discussed the request with G-Logics, and grant my consent as indicated by my signature below.

Client Company	_____
Client Contact Name & Title	_____
Signature & Date	_____
Telephone & Fax Numbers	_____

G-Logics review and Acknowledgment of Use and Copying Request

Based on your concurrence with the above-presented conditions, approval of our Client, and our review of the information, G-Logics allows the Requestor to copy/use the above referenced Document for purposes stated. Additional fees may apply.

G-Logics Signature	_____
Title	_____
Date	_____



Attachment D
Soil Boring Logs



SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" stainless steel
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 20, 2013	SCREEN INTERVAL: 5 - 10
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: none
LOGGED BY: K. Addis		TOTAL DEPTH: 11	FILTER PACK INTERVAL: none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			Grass over topsoil					
0 - 4.5	SW		WELL-GRADED SAND WITH GRAVEL; Light brown; damp; mostly fine to coarse sand with some gravel	50			0	
4.5 - 6	SP		POORLY-GRADED SAND; Green-gray; moist to wet; mostly fine sand; Mottled; Strong odor				46	
6 - 7.5	OH		SANDY ORGANIC SOIL WITH GRAVEL; Dark gray to gray; wet; mostly organic with some sand and minor gravel; Strong odor	70		B-1:7.5	106	
7.5 - 11	SW		WELL-GRADED SAND WITH GRAVEL; Brown; wet; mostly fine to coarse sand with some gravel; slight odor	70		B-1:11	44	
11 - 12								

NOTES:



SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" stainless steel
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 21, 2013	SCREEN INTERVAL: 5 - 10
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: none
LOGGED BY: K. Addis		TOTAL DEPTH: 10	FILTER PACK INTERVAL: none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			Grass over topsoil					
0 - 5	SW		WELL-GRADED SAND WITH GRAVEL; Brown; moist; mostly fine to coarse sand with some gravel; no odor	60			0.1	
5	OH		SANDY ORGANIC SOIL; Dark brown; wet; mostly organic with some sand and minor gravel			B-7:6	0.2	
5 - 7	SP		POORLY-GRADED SAND; Light brown; moist to wet; mostly fine sand; Mottled	70		B-7W		
7 - 9	SW		WELL-GRADED SAND WITH GRAVEL; Brown; wet; mostly fine to coarse sand with minor gravel; no odor				0	
9 - 10	GW		WELL-GRADED GRAVEL WITH SAND; Brown; wet; mostly fine to medium gravel with some sand and trace organics	100				

NOTES:



SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" Temporary well
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: 420 M Geoprobe		DATE: November 20, 2013	SCREEN INTERVAL: 6 - 11
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: none
LOGGED BY: K. Addis		TOTAL DEPTH: 12	FILTER PACK INTERVAL: none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			4" Concrete				0	
1			WELL-GRADED SAND WITH GRAVEL; Gray; dry; mostly sand with some fine to coarse gravel; no odor.				0.6	
2				25			0.8	
3	SW		Becomes damp				0.5	
4			Becomes moist					
5							0.6	
6			SILTY SAND; Strong brown; moist; mostly fine sand with minor silt; no odor.	40			1.3	
7	SM		Color change to dark gray					
8			ORGANIC SOIL; Dark brown; wet; mostly organics with some silt; sweet odor.			B-8:8	18	
9	OL					B-8		
10			SILTY SAND; Dark olive gray; wet; loose; mostly fine sand with minor silt.	100				
11	SM		ORGANIC SOIL WITH SAND; Dark brown; wet; mostly organics with some wood fragments and minor sand; organic odor.				25	
12	OL							

NOTES:



SITE ADDRESS

3461 E. Lk. Sammamish Shore Ln NE

CLIENT:

Mike Mossman

CASING MATERIAL AND SIZE:

3/4" Temporary well

DRILLING CONTRACTOR:

Cascade Drilling

PROJECT #:

65201.1

SCREEN SIZE:

0.01

DRILLING EQUIPMENT:

420 M Geoprobe

DATE:

November 20, 2013

SCREEN INTERVAL:

6 - 11

DRILLING METHOD:

DPT

GROUND SURFACE ELEV. FT AMSL:

FILTER PACK:

none

LOGGED BY:

K. Addis

TOTAL DEPTH:

12

FILTER PACK INTERVAL:

none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			6" Concrete					
1			WELL-GRADED SAND WITH GRAVEL; Gray; dry; loose; mostly sand with some gravel; no odor.					
2				60			0.6	
3								
4	SW		Increase moisture; color change to olive gray and decrease gravel content				0.7	
5							1	
6				90				
7								
8			POORLY-GRADED SAND; Dark olive gray; damp; loose; mostly fine sand; no odor.			B-9:8	4.7	
9	SP							
10			ORGANIC SOIL; Dark brown; moist; mostly organics with few sand and minor vegetation; no odor.	100		B-9	1.1	
11	OL						0.8	
12								

NOTES:



SITE ADDRESS

3461 E. Lk. Sammamish Shore Ln NE

CLIENT:

Mike Mossman

CASING MATERIAL AND SIZE:

3/4" Pre-pack PVC

DRILLING CONTRACTOR:

Cascade Drilling

PROJECT #:

65201.1

SCREEN SIZE:

0.01

DRILLING EQUIPMENT:

LA Geoprobe

DATE:

May 21, 2013

SCREEN INTERVAL:

2 - 7

DRILLING METHOD:

DPT

GROUND SURFACE ELEV. FT AMSL:

FILTER PACK:

Pre-pack silica sand

LOGGED BY:

K. Addis

TOTAL DEPTH:

7

FILTER PACK INTERVAL:

1.5 - 7

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction	
0			WELL-GRADED SAND WITH GRAVEL; brown; moist to wet; mostly fine to coarse sand with some gravel; Odor at 1.4'; becomes gray at 4'	50					
1						MW-1:1.3	95		
2						MW-1W	40		
3									
4	SW						60		51
5									
6							100		36
7									
8									
9									
10									
11									
12									

NOTES:



SITE ADDRESS

3461 E. Lk. Sammamish Shore Ln NE

CLIENT:

Mike Mossman

CASING MATERIAL AND SIZE:

3/4" Pre-pack PVC

DRILLING CONTRACTOR:

Cascade Drilling

PROJECT #:

65201.1

SCREEN SIZE:

0.01

DRILLING EQUIPMENT:

LA Geoprobe

DATE:

May 21, 2013

SCREEN INTERVAL:

2 - 7

DRILLING METHOD:

DPT

GROUND SURFACE ELEV. FT AMSL:

FILTER PACK:

Pre-pack silica sand

LOGGED BY:

K. Addis

TOTAL DEPTH:

7

FILTER PACK INTERVAL:

1.5 - 7

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0	SW		WELL-GRADED SAND WITH GRAVEL; brown; moist to wet; mostly fine to coarse sand with some gravel; Odor at 1.8'	50				
1								
2	OH		SANDY ORGANIC SOIL WITH GRAVEL; Dark brown; wet; mostly organic with some sand and some gravel; Strong odor			MW-2:2	187	
3	SW		WELL-GRADED SAND WITH GRAVEL; Brown; wet; mostly fine to coarse sand with minor gravel; Odor; Product staining at 5.75 - 6.0	80		MW-2:3	117	
4								
5								
6						MW-2:6	87	
7				100			16	
8								
9								
10								
11								
12								

NOTES:



ENVIRONMENTAL PARTNERS INC

BORING ID: MW-4

SITE ADDRESS

3461 E. Lk. Sammamish Shore Ln NE

CLIENT:

Mike Mossman

CASING MATERIAL AND SIZE:

3/4" Pre-pack PVC

DRILLING CONTRACTOR:

Cascade Drilling

PROJECT #:

65201.1

SCREEN SIZE:

0.01

DRILLING EQUIPMENT:

LA Geoprobe

DATE:

May 21, 2013

SCREEN INTERVAL:

1 - 6

DRILLING METHOD:

DPT

GROUND SURFACE ELEV. FT AMSL:

38

FILTER PACK:

Pre-pack silica sand

LOGGED BY:

K. Addis

TOTAL DEPTH:

6

FILTER PACK INTERVAL:

0.5 - 6

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0								
1								
2								
3								
4								
4			WELL-GRADED SAND WITH GRAVEL; Light brown; damp; mostly fine to coarse sand with some gravel; Odor					
5								
6								
7	SW							
8								
9								
10								
11								
12								

NOTES:



SITE ADDRESS

3461 E. Lk. Sammamish Shore Ln NE

CLIENT:

Mike Mossman

CASING MATERIAL AND SIZE:

3/4" Pre-pack PVC

DRILLING CONTRACTOR:

Cascade Drilling

PROJECT #:

65201.1

SCREEN SIZE:

0.01

DRILLING EQUIPMENT:

420 M Geoprobe

DATE:

November 19, 2013

SCREEN INTERVAL:

1 - 6

DRILLING METHOD:

DPT

GROUND SURFACE ELEV. FT AMSL:

FILTER PACK:

Pre-pack silica sand

LOGGED BY:

K. Addis

TOTAL DEPTH:

6

FILTER PACK INTERVAL:

1 - 6

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction	
0			WELL-GRADED SAND WITH GRAVEL; Brown; moist; mostly fine-coarse sand with some gravel.						
1			Color change to grayish brown				0.9		
2						MW-5:2	1		
3	SW			Color change to dark reddish brown					1.1
4				Color change to grayish brown					4
5									5
6						MW-5	0.8		
7							7		
8							8		
9							9		
10							10		
11							11		
12							12		

NOTES:



SITE ADDRESS

3461 E. Lk. Sammamish Shore Ln NE

CLIENT:

Mike Mossman

CASING MATERIAL AND SIZE:

3/4" Pre-pack PVC

DRILLING CONTRACTOR:

Cascade Drilling

PROJECT #:

65201.1

SCREEN SIZE:

0.01

DRILLING EQUIPMENT:

420 M Geoprobe

DATE:

November 19, 2013

SCREEN INTERVAL:

2 - 7

DRILLING METHOD:

DPT

GROUND SURFACE ELEV. FT AMSL:

FILTER PACK:

Pre-pack silica sand

LOGGED BY:

K. Addis

TOTAL DEPTH:

7

FILTER PACK INTERVAL:

1.5 - 7

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0	GW		WELL-GRADED GRAVEL WITH SAND; Strong brown; moist; mostly fine-coarse gravel with minor sand.	90				
1			WELL-GRADED SAND WITH GRAVEL; Brown; moist; mostly fine-coarse sand with some gravel and trace organics.					
2	SW			100		MW-6:4	0.7	
3							3.4	
4							45	
5							14.3	
6	OL		ORGANIC SOIL WITH SAND; Brown; wet; mostly organics with some fine sand.			MW-6		
7	SW		WELL-GRADED SAND WITH GRAVEL; Dark gray; wet; mostly fine-coarse sand with trace gravel.				3.3	
8								
9								
10								
11								
12								

NOTES:



SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" Temporary well
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: 420 M Geoprobe		DATE: November 20, 2013	SCREEN INTERVAL: 5 - 10
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: none
LOGGED BY: K. Addis		TOTAL DEPTH: 10	FILTER PACK INTERVAL: none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			5" Concrete					
1			WELL-GRADED SAND WITH GRAVEL; Gray; dry; loose; mostly fine-coarse sand with some gravel; no odor.				0	
2	SW							
3								
4			POORLY-GRADED SAND; Brown; moist; loose; mostly fine sand; no odor.					
5								
6	SP		Color change to dark gray			B-10:6	14.3	
7								
8			ORGANIC SOIL; Dark brown; wet; mostly fine sand with some organics and minor vegetation; no odor.	100			1.4	
9	OL					B-10		
10			Color change to dark olive gray				0.4	
11								
12								

NOTES:



**ENVIRONMENTAL
PARTNERS INC**

BORING ID: B-11

SITE ADDRESS

3461 E. Lk. Sammamish Shore Ln NE

CLIENT:

Mike Mossman

CASING MATERIAL AND SIZE:

3/4" Temporary well

DRILLING CONTRACTOR:

Cascade Drilling

PROJECT #:

65201.1

SCREEN SIZE:

0.01

DRILLING EQUIPMENT:

420 M Geoprobe

DATE:

November 19, 2013

SCREEN INTERVAL:

3 - 8

DRILLING METHOD:

DPT

GROUND SURFACE ELEV. FT AMSL:

FILTER PACK:

none

LOGGED BY:

K. Addis

TOTAL DEPTH:

9

FILTER PACK INTERVAL:

none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			Landscaping rock					
1	OL		ORGANIC SOIL; Dark reddish brown; moist; mostly organic soil with minor roots; no odor.	100				
2	SP		POORLY-GRADED SAND; Grayish brown; moist; mostly fine sand; rust stained.				75	
3			WELL-GRADED SAND WITH GRAVEL; Grayish brown; moist-wet; mostly fine-coarse sand with minor gravel.				103.6	
4				100		B-11:4	235	
5								
6	SW						3.4	
7						B-11	1.7	
8				100				
9							0.6	
10								
11								
12								

NOTES:



SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" Temporary well
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: 420 M Geoprobe		DATE: November 19, 2013	SCREEN INTERVAL: 7 - 12
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: none
LOGGED BY: K. Addis		TOTAL DEPTH: 12	FILTER PACK INTERVAL: none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			Top soil					
1								
2			WELL-GRADED SAND WITH GRAVEL; Grayish brown; moist-wet; mostly fine-coarse sand with minor gravel.	50				
3							0	
4	SW						0.9	
5				90				
6							1	
7	SP		POORLY-GRADED SAND; Gray; wet; mostly fine sand; rust stained; odor.			B-12: 7	13.1	
8			ORGANIC SOIL; Dark brown; moist; loose; mostly organics with minor wood and few sand.	100			2.2	
9	OL		Wet with the addition of trace gravel and trace sand				1.2	
10								
11						B-12	0.4	
12	SW		WELL-GRADED SAND WITH GRAVEL; Grayish brown; wet; mostly fine-coarse sand with some gravel and minor organics.				0.2	

NOTES:



SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" Pre-pack PVC
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 20, 2013	SCREEN INTERVAL: 5 - 10
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: Pre-pack silica sand
LOGGED BY: K. Addis		TOTAL DEPTH: 12	FILTER PACK INTERVAL: 5-10

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			Grass over topsoil					
0 - 6	SW		WELL-GRADED SAND WITH GRAVEL; Light brown; damp; mostly fine to coarse sand with some gravel	50				
6 - 8	SP		POORLY-GRADED SAND; Dark gray; moist to wet; mostly fine sand with few gravel; Mottled; Strong odor	70		B-2:5	100	
8 - 8.5	OH		SANDY ORGANIC SOIL; Dark gray to gray; wet; mostly organic with some sand; Strong odor			B-2W		
8.5 - 9						B-2:7.5		
9 - 12	SW-SM		WELL-GRADED SAND WITH SILT AND GRAVEL; Dark gray; wet; mostly fine to coarse sand with minor gravel and few silt	70			0	

NOTES:



SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" stainless steel
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 20, 2013	SCREEN INTERVAL: 5 - 10
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: none
LOGGED BY: K. Addis		TOTAL DEPTH: 10	FILTER PACK INTERVAL: none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			Grass over topsoil					
0 - 5	SW		WELL-GRADED SAND WITH GRAVEL; Light brown; damp; mostly fine to coarse sand with some gravel	50		B-3:4	0	
5 - 6.5	SP		POORLY-GRADED SAND; Light gray; moist to wet; mostly fine sand; Mottled	80		B-3:6.5	0.2	
6.5 - 7	OH		SANDY ORGANIC SOIL; Dark gray to gray; wet; mostly organic with some sand			B-3W	2.5	
7 - 9	SM		SILTY SAND; Gray; wet; mostly fine sand with minor silt	100				
9 - 10							0	
10 - 12								

NOTES:



SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" stainless steel
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 20, 2013	SCREEN INTERVAL: 5 - 10
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: none
LOGGED BY: K. Addis		TOTAL DEPTH: 10	FILTER PACK INTERVAL: none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			Grass over topsoil					
0 - 5	SP		WELL-GRADED SAND WITH GRAVEL; Light brown; damp; mostly fine to coarse sand with some gravel	50				
5 - 6	SP		POORLY-GRADED SAND; Light gray; moist to wet; mostly fine sand; Mottled	80		B-4:5	3.8	
6 - 7	OH		SANDY ORGANIC SOIL; Dark gray to gray; wet; mostly organic with some sand			B-4:6.5 B-4W	40 0.3	
7 - 9	SW-SM		WELL-GRADED SAND WITH SILT AND GRAVEL; Dark gray; wet; mostly fine to coarse sand with minor gravel and few silt	100				
9 - 10							0	
10 - 12								

NOTES:



SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" stainless steel
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 20, 2013	SCREEN INTERVAL: 5 - 10
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: none
LOGGED BY: K. Addis		TOTAL DEPTH: 8	FILTER PACK INTERVAL: none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			Grass over topsoil					
0 - 4	SW		WELL-GRADED SAND WITH GRAVEL; Light brown; damp; mostly fine to coarse sand with some gravel	50			0	
4 - 8	SP		POORLY-GRADED SAND; Light gray; moist to wet; mostly fine sand; Mottled; Odor at 5 -8ft	100		B-5:4 B-5:6.5 B-5W	0.3 27	
8 - 12							1.5	

NOTES:



SITE ADDRESS 3461 E. Lk. Sammamish Shore Ln NE		CLIENT: Mike Mossman	CASING MATERIAL AND SIZE: 3/4" stainless steel
DRILLING CONTRACTOR: Cascade Drilling		PROJECT #: 65201.1	SCREEN SIZE: 0.01
DRILLING EQUIPMENT: LA Geoprobe		DATE: May 20, 2013	SCREEN INTERVAL: 5 - 10
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: none
LOGGED BY: K. Addis		TOTAL DEPTH: 10	FILTER PACK INTERVAL: none

Depth (feet)	USCS	Graphic Log	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	% REC	# Blows	Sample	PID (ppm)	Well Construction
0			Grass over topsoil					
0 - 3.5	SW		WELL-GRADED SAND WITH GRAVEL; Orange; damp; mostly fine to coarse sand with some gravel	30		B-6:3.5	0	
3.5 - 6.5	SP		POORLY-GRADED SAND; Light gray; moist to wet; mostly fine sand; Mottled	80		B-6:5.5	13	
6.5 - 7.5	OH		SANDY ORGANIC SOIL; Dark brown; wet; mostly organic with some sand and trace gravel			B-6W	18	
7.5 - 10	OH		ORGANIC SOIL; Dark gray; wet; mostly organic silt	100			2.4	

NOTES:



ENVIRONMENTAL PARTNERS INC

BORING ID: B-13

SITE ADDRESS: 3461 E Lake Sammamish Shore Lane NE, Sammamish, WA		CLIENT: Mossman Mike	CASING MATERIAL AND SIZE: 3/4" PVC Sch 40
DRILLING CONTRACTOR: Cascade Drilling Inc.		PROJECT #: 65201.4	SCREEN SIZE: 0.010"
DRILLING EQUIPMENT: Geoprobe 420M		DATE: 02-17-14	SCREEN INTERVAL: 2-12'
DRILLING METHOD: Direct-Push Technology		GROUND SURFACE ELEV. FT AMSL: ~37.30	FILTER PACK: Natural
LOGGED BY: K. Addis	BOREHOLE SIZE: 2"	TOTAL DEPTH: 12'	FILTER PACK INTERVAL:

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample	Well Construction
0		Landscaping/Topsoil				<p>Temporary Well Screen</p> <p>Backfilled with Bentonite Chips</p>
1						
2		WELL-GRADED SAND WITH GRAVEL; Brown; moist; mostly fine-coarse sand with little gravel				
3	SW			0		
4			80	0		
5		POORLY-GRADED SAND; Strong brown; moist; mostly fine sand; Rust-staining at 5.5' and 7.5'		0		
6	SP			0		
7			80	0	B-13:7.5	
8		Staining observed at 7.5'-8.0'		0.1		
9	OL	ORGANIC SOIL WITH SAND; Dark brown; moist; mostly organics with some sand		0		
10	OL	ORGANIC SOIL; Dark brown; moist; mostly organics		0		
11	SW-SM	WELL-GRADED SAND WITH SILT AND GRAVEL; Gray-brown; saturated; mostly fine to coarse sand with few silt and few gravel with 2" thick lenses of Elastic Silt at 10.5' and 11.5'	90	0	B-13	
12		End of Borehole				
13						
14						
15						

NOTES: No odor observed; Hand excavated 0-3'



ENVIRONMENTAL PARTNERS INC

BORING ID: B-14

SITE ADDRESS: 3461 E Lake Sammamish Shore Lane NE, Sammamish, WA		CLIENT: Mossman Mike	CASING MATERIAL AND SIZE: 3/4" PVC Sch 40
DRILLING CONTRACTOR: Cascade Drilling Inc.		PROJECT #: 65201.4	SCREEN SIZE: 0.010"
DRILLING EQUIPMENT: Geoprobe 420M		DATE: 02-17-14	SCREEN INTERVAL: 2-12'
DRILLING METHOD: Direct-Push Technology		GROUND SURFACE ELEV. FT AMSL: 37.07	FILTER PACK: None
LOGGED BY: K. Addis	BOREHOLE SIZE: 2"	TOTAL DEPTH: 12'	FILTER PACK INTERVAL:

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample	Well Construction
0	GW	WELL-GRADED GRAVEL		0		<p>Temporary Well Screen</p>
1	OL	ORGANIC SOIL; Dark brown; moist; mostly organics (topsoil)		0		
2		WELL-GRADED SAND WITH GRAVEL; Gray-brown; moist; mostly fine to medium sand with minor gravel	50	0		
3				0.1		
4	SW					
5			60	0.1		
6		SILTY SAND; Grayish-brown; moist; medium dense; mostly fine sand with some silt		0.1		
7	SM			25.4	B-14:7	
8		Odor observed; becomes dark gray	100			
9		ORGANIC SOIL; Dark brown; moist; loose; mostly organic with trace sand; trace charcoal		0.4		
10	OL			0.1		
11			0	0	B-14	
12	SW MH	WELL-GRADED SAND; Grayish-brown; saturated; mostly fine to coarse sand ELASTIC SILT; Gray-brown; moist; moderate plasticity; low dilatency; mostly silt with some clay		0		
13		End of Borehole				
14						
15						

NOTES:



ENVIRONMENTAL PARTNERS INC

BORING ID: MW-7

SITE ADDRESS: **3461 E Lake Sammamish Shore Lane NE, Sammamish, WA**

CLIENT: **Mossman Mike**

CASING MATERIAL AND SIZE: **3/4" PVC Sch 40**

DRILLING CONTRACTOR: **Cascade Drilling Inc.**

PROJECT #: **65201.4**

SCREEN SIZE: **0.010"**

DRILLING EQUIPMENT: **Geoprobe 420M**

DATE: **02-17-14**

SCREEN INTERVAL: **3.5-8.5'**

DRILLING METHOD: **Direct-Push Technology**

GROUND SURFACE ELEV. FT AMSL: **35.39**

FILTER PACK: **Pre-Pack**

LOGGED BY: **K. Addis**

BOREHOLE SIZE: **2"**

TOTAL DEPTH: **9'**

FILTER PACK INTERVAL:

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample	Well Construction
0		ORGANIC SOIL; Dark brown; moist; mostly organics (top soil) with roots				
1	OL		5			Concrete Surface Seal
2						
3		POORLY-GRADED GRAVEL; Grayish-brown; moist; very loose mostly fine to medium gravel with few sand (backfill or drainage from rockery?)		0		
4	GP		10	0		
5				0		
6		Becomes medium dense		0		
7		Becomes dark gray		0		
8			100	0	MW-7:5.5	Prepack Well Screen
9		End of Borehole		0		
10						
11						
12						
13						
14						
15						

NOTES: No odors observed



**ENVIRONMENTAL
PARTNERS INC**

BORING ID: MW-8

SITE ADDRESS: **3461 E Lake Sammamish Shore Lane
NE, Sammamish, WA**

CLIENT:
Mossman Mike

CASING MATERIAL AND SIZE:
3/4" PVC Sch 40

DRILLING CONTRACTOR:
Cascade Drilling Inc.

PROJECT #:
65201.4

SCREEN SIZE:
0.010"

DRILLING EQUIPMENT:
Geoprobe 420M

DATE:
02-17-14

SCREEN INTERVAL:
2-7'

DRILLING METHOD:
Direct-Push Technology

GROUND SURFACE ELEV. FT AMSL:
32.76

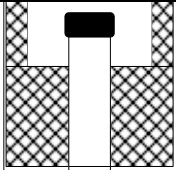
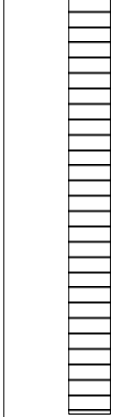
FILTER PACK:
Pre-Pack

LOGGED BY:
K. Addis

BOREHOLE SIZE:
2"

TOTAL DEPTH:
9'

FILTER PACK INTERVAL:

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample	Well Construction
0		WELL-GRADED SAND; Dark brown; moist; mostly fine to coarse sand		0		 Concrete Surface Seal
1			65	0		
2	SW			0	MW-8:3.5	 Prepack Well Screen
3				0		
4		WELL-GRADED SAND WITH GRAVEL; Dark brown; moist; mostly fine to coarse sand	70	0		
5				0		
6	SW			0		
7			10	0		
8				0		
9		End of Borehole				
10						
11						
12						
13						
14						
15						

NOTES:

INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0		Grass surface				No well Installed
		0-3': Brown SAND, well graded, fine to coarse grain, little gravel, dry, no odor, fill material	70	SW		
	GB-1-4	3-7': Brown/gray SAND, poorly graded, medium grain, trace gravel, moist, slight petroleum odor at 6 feet		SP	0	
5	GB-1-6		100		0	
	GB-1-7	7-8': Gray SAND, poorly graded, fine grain, trace gravel, wet, moderate odor			33	
	GB-1-9	8-8.5': ORGANICS with sand, trace gravel, wet, odor		PT	35	
		8.5-9': Gray GRAVEL, well graded, fine to coarse grain, with sand, clay lens, wet, odor		GW		
10		Refusal at 9 feet				
15						
20						
25						
30						

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Boring backfilled with Bentonite
Drilling Company: Standard	Weather: Rain	
Boring Diameter: Two Inches	Page <u>1</u> of <u>1</u>	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	GB-1
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INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0		Grass surface				No well Installed
0-3'		Brown SAND, well graded, fine to coarse grain, little gravel, dry, no odor, fill material	70	SW	0	
3-6'	GB-2-4	Brown/gray SAND, poorly graded, medium grain, trace gravel, moist, slight petroleum odor at 6 feet		SP	2	
6-7.5'	GB-2-7	Gray SAND, poorly graded, fine grain, trace gravel, wet, moderate odor	100		360	
8-8.5'	GB-2-9	ORGANICS with sand, trace gravel, wet, odor		PT	196	
8.5-9.5'		Gray GRAVEL, well graded, fine to coarse grain, with sand, wet, odor		GW		
		Refusal at 9.5 feet				

30 Depth in feet 30

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Boring backfilled with Bentonite
Drilling Company: Standard	Weather: Rain	
Boring Diameter: Two Inches	Page <u>1</u> of <u>1</u>	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	GB-2
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INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0		Beach surface				
	GB-3-2	0-2': Brown SAND, poorly graded, fine to medium grain, little gravel, moist	50	SP	1	No well Installed
	GB-3-4	2-3': Gray GRAVEL, poorly graded, wet at 2 feet, slight petroleum odor		GP	7	
5	GB-3-6	3-8': Gray SAND, poorly graded, fine to coarse grain, wet, slight petroleum odor	100	SP	5	
	GB-3-8	Refusal at 8 feet			3	
10						
15						
20						
25						
30						

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Boring backfilled with Bentonite
Drilling Company: Standard	Weather: Rain	
Boring Diameter: Two Inches	Page <u>1</u> of <u>1</u>	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	GB-3
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INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0		Beach surface				
	GB-4-2	0-1': Gray, SAND, well graded, fine to coarse grain, little gravel, moist, no odor	50	SW	5	No well Installed
	GB-4-4	1-3': Gray, GRAVEL, well graded, with sand, wet at 2 feet, slight petroleum odor		GW		
		3-4': Gray SAND, poorly graded, medium to coarse grain, wet at 7', moderate odor	100	SP	242	
	GB-4-8	4-8': Gray SAND, well graded, fine to coarse grain, little gravel, wet, moderate odor		SW	284	
10		Refusal at 8 feet				
15						
20						
25						
30						

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Boring backfilled with Bentonite
Drilling Company: Standard	Weather: Overcast	
Boring Diameter: Two Inches	Page <u>1</u> of <u>1</u>	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	GB-4
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INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0		Beach surface				
0-5'		Gray GRAVEL, well graded, wet 1 foot, no odor	50	GW	0	No well Installed
5-8'	GB-5-4 GB-5-7	Gray SAND, well graded, fine to coarse grain, trace gravel, wet, no odor	100	SW	0 0	
		Refusal at 8 feet				
10						
15						
20						
25						
30						

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Boring backfilled with Bentonite
Drilling Company: Standard	Weather: Rain	
Boring Diameter: Two Inches	Page <u>1</u> of <u>1</u>	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	GB-5
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INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0	GB-6-1	Beach surface 0-1': Gray SAND, poorly graded, medium grain, wet, slight odor	40	SP	2	No well Installed
	GB-6-4	2-3': Gray GRAVEL, poorly graded, medium grain, trace gravel, wet		GP	0	
	GB-6-6	3-8': Gray SAND, poorly graded, medium grain, little gravel, wet, no odor	90	SP	0	
		Trace gravel			0	
10		Refusal at 8 feet				
15						
20						
25						
30						

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Boring backfilled with Bentonite
Drilling Company: Standard	Weather: Rain	
Boring Diameter: Two Inches	Page <u>1</u> of <u>1</u>	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	GB-6
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INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0		Concrete surface				No well Installed
0-4'		Brown/gray SAND, poorly graded, fine grain, little gravel, very poor recovery	<10	SP	0	
4-8.5'	GB-7-6	Brown/gray SAND, poorly graded, fine to medium grain, few silt, wet at 7 feet, becomes gray at 8 feet, slight petroleum odor at 8 feet	100		3	
8.5-9'	GB-7-8 GB-7-9	ORGANICS, with Sand and silt, woody debris and peat		PT	63 1	
10		Refusal at 9.5 feet				
15						
20						
25						
30						

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Boring backfilled with Bentonite
Drilling Company: Standard	Weather: Rain	
Boring Diameter: Two Inches	Page <u>1</u> of <u>1</u>	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	GB-7
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INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0		Grass surface				
0-3'		Brown SAND, well graded, fine to coarse grain, little gravel, dry, no odor	75	SW	0	
3-7'	MW-9-4	Brown/gray SAND, poorly graded, medium grain, trace gravel, moist, wet at 7', no odor	100	SP	0	
7-9'	MW-9-7	Gray SAND, poorly graded, fine grain, trace gravel, moist, wet, no odor, organics at 9' (peat/wood), clay lens		PT	0	
9-10'	MW-9-10	Gray GRAVEL, well graded, fine to coarse grain, with sand, wet, no odor		GW	0	
		E.O.B. at 10 feet				
15						
20						
25						
30						

Drilling Method: Direct-Push	Date: 5/14/2020	Other Information: Well Tag # BJP-750
Drilling Company: Standard	Weather: Rain	
Boring Diameter: Two Inches	Page <u>1</u> of <u>1</u>	
Logged By: JS		

	Boring/Well Log Mossman Property 3461 East Lake Sammamish Shore Ln. NE Sammamish, Washington	MW-9
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Attachment E
Laboratory Analytical Reports



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

December 18, 2012

Greg McCormick
Environmental Partners, Inc.
295 NE Gilman Blvd, Suite 201
Issaquah, WA 98027

Re: Analytical Data for Project Mossman UST
Laboratory Reference No. 1212-074

Dear Greg:

Enclosed are the analytical results and associated quality control data for samples submitted on December 11, 2012.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: December 18, 2012
Samples Submitted: December 11, 2012
Laboratory Reference: 1212-074
Project: Mossman UST

Case Narrative

Samples were collected on December 11, 2012 and received by the laboratory on December 11, 2012. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: December 18, 2012
 Samples Submitted: December 11, 2012
 Laboratory Reference: 1212-074
 Project: Mossman UST

NWTPH-Dx
 (with acid/silica gel clean-up)

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	North Sidewall (4')					
Laboratory ID:	12-074-01					
Diesel Fuel #2	340	28	NWTPH-Dx	12-12-12	12-12-12	
Lube Oil Range Organics	ND	76	NWTPH-Dx	12-12-12	12-12-12	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	99	50-150				
Client ID:	South Sidewall (4')					
Laboratory ID:	12-074-02					
Diesel Range Organics	2000	29	NWTPH-Dx	12-12-12	12-12-12	
Lube Oil Range Organics	ND	260	NWTPH-Dx	12-12-12	12-12-12	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	117	50-150				
Client ID:	West Sidewall (4')					
Laboratory ID:	12-074-03					
Diesel Range Organics	200	30	NWTPH-Dx	12-12-12	12-12-12	
Lube Oil Range Organics	ND	60	NWTPH-Dx	12-12-12	12-12-12	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	98	50-150				
Client ID:	East Sidewall (4')					
Laboratory ID:	12-074-04					
Diesel Range Organics	ND	28	NWTPH-Dx	12-12-12	12-12-12	
Lube Oil Range Organics	ND	56	NWTPH-Dx	12-12-12	12-12-12	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	99	50-150				
Client ID:	Base (6')					
Laboratory ID:	12-074-05					
Diesel Fuel #2	20000	320	NWTPH-Dx	12-12-12	12-13-12	
Lube Oil Range Organics	ND	1100	NWTPH-Dx	12-12-12	12-13-12	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	---	50-150				
						S

Date of Report: December 18, 2012
 Samples Submitted: December 11, 2012
 Laboratory Reference: 1212-074
 Project: Mossman UST

**NWTPH-Dx
 QUALITY CONTROL
 (with acid/silica gel clean-up)**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1212S1					
Diesel Range Organics	ND	25	NWTPH-Dx	12-12-12	12-12-12	
Lube Oil Range Organics	ND	50	NWTPH-Dx	12-12-12	12-12-12	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	109	50-150				

Analyte	Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE						
Laboratory ID:	12-074-01					
	ORIG	DUP				
Diesel Fuel #2	305	138		75	NA	
Lube Oil Range Organics	ND	ND		NA	NA	U1
<i>Surrogate:</i>						
<i>o-Terphenyl</i>			99 104	50-150		

Date of Report: December 18, 2012
 Samples Submitted: December 11, 2012
 Laboratory Reference: 1212-074
 Project: Mossman UST

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Water					
Laboratory ID:	12-074-06					
Diesel Fuel #2	60	1.2	NWTPH-Dx	12-14-12	12-17-12	
Lube Oil Range Organics	ND	4.2	NWTPH-Dx	12-14-12	12-17-12	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	<i>103</i>	<i>50-150</i>				

Date of Report: December 18, 2012
 Samples Submitted: December 11, 2012
 Laboratory Reference: 1212-074
 Project: Mossman UST

**NWTPH-Dx
 QUALITY CONTROL
 (with acid/silica gel clean-up)**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1214W1					
Diesel Range Organics	ND	0.13	NWTPH-Dx	12-14-12	12-14-12	
Lube Oil Range Organics	ND	0.20	NWTPH-Dx	12-14-12	12-14-12	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	74	50-150				

Analyte	Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE						
Laboratory ID:	12-095-01					
	ORIG	DUP				
Diesel Range Organics	ND	ND		NA	NA	
Lube Oil Range Organics	ND	ND		NA	NA	
<i>Surrogate:</i>						
<i>o-Terphenyl</i>			87 84	50-150		

Date of Report: December 18, 2012
Samples Submitted: December 11, 2012
Laboratory Reference: 1212-074
Project: Mossman UST

% MOISTURE

Date Analyzed: 12-12-12

Client ID	Lab ID	% Moisture
North Sidewall (4')	12-074-01	10
South Sidewall (4')	12-074-02	12
West Sidewall (4')	12-074-03	17
East Sidewall (4')	12-074-04	10
Base (6')	12-074-05	22



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
 - B - The analyte indicated was also found in the blank sample.
 - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
 - E - The value reported exceeds the quantitation range and is an estimate.
 - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
 - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
 - I - Compound recovery is outside of the control limits.
 - J - The value reported was below the practical quantitation limit. The value is an estimate.
 - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
 - L - The RPD is outside of the control limits.
 - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
 - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
 - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
 - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
 - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
 - P - The RPD of the detected concentrations between the two columns is greater than 40.
 - Q - Surrogate recovery is outside of the control limits.
 - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
 - T - The sample chromatogram is not similar to a typical _____.
 - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
 - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
 - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
 - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
 - X - Sample extract treated with a mercury cleanup procedure.
 - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
 - Z -
- ND - Not Detected at PQL
 PQL - Practical Quantitation Limit
 RPD - Relative Percent Difference



MVA OnSite
Environmental Inc.

Analytical Laboratory Testing Services
 14648 NE 95th Street • Redmond, WA 98052
 Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

12-074

Company: **Environmental Partners**
 Project Number:

Project Name: **Mossman VST**
 Project Manager: **Greg McCormick**

Sampled by: **Greg McCormick**

Turnaround Request
 (in working days)

(Check One)

Same Day 1 Day

2 Days 3 Days

Standard (7 Days)
 (TPH analysis 5 Days)

(other)

Laboratory Number:

Date Sampled	Time Sampled	Matrix
12/11/12	2:30	S
	2:30	S
	2:30	S
	2:30	S
	2:45	S
	2:50	W

Number of Containers

NWTPH-HCID	
NWTPH-Gx/BTEX	
NWTPH-Gx	
NWTPH-Dx	
Volatiles 8260C	
Halogenated Volatiles 8260C	
Semivolatiles 8270D/SIM (with low-level PAHs)	
PAHs 8270D/SIM (low-level)	
PCBs 8082A	
Organochlorine Pesticides 8081B	
Organophosphorus Pesticides 8270D/SIM	
Chlorinated Acid Herbicides 8151A	
Total RCRA Metals/ MTCA Metals (circle one)	
TCLP Metals	
HEM (oil and grease) 1664A	

% Moisture

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	Comments/Special Instructions
1	North Sidewalk (4')	12/11/12	2:30	S	1	
2	South Sidewalk (4')		2:30	S		
3	West Sidewalk (4')		2:30	S		
4	East Sidewalk (4')		2:30	S		
5	Base (6')		2:45	S		
6	Water		2:50	W		

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	[Signature]	EP1	12/11/12	3:30	
Received	[Signature]	DE	12/11/12	1530	
Relinquished					
Received					
Relinquished					
Received					
Reviewed/Date					

Data Package: Level III Level IV

Electronic Data Deliverables (EDDs)

Chromatograms with final report



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

May 31, 2013

Thom Morin
Environmental Partners, Inc.
295 NE Gilman Blvd, Suite 201
Issaquah, WA 98027

Re: Analytical Data for Project 65201.0
Laboratory Reference No. 1305-206

Dear Thom:

Enclosed are the analytical results and associated quality control data for samples submitted on May 22, 2013.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal stroke extending to the right.

David Baumeister
Project Manager

Enclosures

Date of Report: May 31, 2013
Samples Submitted: May 22, 2013
Laboratory Reference: 1305-206
Project: 65201.0

Case Narrative

Samples were collected on May 22, 2013 and received by the laboratory on May 22, 2013. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: May 31, 2013
 Samples Submitted: May 22, 2013
 Laboratory Reference: 1305-206
 Project: 65201.0

NWTPH-Dx

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-1W					
Laboratory ID:	05-206-01					
Diesel Fuel #2	9.3	0.28	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	0.95	NWTPH-Dx	5-23-13	5-23-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	136	50-150				
Client ID:	MW-2W					
Laboratory ID:	05-206-02					
Diesel Fuel #2	1500	52	NWTPH-Dx	5-23-13	5-24-13	
Lube Oil Range Organics	ND	83	NWTPH-Dx	5-23-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	---	50-150				S
Client ID:	MW-4W					
Laboratory ID:	05-206-03					
Diesel Fuel #2	22	0.27	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	1.1	NWTPH-Dx	5-23-13	5-23-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	91	50-150				

Date of Report: May 31, 2013
 Samples Submitted: May 22, 2013
 Laboratory Reference: 1305-206
 Project: 65201.0

**NWTPH-Dx
 QUALITY CONTROL**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0523W1					
Diesel Range Organics	ND	0.25	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	0.40	NWTPH-Dx	5-23-13	5-23-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	<i>87</i>	<i>50-150</i>				

Analyte	Result		Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE							
Laboratory ID:	05-193-01						
	ORIG	DUP					
Diesel Range Organics	ND	ND			NA	NA	X1
Lube Oil Range Organics	ND	ND			NA	NA	X1
<i>Surrogate:</i>							
<i>o-Terphenyl</i>			<i>105</i>	<i>93</i>	<i>50-150</i>		



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
 - B - The analyte indicated was also found in the blank sample.
 - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
 - E - The value reported exceeds the quantitation range and is an estimate.
 - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
 - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
 - I - Compound recovery is outside of the control limits.
 - J - The value reported was below the practical quantitation limit. The value is an estimate.
 - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
 - L - The RPD is outside of the control limits.
 - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
 - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
 - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
 - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
 - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
 - P - The RPD of the detected concentrations between the two columns is greater than 40.
 - Q - Surrogate recovery is outside of the control limits.
 - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
 - T - The sample chromatogram is not similar to a typical _____.
 - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
 - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
 - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
 - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
 - X - Sample extract treated with a mercury cleanup procedure.
 - X1 - Sample extract treated with a Sulfuric acid/Silica gel cleanup procedure.
 - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
 - Z -
- ND - Not Detected at PQL
 PQL - Practical Quantitation Limit
 RPD - Relative Percent Difference



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

May 31, 2013

Thom Morin
Environmental Partners, Inc.
295 NE Gilman Blvd, Suite 201
Issaquah, WA 98027

Re: Analytical Data for Project 65201.0
Laboratory Reference No. 1305-192

Dear Thom:

Enclosed are the analytical results and associated quality control data for samples submitted on May 21, 2013.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal stroke extending to the right.

David Baumeister
Project Manager

Enclosures

Date of Report: May 31, 2013
Samples Submitted: May 21, 2013
Laboratory Reference: 1305-192
Project: 65201.0

Case Narrative

Samples were collected on May 20 and 21, 2013 and received by the laboratory on May 21, 2013. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

NWTPH-Dx

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	B-1:7.5					
Laboratory ID:	05-192-01					
Diesel Fuel #2	27000	490	NWTPH-Dx	5-24-13	5-28-13	
Lube Oil Range Organics	ND	1500	NWTPH-Dx	5-24-13	5-28-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	---	50-150				S
Client ID:	B-1:11					
Laboratory ID:	05-192-02					
Diesel Range Organics	ND	29	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	57	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	93	50-150				
Client ID:	B-2:5					
Laboratory ID:	05-192-04					
Diesel Range Organics	ND	30	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	60	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	75	50-150				
Client ID:	B-2:7.5					
Laboratory ID:	05-192-05					
Diesel Fuel #2	4800	39	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	400	NWTPH-Dx	5-24-13	5-24-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	78	50-150				
Client ID:	B-3:4					
Laboratory ID:	05-192-07					
Diesel Range Organics	ND	27	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	53	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	86	50-150				
Client ID:	B-3:6.5					
Laboratory ID:	05-192-08					
Diesel Range Organics	49	42	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	350	84	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	102	50-150				

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

NWTPH-Dx

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	B-4:5					
Laboratory ID:	05-192-10					
Diesel Range Organics	ND	29	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	59	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	85	50-150				
Client ID:	B-4:6.5					
Laboratory ID:	05-192-11					
Diesel Fuel #2	7600	150	NWTPH-Dx	5-24-13	5-28-13	
Lube Oil Range Organics	ND	910	NWTPH-Dx	5-24-13	5-28-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	91	50-150				
Client ID:	B-5:4					
Laboratory ID:	05-192-13					
Diesel Range Organics	ND	27	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	54	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	83	50-150				
Client ID:	B-5:6.5					
Laboratory ID:	05-192-14					
Diesel Fuel #2	6700	150	NWTPH-Dx	5-24-13	5-28-13	
Lube Oil Range Organics	ND	350	NWTPH-Dx	5-24-13	5-28-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	86	50-150				
Client ID:	B-6:3.5					
Laboratory ID:	05-192-16					
Diesel Range Organics	ND	27	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	53	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	88	50-150				
Client ID:	B-6:5.5					
Laboratory ID:	05-192-17					
Diesel Range Organics	ND	31	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	61	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	78	50-150				

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

NWTPH-Dx

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-1:1.3					
Laboratory ID:	05-192-19					
Diesel Fuel #2	32000	290	NWTPH-Dx	5-24-13	5-28-13	
Lube Oil Range Organics	ND	1800	NWTPH-Dx	5-24-13	5-28-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	---	50-150				S
Client ID:	MW-2:2					
Laboratory ID:	05-192-20					
Diesel Fuel #2	13000	160	NWTPH-Dx	5-24-13	5-28-13	
Lube Oil Range Organics	ND	890	NWTPH-Dx	5-24-13	5-28-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	128	50-150				
Client ID:	MW-2:3					
Laboratory ID:	05-192-21					
Diesel Fuel #2	43000	280	NWTPH-Dx	5-24-13	5-28-13	
Lube Oil Range Organics	ND	1600	NWTPH-Dx	5-24-13	5-28-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	---	50-150				S
Client ID:	MW-2:6					
Laboratory ID:	05-192-22					
Diesel Range Organics	300	33	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	1000	66	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	101	50-150				
Client ID:	B-7:6					
Laboratory ID:	05-192-23					
Diesel Range Organics	ND	30	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	60	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	91	50-150				
Client ID:	MW-4:5					
Laboratory ID:	05-192-25					
Diesel Fuel #2	26000	320	NWTPH-Dx	5-24-13	5-28-13	
Lube Oil Range Organics	ND	1500	NWTPH-Dx	5-24-13	5-28-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	---	50-150				S

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

NWTPH-Dx

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Footing:1.5					
Laboratory ID:	05-192-26					
Diesel Range Organics	ND	27	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	53	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	88	50-150				

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

**NWTPH-Dx
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0524S1					
Diesel Range Organics	ND	25	NWTPH-Dx	5-24-13	5-24-13	
Lube Oil Range Organics	ND	50	NWTPH-Dx	5-24-13	5-24-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	86	50-150				

Analyte	Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE						
Laboratory ID:	05-192-04					
	ORIG	DUP				
Diesel Range Organics	ND	ND			NA	NA
Lube Oil Range Organics	ND	ND			NA	NA
<i>Surrogate:</i>						
<i>o-Terphenyl</i>		75	88	50-150		
Laboratory ID:	05-214-01					
	ORIG	DUP				
Diesel Range Organics	ND	ND			NA	NA
Lube Oil	1430	1020			33	NA
<i>Surrogate:</i>						
<i>o-Terphenyl</i>		94	96	50-150		

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

NWTPH-Dx

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: B-1W						
Laboratory ID: 05-192-03						
Diesel Fuel #2	43	0.26	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	2.5	NWTPH-Dx	5-23-13	5-23-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	69	50-150				
Client ID: B-2W						
Laboratory ID: 05-192-06						
Diesel Fuel #2	11	0.26	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	0.57	NWTPH-Dx	5-23-13	5-23-13	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	89	50-150				
Client ID: B-3W						
Laboratory ID: 05-192-09						
Diesel Range Organics	ND	0.27	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	0.43	NWTPH-Dx	5-23-13	5-23-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	80	50-150				
Client ID: B-4W						
Laboratory ID: 05-192-12						
Diesel Fuel #2	2.6	0.27	NWTPH-Dx	5-23-13	5-23-13	M1
Lube Oil Range Organics	ND	0.43	NWTPH-Dx	5-23-13	5-23-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	88	50-150				
Client ID: B-5W						
Laboratory ID: 05-192-15						
Diesel Fuel #2	3.9	0.26	NWTPH-Dx	5-23-13	5-23-13	M1
Lube Oil Range Organics	ND	0.42	NWTPH-Dx	5-23-13	5-23-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	82	50-150				
Client ID: B-6W						
Laboratory ID: 05-192-18						
Diesel Range Organics	ND	0.26	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	0.42	NWTPH-Dx	5-23-13	5-23-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	73	50-150				

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

NWTPH-Dx

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	B-7W					
Laboratory ID:	05-192-24					
Diesel Range Organics	ND	0.26	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	0.42	NWTPH-Dx	5-23-13	5-23-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	76	50-150				

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

**NWTPH-Dx
 QUALITY CONTROL**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0523W1					
Diesel Range Organics	ND	0.25	NWTPH-Dx	5-23-13	5-23-13	
Lube Oil Range Organics	ND	0.40	NWTPH-Dx	5-23-13	5-23-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	<i>87</i>	<i>50-150</i>				

Analyte	Result		Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE							
Laboratory ID:	05-192-03						
	ORIG	DUP					
Diesel Fuel #2	43.0	31.6			31	NA	
Lube Oil Range Organics	ND	ND			NA	NA	U1
<i>Surrogate:</i>							
<i>o-Terphenyl</i>			69	86	50-150		

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

VOLATILES by EPA 8260C

Matrix: Soil
 Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-4:5					
Laboratory ID:	05-192-25					
Benzene	0.14	0.064	EPA 8260C	5-22-13	5-22-13	
Toluene	0.40	0.32	EPA 8260C	5-22-13	5-22-13	
Ethylbenzene	3.1	0.064	EPA 8260C	5-22-13	5-22-13	
m,p-Xylene	10	0.13	EPA 8260C	5-22-13	5-22-13	
o-Xylene	5.6	0.064	EPA 8260C	5-22-13	5-22-13	
Naphthalene	7.2	0.064	EPA 8260C	5-22-13	5-22-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>98</i>	<i>63-127</i>				
<i>Toluene-d8</i>	<i>105</i>	<i>65-129</i>				
<i>4-Bromofluorobenzene</i>	<i>105</i>	<i>52-125</i>				

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

**VOLATILES by EPA 8260C
 METHOD BLANK QUALITY CONTROL**

Matrix: Soil
 Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0522S1					
Benzene	ND	0.0010	EPA 8260C	5-22-13	5-22-13	
Toluene	ND	0.0050	EPA 8260C	5-22-13	5-22-13	
Ethylbenzene	ND	0.0010	EPA 8260C	5-22-13	5-22-13	
m,p-Xylene	ND	0.0020	EPA 8260C	5-22-13	5-22-13	
o-Xylene	ND	0.0010	EPA 8260C	5-22-13	5-22-13	
Naphthalene	ND	0.0010	EPA 8260C	5-22-13	5-22-13	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>121</i>	<i>63-127</i>				
<i>Toluene-d8</i>	<i>117</i>	<i>65-129</i>				
<i>4-Bromofluorobenzene</i>	<i>118</i>	<i>52-125</i>				

Date of Report: May 31, 2013
 Samples Submitted: May 21, 2013
 Laboratory Reference: 1305-192
 Project: 65201.0

**VOLATILES by EPA 8260C
 SB/SBD QUALITY CONTROL**

Matrix: Soil
 Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery	RPD		Flags
					Recovery	Limits	RPD	Limit		
SPIKE BLANKS										
Laboratory ID:	SB0522S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	0.0562	0.0557	0.0500	0.0500	112	111	65-141	1	15	
Benzene	0.0514	0.0509	0.0500	0.0500	103	102	69-121	1	15	
Trichloroethene	0.0544	0.0522	0.0500	0.0500	109	104	75-120	4	15	
Toluene	0.0528	0.0521	0.0500	0.0500	106	104	75-120	1	15	
Chlorobenzene	0.0545	0.0549	0.0500	0.0500	109	110	75-120	1	15	
<i>Surrogate:</i>										
<i>Dibromofluoromethane</i>					<i>109</i>	<i>108</i>	<i>63-127</i>			
<i>Toluene-d8</i>					<i>107</i>	<i>105</i>	<i>65-129</i>			
<i>4-Bromofluorobenzene</i>					<i>106</i>	<i>105</i>	<i>52-125</i>			

Date of Report: May 31, 2013
Samples Submitted: May 21, 2013
Laboratory Reference: 1305-192
Project: 65201.0

% MOISTURE

Date Analyzed: 5-22&24-13

Client ID	Lab ID	% Moisture
B-1:7.5	05-192-01	49
B-1:11	05-192-02	13
B-2:5	05-192-04	17
B-2:7.5	05-192-05	36
B-3:4	05-192-07	6
B-3:6.5	05-192-08	41
B-4:5	05-192-10	15
B-4:6.5	05-192-11	17
B-5:4	05-192-13	7
B-5:6.5	05-192-14	16
B-6:3.5	05-192-16	6
B-6:5.5	05-192-17	18
MW-1:1.3	05-192-19	15
MW-2:2	05-192-20	21
MW-2:3	05-192-21	10
MW-2:6	05-192-22	24
B-7:6	05-192-23	16
MW-4:5	05-192-25	21
Footing:1.5	05-192-26	6



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
 - B - The analyte indicated was also found in the blank sample.
 - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
 - E - The value reported exceeds the quantitation range and is an estimate.
 - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
 - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
 - I - Compound recovery is outside of the control limits.
 - J - The value reported was below the practical quantitation limit. The value is an estimate.
 - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
 - L - The RPD is outside of the control limits.
 - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
 - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
 - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
 - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
 - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
 - P - The RPD of the detected concentrations between the two columns is greater than 40.
 - Q - Surrogate recovery is outside of the control limits.
 - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
 - T - The sample chromatogram is not similar to a typical _____.
 - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
 - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
 - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
 - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
 - X - Sample extract treated with a mercury cleanup procedure.
 - X1 - Sample extract treated with a Sulfuric acid/Silica gel cleanup procedure.
 - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
 - Z -
- ND - Not Detected at PQL
 PQL - Practical Quantitation Limit
 RPD - Relative Percent Difference



May 30, 2013

Mr. David Baumeister
OnSite Environmental Inc.
14648 NE 95th Street
Redmond, WA 98052

Dear Mr. Baumeister,

On May 22nd, 1 sample was received by our laboratory and assigned our laboratory project number EV13050126. The project was identified as your Proj #65201.0 / Lab Ref #05-192. The sample identification and requested analyses are outlined on the attached chain of custody record.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director



CERTIFICATE OF ANALYSIS

CLIENT: OnSite Environmental Inc. DATE: 5/30/2013
14648 NE 95th Street ALS JOB#: EV13050126
Redmond, WA 98052 WDOE ACCREDITATION: C601
CLIENT CONTACT: David Baumeister
CLIENT PROJECT: Proj #65201.0 / Lab Ref #05-192

CASE NARRATIVE

No sample abnormalities were qualified in this report.



CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc. 14648 NE 95th Street Redmond, WA 98052	DATE:	5/30/2013
CLIENT CONTACT:	David Baumeister	ALS JOB#:	EV13050126
CLIENT PROJECT:	Proj #65201.0 / Lab Ref #05-192	ALS SAMPLE#:	-01
CLIENT SAMPLE ID	MW-4:5	DATE RECEIVED:	5/22/2013
		COLLECTION DATE:	5/21/2013 1:35:00 PM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aliphatics	NWEPH	830	25	5	MG/KG	05/24/2013	EBS
>C10-C12 Aliphatics	NWEPH	2100	25	5	MG/KG	05/24/2013	EBS
>C12-C16 Aliphatics	NWEPH	5500	25	5	MG/KG	05/24/2013	EBS
>C16-C21 Aliphatics	NWEPH	6000	25	5	MG/KG	05/24/2013	EBS
>C21-C34 Aliphatics	NWEPH	1000	25	5	MG/KG	05/24/2013	EBS
>C8-C10 Aromatics	NWEPH	220	10	2	MG/KG	05/28/2013	EBS
>C10-C12 Aromatics	NWEPH	630	10	2	MG/KG	05/28/2013	EBS
>C12-C16 Aromatics	NWEPH	1800	10	2	MG/KG	05/28/2013	EBS
>C16-C21 Aromatics	NWEPH	4000	10	2	MG/KG	05/28/2013	EBS
>C21-C34 Aromatics	NWEPH	550	10	2	MG/KG	05/28/2013	EBS

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25 5X Dilution	NWEPH	118	05/24/2013	EBS
p-Terphenyl 2X Dilution	NWEPH	105	05/28/2013	EBS



CERTIFICATE OF ANALYSIS

CLIENT: OnSite Environmental Inc. DATE: 5/30/2013
14648 NE 95th Street ALS SDG#: EV13050126
Redmond, WA 98052 WDOE ACCREDITATION: C601
CLIENT CONTACT: David Baumeister
CLIENT PROJECT: Proj #65201.0 / Lab Ref #05-192

LABORATORY BLANK RESULTS

MBLK-5242013 - Batch R81533 - Soil by NWEPH

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aliphatics	NWEPH	U	5.0	1	MG/KG	05/24/2013	EBS
>C10-C12 Aliphatics	NWEPH	U	5.0	1	MG/KG	05/24/2013	EBS
>C12-C16 Aliphatics	NWEPH	U	5.0	1	MG/KG	05/24/2013	EBS
>C16-C21 Aliphatics	NWEPH	U	5.0	1	MG/KG	05/24/2013	EBS
>C21-C34 Aliphatics	NWEPH	U	5.0	1	MG/KG	05/24/2013	EBS

MBLK-5282013 - Batch R81534 - Soil by NWEPH

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aromatics	NWEPH	U	5.0	1	MG/KG	05/28/2013	EBS
>C10-C12 Aromatics	NWEPH	U	5.0	1	MG/KG	05/28/2013	EBS
>C12-C16 Aromatics	NWEPH	U	5.0	1	MG/KG	05/28/2013	EBS
>C16-C21 Aromatics	NWEPH	U	5.0	1	MG/KG	05/28/2013	EBS
>C21-C34 Aromatics	NWEPH	U	5.0	1	MG/KG	05/28/2013	EBS



CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc. 14648 NE 95th Street Redmond, WA 98052	DATE:	5/30/2013
CLIENT CONTACT:	David Baumeister	ALS SDG#:	EV13050126
CLIENT PROJECT:	Proj #65201.0 / Lab Ref #05-192	WDOE ACCREDITATION:	C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: R81533 - Soil by NWEPH

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aliphatics - BS	NWEPH	82.0			05/24/2013	EBS
>C8-C10 Aliphatics - BSD	NWEPH	88.0	7		05/24/2013	EBS
>C10-C12 Aliphatics - BS	NWEPH	86.0			05/24/2013	EBS
>C10-C12 Aliphatics - BSD	NWEPH	91.0	6		05/24/2013	EBS
>C12-C16 Aliphatics - BS	NWEPH	85.0			05/24/2013	EBS
>C12-C16 Aliphatics - BSD	NWEPH	91.0	7		05/24/2013	EBS
>C16-C21 Aliphatics - BS	NWEPH	85.0			05/24/2013	EBS
>C16-C21 Aliphatics - BSD	NWEPH	91.0	7		05/24/2013	EBS
>C21-C34 Aliphatics - BS	NWEPH	93.0			05/24/2013	EBS
>C21-C34 Aliphatics - BSD	NWEPH	99.0	6		05/24/2013	EBS

ALS Test Batch ID: R81534 - Soil by NWEPH

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aromatics - BS	NWEPH	94.0			05/28/2013	EBS
>C8-C10 Aromatics - BSD	NWEPH	91.0	3		05/28/2013	EBS
>C10-C12 Aromatics - BS	NWEPH	94.0			05/28/2013	EBS
>C10-C12 Aromatics - BSD	NWEPH	91.0	3		05/28/2013	EBS
>C12-C16 Aromatics - BS	NWEPH	95.0			05/28/2013	EBS
>C12-C16 Aromatics - BSD	NWEPH	93.0	2		05/28/2013	EBS
>C16-C21 Aromatics - BS	NWEPH	94.0			05/28/2013	EBS
>C16-C21 Aromatics - BSD	NWEPH	93.0	1		05/28/2013	EBS
>C21-C34 Aromatics - BS	NWEPH	89.0			05/28/2013	EBS
>C21-C34 Aromatics - BSD	NWEPH	88.0	1		05/28/2013	EBS

APPROVED BY

Laboratory Director



Onsite Environmental Inc.
 Analytical Laboratory Testing Services
 14648 NE 95th Street • Redmond, WA 98052
 Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

05-192

Company: Environmental Partners
 Project Number: 65201,0
 Project Name: Mossman Property
 Project Manager: T. Morin / K. Addis
 Sampled by: K. Addis

Lab ID _____ Sample Identification _____

Turnaround Request
 (in working days)

- (Check One)
- Same Day 1 Day
- 2 Days 3 Days
- Standard (7 Days)
 (TPH analysis 5 Days)
- _____ (other)

Date Sampled	Time Sampled	Matrix	Number of Containers
5/20/13	0911	Soil	1
	0925	↓	1
	0946	Water	2
	1022	Soil	2
	1026	↓	2
	1050	Water	2
	1113	Soil	2
	1118	↓	2
	1155	Water	2
	1309	Soil	2

NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals/ MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664A	% Moisture
			X												
			X												
			X												
			X												
			X												
			X												
			X												
			X												
			X												

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	Comments/Special Instructions
1	B-1:7.5	5/20/13	0911	Soil	1	
2	B-1:11		0925	↓	1	
3	B-1W		0946	Water	2	
4	B-2:15		1022	Soil	2	
5	B-2:7.5		1026	↓	2	
6	B-2W		1050	Water	2	
7	B-3:4		1113	Soil	2	
8	B-3:6.5		1118	↓	2	
9	B-3W		1155	Water	2	
10	B-4:5		1309	Soil	2	

Relinquished	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	<u>[Signature]</u>	<u>EPI</u>	<u>5/21/13</u>	<u>1540</u>	
Received		<u>[Signature]</u>	<u>5/21/13</u>	<u>1520</u>	
Relinquished					
Received					
Relinquished					
Received					
Relinquished					
Received					
Reviewed/Date					



Onsite Environmental Inc.

Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

05-192

Turnaround Request
(In working days)
(Check One)

Same Day 1 Day

2 Days 3 Days

Standard (7 Days)
(TPH analysis 5 Days)

(other)

Laboratory Number:

Company: Environmental Partners

Project Number: 65201,0

Project Name: Mossman Property

Project Manager: T. Merin, K. Addis

Sampled by: K. Addis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix
11	B-4:6,5	5/20/13	1311	Soil
12	B-4W		1329	Water
13	B-5:4		1344	Soil
14	B-5:6,5		1352	↓
15	B-5W		1400	Water
16	B-6:3,5		1433	Soil
17	B-6:5,5		1443	↓
18	B-6W		1455	Water
19	MW-1:1,3	5/21/13	0854	Soil
20	MW-2:2	↓	0950	Soil

Number of Containers	Laboratory Number:															
	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals/ MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664A	% Moisture
2				X												2
2				X												2
2				X												2
2				X												2
2				X												2
2				X												2
2				X												2
2				X												2
1				X												2
1				X												2

Received	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished		EPI	5/21/13	1540	
Received		ORE	5/21/13	1540	
Relinquished					
Received					
Relinquished					
Received					
Reviewed/Date					Chromatograms with final report <input type="checkbox"/>



Onsite Environmental Inc.
 Analytical Laboratory Testing Services
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Chain of Custody

Laboratory Number: **05-192**

Company: *Environmental Partners*
 Project Number: *65201.0*
 Project Name: *Mossman Property*
 Project Manager: *T. Merin, K. Addis*
 Sampled by: *K. Addis*

Turnaround Request
 (in working days)

(Check One)

Same Day 1 Day

2 Days 3 Days

Standard (7 Days)
 (TPH analysis 5 Days)

_____ (other)

Lab ID

Date Sampled

Time Sampled

Matrix

Number of Containers

NWTPH-HCID	
NWTPH-Gx/BTEX	
NWTPH-Gx	
NWTPH-Dx	X
Volatiles 8260C	
Halogenated Volatiles 8260C	
Semivolatiles 8270D/SIM (with low-level PAHs)	
PAHs 8270D/SIM (low-level)	
PCBs 8082A	
Organochlorine Pesticides 8081B	
Organophosphorus Pesticides 8270D/SIM	
Chlorinated Acid Herbicides 8151A	
Total RCRA Metals/ MTCA Metals (circle one)	
TCLP Metals	
HEM (oil and grease) 1664A	
BTEX 8260	X
Naphthalene 8260	X
EPH	X
% Moisture	

21 MW-2:3

5/21/13

0952

Soil

1

22 MW-2:6

1011

Soil

1

23 B-7:6

1115

Soil

1

24 B-7W

1120

Water

2

25 MW-4:5

1335

Soil

6

26 Footing: 1.5

1343

Soil

10

Signature

Company

Date

Time

Comments/Special Instructions

Kristin Addis

EPT ONE

5/21/13

1540

[Signature]

[Signature]

5/21/13

1540

Relinquished

Received

Relinquished

Received

Reviewed/Date

Chromatograms with final report



3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Kristin Addis
295 NE Gilman Blvd., Suite 201
Issaquah, WA 98027

RE: Mossman Residence
Lab ID: 1311279

December 03, 2013

Attention Kristin Addis:

Fremont Analytical, Inc. received 22 sample(s) on 11/22/2013 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Sample Moisture (Percent Moisture)
Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Dee".

Michael Dee
Sr. Chemist / Principal

CC:
Thom Morin



Date: 12/03/2013

CLIENT: Environmental Partners, Inc.
Project: Mossman Residence
Lab Order: 1311279

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1311279-001	B-12:7	11/19/2013 10:49 AM	11/22/2013 4:30 PM
1311279-002	B-12	11/19/2013 11:40 AM	11/22/2013 4:30 PM
1311279-003	B-11:4	11/19/2013 12:04 PM	11/22/2013 4:30 PM
1311279-004	B-11	11/19/2013 12:22 PM	11/22/2013 4:30 PM
1311279-005	MW-6:4	11/19/2013 1:20 PM	11/22/2013 4:30 PM
1311279-006	MW-6 Recon	11/19/2013 2:00 PM	11/22/2013 4:30 PM
1311279-007	MW-5:2	11/19/2013 2:35 PM	11/22/2013 4:30 PM
1311279-008	MW-5 Recon	11/19/2013 2:43 PM	11/22/2013 4:30 PM
1311279-009	B-8:8	11/20/2013 9:57 AM	11/22/2013 4:30 PM
1311279-010	B-8	11/20/2013 10:20 AM	11/22/2013 4:30 PM
1311279-011	B-9:8	11/20/2013 11:07 AM	11/22/2013 4:30 PM
1311279-012	B-9	11/20/2013 11:31 AM	11/22/2013 4:30 PM
1311279-013	B-10:6	11/20/2013 12:57 AM	11/22/2013 4:30 PM
1311279-014	B-10	11/20/2013 1:27 PM	11/22/2013 4:30 PM
1311279-015	MW-5	11/21/2013 2:39 PM	11/22/2013 4:30 PM
1311279-016	MW-1	11/21/2013 2:56 PM	11/22/2013 4:30 PM
1311279-017	MW-2	11/21/2013 3:25 PM	11/22/2013 4:30 PM
1311279-018	MW-6	11/21/2013 3:58 PM	11/22/2013 4:30 PM
1311279-019	MW-3	11/21/2013 4:24 PM	11/22/2013 4:30 PM
1311279-020	MW-4	11/21/2013 5:18 PM	11/22/2013 4:30 PM
1311279-021	Trip Blank	11/12/2013 5:30 PM	11/22/2013 4:30 PM
1311279-022	Trip Blank	11/12/2013 5:30 PM	11/22/2013 4:30 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Environmental Partners, Inc.

Project: Mossman Residence

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Prep Comments for SW3510C, Sample 1311279-017A: Free floating product was observed. Prior to analysis, sample was decanted and water portion was extracted.



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/19/2013 10:49:00 AM

Project: Mossman Residence

Lab ID: 1311279-001

Matrix: Soil

Client Sample ID: B-12:7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 5988	Analyst: BR
Diesel (Fuel Oil)	54.1	27.7		mg/Kg-dry	1	11/25/2013 8:05:00 PM
Heavy Oil	ND	69.2		mg/Kg-dry	1	11/25/2013 8:05:00 PM
Surr: 2-Fluorobiphenyl	103	50-150		%REC	1	11/25/2013 8:05:00 PM
Surr: o-Terphenyl	111	50-150		%REC	1	11/25/2013 8:05:00 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R11264	Analyst: JS
Percent Moisture	33.9			wt%	1	11/25/2013 9:31:36 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/19/2013 11:40:00 AM

Project: Mossman Residence

Lab ID: 1311279-002

Matrix: Water

Client Sample ID: B-12

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>				Batch ID: 6002		Analyst: BR
Diesel (Fuel Oil)	616	50.0		µg/L	1	11/26/2013 7:23:00 PM
Heavy Oil	ND	100		µg/L	1	11/26/2013 7:23:00 PM
Surr: 2-Fluorobiphenyl	110	50-150		%REC	1	11/26/2013 7:23:00 PM
Surr: o-Terphenyl	111	50-150		%REC	1	11/26/2013 7:23:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/19/2013 12:04:00 PM

Project: Mossman Residence

Lab ID: 1311279-003

Matrix: Soil

Client Sample ID: B-11:4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 5988	Analyst: BR
Diesel (Fuel Oil)	3,480	19.8		mg/Kg-dry	1	11/25/2013 9:08:00 PM
Heavy Oil	ND	49.4		mg/Kg-dry	1	11/25/2013 9:08:00 PM
Surr: 2-Fluorobiphenyl	89.8	50-150		%REC	1	11/25/2013 9:08:00 PM
Surr: o-Terphenyl	123	50-150		%REC	1	11/25/2013 9:08:00 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R11264	Analyst: JS
Percent Moisture	12.3			wt%	1	11/25/2013 9:31:36 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Client: Environmental Partners, Inc.

Collection Date: 11/19/2013 12:22:00 PM

Project: Mossman Residence

Lab ID: 1311279-004

Matrix: Water

Client Sample ID: B-11

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 6002

Analyst: BR

Diesel (Fuel Oil)	959	50.0		µg/L	1	11/26/2013 7:50:00 PM
Heavy Oil	ND	100		µg/L	1	11/26/2013 7:50:00 PM
Surr: 2-Fluorobiphenyl	119	50-150		%REC	1	11/26/2013 7:50:00 PM
Surr: o-Terphenyl	121	50-150		%REC	1	11/26/2013 7:50:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/19/2013 1:20:00 PM

Project: Mossman Residence

Lab ID: 1311279-005

Matrix: Soil

Client Sample ID: MW-6:4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 5988

Analyst: BR

Diesel (Fuel Oil)	228	21.1		mg/Kg-dry	1	11/25/2013 9:40:00 PM
Heavy Oil	ND	52.7		mg/Kg-dry	1	11/25/2013 9:40:00 PM
Surr: 2-Fluorobiphenyl	110	50-150		%REC	1	11/25/2013 9:40:00 PM
Surr: o-Terphenyl	102	50-150		%REC	1	11/25/2013 9:40:00 PM

Volatile Organic Compounds by EPA Method 8260

Batch ID: 5998

Analyst: GH

Methyl tert-butyl ether (MTBE)	ND	0.0562		mg/Kg-dry	1	11/27/2013 12:32:00 AM
Benzene	ND	0.0225		mg/Kg-dry	1	11/27/2013 12:32:00 AM
Toluene	ND	0.0225		mg/Kg-dry	1	11/27/2013 12:32:00 AM
Ethylbenzene	ND	0.0337		mg/Kg-dry	1	11/27/2013 12:32:00 AM
m,p-Xylene	0.0373	0.0225		mg/Kg-dry	1	11/27/2013 12:32:00 AM
o-Xylene	ND	0.0225		mg/Kg-dry	1	11/27/2013 12:32:00 AM
Styrene	ND	0.0225		mg/Kg-dry	1	11/27/2013 12:32:00 AM
n-Propylbenzene	0.0735	0.0225		mg/Kg-dry	1	11/27/2013 12:32:00 AM
1,3,5-Trimethylbenzene	0.0608	0.0225		mg/Kg-dry	1	11/27/2013 12:32:00 AM
tert-Butylbenzene	ND	0.0225		mg/Kg-dry	1	11/27/2013 12:32:00 AM
sec-Butylbenzene	0.0537	0.0225		mg/Kg-dry	1	11/27/2013 12:32:00 AM
4-Isopropyltoluene	0.0400	0.0225		mg/Kg-dry	1	11/27/2013 12:32:00 AM
n-Butylbenzene	0.146	0.0225		mg/Kg-dry	1	11/27/2013 12:32:00 AM
1,2,4-Trimethylbenzene	0.311	0.0225		mg/Kg-dry	1	11/27/2013 12:32:00 AM
Naphthalene	0.0852	0.0337		mg/Kg-dry	1	11/27/2013 12:32:00 AM
Surr: Dibromofluoromethane	97.0	63.7-129		%REC	1	11/27/2013 12:32:00 AM
Surr: Toluene-d8	99.1	61.4-128		%REC	1	11/27/2013 12:32:00 AM
Surr: 1-Bromo-4-fluorobenzene	103	63.1-141		%REC	1	11/27/2013 12:32:00 AM

Sample Moisture (Percent Moisture)

Batch ID: R11264

Analyst: JS

Percent Moisture	11.3			wt%	1	11/25/2013 9:31:36 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/19/2013 2:00:00 PM

Project: Mossman Residence

Lab ID: 1311279-006

Matrix: Water

Client Sample ID: MW-6 Recon

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 6002

Analyst: BR

Diesel (Fuel Oil)	1,450	50.0		µg/L	1	11/26/2013 8:18:00 PM
Heavy Oil	ND	100		µg/L	1	11/26/2013 8:18:00 PM
Surr: 2-Fluorobiphenyl	108	50-150		%REC	1	11/26/2013 8:18:00 PM
Surr: o-Terphenyl	121	50-150		%REC	1	11/26/2013 8:18:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/19/2013 2:35:00 PM

Project: Mossman Residence

Lab ID: 1311279-007

Matrix: Soil

Client Sample ID: MW-5:2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 5988	Analyst: BR
Diesel (Fuel Oil)	ND	21.3		mg/Kg-dry	1	11/26/2013 12:01:00 AM
Heavy Oil	ND	53.2		mg/Kg-dry	1	11/26/2013 12:01:00 AM
Surr: 2-Fluorobiphenyl	102	50-150		%REC	1	11/26/2013 12:01:00 AM
Surr: o-Terphenyl	104	50-150		%REC	1	11/26/2013 12:01:00 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R11264	Analyst: JS
Percent Moisture	12.1			wt%	1	11/25/2013 9:31:36 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/19/2013 2:43:00 PM

Project: Mossman Residence

Lab ID: 1311279-008

Matrix: Water

Client Sample ID: MW-5 Recon

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 6002

Analyst: BR

Diesel (Fuel Oil)	2,080	50.0		µg/L	1	11/26/2013 8:45:00 PM
Heavy Oil	ND	100		µg/L	1	11/26/2013 8:45:00 PM
Surr: 2-Fluorobiphenyl	110	50-150		%REC	1	11/26/2013 8:45:00 PM
Surr: o-Terphenyl	119	50-150		%REC	1	11/26/2013 8:45:00 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/20/2013 9:57:00 AM

Project: Mossman Residence

Lab ID: 1311279-009

Matrix: Soil

Client Sample ID: B-8:8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 5988

Analyst: BR

Diesel (Fuel Oil)	1,910	27.3		mg/Kg-dry	1	11/26/2013 12:33:00 AM
Heavy Oil	ND	68.3		mg/Kg-dry	1	11/26/2013 12:33:00 AM
Surr: 2-Fluorobiphenyl	102	50-150		%REC	1	11/26/2013 12:33:00 AM
Surr: o-Terphenyl	109	50-150		%REC	1	11/26/2013 12:33:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: 5998

Analyst: GH

Methyl tert-butyl ether (MTBE)	ND	0.0580		mg/Kg-dry	1	11/27/2013 1:00:00 AM
Benzene	ND	0.0232		mg/Kg-dry	1	11/27/2013 1:00:00 AM
Toluene	ND	0.0232		mg/Kg-dry	1	11/27/2013 1:00:00 AM
Ethylbenzene	ND	0.0348		mg/Kg-dry	1	11/27/2013 1:00:00 AM
m,p-Xylene	ND	0.0232		mg/Kg-dry	1	11/27/2013 1:00:00 AM
o-Xylene	ND	0.0232		mg/Kg-dry	1	11/27/2013 1:00:00 AM
Styrene	ND	0.0232		mg/Kg-dry	1	11/27/2013 1:00:00 AM
n-Propylbenzene	ND	0.0232		mg/Kg-dry	1	11/27/2013 1:00:00 AM
1,3,5-Trimethylbenzene	ND	0.0232		mg/Kg-dry	1	11/27/2013 1:00:00 AM
tert-Butylbenzene	ND	0.0232		mg/Kg-dry	1	11/27/2013 1:00:00 AM
sec-Butylbenzene	0.258	0.0232		mg/Kg-dry	1	11/27/2013 1:00:00 AM
4-Isopropyltoluene	0.0848	0.0232		mg/Kg-dry	1	11/27/2013 1:00:00 AM
n-Butylbenzene	ND	0.0232		mg/Kg-dry	1	11/27/2013 1:00:00 AM
1,2,4-Trimethylbenzene	0.0322	0.0232		mg/Kg-dry	1	11/27/2013 1:00:00 AM
Naphthalene	ND	0.0348		mg/Kg-dry	1	11/27/2013 1:00:00 AM
Surr: Dibromofluoromethane	96.3	63.7-129		%REC	1	11/27/2013 1:00:00 AM
Surr: Toluene-d8	97.7	61.4-128		%REC	1	11/27/2013 1:00:00 AM
Surr: 1-Bromo-4-fluorobenzene	105	63.1-141		%REC	1	11/27/2013 1:00:00 AM

Sample Moisture (Percent Moisture)

Batch ID: R11264

Analyst: JS

Percent Moisture	23.1			wt%	1	11/25/2013 9:31:36 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/20/2013 10:20:00 AM

Project: Mossman Residence

Lab ID: 1311279-010

Matrix: Water

Client Sample ID: B-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 6002

Analyst: BR

Diesel (Fuel Oil)	1,080	50.0		µg/L	1	11/26/2013 9:13:00 PM
Heavy Oil	ND	100		µg/L	1	11/26/2013 9:13:00 PM
Surr: 2-Fluorobiphenyl	108	50-150		%REC	1	11/26/2013 9:13:00 PM
Surr: o-Terphenyl	113	50-150		%REC	1	11/26/2013 9:13:00 PM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R11389

Analyst: GH

Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	11/29/2013 4:55:00 AM
Benzene	ND	1.00		µg/L	1	11/29/2013 4:55:00 AM
Toluene	ND	1.00		µg/L	1	11/29/2013 4:55:00 AM
Ethylbenzene	ND	1.00		µg/L	1	11/29/2013 4:55:00 AM
m,p-Xylene	ND	1.00		µg/L	1	11/29/2013 4:55:00 AM
o-Xylene	ND	1.00		µg/L	1	11/29/2013 4:55:00 AM
Styrene	ND	1.00		µg/L	1	11/29/2013 4:55:00 AM
n-Propylbenzene	ND	1.00		µg/L	1	11/29/2013 4:55:00 AM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	11/29/2013 4:55:00 AM
tert-Butylbenzene	ND	1.00		µg/L	1	11/29/2013 4:55:00 AM
sec-Butylbenzene	ND	1.00		µg/L	1	11/29/2013 4:55:00 AM
4-Isopropyltoluene	ND	1.00		µg/L	1	11/29/2013 4:55:00 AM
n-Butylbenzene	ND	1.00		µg/L	1	11/29/2013 4:55:00 AM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	11/29/2013 4:55:00 AM
Naphthalene	ND	1.00		µg/L	1	11/29/2013 4:55:00 AM
Surr: Dibromofluoromethane	103	72.1-122		%REC	1	11/29/2013 4:55:00 AM
Surr: Toluene-d8	100	62.1-129		%REC	1	11/29/2013 4:55:00 AM
Surr: 1-Bromo-4-fluorobenzene	102	66.8-124		%REC	1	11/29/2013 4:55:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/20/2013 11:07:00 AM

Project: Mossman Residence

Lab ID: 1311279-011

Matrix: Soil

Client Sample ID: B-9:8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 5988	Analyst: BR
Diesel (Fuel Oil)	372	28.4		mg/Kg-dry	1	11/26/2013 1:05:00 AM
Heavy Oil	ND	71.0		mg/Kg-dry	1	11/26/2013 1:05:00 AM
Surr: 2-Fluorobiphenyl	101	50-150		%REC	1	11/26/2013 1:05:00 AM
Surr: o-Terphenyl	102	50-150		%REC	1	11/26/2013 1:05:00 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R11264	Analyst: JS
Percent Moisture	26.5			wt%	1	11/25/2013 9:31:36 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/20/2013 11:31:00 AM

Project: Mossman Residence

Lab ID: 1311279-012

Matrix: Water

Client Sample ID: B-9

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 6002

Analyst: BR

Diesel (Fuel Oil)	ND	50.0		µg/L	1	11/26/2013 9:40:00 PM
Heavy Oil	ND	100		µg/L	1	11/26/2013 9:40:00 PM
Surr: 2-Fluorobiphenyl	116	50-150		%REC	1	11/26/2013 9:40:00 PM
Surr: o-Terphenyl	116	50-150		%REC	1	11/26/2013 9:40:00 PM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R11389

Analyst: GH

Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	11/29/2013 5:49:00 AM
Benzene	ND	1.00		µg/L	1	11/29/2013 5:49:00 AM
Toluene	ND	1.00		µg/L	1	11/29/2013 5:49:00 AM
Ethylbenzene	ND	1.00		µg/L	1	11/29/2013 5:49:00 AM
m,p-Xylene	ND	1.00		µg/L	1	11/29/2013 5:49:00 AM
o-Xylene	ND	1.00		µg/L	1	11/29/2013 5:49:00 AM
Styrene	ND	1.00		µg/L	1	11/29/2013 5:49:00 AM
n-Propylbenzene	ND	1.00		µg/L	1	11/29/2013 5:49:00 AM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	11/29/2013 5:49:00 AM
tert-Butylbenzene	ND	1.00		µg/L	1	11/29/2013 5:49:00 AM
sec-Butylbenzene	ND	1.00		µg/L	1	11/29/2013 5:49:00 AM
4-Isopropyltoluene	ND	1.00		µg/L	1	11/29/2013 5:49:00 AM
n-Butylbenzene	ND	1.00		µg/L	1	11/29/2013 5:49:00 AM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	11/29/2013 5:49:00 AM
Naphthalene	ND	1.00		µg/L	1	11/29/2013 5:49:00 AM
Surr: Dibromofluoromethane	102	72.1-122		%REC	1	11/29/2013 5:49:00 AM
Surr: Toluene-d8	101	62.1-129		%REC	1	11/29/2013 5:49:00 AM
Surr: 1-Bromo-4-fluorobenzene	98.2	66.8-124		%REC	1	11/29/2013 5:49:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/20/2013 12:57:00 AM

Project: Mossman Residence

Lab ID: 1311279-013

Matrix: Soil

Client Sample ID: B-10:6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 5988	Analyst: BR
Diesel (Fuel Oil)	502	26.3		mg/Kg-dry	1	11/26/2013 1:36:00 AM
Heavy Oil	ND	65.7		mg/Kg-dry	1	11/26/2013 1:36:00 AM
Surr: 2-Fluorobiphenyl	99.9	50-150		%REC	1	11/26/2013 1:36:00 AM
Surr: o-Terphenyl	103	50-150		%REC	1	11/26/2013 1:36:00 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R11264	Analyst: JS
Percent Moisture	24.7			wt%	1	11/25/2013 9:31:36 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/20/2013 1:27:00 PM

Project: Mossman Residence

Lab ID: 1311279-014

Matrix: Water

Client Sample ID: B-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>				Batch ID: 6002		Analyst: BR
Diesel (Fuel Oil)	190	50.0		µg/L	1	11/26/2013 10:08:00 PM
Heavy Oil	ND	100		µg/L	1	11/26/2013 10:08:00 PM
Surr: 2-Fluorobiphenyl	103	50-150		%REC	1	11/26/2013 10:08:00 PM
Surr: o-Terphenyl	107	50-150		%REC	1	11/26/2013 10:08:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/21/2013 2:39:00 PM

Project: Mossman Residence

Lab ID: 1311279-015

Matrix: Water

Client Sample ID: MW-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 6002

Analyst: BR

Diesel (Fuel Oil)	1,250	50.0		µg/L	1	11/26/2013 10:35:00 PM
Heavy Oil	ND	100		µg/L	1	11/26/2013 10:35:00 PM
Surr: 2-Fluorobiphenyl	111	50-150		%REC	1	11/26/2013 10:35:00 PM
Surr: o-Terphenyl	113	50-150		%REC	1	11/26/2013 10:35:00 PM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R11389

Analyst: GH

Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	11/29/2013 6:16:00 AM
Benzene	ND	1.00		µg/L	1	11/29/2013 6:16:00 AM
Toluene	ND	1.00		µg/L	1	11/29/2013 6:16:00 AM
Ethylbenzene	1.59	1.00		µg/L	1	11/29/2013 6:16:00 AM
m,p-Xylene	1.93	1.00		µg/L	1	11/29/2013 6:16:00 AM
o-Xylene	1.77	1.00		µg/L	1	11/29/2013 6:16:00 AM
Styrene	ND	1.00		µg/L	1	11/29/2013 6:16:00 AM
n-Propylbenzene	4.44	1.00		µg/L	1	11/29/2013 6:16:00 AM
1,3,5-Trimethylbenzene	2.34	1.00		µg/L	1	11/29/2013 6:16:00 AM
tert-Butylbenzene	ND	1.00		µg/L	1	11/29/2013 6:16:00 AM
sec-Butylbenzene	2.92	1.00		µg/L	1	11/29/2013 6:16:00 AM
4-Isopropyltoluene	1.88	1.00		µg/L	1	11/29/2013 6:16:00 AM
n-Butylbenzene	4.29	1.00		µg/L	1	11/29/2013 6:16:00 AM
1,2,4-Trimethylbenzene	22.4	1.00		µg/L	1	11/29/2013 6:16:00 AM
Naphthalene	9.66	1.00		µg/L	1	11/29/2013 6:16:00 AM
Surr: Dibromofluoromethane	102	72.1-122		%REC	1	11/29/2013 6:16:00 AM
Surr: Toluene-d8	101	62.1-129		%REC	1	11/29/2013 6:16:00 AM
Surr: 1-Bromo-4-fluorobenzene	100	66.8-124		%REC	1	11/29/2013 6:16:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/21/2013 2:56:00 PM

Project: Mossman Residence

Lab ID: 1311279-016

Matrix: Water

Client Sample ID: MW-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>				Batch ID: 6002		Analyst: BR
Diesel (Fuel Oil)	1,280	50.0		µg/L	1	11/26/2013 11:03:00 PM
Heavy Oil	ND	100		µg/L	1	11/26/2013 11:03:00 PM
Surr: 2-Fluorobiphenyl	99.6	50-150		%REC	1	11/26/2013 11:03:00 PM
Surr: o-Terphenyl	101	50-150		%REC	1	11/26/2013 11:03:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/21/2013 3:25:00 PM

Project: Mossman Residence

Lab ID: 1311279-017

Matrix: Water

Client Sample ID: MW-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>				Batch ID: 6002		Analyst: BR
Diesel (Fuel Oil)	231,000	1,000	D	µg/L	20	11/27/2013 12:02:00 PM
Heavy Oil	ND	100		µg/L	1	11/26/2013 11:30:00 PM
Surr: 2-Fluorobiphenyl	121	50-150		%REC	1	11/26/2013 11:30:00 PM
Surr: o-Terphenyl	108	50-150		%REC	1	11/26/2013 11:30:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/21/2013 3:58:00 PM

Project: Mossman Residence

Lab ID: 1311279-018

Matrix: Water

Client Sample ID: MW-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 6002

Analyst: BR

Diesel (Fuel Oil)	1,120	50.0		µg/L	1	11/26/2013 11:58:00 PM
Heavy Oil	ND	100		µg/L	1	11/26/2013 11:58:00 PM
Surr: 2-Fluorobiphenyl	70.5	50-150		%REC	1	11/26/2013 11:58:00 PM
Surr: o-Terphenyl	97.8	50-150		%REC	1	11/26/2013 11:58:00 PM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R11389

Analyst: GH

Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	11/29/2013 6:43:00 AM
Benzene	ND	1.00		µg/L	1	11/29/2013 6:43:00 AM
Toluene	ND	1.00		µg/L	1	11/29/2013 6:43:00 AM
Ethylbenzene	ND	1.00		µg/L	1	11/29/2013 6:43:00 AM
m,p-Xylene	ND	1.00		µg/L	1	11/29/2013 6:43:00 AM
o-Xylene	ND	1.00		µg/L	1	11/29/2013 6:43:00 AM
Styrene	ND	1.00		µg/L	1	11/29/2013 6:43:00 AM
n-Propylbenzene	ND	1.00		µg/L	1	11/29/2013 6:43:00 AM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	11/29/2013 6:43:00 AM
tert-Butylbenzene	ND	1.00		µg/L	1	11/29/2013 6:43:00 AM
sec-Butylbenzene	ND	1.00		µg/L	1	11/29/2013 6:43:00 AM
4-Isopropyltoluene	ND	1.00		µg/L	1	11/29/2013 6:43:00 AM
n-Butylbenzene	ND	1.00		µg/L	1	11/29/2013 6:43:00 AM
1,2,4-Trimethylbenzene	6.04	1.00		µg/L	1	11/29/2013 6:43:00 AM
Naphthalene	1.11	1.00		µg/L	1	11/29/2013 6:43:00 AM
Surr: Dibromofluoromethane	101	72.1-122		%REC	1	11/29/2013 6:43:00 AM
Surr: Toluene-d8	99.9	62.1-129		%REC	1	11/29/2013 6:43:00 AM
Surr: 1-Bromo-4-fluorobenzene	96.6	66.8-124		%REC	1	11/29/2013 6:43:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/21/2013 4:24:00 PM

Project: Mossman Residence

Lab ID: 1311279-019

Matrix: Water

Client Sample ID: MW-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>				Batch ID: 6002		Analyst: BR
Diesel (Fuel Oil)	2,010	50.0		µg/L	1	11/27/2013 12:25:00 AM
Heavy Oil	ND	100		µg/L	1	11/27/2013 12:25:00 AM
Surr: 2-Fluorobiphenyl	113	50-150		%REC	1	11/27/2013 12:25:00 AM
Surr: o-Terphenyl	118	50-150		%REC	1	11/27/2013 12:25:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/21/2013 5:18:00 PM

Project: Mossman Residence

Lab ID: 1311279-020

Matrix: Water

Client Sample ID: MW-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>				Batch ID: 6002		Analyst: BR
Diesel (Fuel Oil)	29,800	50.0		µg/L	1	11/27/2013 12:53:00 AM
Heavy Oil	185	100		µg/L	1	11/27/2013 12:53:00 AM
Surr: 2-Fluorobiphenyl	88.9	50-150		%REC	1	11/27/2013 12:53:00 AM
Surr: o-Terphenyl	132	50-150		%REC	1	11/27/2013 12:53:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/12/2013 5:30:00 PM

Project: Mossman Residence

Lab ID: 1311279-021

Matrix: Water

Client Sample ID: Trip Blank

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: R11389

Analyst: GH

Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	11/28/2013 11:57:00 PM
Benzene	ND	1.00		µg/L	1	11/28/2013 11:57:00 PM
Toluene	ND	1.00		µg/L	1	11/28/2013 11:57:00 PM
Ethylbenzene	ND	1.00		µg/L	1	11/28/2013 11:57:00 PM
m,p-Xylene	ND	1.00		µg/L	1	11/28/2013 11:57:00 PM
o-Xylene	ND	1.00		µg/L	1	11/28/2013 11:57:00 PM
Styrene	ND	1.00		µg/L	1	11/28/2013 11:57:00 PM
n-Propylbenzene	ND	1.00		µg/L	1	11/28/2013 11:57:00 PM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	11/28/2013 11:57:00 PM
tert-Butylbenzene	ND	1.00		µg/L	1	11/28/2013 11:57:00 PM
sec-Butylbenzene	ND	1.00		µg/L	1	11/28/2013 11:57:00 PM
4-Isopropyltoluene	ND	1.00		µg/L	1	11/28/2013 11:57:00 PM
n-Butylbenzene	ND	1.00		µg/L	1	11/28/2013 11:57:00 PM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	11/28/2013 11:57:00 PM
Naphthalene	ND	1.00		µg/L	1	11/28/2013 11:57:00 PM
Surr: Dibromofluoromethane	101	72.1-122		%REC	1	11/28/2013 11:57:00 PM
Surr: Toluene-d8	99.9	62.1-129		%REC	1	11/28/2013 11:57:00 PM
Surr: 1-Bromo-4-fluorobenzene	97.3	66.8-124		%REC	1	11/28/2013 11:57:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1311279

Date Reported: 12/3/2013

Client: Environmental Partners, Inc.

Collection Date: 11/12/2013 5:30:00 PM

Project: Mossman Residence

Lab ID: 1311279-022

Matrix: Soil

Client Sample ID: Trip Blank

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 5998

Analyst: GH

Methyl tert-butyl ether (MTBE)	ND	0.0500		mg/Kg	1	11/26/2013 9:21:00 PM
Benzene	ND	0.0200		mg/Kg	1	11/26/2013 9:21:00 PM
Toluene	ND	0.0200		mg/Kg	1	11/26/2013 9:21:00 PM
Ethylbenzene	ND	0.0300		mg/Kg	1	11/26/2013 9:21:00 PM
m,p-Xylene	ND	0.0200		mg/Kg	1	11/26/2013 9:21:00 PM
o-Xylene	ND	0.0200		mg/Kg	1	11/26/2013 9:21:00 PM
Styrene	ND	0.0200		mg/Kg	1	11/26/2013 9:21:00 PM
n-Propylbenzene	ND	0.0200		mg/Kg	1	11/26/2013 9:21:00 PM
1,3,5-Trimethylbenzene	ND	0.0200		mg/Kg	1	11/26/2013 9:21:00 PM
tert-Butylbenzene	ND	0.0200		mg/Kg	1	11/26/2013 9:21:00 PM
sec-Butylbenzene	ND	0.0200		mg/Kg	1	11/26/2013 9:21:00 PM
4-Isopropyltoluene	ND	0.0200		mg/Kg	1	11/26/2013 9:21:00 PM
n-Butylbenzene	ND	0.0200		mg/Kg	1	11/26/2013 9:21:00 PM
1,2,4-Trimethylbenzene	ND	0.0200		mg/Kg	1	11/26/2013 9:21:00 PM
Naphthalene	ND	0.0300		mg/Kg	1	11/26/2013 9:21:00 PM
Surr: Dibromofluoromethane	96.3	63.7-129		%REC	1	11/26/2013 9:21:00 PM
Surr: Toluene-d8	97.9	61.4-128		%REC	1	11/26/2013 9:21:00 PM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	11/26/2013 9:21:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

Work Order: 1311279
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: 1311279-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 11/25/2013	RunNo: 11342							
Client ID: B-12:7	Batch ID: 5988		Analysis Date: 11/25/2013	SeqNo: 226840							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	27.0						54.12	80.3	30	R
Heavy Oil	ND	67.4						0		30	
Surr: 2-Fluorobiphenyl	27.4		26.95		102	50	150		0		
Surr: o-Terphenyl	28.8		26.95		107	50	150		0		

NOTES:

R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Sample ID: LCS-5988	SampType: LCS	Units: mg/Kg	Prep Date: 11/25/2013	RunNo: 11342							
Client ID: LCSS	Batch ID: 5988		Analysis Date: 11/25/2013	SeqNo: 226866							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	532	20.0	500.0	0	106	65	135				
Surr: 2-Fluorobiphenyl	21.9		20.00		109	50	150				
Surr: o-Terphenyl	20.9		20.00		105	50	150				

Sample ID: MB-5988	SampType: MBLK	Units: mg/Kg	Prep Date: 11/25/2013	RunNo: 11342							
Client ID: MBLKS	Batch ID: 5988		Analysis Date: 11/25/2013	SeqNo: 226867							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	20.6		20.00		103	50	150				
Surr: o-Terphenyl	21.2		20.00		106	50	150				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1311279
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: LCS-6002	SampType: LCS	Units: µg/L				Prep Date: 11/26/2013	RunNo: 11356				
Client ID: LCSW	Batch ID: 6002					Analysis Date: 11/26/2013	SeqNo: 227091				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	2,310	50.0	2,000	0	116	65	135				
Surr: 2-Fluorobiphenyl	188		160.0		118	50	150				
Surr: o-Terphenyl	199		160.0		124	50	150				

Sample ID: MB-6002	SampType: MBLK	Units: µg/L				Prep Date: 11/26/2013	RunNo: 11356				
Client ID: MBLKW	Batch ID: 6002					Analysis Date: 11/26/2013	SeqNo: 227092				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Surr: 2-Fluorobiphenyl	176		160.0		110	50	150				
Surr: o-Terphenyl	180		160.0		113	50	150				

Sample ID: 1311279-020ADUP	SampType: DUP	Units: µg/L				Prep Date: 11/26/2013	RunNo: 11356				
Client ID: MW-4	Batch ID: 6002					Analysis Date: 11/27/2013	SeqNo: 227204				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	30,800	50.0						29,800	3.19	30	
Heavy Oil	205	100						184.5	10.7	30	
Surr: 2-Fluorobiphenyl	95.2		160.0		59.5	50	150		0		
Surr: o-Terphenyl	149		160.0		93.3	50	150		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1311279
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1311263-002BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 11/26/2013	RunNo: 11337							
Client ID: BATCH	Batch ID: 5998		Analysis Date: 11/26/2013	SeqNo: 226670							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.0541						0		30	
Benzene	ND	0.0216						0		30	
Toluene	ND	0.0216						0		30	
Ethylbenzene	ND	0.0324						0		30	
m,p-Xylene	ND	0.0216						0		30	
o-Xylene	ND	0.0216						0		30	
Styrene	ND	0.0216						0		30	
n-Propylbenzene	ND	0.0216						0		30	
1,3,5-Trimethylbenzene	ND	0.0216						0		30	
tert-Butylbenzene	ND	0.0216						0		30	
sec-Butylbenzene	ND	0.0216						0		30	
4-Isopropyltoluene	ND	0.0216						0		30	
n-Butylbenzene	ND	0.0216						0		30	
1,2,4-Trimethylbenzene	ND	0.0216						0		30	
Naphthalene	ND	0.0324						0		30	
Surr: Dibromofluoromethane	2.59		2.704		96.0	63.7	129		0		
Surr: Toluene-d8	2.63		2.704		97.2	61.4	128		0		
Surr: 1-Bromo-4-fluorobenzene	2.84		2.704		105	63.1	141		0		

Sample ID: 1311263-007BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 11/26/2013	RunNo: 11337							
Client ID: BATCH	Batch ID: 5998		Analysis Date: 11/26/2013	SeqNo: 226672							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.36	0.0616	1.232	0	110	54.4	132				
Benzene	1.26	0.0246	1.232	0	102	63.5	133				
Toluene	1.29	0.0246	1.232	0	105	63.4	132				
Ethylbenzene	1.28	0.0370	1.232	0	104	54.5	134				
m,p-Xylene	2.60	0.0246	2.465	0	105	53.1	132				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1311279
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1311263-007BMS	SampType: MS	Units: mg/Kg-dry				Prep Date: 11/26/2013	RunNo: 11337				
Client ID: BATCH	Batch ID: 5998					Analysis Date: 11/26/2013	SeqNo: 226672				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	1.27	0.0246	1.232	0	103	53.3	139				
Styrene	1.26	0.0246	1.232	0	102	51.1	132				
n-Propylbenzene	1.30	0.0246	1.232	0	105	53.6	140				
1,3,5-Trimethylbenzene	1.28	0.0246	1.232	0	104	51.8	136				
tert-Butylbenzene	1.30	0.0246	1.232	0	106	50.5	135				
sec-Butylbenzene	1.30	0.0246	1.232	0	106	52.6	141				
4-Isopropyltoluene	1.32	0.0246	1.232	0	107	52.9	134				
n-Butylbenzene	1.34	0.0246	1.232	0	109	52.6	130				
1,2,4-Trimethylbenzene	1.26	0.0246	1.232	0	102	50.6	137				
Naphthalene	1.16	0.0370	1.232	0	93.8	52.3	124				
Surr: Dibromofluoromethane	2.94		3.081		95.5	63.7	129				
Surr: Toluene-d8	2.98		3.081		96.8	61.4	128				
Surr: 1-Bromo-4-fluorobenzene	2.97		3.081		96.4	63.1	141				

Sample ID: LCS-5998	SampType: LCS	Units: mg/Kg				Prep Date: 11/26/2013	RunNo: 11337				
Client ID: LCSS	Batch ID: 5998					Analysis Date: 11/26/2013	SeqNo: 226693				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.941	0.0500	1.000	0	94.1	59.1	138				
Benzene	0.997	0.0200	1.000	0	99.7	74.6	124				
Toluene	1.00	0.0200	1.000	0	100	79.9	118				
Ethylbenzene	0.998	0.0300	1.000	0	99.8	74	129				
m,p-Xylene	2.00	0.0200	2.000	0	99.8	79.8	128				
o-Xylene	0.995	0.0200	1.000	0	99.5	72.7	124				
Styrene	0.999	0.0200	1.000	0	99.9	76.8	130				
n-Propylbenzene	1.02	0.0200	1.000	0	102	78	130				
1,3,5-Trimethylbenzene	1.00	0.0200	1.000	0	100	74.6	123				
tert-Butylbenzene	1.00	0.0200	1.000	0	100	66.2	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1311279
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-5998	SampType: LCS	Units: mg/Kg				Prep Date: 11/26/2013	RunNo: 11337				
Client ID: LCSS	Batch ID: 5998					Analysis Date: 11/26/2013	SeqNo: 226693				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	1.01	0.0200	1.000	0	101	75.6	133				
4-Isopropyltoluene	1.02	0.0200	1.000	0	102	76.8	131				
n-Butylbenzene	1.04	0.0200	1.000	0	104	65.3	136				
1,2,4-Trimethylbenzene	0.999	0.0200	1.000	0	99.9	77.5	129				
Naphthalene	0.950	0.0300	1.000	0	95.0	64	130				
Surr: Dibromofluoromethane	2.36		2.500		94.5	63.7	129				
Surr: Toluene-d8	2.40		2.500		95.8	61.4	128				
Surr: 1-Bromo-4-fluorobenzene	2.44		2.500		97.5	63.1	141				

Sample ID: MB-5998	SampType: MBLK	Units: mg/Kg				Prep Date: 11/26/2013	RunNo: 11337				
Client ID: MBLKS	Batch ID: 5998					Analysis Date: 11/26/2013	SeqNo: 226694				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.0500									
Benzene	ND	0.0200									
Toluene	ND	0.0200									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
n-Propylbenzene	ND	0.0200									
1,3,5-Trimethylbenzene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2,4-Trimethylbenzene	ND	0.0200									
Naphthalene	ND	0.0300									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1311279
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: MB-5998	SampType: MBLK	Units: mg/Kg	Prep Date: 11/26/2013	RunNo: 11337							
Client ID: MBLKS	Batch ID: 5998		Analysis Date: 11/26/2013	SeqNo: 226694							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: Dibromofluoromethane	2.38		2.500		95.2	63.7	129				
Surr: Toluene-d8	2.42		2.500		96.6	61.4	128				
Surr: 1-Bromo-4-fluorobenzene	2.50		2.500		100	63.1	141				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1311279
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1311258-002BMS	SampType: MS	Units: µg/L	Prep Date: 11/29/2013	RunNo: 11389
Client ID: BATCH	Batch ID: R11389		Analysis Date: 11/29/2013	SeqNo: 227612

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	19.8	1.00	20.00	0	98.9	60.9	132				
Benzene	20.8	1.00	20.00	0	104	65.4	138				
Toluene	21.2	1.00	20.00	0.2460	105	64	139				
Ethylbenzene	20.3	1.00	20.00	0	101	64.5	136				
m,p-Xylene	39.8	1.00	40.00	0	99.5	63.3	135				
o-Xylene	19.8	1.00	20.00	0	99.2	65.4	134				
Styrene	18.6	1.00	20.00	0	92.9	59.1	134				
n-Propylbenzene	20.0	1.00	20.00	0	99.9	57.6	142				
1,3,5-Trimethylbenzene	19.8	1.00	20.00	0	99.2	59.9	136				
tert-Butylbenzene	19.7	1.00	20.00	0	98.4	66.8	141				
sec-Butylbenzene	19.8	1.00	20.00	0	98.8	56	146				
4-Isopropyltoluene	19.6	1.00	20.00	0	97.8	56.4	136				
n-Butylbenzene	18.5	1.00	20.00	0	92.7	54.6	135				
1,2,4-Trimethylbenzene	19.8	1.00	20.00	0	99.0	63.7	132				
Naphthalene	18.7	1.00	20.00	0.1780	92.7	54.5	132				
Surr: Dibromofluoromethane	49.6		50.00		99.2	72.1	122				
Surr: Toluene-d8	50.2		50.00		100	62.1	129				
Surr: 1-Bromo-4-fluorobenzene	48.0		50.00		96.0	66.8	124				

Sample ID: 1311279-010BDUP	SampType: DUP	Units: µg/L	Prep Date: 11/29/2013	RunNo: 11389
Client ID: B-8	Batch ID: R11389		Analysis Date: 11/29/2013	SeqNo: 227621

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.00						0		30	
Benzene	ND	1.00						0		30	
Toluene	ND	1.00						0		30	
Ethylbenzene	ND	1.00						0		30	
m,p-Xylene	ND	1.00						0		30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1311279
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1311279-010BDUP	SampType: DUP	Units: µg/L	Prep Date: 11/29/2013	RunNo: 11389							
Client ID: B-8	Batch ID: R11389		Analysis Date: 11/29/2013	SeqNo: 227621							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	1.00						0		30	
Styrene	ND	1.00						0		30	
n-Propylbenzene	ND	1.00						0		30	
1,3,5-Trimethylbenzene	ND	1.00						0		30	
tert-Butylbenzene	ND	1.00						0		30	
sec-Butylbenzene	ND	1.00						0		30	
4-Isopropyltoluene	ND	1.00						0		30	
n-Butylbenzene	ND	1.00						0		30	
1,2,4-Trimethylbenzene	ND	1.00						0		30	
Naphthalene	ND	1.00						0		30	
Surr: Dibromofluoromethane	51.2		50.00		102	72.1	122		0		
Surr: Toluene-d8	50.6		50.00		101	62.1	129		0		
Surr: 1-Bromo-4-fluorobenzene	48.4		50.00		96.8	66.8	124		0		

Sample ID: LCS-R11389	SampType: LCS	Units: µg/L	Prep Date: 11/28/2013	RunNo: 11389							
Client ID: LCSW	Batch ID: R11389		Analysis Date: 11/28/2013	SeqNo: 227637							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	20.1	1.00	20.00	0	100	67.7	131				
Benzene	20.3	1.00	20.00	0	101	76	123				
Toluene	20.2	1.00	20.00	0	101	71.5	130				
Ethylbenzene	20.7	1.00	20.00	0	103	72	130				
m,p-Xylene	40.0	1.00	40.00	0	100	73	131				
o-Xylene	20.1	1.00	20.00	0	101	72.1	131				
Styrene	20.5	1.00	20.00	0	103	64.3	140				
n-Propylbenzene	20.5	1.00	20.00	0	103	74.5	127				
1,3,5-Trimethylbenzene	20.1	1.00	20.00	0	101	73.1	128				
tert-Butylbenzene	20.3	1.00	20.00	0	102	68.2	131				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1311279
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	20.5	1.00	20.00	0	102	72	129				
4-Isopropyltoluene	20.4	1.00	20.00	0	102	69.2	130				
n-Butylbenzene	20.7	1.00	20.00	0	104	73.8	127				
1,2,4-Trimethylbenzene	21.2	1.00	20.00	0	106	73.4	127				
Naphthalene	19.6	1.00	20.00	0	98.2	62	136				
Surr: Dibromofluoromethane	50.3		50.00		101	72.1	122				
Surr: Toluene-d8	50.1		50.00		100	62.1	129				
Surr: 1-Bromo-4-fluorobenzene	51.1		50.00		102	66.8	124				

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.00									
Benzene	ND	1.00									
Toluene	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Styrene	ND	1.00									
n-Propylbenzene	ND	1.00									
1,3,5-Trimethylbenzene	ND	1.00									
tert-Butylbenzene	ND	1.00									
sec-Butylbenzene	ND	1.00									
4-Isopropyltoluene	ND	1.00									
n-Butylbenzene	ND	1.00									
1,2,4-Trimethylbenzene	ND	1.00									
Naphthalene	ND	1.00									

Qualifiers:
B Analyte detected in the associated Method Blank
D Dilution was required
E Value above quantitation range

H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not detected at the Reporting Limit

R RPD outside accepted recovery limits
RL Reporting Limit
S Spike recovery outside accepted recovery limits

Work Order: 1311279
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: MB-R11389	SampType: MBLK	Units: µg/L	Prep Date: 11/28/2013	RunNo: 11389							
Client ID: MBLKW	Batch ID: R11389		Analysis Date: 11/28/2013	SeqNo: 227638							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: Dibromofluoromethane	50.2		50.00		100	72.1	122				
Surr: Toluene-d8	49.5		50.00		98.9	62.1	129				
Surr: 1-Bromo-4-fluorobenzene	48.0		50.00		95.9	66.8	124				

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits

Client Name: **EPI**
 Logged by: **Chelsea Ward**

Work Order Number: **1311279**
 Date Received: **11/22/2013 4:30:00 PM**

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
 2. How was the sample delivered? Courier

Log In

3. Coolers are present? Yes No NA
 4. Shipping container/cooler in good condition? Yes No
 5. Custody seals intact on shipping container/cooler? Yes No Not Required
 6. Was an attempt made to cool the samples? Yes No NA
 7. Were all coolers received at a temperature of >0°C to 10.0°C? Yes No NA
 8. Sample(s) in proper container(s)? Yes No
 9. Sufficient sample volume for indicated test(s)? Yes No
 10. Are samples properly preserved? Yes No
 11. Was preservative added to bottles? Yes No NA
 12. Is the headspace in the VOA vials? Yes No NA
 13. Did all samples containers arrive in good condition(unbroken)? Yes No
 14. Does paperwork match bottle labels? Yes No
 15. Are matrices correctly identified on Chain of Custody? Yes No
 16. Is it clear what analyses were requested? Yes No
 17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:
 Report Trip Blanks per client request.

Item Information

Item #	Temp °C	Condition
Cooler 1	7.7	Good
Cooler 2	8.4	Good
Sample 1	7.0	Good
Sample 2	8.9	Good



Fremont



3600 Fremont Ave N.
Seattle, WA 98103

Tel: 206-352-3750
Fax: 206-352-7178

Client: Environmental Partners, Inc
Address: 2415 NE Gilman Blvd
City, State, Zip: Issaquah, WA 98027 tel 425-358-0011

Date: Nov. 19 13

Project Name: Mossman residence
Location: Sammamish, WA
Collected by: K. Adonis

Laboratory Project No (Internal): 1311279

Page: 2 of 2

Chain of Custody Record

Reports To (PM):

Fax:

Email:

Project No:

Sample Name	Sample Date	Sample Time (M:MM)	Sample Type (Matrix)	Depth (ft)	Comments/Depth
1 B-9-8	11-20-13	1107	Soil		
2 B-9		1151	Water		
3 B-10-6		1257	Soil		
4 B-10		1327	Water		
5 MW-5	11-21-13	1439	Water		
6 MW-1		1456	Water		
7 MW-2		1525	Water		
8 MW-6		1558	Water		
9 MW-3		1624	Water		
10 MW-4		1718	Water		

*Metal Analysis (Circle): (ATCA 5) (ICRA 3) Priority/Potentials TAL (Ammonia: Ag Al As B Bi Br Ca Cd Co Cr Cu Fe Hg I Pb Mn Ni Na 40-70 Sb Se Sr Zn) (Pb W Zn)
 **Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Cyanide C-Phosphate Silicate Nitrate-Nitrite

Special Handling: Please report only non-halogenated hydrocarbons.

Signature: [Signature] Date/Time: 11-22-13 1530
 Signature: [Signature] Date/Time: 11-27-13 1000



February 26, 2014

Mr. Thom Morin
Environmental Partners, Inc.
295 NE Gilman Blvd., Suite 201
Issaquah, WA 98027

Dear Mr. Morin,

On February 18th, 6 samples were received by our laboratory and assigned our laboratory project number EV14020071. The project was identified as your 65201. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director



CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
295 NE Gilman Blvd., Suite 201
Issaquah, WA 98027

DATE: 2/26/2014
ALS JOB#: EV14020071
ALS SAMPLE#: EV14020071-01
DATE RECEIVED: 02/18/2014
COLLECTION DATE: 2/17/2014 9:45:00 AM
WDOE ACCREDITATION: C601

CLIENT CONTACT: Thom Morin
CLIENT PROJECT: 65201
CLIENT SAMPLE ID B-14:7

SAMPLE DATA RESULTS

Table with 8 columns: ANALYTE, METHOD, RESULTS, REPORTING LIMITS, DILUTION FACTOR, UNITS, ANALYSIS DATE, ANALYSIS BY. Rows include TPH-Diesel Range (640) and TPH-Oil Range (U).

Table with 5 columns: SURROGATE, METHOD, %REC, ANALYSIS DATE, ANALYSIS BY. Row includes C25 (78.6).

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 295 NE Gilman Blvd., Suite 201 Issaquah, WA 98027	DATE:	2/26/2014
CLIENT CONTACT:	Thom Morin	ALS JOB#:	EV14020071
CLIENT PROJECT:	65201	ALS SAMPLE#:	EV14020071-02
CLIENT SAMPLE ID:	B-14	DATE RECEIVED:	02/18/2014
		COLLECTION DATE:	2/17/2014 10:21:00 AM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	3200	130	1	UG/L	02/21/2014	EBS
TPH-Oil Range	NWTPH-DX	570	250	1	UG/L	02/21/2014	EBS
Naphthalene	EPA-8270 SIM	0.10	0.020	1	UG/L	02/19/2014	LAP
2-Methylnaphthalene	EPA-8270 SIM	0.031	0.020	1	UG/L	02/19/2014	LAP
1-Methylnaphthalene	EPA-8270 SIM	0.026	0.020	1	UG/L	02/19/2014	LAP

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25	NWTPH-DX	66.6	02/21/2014	EBS
Terphenyl-d14	EPA-8270 SIM	76.3	02/19/2014	LAP

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and lube oil.



CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 295 NE Gilman Blvd., Suite 201 Issaquah, WA 98027	DATE:	2/26/2014
CLIENT CONTACT:	Thom Morin	ALS JOB#:	EV14020071
CLIENT PROJECT:	65201	ALS SAMPLE#:	EV14020071-03
CLIENT SAMPLE ID	B-13:7.5	DATE RECEIVED:	02/18/2014
		COLLECTION DATE:	2/17/2014 11:01:00 AM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	26	1	MG/KG	02/20/2014	EBS
TPH-Oil Range	NWTPH-DX	U	53	1	MG/KG	02/20/2014	EBS

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25	NWTPH-DX	75.4	02/20/2014	EBS

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc. DATE: 2/26/2014
295 NE Gilman Blvd., Suite 201 ALS JOB#: EV14020071
Issaquah, WA 98027 ALS SAMPLE#: EV14020071-04
CLIENT CONTACT: Thom Morin DATE RECEIVED: 02/18/2014
CLIENT PROJECT: 65201 COLLECTION DATE: 2/17/2014 11:25:00 AM
CLIENT SAMPLE ID B-13 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	170	130	1	UG/L	02/21/2014	EBS
TPH-Oil Range	NWTPH-DX	270	250	1	UG/L	02/21/2014	EBS

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25	NWTPH-DX	81.8	02/21/2014	EBS

Chromatogram indicates that it is likely that sample contains weathered diesel and lube oil.



CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 295 NE Gilman Blvd., Suite 201 Issaquah, WA 98027	DATE:	2/26/2014
CLIENT CONTACT:	Thom Morin	ALS JOB#:	EV14020071
CLIENT PROJECT:	65201	ALS SAMPLE#:	EV14020071-05
CLIENT SAMPLE ID:	MW-8:3.5	DATE RECEIVED:	02/18/2014
		COLLECTION DATE:	2/17/2014 12:29:00 PM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	02/20/2014	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	02/20/2014	EBS

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25	NWTPH-DX	76.2	02/20/2014	EBS

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 295 NE Gilman Blvd., Suite 201 Issaquah, WA 98027	DATE:	2/26/2014
CLIENT CONTACT:	Thom Morin	ALS JOB#:	EV14020071
CLIENT PROJECT:	65201	ALS SAMPLE#:	EV14020071-06
CLIENT SAMPLE ID:	MW-7:5.5	DATE RECEIVED:	02/18/2014
		COLLECTION DATE:	2/17/2014 2:10:00 PM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	02/20/2014	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	02/20/2014	EBS

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25	NWTPH-DX	83.0	02/20/2014	EBS

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
 295 NE Gilman Blvd., Suite 201
 Issaquah, WA 98027

DATE: 2/26/2014
 ALS SDG#: EV14020071
 WDOE ACCREDITATION: C601

CLIENT CONTACT: Thom Morin
 CLIENT PROJECT: 65201

LABORATORY BLANK RESULTS

MB-021414S - Batch 7629 - Soil by NWTPH-DX

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	02/14/2014	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	02/14/2014	EBS

U - Analyte analyzed for but not detected at level above reporting limit.

MB-021214W - Batch 7621 - Water by NWTPH-DX

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	130	1	UG/L	02/12/2014	EBS
TPH-Oil Range	NWTPH-DX	U	250	1	UG/L	02/12/2014	EBS

U - Analyte analyzed for but not detected at level above reporting limit.

MB-021114W - Batch 7620 - Water by EPA-8270 SIM

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Naphthalene	EPA-8270 SIM	U	0.020	1	UG/L	02/11/2014	LAP
2-Methylnaphthalene	EPA-8270 SIM	U	0.020	1	UG/L	02/11/2014	LAP
1-Methylnaphthalene	EPA-8270 SIM	U	0.020	1	UG/L	02/11/2014	LAP
Benzo[G,H,I]Perylene	EPA-8270 SIM	U	0.020	1	UG/L	02/11/2014	LAP

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
295 NE Gilman Blvd., Suite 201
Issaquah, WA 98027

DATE: 2/26/2014
ALS SDG#: EV14020071
WDOE ACCREDITATION: C601

CLIENT CONTACT: Thom Morin
CLIENT PROJECT: 65201

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 7629 - Soil by NWTPH-DX

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range - BS	NWTPH-DX	87.0			02/14/2014	EBS
TPH-Diesel Range - BSD	NWTPH-DX	79.9	9		02/14/2014	EBS

ALS Test Batch ID: 7621 - Water by NWTPH-DX

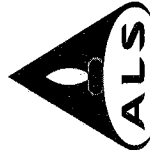
SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range - BS	NWTPH-DX	79.0			02/12/2014	EBS
TPH-Diesel Range - BSD	NWTPH-DX	80.2	2		02/12/2014	EBS

ALS Test Batch ID: 7620 - Water by EPA-8270 SIM

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
Naphthalene - BS	EPA-8270 SIM	88.8			02/11/2014	LAP
Naphthalene - BSD	EPA-8270 SIM	82.4	8		02/11/2014	LAP
Benzo[G,H,I]Perylene - BS	EPA-8270 SIM	107			02/11/2014	LAP
Benzo[G,H,I]Perylene - BSD	EPA-8270 SIM	96.2	10		02/11/2014	LAP

APPROVED BY

Laboratory Director



ALS Environmental
 8620 Holly Drive, Suite 100
 Everett, WA 98208
 Phone (425) 356-2600
 Fax (425) 356-2626
 http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only)

EV14020071

Date 2/17/14 Page 1 Of 1

PROJECT ID: G5201	ANALYSIS REQUESTED				OTHER (Specify)											
	NWTPH-HCID	NWTPH-DX	NWTPH-GX	MTBE by EPA-8021 <input type="checkbox"/> EPA-8260	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semivolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM <input type="checkbox"/>	PB <input type="checkbox"/> Pesticides <input type="checkbox"/> by EPA 8081/8082	Metals-MTCA-5 <input type="checkbox"/> RCRA-8 <input type="checkbox"/> P4 Pol <input type="checkbox"/> TAL <input type="checkbox"/>	Metals Other (Specify)	TCLP-Metals <input type="checkbox"/> VOA <input type="checkbox"/> Semi-Vol <input type="checkbox"/> Pest <input type="checkbox"/> Herbs <input type="checkbox"/>	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. B-14:7	X															
2. B-14	X												X			
3. B-13:7,5	X															
4. B-13	X															
5. MW-8:3,5	X															
6. MW-7:5,5	X															
7.																
8.																
9.																
10.																

REPORT TO COMPANY: Environmental Partners, Inc.
 PROJECT MANAGER: T. Morin, K. Addis
 ADDRESS: 295 NE Gilman Blvd Ste 201
 Issaquah WA 98027
 PHONE: 425-358-0001 FAX: 425-395-0011
 PO #: G5201 E-MAIL: kristin@epi-wa.com
 INVOICE TO COMPANY: EPI thomane@epi-wa.com
 ATTENTION: Tom Elsmore
 ADDRESS:

SAMPLE I.D.	DATE	TIME	TYPE	LAB#
1. B-14:7	2-17-14	0945	S	1
2. B-14		1021	W	2
3. B-13:7,5		1101	S	3
4. B-13		1125	W	4
5. MW-8:3,5		1229	S	5
6. MW-7:5,5		1410	S	6
7.				
8.				
9.				
10.				

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time)
 Relinquished By: [Signature] EPI 2-18-14 1200
 Received By: [Signature] 2/18/14 1200
 Relinquished By: _____
 Received By: _____

TURNAROUND REQUESTED IN BUSINESS DAYS*
 OTHER:
 Organic, Metals & Inorganic Analysis
 Standard SAME DAY
 Fuels & Hydrocarbon Analysis
 Standard SAME DAY

* Turnaround request less than standard may incur Rush Charges



March 10, 2014

Mr. Thom Morin
Environmental Partners, Inc.
295 NE Gilman Blvd., Suite 201
Issaquah, WA 98027

Dear Mr. Morin,

On March 5th, 6 samples were received by our laboratory and assigned our laboratory project number EV14030039. The project was identified as your 65201.4. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director



CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc. DATE: 3/10/2014
295 NE Gilman Blvd., Suite 201 ALS JOB#: EV14030039
Issaquah, WA 98027 ALS SAMPLE#: EV14030039-01
CLIENT CONTACT: Thom Morin DATE RECEIVED: 03/05/2014
CLIENT PROJECT: 65201.4 COLLECTION DATE: 3/4/2014 11:20:00 AM
CLIENT SAMPLE ID MW-8 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	130	1	UG/L	03/06/2014	EBS
TPH-Oil Range	NWTPH-DX	U	250	1	UG/L	03/06/2014	EBS

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25	NWTPH-DX	75.1	03/06/2014	EBS

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 295 NE Gilman Blvd., Suite 201 Issaquah, WA 98027	DATE:	3/10/2014
CLIENT CONTACT:	Thom Morin	ALS JOB#:	EV14030039
CLIENT PROJECT:	65201.4	ALS SAMPLE#:	EV14030039-02
CLIENT SAMPLE ID	MW-6	DATE RECEIVED:	03/05/2014
		COLLECTION DATE:	3/4/2014 12:02:00 PM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	400	130	1	UG/L	03/06/2014	EBS
TPH-Oil Range	NWTPH-DX	U	250	1	UG/L	03/06/2014	EBS

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25	NWTPH-DX	82.8	03/06/2014	EBS

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains weathered diesel.



CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 295 NE Gilman Blvd., Suite 201 Issaquah, WA 98027	DATE:	3/10/2014
CLIENT CONTACT:	Thom Morin	ALS JOB#:	EV14030039
CLIENT PROJECT:	65201.4	ALS SAMPLE#:	EV14030039-03
CLIENT SAMPLE ID	MW-1	DATE RECEIVED:	03/05/2014
		COLLECTION DATE:	3/4/2014 12:31:00 PM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	1700	130	1	UG/L	03/06/2014	EBS
TPH-Oil Range	NWTPH-DX	U	250	1	UG/L	03/06/2014	EBS
Naphthalene	EPA-8270 SIM	3.2	0.020	1	UG/L	03/06/2014	LAP
2-Methylnaphthalene	EPA-8270 SIM	6.0	0.020	1	UG/L	03/06/2014	LAP
1-Methylnaphthalene	EPA-8270 SIM	7.0	0.020	1	UG/L	03/06/2014	LAP

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25	NWTPH-DX	85.3	03/06/2014	EBS
Terphenyl-d14	EPA-8270 SIM	86.9	03/06/2014	LAP

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains weathered diesel.

CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 295 NE Gilman Blvd., Suite 201 Issaquah, WA 98027	DATE:	3/10/2014
CLIENT CONTACT:	Thom Morin	ALS JOB#:	EV14030039
CLIENT PROJECT:	65201.4	ALS SAMPLE#:	EV14030039-04
CLIENT SAMPLE ID	MW-7	DATE RECEIVED:	03/05/2014
		COLLECTION DATE:	3/4/2014 1:51:00 PM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	130	1	UG/L	03/06/2014	EBS
TPH-Oil Range	NWTPH-DX	U	250	1	UG/L	03/06/2014	EBS

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25	NWTPH-DX	81.2	03/06/2014	EBS

U - Analyte analyzed for but not detected at level above reporting limit.

CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 295 NE Gilman Blvd., Suite 201 Issaquah, WA 98027	DATE:	3/10/2014
CLIENT CONTACT:	Thom Morin	ALS JOB#:	EV14030039
CLIENT PROJECT:	65201.4	ALS SAMPLE#:	EV14030039-05
CLIENT SAMPLE ID	MW-3	DATE RECEIVED:	03/05/2014
		COLLECTION DATE:	3/4/2014 3:33:00 PM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	1100	130	1	UG/L	03/06/2014	EBS
TPH-Oil Range	NWTPH-DX	U	250	1	UG/L	03/06/2014	EBS
Naphthalene	EPA-8270 SIM	0.067	0.020	1	UG/L	03/06/2014	LAP
2-Methylnaphthalene	EPA-8270 SIM	0.069	0.020	1	UG/L	03/06/2014	LAP
1-Methylnaphthalene	EPA-8270 SIM	0.35	0.020	1	UG/L	03/06/2014	LAP

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25	NWTPH-DX	93.0	03/06/2014	EBS
Terphenyl-d14	EPA-8270 SIM	88.8	03/06/2014	LAP

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains weathered diesel.



CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 295 NE Gilman Blvd., Suite 201 Issaquah, WA 98027	DATE:	3/10/2014
CLIENT CONTACT:	Thom Morin	ALS JOB#:	EV14030039
CLIENT PROJECT:	65201.4	ALS SAMPLE#:	EV14030039-06
CLIENT SAMPLE ID	MW-4	DATE RECEIVED:	03/05/2014
		COLLECTION DATE:	3/4/2014 4:22:00 PM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	1300	130	1	UG/L	03/06/2014	EBS
TPH-Oil Range	NWTPH-DX	340	250	1	UG/L	03/06/2014	EBS
Naphthalene	EPA-8270 SIM	0.026	0.020	1	UG/L	03/06/2014	LAP
2-Methylnaphthalene	EPA-8270 SIM	U	0.020	1	UG/L	03/06/2014	LAP
1-Methylnaphthalene	EPA-8270 SIM	U	0.020	1	UG/L	03/06/2014	LAP

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25	NWTPH-DX	85.5	03/06/2014	EBS
Terphenyl-d14	EPA-8270 SIM	81.6	03/06/2014	LAP

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains weathered diesel.



CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 295 NE Gilman Blvd., Suite 201 Issaquah, WA 98027	DATE:	3/10/2014
CLIENT CONTACT:	Thom Morin	ALS SDG#:	EV14030039
CLIENT PROJECT:	65201.4	WDOE ACCREDITATION:	C601

LABORATORY BLANK RESULTS

MB-030314W - Batch 7675 - Water by NWTPH-DX

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	130	1	UG/L	03/03/2014	EBS
TPH-Oil Range	NWTPH-DX	U	250	1	UG/L	03/03/2014	EBS

U - Analyte analyzed for but not detected at level above reporting limit.

MB-022814W - Batch 7666 - Water by EPA-8270 SIM

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Naphthalene	EPA-8270 SIM	U	0.020	1	UG/L	02/28/2014	LAP
2-Methylnaphthalene	EPA-8270 SIM	U	0.020	1	UG/L	02/28/2014	LAP
1-Methylnaphthalene	EPA-8270 SIM	U	0.020	1	UG/L	02/28/2014	LAP
Benzo[G,H,I]Perylene	EPA-8270 SIM	U	0.020	1	UG/L	02/28/2014	LAP

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
295 NE Gilman Blvd., Suite 201
Issaquah, WA 98027

DATE: 3/10/2014
ALS SDG#: EV14030039
WDOE ACCREDITATION: C601

CLIENT CONTACT: Thom Morin
CLIENT PROJECT: 65201.4

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 7675 - Water by NWTPH-DX

Table with 7 columns: SPIKED COMPOUND, METHOD, %REC, RPD, QUAL, ANALYSIS DATE, ANALYSIS BY. Rows include TPH-Diesel Range - BS and TPH-Diesel Range - BSD.

ALS Test Batch ID: 7666 - Water by EPA-8270 SIM

Table with 7 columns: SPIKED COMPOUND, METHOD, %REC, RPD, QUAL, ANALYSIS DATE, ANALYSIS BY. Rows include Naphthalene - BS, Naphthalene - BSD, Benzo[G,H,I]Perylene - BS, and Benzo[G,H,I]Perylene - BSD.

APPROVED BY

Laboratory Director



ALS Environmental
 8620 Holly Drive, Suite 100
 Everett, WA 98208
 Phone (425) 356-2600
 Fax (425) 356-2626
 http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only)

EVI4030039

Date **3/4/14** Page **1** Of **1**

PROJECT ID: **65201.4**
 REPORT TO COMPANY: **Environmental Partners, Inc**
 PROJECT MANAGER: **Thom Morin + Kris Addis**
 ADDRESS: **295 NE Gilman Blvd Ste 201 Issaquah WA 98027**
 PHONE: **425-388-0001** FAX: **425-395-0011**
 P.O. #: **65201.4** E-MAIL: **kristin@epi-wa.com**
 INVOICE TO COMPANY: **EPI**
 ATTENTION: **T. Elsemore**
 ADDRESS: **Same**

ANALYSIS REQUESTED	ANALYSIS REQUESTED		DATE	TIME	TYPE	LAB#	NWTRH-HCID	NWTRH-DX	NWTRH-GX	BTEX by EPA-8021	MTBE by EPA-8021 <input type="checkbox"/> EPA-8260 <input type="checkbox"/>	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semi-volatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM <input type="checkbox"/>	PCB <input type="checkbox"/> Pesticides <input type="checkbox"/> by EPA 8081/8082	Metals-MTCA-5 <input type="checkbox"/> RCRA-8 <input type="checkbox"/> P1 Pol <input type="checkbox"/> TAL <input type="checkbox"/>	Metals Other (Specify)	TCLP-Metals <input type="checkbox"/> VOA <input type="checkbox"/> Semi-Vol <input type="checkbox"/> Pest <input type="checkbox"/> Herbs <input type="checkbox"/>	OTHER (Specify)	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?	
			3/4/14	1120	GW	1	X																		
1. MW-8				1202		2	X																	1	
2. MW-6				1231		3	X																	1	
3. MW-1				1351		4	X																	2	
4. MW-7				1533		5	X																	1	
5. MW-3				1622		6	X																	2	
6. MW-4							X																	2	
7.																									
8.																									
9.																									
10.																									

Naphthalenes by 8270 SIM

LABORATORY COPY

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time):
 1. Relinquished By: *Kristin Addis* EPI 3/5/14 2:05
 Received By: *[Signature]* ALS 3/5/14 2:05
 2. Relinquished By: _____
 Received By: _____

TURNAROUND REQUESTED in Business Days*
 OTHER: _____
 Specify: _____

Organic, Metals & Inorganic Analysis
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Fuels & Hydrocarbon Analysis
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

* Turnaround request less than standard may incur Rush Charges



3600 Fremont Ave. N.

Seattle, WA 98103

T: (206) 352-3790

F: (206) 352-7178

info@fremontanalytical.com

Environmental Partners, Inc.

Sean Trimble

1180 NW Maple Street, Suite 310

Issaquah, WA 98027

RE: Mossman Residence

Lab ID: 1509236

September 24, 2015

Attention Sean Trimble:

Fremont Analytical, Inc. received 13 sample(s) on 9/17/2015 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample Moisture (Percent Moisture)

Total Organic Carbon by EPA Method 9060

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "Mike Ridgeway", written over a light blue horizontal line.

Mike Ridgeway
President



Date: 09/24/2015

CLIENT: Environmental Partners, Inc.
Project: Mossman Residence
Lab Order: 1509236

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1509236-001	SS-1	09/16/2015 10:40 AM	09/17/2015 2:23 PM
1509236-002	SS-2	09/16/2015 12:05 PM	09/17/2015 2:23 PM
1509236-003	SS-3	09/16/2015 11:47 AM	09/17/2015 2:23 PM
1509236-004	SS-4	09/16/2015 11:40 AM	09/17/2015 2:23 PM
1509236-005	SS-5	09/16/2015 11:55 AM	09/17/2015 2:23 PM
1509236-006	SS-6	09/16/2015 11:10 AM	09/17/2015 2:23 PM
1509236-007	SS-7	09/16/2015 11:00 AM	09/17/2015 2:23 PM
1509236-008	SS-8	09/16/2015 11:20 AM	09/17/2015 2:23 PM
1509236-009	MW-5	09/16/2015 3:55 PM	09/17/2015 2:23 PM
1509236-010	MW-6	09/16/2015 3:07 PM	09/17/2015 2:23 PM
1509236-011	MW-3	09/16/2015 4:38 PM	09/17/2015 2:23 PM
1509236-012	MW-4	09/16/2015 5:17 PM	09/17/2015 2:23 PM
1509236-013	Trip Blank	09/11/2015 6:31 PM	09/17/2015 2:23 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Environmental Partners, Inc.

Project: Mossman Residence

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Sediment samples were non-detect. Carbon normalization not required.

Qualifiers:

- * - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below LOQ
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit

Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



Analytical Report

WO#: 1509236
Date Reported: 9/24/2015

Client: Environmental Partners, Inc.

Collection Date: 9/16/2015 10:40:00 AM

Project: Mossman Residence

Lab ID: 1509236-001

Matrix: Sediment

Client Sample ID: SS-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>			Batch ID: 11879		Analyst: AK	
Diesel (Fuel Oil)	ND	24.2		mg/Kg-dry	1	9/18/2015 10:34:00 PM
Heavy Oil	ND	60.4		mg/Kg-dry	1	9/18/2015 10:34:00 PM
Surr: 2-Fluorobiphenyl	82.8	50-150		%REC	1	9/18/2015 10:34:00 PM
Surr: o-Terphenyl	80.6	50-150		%REC	1	9/18/2015 10:34:00 PM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>			Batch ID: 11890		Analyst: NG	
Naphthalene	ND	63.3		µg/Kg-dry	1	9/22/2015 11:29:00 PM
2-Methylnaphthalene	ND	63.3		µg/Kg-dry	1	9/22/2015 11:29:00 PM
1-Methylnaphthalene	ND	63.3		µg/Kg-dry	1	9/22/2015 11:29:00 PM
Surr: 2-Fluorobiphenyl	88.4	30.6-166		%REC	1	9/22/2015 11:29:00 PM
Surr: Terphenyl-d14 (surr)	102	48.8-157		%REC	1	9/22/2015 11:29:00 PM
<u>Sample Moisture (Percent Moisture)</u>			Batch ID: R25060		Analyst: CG	
Percent Moisture	22.2	0.500		wt%	1	9/24/2015 9:00:10 AM
<u>Total Organic Carbon by EPA Method 9060</u>			Batch ID: 11929		Analyst: KT	
Total Organic Carbon	0.249	0.0500		%-dry	1	9/23/2015 12:06:11 PM



Analytical Report

WO#: 1509236

Date Reported: 9/24/2015

Client: Environmental Partners, Inc.

Collection Date: 9/16/2015 12:05:00 PM

Project: Mossman Residence

Lab ID: 1509236-002

Matrix: Sediment

Client Sample ID: SS-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 11879	Analyst: AK
Diesel (Fuel Oil)	ND	21.9		mg/Kg-dry	1	9/18/2015 11:05:00 PM
Heavy Oil	ND	54.7		mg/Kg-dry	1	9/18/2015 11:05:00 PM
Surr: 2-Fluorobiphenyl	85.1	50-150		%REC	1	9/18/2015 11:05:00 PM
Surr: o-Terphenyl	82.6	50-150		%REC	1	9/18/2015 11:05:00 PM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>					Batch ID: 11890	Analyst: NG
Naphthalene	ND	58.7		µg/Kg-dry	1	9/23/2015 12:20:00 AM
2-Methylnaphthalene	ND	58.7		µg/Kg-dry	1	9/23/2015 12:20:00 AM
1-Methylnaphthalene	ND	58.7		µg/Kg-dry	1	9/23/2015 12:20:00 AM
Surr: 2-Fluorobiphenyl	96.7	30.6-166		%REC	1	9/23/2015 12:20:00 AM
Surr: Terphenyl-d14 (surr)	108	48.8-157		%REC	1	9/23/2015 12:20:00 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R25060	Analyst: CG
Percent Moisture	17.9	0.500		wt%	1	9/24/2015 9:00:10 AM
<u>Total Organic Carbon by EPA Method 9060</u>					Batch ID: 11929	Analyst: KT
Total Organic Carbon	0.131	0.0500		%-dry	1	9/23/2015 12:58:40 PM



Analytical Report

WO#: 1509236
Date Reported: 9/24/2015

Client: Environmental Partners, Inc.

Collection Date: 9/16/2015 11:47:00 AM

Project: Mossman Residence

Lab ID: 1509236-003

Matrix: Sediment

Client Sample ID: SS-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 11879	Analyst: AK
Diesel (Fuel Oil)	ND	20.4		mg/Kg-dry	1	9/18/2015 11:37:00 PM
Heavy Oil	ND	50.9		mg/Kg-dry	1	9/18/2015 11:37:00 PM
Surr: 2-Fluorobiphenyl	136	50-150		%REC	1	9/18/2015 11:37:00 PM
Surr: o-Terphenyl	134	50-150		%REC	1	9/18/2015 11:37:00 PM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>					Batch ID: 11890	Analyst: NG
Naphthalene	ND	57.4		µg/Kg-dry	1	9/23/2015 1:10:00 AM
2-Methylnaphthalene	ND	57.4		µg/Kg-dry	1	9/23/2015 1:10:00 AM
1-Methylnaphthalene	ND	57.4		µg/Kg-dry	1	9/23/2015 1:10:00 AM
Surr: 2-Fluorobiphenyl	88.2	30.6-166		%REC	1	9/23/2015 1:10:00 AM
Surr: Terphenyl-d14 (surr)	98.6	48.8-157		%REC	1	9/23/2015 1:10:00 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R25060	Analyst: CG
Percent Moisture	15.1	0.500		wt%	1	9/24/2015 9:00:10 AM
<u>Total Organic Carbon by EPA Method 9060</u>					Batch ID: 11929	Analyst: KT
Total Organic Carbon	0.232	0.0500		%-dry	1	9/23/2015 1:10:54 PM



Analytical Report

WO#: 1509236

Date Reported: 9/24/2015

Client: Environmental Partners, Inc.

Collection Date: 9/16/2015 11:40:00 AM

Project: Mossman Residence

Lab ID: 1509236-004

Matrix: Sediment

Client Sample ID: SS-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 11879	Analyst: AK
Diesel (Fuel Oil)	ND	22.5		mg/Kg-dry	1	9/19/2015 12:08:00 AM
Heavy Oil	ND	56.3		mg/Kg-dry	1	9/19/2015 12:08:00 AM
Surr: 2-Fluorobiphenyl	91.2	50-150		%REC	1	9/19/2015 12:08:00 AM
Surr: o-Terphenyl	89.2	50-150		%REC	1	9/19/2015 12:08:00 AM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>					Batch ID: 11890	Analyst: NG
Naphthalene	ND	61.1		µg/Kg-dry	1	9/23/2015 1:35:00 AM
2-Methylnaphthalene	ND	61.1		µg/Kg-dry	1	9/23/2015 1:35:00 AM
1-Methylnaphthalene	ND	61.1		µg/Kg-dry	1	9/23/2015 1:35:00 AM
Surr: 2-Fluorobiphenyl	91.6	30.6-166		%REC	1	9/23/2015 1:35:00 AM
Surr: Terphenyl-d14 (surr)	100	48.8-157		%REC	1	9/23/2015 1:35:00 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R25060	Analyst: CG
Percent Moisture	21.1	0.500		wt%	1	9/24/2015 9:00:10 AM
<u>Total Organic Carbon by EPA Method 9060</u>					Batch ID: 11929	Analyst: KT
Total Organic Carbon	0.191	0.0500		%-dry	1	9/23/2015 1:21:35 PM



Analytical Report

WO#: 1509236
Date Reported: 9/24/2015

Client: Environmental Partners, Inc.

Collection Date: 9/16/2015 11:55:00 AM

Project: Mossman Residence

Lab ID: 1509236-005

Matrix: Sediment

Client Sample ID: SS-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 11879	Analyst: AK
Diesel (Fuel Oil)	ND	25.2		mg/Kg-dry	1	9/19/2015 12:39:00 AM
Heavy Oil	ND	62.9		mg/Kg-dry	1	9/19/2015 12:39:00 AM
Surr: 2-Fluorobiphenyl	121	50-150		%REC	1	9/19/2015 12:39:00 AM
Surr: o-Terphenyl	117	50-150		%REC	1	9/19/2015 12:39:00 AM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>					Batch ID: 11890	Analyst: NG
Naphthalene	ND	62.9		µg/Kg-dry	1	9/23/2015 2:01:00 AM
2-Methylnaphthalene	ND	62.9		µg/Kg-dry	1	9/23/2015 2:01:00 AM
1-Methylnaphthalene	ND	62.9		µg/Kg-dry	1	9/23/2015 2:01:00 AM
Surr: 2-Fluorobiphenyl	85.9	30.6-166		%REC	1	9/23/2015 2:01:00 AM
Surr: Terphenyl-d14 (surr)	94.4	48.8-157		%REC	1	9/23/2015 2:01:00 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R25060	Analyst: CG
Percent Moisture	22.0	0.500		wt%	1	9/24/2015 9:00:10 AM
<u>Total Organic Carbon by EPA Method 9060</u>					Batch ID: 11929	Analyst: KT
Total Organic Carbon	0.167	0.0500		%-dry	1	9/23/2015 1:35:13 PM



Analytical Report

WO#: 1509236
 Date Reported: 9/24/2015

Client: Environmental Partners, Inc.
Project: Mossman Residence
Lab ID: 1509236-009
Client Sample ID: MW-5

Collection Date: 9/16/2015 3:55:00 PM
Matrix: Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>			Batch ID: 11882		Analyst: AK	
Diesel (Fuel Oil)	209	49.9		µg/L	1	9/22/2015 10:07:00 AM
Heavy Oil	206	99.8		µg/L	1	9/22/2015 10:07:00 AM
Surr: 2-Fluorobiphenyl	65.7	50-150		%REC	1	9/22/2015 10:07:00 AM
Surr: o-Terphenyl	66.5	50-150		%REC	1	9/22/2015 10:07:00 AM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>			Batch ID: 11883		Analyst: NG	
Naphthalene	ND	0.0998		µg/L	1	9/21/2015 5:17:00 PM
2-Methylnaphthalene	ND	0.0998		µg/L	1	9/21/2015 5:17:00 PM
1-Methylnaphthalene	0.714	0.0998		µg/L	1	9/21/2015 5:17:00 PM
Surr: 2-Fluorobiphenyl	60.3	23.9-122		%REC	1	9/21/2015 5:17:00 PM
Surr: Terphenyl-d14	103	33.4-135		%REC	1	9/21/2015 5:17:00 PM



Analytical Report

WO#: 1509236
Date Reported: 9/24/2015

Client: Environmental Partners, Inc.

Collection Date: 9/16/2015 3:07:00 PM

Project: Mossman Residence

Lab ID: 1509236-010

Matrix: Groundwater

Client Sample ID: MW-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>			Batch ID: 11882		Analyst: AK	
Diesel (Fuel Oil)	117	50.0		µg/L	1	9/22/2015 11:28:00 AM
Heavy Oil	261	99.9		µg/L	1	9/22/2015 11:28:00 AM
Surr: 2-Fluorobiphenyl	58.2	50-150		%REC	1	9/22/2015 11:28:00 AM
Surr: o-Terphenyl	58.7	50-150		%REC	1	9/22/2015 11:28:00 AM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>			Batch ID: 11883		Analyst: NG	
Naphthalene	ND	0.0999		µg/L	1	9/21/2015 6:10:00 PM
2-Methylnaphthalene	ND	0.0999		µg/L	1	9/21/2015 6:10:00 PM
1-Methylnaphthalene	0.568	0.0999		µg/L	1	9/21/2015 6:10:00 PM
Surr: 2-Fluorobiphenyl	60.1	23.9-122		%REC	1	9/21/2015 6:10:00 PM
Surr: Terphenyl-d14	100	33.4-135		%REC	1	9/21/2015 6:10:00 PM



Analytical Report

WO#: 1509236
Date Reported: 9/24/2015

Client: Environmental Partners, Inc.
Project: Mossman Residence
Lab ID: 1509236-011
Client Sample ID: MW-3

Collection Date: 9/16/2015 4:38:00 PM
Matrix: Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>			Batch ID: 11882		Analyst: AK	
Diesel (Fuel Oil)	ND	49.9		µg/L	1	9/22/2015 11:59:00 AM
Heavy Oil	ND	99.8		µg/L	1	9/22/2015 11:59:00 AM
Mineral Oil	604	49.9		µg/L	1	9/22/2015 11:59:00 AM
Surr: 2-Fluorobiphenyl	68.7	50-150		%REC	1	9/22/2015 11:59:00 AM
Surr: o-Terphenyl	67.1	50-150		%REC	1	9/22/2015 11:59:00 AM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>			Batch ID: 11883		Analyst: NG	
Naphthalene	ND	0.100		µg/L	1	9/21/2015 7:02:00 PM
2-Methylnaphthalene	ND	0.100		µg/L	1	9/21/2015 7:02:00 PM
1-Methylnaphthalene	ND	0.100		µg/L	1	9/21/2015 7:02:00 PM
Surr: 2-Fluorobiphenyl	59.9	23.9-122		%REC	1	9/21/2015 7:02:00 PM
Surr: Terphenyl-d14	102	33.4-135		%REC	1	9/21/2015 7:02:00 PM



Analytical Report

WO#: 1509236

Date Reported: 9/24/2015

Client: Environmental Partners, Inc.

Collection Date: 9/16/2015 5:17:00 PM

Project: Mossman Residence

Lab ID: 1509236-012

Matrix: Groundwater

Client Sample ID: MW-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 11882

Analyst: AK

Diesel (Fuel Oil)	ND	50.7		µg/L	1	9/22/2015 12:31:00 PM
Heavy Oil	ND	101		µg/L	1	9/22/2015 12:31:00 PM
Mineral Oil	3,860	50.7		µg/L	1	9/22/2015 12:31:00 PM
Surr: 2-Fluorobiphenyl	83.5	50-150		%REC	1	9/22/2015 12:31:00 PM
Surr: o-Terphenyl	65.3	50-150		%REC	1	9/22/2015 12:31:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 11883

Analyst: NG

Naphthalene	0.566	0.0999		µg/L	1	9/21/2015 7:28:00 PM
2-Methylnaphthalene	0.181	0.0999		µg/L	1	9/21/2015 7:28:00 PM
1-Methylnaphthalene	0.406	0.0999		µg/L	1	9/21/2015 7:28:00 PM
Surr: 2-Fluorobiphenyl	58.7	23.9-122		%REC	1	9/21/2015 7:28:00 PM
Surr: Terphenyl-d14	103	33.4-135		%REC	1	9/21/2015 7:28:00 PM

Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Total Organic Carbon by EPA Method 9060

Sample ID MB-11929	SampType: MBLK	Units: %-dry			Prep Date: 9/23/2015	RunNo: 25051					
Client ID: MBLKS	Batch ID: 11929				Analysis Date: 9/23/2015	SeqNo: 472125					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.0500									

Sample ID LCS-11929	SampType: LCS	Units: %-dry			Prep Date: 9/23/2015	RunNo: 25051					
Client ID: LCSS	Batch ID: 11929				Analysis Date: 9/23/2015	SeqNo: 472126					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	0.584	0.0500	0.6510	0	89.7	41.1	157				

Sample ID 1509236-001ADUP	SampType: DUP	Units: %-dry			Prep Date: 9/23/2015	RunNo: 25051					
Client ID: SS-1	Batch ID: 11929				Analysis Date: 9/23/2015	SeqNo: 472128					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	0.250	0.0500						0.2490	0.361	30	

Sample ID 1509236-001AMS	SampType: MS	Units: %-dry			Prep Date: 9/23/2015	RunNo: 25051					
Client ID: SS-1	Batch ID: 11929				Analysis Date: 9/23/2015	SeqNo: 472129					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.20	0.0500	1.000	0.2490	94.9	50.2	118				

Sample ID 1509236-001AMSD	SampType: MSD	Units: %-dry			Prep Date: 9/23/2015	RunNo: 25051					
Client ID: SS-1	Batch ID: 11929				Analysis Date: 9/23/2015	SeqNo: 472130					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.17	0.0500	1.000	0.2490	92.3	50.2	118	1.198	2.19	20	



Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID LCS-11879	SampType: LCS	Units: mg/Kg				Prep Date: 9/18/2015	RunNo: 24987				
Client ID: LCSS	Batch ID: 11879					Analysis Date: 9/18/2015	SeqNo: 470794				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	443	20.0	500.0	0	88.5	65	135				
Surr: 2-Fluorobiphenyl	18.4		20.00		92.1	50	150				
Surr: o-Terphenyl	17.7		20.00		88.4	50	150				

Sample ID MB-11879	SampType: MBLK	Units: mg/Kg				Prep Date: 9/18/2015	RunNo: 24987				
Client ID: MBLKS	Batch ID: 11879					Analysis Date: 9/18/2015	SeqNo: 470795				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	17.3		20.00		86.7	50	150				
Surr: o-Terphenyl	17.1		20.00		85.4	50	150				

Sample ID 1509240-001ADUP	SampType: DUP	Units: mg/Kg-dry				Prep Date: 9/18/2015	RunNo: 24987				
Client ID: BATCH	Batch ID: 11879					Analysis Date: 9/19/2015	SeqNo: 470830				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	192	153						163.0	16.4	30	
Heavy Oil	ND	383						0		30	
Surr: 2-Fluorobiphenyl	121		153.3		79.2	50	150		0		
Surr: o-Terphenyl	114		153.3		74.6	50	150		0		

Sample ID 1509243-005ADUP	SampType: DUP	Units: mg/Kg-dry				Prep Date: 9/18/2015	RunNo: 24987				
Client ID: BATCH	Batch ID: 11879					Analysis Date: 9/19/2015	SeqNo: 470778				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	43.1						0		30	
Heavy Oil	2,620	108						2,048	24.4	30	
Surr: 2-Fluorobiphenyl	41.0		43.14		95.0	50	150		0		
Surr: o-Terphenyl	41.5		43.14		96.1	50	150		0		



Date: 9/24/2015

Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID	1509243-005ADUP	SampType:	DUP	Units:	mg/Kg-dry	Prep Date:	9/18/2015	RunNo:	24987		
Client ID:	BATCH	Batch ID:	11879			Analysis Date:	9/19/2015	SeqNo:	470778		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual



Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID MB-11882	SampType: MBLK	Units: µg/L			Prep Date: 9/18/2015	RunNo: 24998					
Client ID: MBLKW	Batch ID: 11882				Analysis Date: 9/21/2015	SeqNo: 470947					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	49.8									
Heavy Oil	ND	99.7									
Surr: 2-Fluorobiphenyl	42.8		79.76		53.7	50	150				
Surr: o-Terphenyl	46.0		79.76		57.7	50	150				

Sample ID LCS-11882	SampType: LCS	Units: µg/L			Prep Date: 9/18/2015	RunNo: 24998					
Client ID: LCSW	Batch ID: 11882				Analysis Date: 9/21/2015	SeqNo: 470946					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	658	49.9	998.0	0	65.9	65	135				
Surr: 2-Fluorobiphenyl	42.5		79.84		53.2	50	150				
Surr: o-Terphenyl	44.8		79.84		56.1	50	150				

Sample ID 1509236-009ADUP	SampType: DUP	Units: µg/L			Prep Date: 9/18/2015	RunNo: 24998					
Client ID: MW-5	Batch ID: 11882				Analysis Date: 9/21/2015	SeqNo: 472092					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	231	50.0						209.2	10.0	30	
Heavy Oil	219	100						206.5	6.06	30	
Surr: 2-Fluorobiphenyl	60.2		80.00		75.2	50	150		0		
Surr: o-Terphenyl	57.8		80.00		72.2	50	150		0		



Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID MB-11890	SampType: MBLK	Units: µg/Kg				Prep Date: 9/21/2015	RunNo: 25037				
Client ID: MBLKS	Batch ID: 11890					Analysis Date: 9/22/2015	SeqNo: 471701				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Surr: 2-Fluorobiphenyl	321		500.0		64.2	30.6	166				
Surr: Terphenyl-d14 (surr)	317		500.0		63.5	48.8	157				

Sample ID LCS-11890	SampType: LCS	Units: µg/Kg				Prep Date: 9/21/2015	RunNo: 25037				
Client ID: LCSS	Batch ID: 11890					Analysis Date: 9/22/2015	SeqNo: 471700				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	847	50.0	1,000	0	84.7	61.6	125				
2-Methylnaphthalene	813	50.0	1,000	0	81.3	58.2	129				
1-Methylnaphthalene	813	50.0	1,000	0	81.3	56.4	132				
Surr: 2-Fluorobiphenyl	421		500.0		84.2	30.6	166				
Surr: Terphenyl-d14 (surr)	445		500.0		89.0	48.8	157				

Sample ID 1509236-001ADUP	SampType: DUP	Units: µg/Kg-dry				Prep Date: 9/21/2015	RunNo: 25037				
Client ID: SS-1	Batch ID: 11890					Analysis Date: 9/22/2015	SeqNo: 471679				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	62.4						0		30	
2-Methylnaphthalene	ND	62.4						0		30	
1-Methylnaphthalene	ND	62.4						0		30	
Surr: 2-Fluorobiphenyl	625		623.5		100	30.6	166		0		
Surr: Terphenyl-d14 (surr)	678		623.5		109	48.8	157		0		

Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID	1509236-002AMS	SampType:	MS	Units:	µg/Kg-dry	Prep Date:	9/21/2015	RunNo:	25037		
Client ID:	SS-2	Batch ID:	11890			Analysis Date:	9/23/2015	SeqNo:	471681		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,050	58.5	1,170	0	90.0	42.9	138				
2-Methylnaphthalene	1,070	58.5	1,170	0	91.4	42.8	151				
1-Methylnaphthalene	1,050	58.5	1,170	0	89.7	41.6	148				
Surr: 2-Fluorobiphenyl	496		585.0		84.8	30.6	166				
Surr: Terphenyl-d14 (surr)	566		585.0		96.7	48.8	157				



Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID MB-11883	SampType: MBLK	Units: µg/L			Prep Date: 9/18/2015	RunNo: 25014					
Client ID: MBLKW	Batch ID: 11883				Analysis Date: 9/21/2015	SeqNo: 471241					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	0.0998									
2-Methylnaphthalene	ND	0.0998									
1-Methylnaphthalene	ND	0.0998									
Surr: 2-Fluorobiphenyl	1.23		1.995		61.5	23.9	122				
Surr: Terphenyl-d14	1.93		1.995		97.0	33.4	135				

Sample ID LCS-11883	SampType: LCS	Units: µg/L			Prep Date: 9/18/2015	RunNo: 25014					
Client ID: LCSW	Batch ID: 11883				Analysis Date: 9/21/2015	SeqNo: 471240					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	2.03	0.0999	3.995	0	50.8	26.7	106				
2-Methylnaphthalene	2.09	0.0999	3.995	0	52.4	35.4	110				
1-Methylnaphthalene	2.18	0.0999	3.995	0	54.6	37.5	116				
Surr: 2-Fluorobiphenyl	1.14		1.998		56.9	23.9	122				
Surr: Terphenyl-d14	1.95		1.998		97.5	33.4	135				

Sample ID 1509236-009BDUP	SampType: DUP	Units: µg/L			Prep Date: 9/18/2015	RunNo: 25014					
Client ID: MW-5	Batch ID: 11883				Analysis Date: 9/21/2015	SeqNo: 471230					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	0.0998						0		30	
2-Methylnaphthalene	ND	0.0998						0		30	
1-Methylnaphthalene	0.628	0.0998						0.7139	12.8	30	
Surr: 2-Fluorobiphenyl	1.02		1.996		51.1	23.9	122		0		
Surr: Terphenyl-d14	1.71		1.996		85.8	33.4	135		0		

Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID 1509236-010BMS	SampType: MS		Units: µg/L	Prep Date: 9/18/2015	RunNo: 25014						
Client ID: MW-6	Batch ID: 11883			Analysis Date: 9/21/2015	SeqNo: 471232						
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	2.17	0.100	3.998	0	54.4	31.2	104				
2-Methylnaphthalene	2.04	0.100	3.998	0	51.0	33.9	109				
1-Methylnaphthalene	2.60	0.100	3.998	0.5680	50.9	33.2	110				
Surr: 2-Fluorobiphenyl	1.06		1.999		53.1	23.9	122				
Surr: Terphenyl-d14	1.77		1.999		88.5	33.4	135				



Date: 9/24/2015

Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Sample Moisture (Percent Moisture)

Sample ID 1509236-001ADUP	SampType: DUP	Units: wt%			Prep Date: 9/24/2015	RunNo: 25060					
Client ID: SS-1	Batch ID: R25060				Analysis Date: 9/24/2015	SeqNo: 472339					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	14.3	0.500						22.18	43.4	20	R

Sample ID 1509325-004ADUP	SampType: DUP	Units: wt%			Prep Date: 9/24/2015	RunNo: 25060					
Client ID: BATCH	Batch ID: R25060				Analysis Date: 9/24/2015	SeqNo: 472348					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	16.7	0.500						27.56	48.8	20	R



Sample Log-In Check List

Client Name: EPI	Work Order Number: 1509236
Logged by: Erica Silva	Date Received: 9/17/2015 2:23:00 PM

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
2. How was the sample delivered? Courier

Log In

3. Coolers are present? Yes No NA
4. Shipping container/cooler in good condition? Yes No
5. Custody Seals present on shipping container/cooler?
(Refer to comments for Custody Seals not intact) Yes No Not Required
6. Was an attempt made to cool the samples? Yes No NA
7. Were all items received at a temperature of >0°C to 10.0°C * Yes No NA
8. Sample(s) in proper container(s)? Yes No
9. Sufficient sample volume for indicated test(s)? Yes No
10. Are samples properly preserved? Yes No
11. Was preservative added to bottles? Yes No NA
12. Is there headspace in the VOA vials? Yes No NA
13. Did all samples containers arrive in good condition(unbroken)? Yes No
14. Does paperwork match bottle labels? Yes No
15. Are matrices correctly identified on Chain of Custody? Yes No
16. Is it clear what analyses were requested? Yes No
17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler	9.2
Sample	9.8
Temp Blank	7.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



ALS Environmental
 8620 Holly Drive, Suite 100
 Everett, WA 98208
 Phone (425) 398-2600
 Fax (425) 356-2866
 http://www.alsglobal.com

Fleming Analytical

Chain Of Custody/ Laboratory Analysis Request

Date 9/16/15 Page 2 of 2

ALS Job# 15092340 (Laboratory Use Only)

PROJECT ID:	65201.6			ANALYSIS REQUESTED	OTHER (Specify)	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
REPORT TO COMPANY:	EPI			<input type="checkbox"/> NWTPH-HCID			
PROJECT MANAGER:	Sean Trimble			<input checked="" type="checkbox"/> NWTPH-DX			
ADDRESS:	1180 NW Maple St #310 Issaquah WA 98027			<input type="checkbox"/> NWTPH-GX			
PHONE:	425-395-0054 FAX:			<input type="checkbox"/> BTEX by EPA-8021			
P.O. #:	E-MAIL: <u>seantrimble@epi.com</u>			<input type="checkbox"/> MTBE by EPA-8021 <input type="checkbox"/> EPA-8260 <input type="checkbox"/>			
INVOICE TO COMPANY:	EPI			<input type="checkbox"/> Halogenated Volatiles by EPA 8260			
ATTENTION:				<input type="checkbox"/> Volatile Organic Compounds by EPA 8260			
ADDRESS:				<input type="checkbox"/> EDB / EDC by EPA 8260 SIM (water)			
SAMPLE ID:	DATE	TIME	TYPE	LAB#	<input type="checkbox"/> EDB / EDC by EPA 8260 (soil)		
1. MW-3	9/16/15	1638	6W		<input type="checkbox"/> Semivolatile Organic Compounds by EPA 8270		
2. MW-4	9/16/15	1717	6W		<input type="checkbox"/> Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM <input type="checkbox"/>		
3.					<input type="checkbox"/> PCB <input type="checkbox"/> Pesticides <input type="checkbox"/> by EPA 8081/8082		
4.					<input type="checkbox"/> Metals-MTCA-5 <input type="checkbox"/> RCRA-8 <input type="checkbox"/> Pri Pol <input type="checkbox"/> TAL <input type="checkbox"/>		
5.					<input type="checkbox"/> Metals Other (Specify)		
6.					<input type="checkbox"/> TCLP-Metals <input type="checkbox"/> VOA <input type="checkbox"/> Semi-Vol <input type="checkbox"/> Pest <input type="checkbox"/> Herbs <input type="checkbox"/>		
7.							
8.							
9.							
10.							

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: Sean Trimble EPI 9/17/15 1235

Received By: Pauline Bennett 82

2. Relinquished By: Pauline Bennett 08/21/15 2:23PM

TURNAROUND REQUESTED IN BUSINESS DAYS*

Organic, Metals & Inorganic Analysis

Fuels & Hydrocarbon Analysis

10 5 3 2 1 10

Specify: _____

OTHER: _____

*Turnaround required less than standard may incur Rush Charges



3600 Fremont Ave. N.

Seattle, WA 98103

T: (206) 352-3790

F: (206) 352-7178

info@fremontanalytical.com

Environmental Partners, Inc.

Sean Trimble

1180 NW Maple Street, Suite 310

Issaquah, WA 98027

RE: Mossman Residence

Lab ID: 1509236

October 05, 2015

Attention Sean Trimble:

Fremont Analytical, Inc. received 13 sample(s) on 9/17/2015 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample Moisture (Percent Moisture)

Total Organic Carbon by EPA Method 9060

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
President



Date: 10/05/2015

CLIENT: Environmental Partners, Inc.
Project: Mossman Residence
Lab Order: 1509236

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1509236-001	SS-1	09/16/2015 10:40 AM	09/17/2015 2:23 PM
1509236-002	SS-2	09/16/2015 12:05 PM	09/17/2015 2:23 PM
1509236-003	SS-3	09/16/2015 11:47 AM	09/17/2015 2:23 PM
1509236-004	SS-4	09/16/2015 11:40 AM	09/17/2015 2:23 PM
1509236-005	SS-5	09/16/2015 11:55 AM	09/17/2015 2:23 PM
1509236-006	SS-6	09/16/2015 11:10 AM	09/17/2015 2:23 PM
1509236-007	SS-7	09/16/2015 11:00 AM	09/17/2015 2:23 PM
1509236-008	SS-8	09/16/2015 11:20 AM	09/17/2015 2:23 PM
1509236-009	MW-5	09/16/2015 3:55 PM	09/17/2015 2:23 PM
1509236-010	MW-6	09/16/2015 3:07 PM	09/17/2015 2:23 PM
1509236-011	MW-3	09/16/2015 4:38 PM	09/17/2015 2:23 PM
1509236-012	MW-4	09/16/2015 5:17 PM	09/17/2015 2:23 PM
1509236-013	Trip Blank	09/11/2015 6:31 PM	09/17/2015 2:23 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Environmental Partners, Inc.

Project: Mossman Residence

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Sediment samples were non-detect. Carbon normalization not required.

Qualifiers:

- * - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below LOQ
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit

Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



Analytical Report

WO#: 1509236
Date Reported: 10/5/2015

Client: Environmental Partners, Inc.
Project: Mossman Residence
Lab ID: 1509236-001
Client Sample ID: SS-1

Collection Date: 9/16/2015 10:40:00 AM
Matrix: Sediment

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>			Batch ID: 11879		Analyst: AK	
Diesel (Fuel Oil)	ND	24.2		mg/Kg-dry	1	9/18/2015 10:34:00 PM
Heavy Oil	ND	60.4		mg/Kg-dry	1	9/18/2015 10:34:00 PM
Surr: 2-Fluorobiphenyl	82.8	50-150		%REC	1	9/18/2015 10:34:00 PM
Surr: o-Terphenyl	80.6	50-150		%REC	1	9/18/2015 10:34:00 PM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>			Batch ID: 11890		Analyst: NG	
Naphthalene	ND	63.3		µg/Kg-dry	1	9/22/2015 11:29:00 PM
2-Methylnaphthalene	ND	63.3		µg/Kg-dry	1	9/22/2015 11:29:00 PM
1-Methylnaphthalene	ND	63.3		µg/Kg-dry	1	9/22/2015 11:29:00 PM
Surr: 2-Fluorobiphenyl	88.4	30.6-166		%REC	1	9/22/2015 11:29:00 PM
Surr: Terphenyl-d14 (surr)	102	48.8-157		%REC	1	9/22/2015 11:29:00 PM
<u>Sample Moisture (Percent Moisture)</u>			Batch ID: R25060		Analyst: CG	
Percent Moisture	22.2	0.500		wt%	1	9/24/2015 9:00:10 AM
<u>Total Organic Carbon by EPA Method 9060</u>			Batch ID: 11929		Analyst: KT	
Total Organic Carbon	0.249	0.0500		%-dry	1	9/23/2015 12:06:11 PM



Analytical Report

WO#: 1509236
Date Reported: 10/5/2015

Client: Environmental Partners, Inc.

Collection Date: 9/16/2015 12:05:00 PM

Project: Mossman Residence

Lab ID: 1509236-002

Matrix: Sediment

Client Sample ID: SS-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>			Batch ID: 11879		Analyst: AK	
Diesel (Fuel Oil)	ND	21.9		mg/Kg-dry	1	9/18/2015 11:05:00 PM
Heavy Oil	ND	54.7		mg/Kg-dry	1	9/18/2015 11:05:00 PM
Surr: 2-Fluorobiphenyl	85.1	50-150		%REC	1	9/18/2015 11:05:00 PM
Surr: o-Terphenyl	82.6	50-150		%REC	1	9/18/2015 11:05:00 PM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>			Batch ID: 11890		Analyst: NG	
Naphthalene	ND	58.7		µg/Kg-dry	1	9/23/2015 12:20:00 AM
2-Methylnaphthalene	ND	58.7		µg/Kg-dry	1	9/23/2015 12:20:00 AM
1-Methylnaphthalene	ND	58.7		µg/Kg-dry	1	9/23/2015 12:20:00 AM
Surr: 2-Fluorobiphenyl	96.7	30.6-166		%REC	1	9/23/2015 12:20:00 AM
Surr: Terphenyl-d14 (surr)	108	48.8-157		%REC	1	9/23/2015 12:20:00 AM
<u>Sample Moisture (Percent Moisture)</u>			Batch ID: R25060		Analyst: CG	
Percent Moisture	17.9	0.500		wt%	1	9/24/2015 9:00:10 AM
<u>Total Organic Carbon by EPA Method 9060</u>			Batch ID: 11929		Analyst: KT	
Total Organic Carbon	0.131	0.0500		%-dry	1	9/23/2015 12:58:40 PM



Analytical Report

WO#: 1509236
Date Reported: 10/5/2015

Client: Environmental Partners, Inc.

Collection Date: 9/16/2015 11:47:00 AM

Project: Mossman Residence

Lab ID: 1509236-003

Matrix: Sediment

Client Sample ID: SS-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>			Batch ID: 11879		Analyst: AK	
Diesel (Fuel Oil)	ND	20.4		mg/Kg-dry	1	9/18/2015 11:37:00 PM
Heavy Oil	ND	50.9		mg/Kg-dry	1	9/18/2015 11:37:00 PM
Surr: 2-Fluorobiphenyl	136	50-150		%REC	1	9/18/2015 11:37:00 PM
Surr: o-Terphenyl	134	50-150		%REC	1	9/18/2015 11:37:00 PM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>			Batch ID: 11890		Analyst: NG	
Naphthalene	ND	57.4		µg/Kg-dry	1	9/23/2015 1:10:00 AM
2-Methylnaphthalene	ND	57.4		µg/Kg-dry	1	9/23/2015 1:10:00 AM
1-Methylnaphthalene	ND	57.4		µg/Kg-dry	1	9/23/2015 1:10:00 AM
Surr: 2-Fluorobiphenyl	88.2	30.6-166		%REC	1	9/23/2015 1:10:00 AM
Surr: Terphenyl-d14 (surr)	98.6	48.8-157		%REC	1	9/23/2015 1:10:00 AM
<u>Sample Moisture (Percent Moisture)</u>			Batch ID: R25060		Analyst: CG	
Percent Moisture	15.1	0.500		wt%	1	9/24/2015 9:00:10 AM
<u>Total Organic Carbon by EPA Method 9060</u>			Batch ID: 11929		Analyst: KT	
Total Organic Carbon	0.232	0.0500		%-dry	1	9/23/2015 1:10:54 PM



Analytical Report

WO#: 1509236
Date Reported: 10/5/2015

Client: Environmental Partners, Inc.

Collection Date: 9/16/2015 11:40:00 AM

Project: Mossman Residence

Lab ID: 1509236-004

Matrix: Sediment

Client Sample ID: SS-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 11879	Analyst: AK
Diesel (Fuel Oil)	ND	22.5		mg/Kg-dry	1	9/19/2015 12:08:00 AM
Heavy Oil	ND	56.3		mg/Kg-dry	1	9/19/2015 12:08:00 AM
Surr: 2-Fluorobiphenyl	91.2	50-150		%REC	1	9/19/2015 12:08:00 AM
Surr: o-Terphenyl	89.2	50-150		%REC	1	9/19/2015 12:08:00 AM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>					Batch ID: 11890	Analyst: NG
Naphthalene	ND	61.1		µg/Kg-dry	1	9/23/2015 1:35:00 AM
2-Methylnaphthalene	ND	61.1		µg/Kg-dry	1	9/23/2015 1:35:00 AM
1-Methylnaphthalene	ND	61.1		µg/Kg-dry	1	9/23/2015 1:35:00 AM
Surr: 2-Fluorobiphenyl	91.6	30.6-166		%REC	1	9/23/2015 1:35:00 AM
Surr: Terphenyl-d14 (surr)	100	48.8-157		%REC	1	9/23/2015 1:35:00 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R25060	Analyst: CG
Percent Moisture	21.1	0.500		wt%	1	9/24/2015 9:00:10 AM
<u>Total Organic Carbon by EPA Method 9060</u>					Batch ID: 11929	Analyst: KT
Total Organic Carbon	0.191	0.0500		%-dry	1	9/23/2015 1:21:35 PM



Analytical Report

WO#: 1509236
Date Reported: 10/5/2015

Client: Environmental Partners, Inc.

Collection Date: 9/16/2015 11:55:00 AM

Project: Mossman Residence

Lab ID: 1509236-005

Matrix: Sediment

Client Sample ID: SS-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 11879	Analyst: AK
Diesel (Fuel Oil)	ND	25.2		mg/Kg-dry	1	9/19/2015 12:39:00 AM
Heavy Oil	ND	62.9		mg/Kg-dry	1	9/19/2015 12:39:00 AM
Surr: 2-Fluorobiphenyl	121	50-150		%REC	1	9/19/2015 12:39:00 AM
Surr: o-Terphenyl	117	50-150		%REC	1	9/19/2015 12:39:00 AM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>					Batch ID: 11890	Analyst: NG
Naphthalene	ND	62.9		µg/Kg-dry	1	9/23/2015 2:01:00 AM
2-Methylnaphthalene	ND	62.9		µg/Kg-dry	1	9/23/2015 2:01:00 AM
1-Methylnaphthalene	ND	62.9		µg/Kg-dry	1	9/23/2015 2:01:00 AM
Surr: 2-Fluorobiphenyl	85.9	30.6-166		%REC	1	9/23/2015 2:01:00 AM
Surr: Terphenyl-d14 (surr)	94.4	48.8-157		%REC	1	9/23/2015 2:01:00 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R25060	Analyst: CG
Percent Moisture	22.0	0.500		wt%	1	9/24/2015 9:00:10 AM
<u>Total Organic Carbon by EPA Method 9060</u>					Batch ID: 11929	Analyst: KT
Total Organic Carbon	0.167	0.0500		%-dry	1	9/23/2015 1:35:13 PM



Analytical Report

WO#: 1509236
 Date Reported: 10/5/2015

Client: Environmental Partners, Inc.
Project: Mossman Residence
Lab ID: 1509236-009
Client Sample ID: MW-5

Collection Date: 9/16/2015 3:55:00 PM
Matrix: Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>			Batch ID: 11882		Analyst: AK	
Diesel (Fuel Oil)	209	49.9		µg/L	1	9/22/2015 10:07:00 AM
Heavy Oil	206	99.8		µg/L	1	9/22/2015 10:07:00 AM
Surr: 2-Fluorobiphenyl	65.7	50-150		%REC	1	9/22/2015 10:07:00 AM
Surr: o-Terphenyl	66.5	50-150		%REC	1	9/22/2015 10:07:00 AM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>			Batch ID: 11883		Analyst: NG	
Naphthalene	ND	0.0998		µg/L	1	9/21/2015 5:17:00 PM
2-Methylnaphthalene	ND	0.0998		µg/L	1	9/21/2015 5:17:00 PM
1-Methylnaphthalene	0.714	0.0998		µg/L	1	9/21/2015 5:17:00 PM
Surr: 2-Fluorobiphenyl	60.3	23.9-122		%REC	1	9/21/2015 5:17:00 PM
Surr: Terphenyl-d14	103	33.4-135		%REC	1	9/21/2015 5:17:00 PM



Analytical Report

WO#: 1509236
Date Reported: 10/5/2015

Client: Environmental Partners, Inc.

Collection Date: 9/16/2015 3:07:00 PM

Project: Mossman Residence

Lab ID: 1509236-010

Matrix: Groundwater

Client Sample ID: MW-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>			Batch ID: 11882		Analyst: AK	
Diesel (Fuel Oil)	117	50.0		µg/L	1	9/22/2015 11:28:00 AM
Heavy Oil	261	99.9		µg/L	1	9/22/2015 11:28:00 AM
Surr: 2-Fluorobiphenyl	58.2	50-150		%REC	1	9/22/2015 11:28:00 AM
Surr: o-Terphenyl	58.7	50-150		%REC	1	9/22/2015 11:28:00 AM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>			Batch ID: 11883		Analyst: NG	
Naphthalene	ND	0.0999		µg/L	1	9/21/2015 6:10:00 PM
2-Methylnaphthalene	ND	0.0999		µg/L	1	9/21/2015 6:10:00 PM
1-Methylnaphthalene	0.568	0.0999		µg/L	1	9/21/2015 6:10:00 PM
Surr: 2-Fluorobiphenyl	60.1	23.9-122		%REC	1	9/21/2015 6:10:00 PM
Surr: Terphenyl-d14	100	33.4-135		%REC	1	9/21/2015 6:10:00 PM



Analytical Report

WO#: 1509236
Date Reported: 10/5/2015

Client: Environmental Partners, Inc.

Collection Date: 9/16/2015 4:38:00 PM

Project: Mossman Residence

Lab ID: 1509236-011

Matrix: Groundwater

Client Sample ID: MW-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 11882 Analyst: AK

Diesel (Fuel Oil)	ND	49.9		µg/L	1	9/22/2015 11:59:00 AM
Diesel Range Organics (C12-C24)	604	49.9		µg/L	1	9/22/2015 11:59:00 AM
Heavy Oil	ND	99.8		µg/L	1	9/22/2015 11:59:00 AM
Surr: 2-Fluorobiphenyl	68.7	50-150		%REC	1	9/22/2015 11:59:00 AM
Surr: o-Terphenyl	67.1	50-150		%REC	1	9/22/2015 11:59:00 AM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 11883 Analyst: NG

Naphthalene	ND	0.100		µg/L	1	9/21/2015 7:02:00 PM
2-Methylnaphthalene	ND	0.100		µg/L	1	9/21/2015 7:02:00 PM
1-Methylnaphthalene	ND	0.100		µg/L	1	9/21/2015 7:02:00 PM
Surr: 2-Fluorobiphenyl	59.9	23.9-122		%REC	1	9/21/2015 7:02:00 PM
Surr: Terphenyl-d14	102	33.4-135		%REC	1	9/21/2015 7:02:00 PM



Analytical Report

WO#: 1509236
Date Reported: 10/5/2015

Client: Environmental Partners, Inc.

Collection Date: 9/16/2015 5:17:00 PM

Project: Mossman Residence

Lab ID: 1509236-012

Matrix: Groundwater

Client Sample ID: MW-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 11882 Analyst: AK

Diesel (Fuel Oil)	ND	50.7		µg/L	1	9/22/2015 12:31:00 PM
Diesel Range Organics (C12-C24)	3,860	50.7		µg/L	1	9/22/2015 12:31:00 PM
Heavy Oil	ND	101		µg/L	1	9/22/2015 12:31:00 PM
Surr: 2-Fluorobiphenyl	83.5	50-150		%REC	1	9/22/2015 12:31:00 PM
Surr: o-Terphenyl	65.3	50-150		%REC	1	9/22/2015 12:31:00 PM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 11883 Analyst: NG

Naphthalene	0.566	0.0999		µg/L	1	9/21/2015 7:28:00 PM
2-Methylnaphthalene	0.181	0.0999		µg/L	1	9/21/2015 7:28:00 PM
1-Methylnaphthalene	0.406	0.0999		µg/L	1	9/21/2015 7:28:00 PM
Surr: 2-Fluorobiphenyl	58.7	23.9-122		%REC	1	9/21/2015 7:28:00 PM
Surr: Terphenyl-d14	103	33.4-135		%REC	1	9/21/2015 7:28:00 PM



Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Total Organic Carbon by EPA Method 9060

Sample ID MB-11929	SampType: MBLK	Units: %-dry			Prep Date: 9/23/2015	RunNo: 25051					
Client ID: MBLKS	Batch ID: 11929				Analysis Date: 9/23/2015	SeqNo: 472125					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.0500									

Sample ID LCS-11929	SampType: LCS	Units: %-dry			Prep Date: 9/23/2015	RunNo: 25051					
Client ID: LCSS	Batch ID: 11929				Analysis Date: 9/23/2015	SeqNo: 472126					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	0.584	0.0500	0.6510	0	89.7	41.1	157				

Sample ID 1509236-001ADUP	SampType: DUP	Units: %-dry			Prep Date: 9/23/2015	RunNo: 25051					
Client ID: SS-1	Batch ID: 11929				Analysis Date: 9/23/2015	SeqNo: 472128					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	0.250	0.0500						0.2490	0.361	30	

Sample ID 1509236-001AMS	SampType: MS	Units: %-dry			Prep Date: 9/23/2015	RunNo: 25051					
Client ID: SS-1	Batch ID: 11929				Analysis Date: 9/23/2015	SeqNo: 472129					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.20	0.0500	1.000	0.2490	94.9	50.2	118				

Sample ID 1509236-001AMSD	SampType: MSD	Units: %-dry			Prep Date: 9/23/2015	RunNo: 25051					
Client ID: SS-1	Batch ID: 11929				Analysis Date: 9/23/2015	SeqNo: 472130					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.17	0.0500	1.000	0.2490	92.3	50.2	118	1.198	2.19	20	



Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID LCS-11879	SampType: LCS	Units: mg/Kg				Prep Date: 9/18/2015	RunNo: 24987				
Client ID: LCSS	Batch ID: 11879					Analysis Date: 9/18/2015	SeqNo: 470794				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	443	20.0	500.0	0	88.5	65	135				
Surr: 2-Fluorobiphenyl	18.4		20.00		92.1	50	150				
Surr: o-Terphenyl	17.7		20.00		88.4	50	150				

Sample ID MB-11879	SampType: MBLK	Units: mg/Kg				Prep Date: 9/18/2015	RunNo: 24987				
Client ID: MBLKS	Batch ID: 11879					Analysis Date: 9/18/2015	SeqNo: 470795				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	17.3		20.00		86.7	50	150				
Surr: o-Terphenyl	17.1		20.00		85.4	50	150				

Sample ID 1509240-001ADUP	SampType: DUP	Units: mg/Kg-dry				Prep Date: 9/18/2015	RunNo: 24987				
Client ID: BATCH	Batch ID: 11879					Analysis Date: 9/19/2015	SeqNo: 470830				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	192	153						163.0	16.4	30	
Heavy Oil	ND	383						0		30	
Surr: 2-Fluorobiphenyl	121		153.3		79.2	50	150		0		
Surr: o-Terphenyl	114		153.3		74.6	50	150		0		

Sample ID 1509243-005ADUP	SampType: DUP	Units: mg/Kg-dry				Prep Date: 9/18/2015	RunNo: 24987				
Client ID: BATCH	Batch ID: 11879					Analysis Date: 9/19/2015	SeqNo: 470778				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	43.1						0		30	
Heavy Oil	2,620	108						2,048	24.4	30	
Surr: 2-Fluorobiphenyl	41.0		43.14		95.0	50	150		0		
Surr: o-Terphenyl	41.5		43.14		96.1	50	150		0		



Date: 10/5/2015

Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID	1509243-005ADUP	SampType:	DUP	Units:	mg/Kg-dry	Prep Date:	9/18/2015	RunNo:	24987				
Client ID:	BATCH	Batch ID:	11879			Analysis Date:	9/19/2015	SeqNo:	470778				
Analyte		Result		RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual



Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID MB-11882	SampType: MBLK	Units: µg/L				Prep Date: 9/18/2015	RunNo: 24998				
Client ID: MBLKW	Batch ID: 11882					Analysis Date: 9/21/2015	SeqNo: 470947				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	49.8									
Heavy Oil	ND	99.7									
Surr: 2-Fluorobiphenyl	42.8		79.76		53.7	50	150				
Surr: o-Terphenyl	46.0		79.76		57.7	50	150				

Sample ID LCS-11882	SampType: LCS	Units: µg/L				Prep Date: 9/18/2015	RunNo: 24998				
Client ID: LCSW	Batch ID: 11882					Analysis Date: 9/21/2015	SeqNo: 470946				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	658	49.9	998.0	0	65.9	65	135				
Surr: 2-Fluorobiphenyl	42.5		79.84		53.2	50	150				
Surr: o-Terphenyl	44.8		79.84		56.1	50	150				

Sample ID 1509236-009ADUP	SampType: DUP	Units: µg/L				Prep Date: 9/18/2015	RunNo: 24998				
Client ID: MW-5	Batch ID: 11882					Analysis Date: 9/21/2015	SeqNo: 472092				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	231	50.0						209.2	10.0	30	
Heavy Oil	219	100						206.5	6.06	30	
Surr: 2-Fluorobiphenyl	60.2		80.00		75.2	50	150		0		
Surr: o-Terphenyl	57.8		80.00		72.2	50	150		0		



Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID MB-11890	SampType: MBLK	Units: µg/Kg			Prep Date: 9/21/2015	RunNo: 25037					
Client ID: MBLKS	Batch ID: 11890				Analysis Date: 9/22/2015	SeqNo: 471701					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Surr: 2-Fluorobiphenyl	321		500.0		64.2	30.6	166				
Surr: Terphenyl-d14 (surr)	317		500.0		63.5	48.8	157				

Sample ID LCS-11890	SampType: LCS	Units: µg/Kg			Prep Date: 9/21/2015	RunNo: 25037					
Client ID: LCSS	Batch ID: 11890				Analysis Date: 9/22/2015	SeqNo: 471700					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	847	50.0	1,000	0	84.7	61.6	125				
2-Methylnaphthalene	813	50.0	1,000	0	81.3	58.2	129				
1-Methylnaphthalene	813	50.0	1,000	0	81.3	56.4	132				
Surr: 2-Fluorobiphenyl	421		500.0		84.2	30.6	166				
Surr: Terphenyl-d14 (surr)	445		500.0		89.0	48.8	157				

Sample ID 1509236-001ADUP	SampType: DUP	Units: µg/Kg-dry			Prep Date: 9/21/2015	RunNo: 25037					
Client ID: SS-1	Batch ID: 11890				Analysis Date: 9/22/2015	SeqNo: 471679					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	62.4						0		30	
2-Methylnaphthalene	ND	62.4						0		30	
1-Methylnaphthalene	ND	62.4						0		30	
Surr: 2-Fluorobiphenyl	625		623.5		100	30.6	166		0		
Surr: Terphenyl-d14 (surr)	678		623.5		109	48.8	157		0		

Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID 1509236-002AMS	SampType: MS	Units: µg/Kg-dry				Prep Date: 9/21/2015	RunNo: 25037				
Client ID: SS-2	Batch ID: 11890					Analysis Date: 9/23/2015	SeqNo: 471681				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,050	58.5	1,170	0	90.0	42.9	138				
2-Methylnaphthalene	1,070	58.5	1,170	0	91.4	42.8	151				
1-Methylnaphthalene	1,050	58.5	1,170	0	89.7	41.6	148				
Surr: 2-Fluorobiphenyl	496		585.0		84.8	30.6	166				
Surr: Terphenyl-d14 (surr)	566		585.0		96.7	48.8	157				

Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID MB-11883	SampType: MBLK	Units: µg/L			Prep Date: 9/18/2015	RunNo: 25014					
Client ID: MBLKW	Batch ID: 11883				Analysis Date: 9/21/2015	SeqNo: 471241					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	0.0998									
2-Methylnaphthalene	ND	0.0998									
1-Methylnaphthalene	ND	0.0998									
Surr: 2-Fluorobiphenyl	1.23		1.995		61.5	23.9	122				
Surr: Terphenyl-d14	1.93		1.995		97.0	33.4	135				

Sample ID LCS-11883	SampType: LCS	Units: µg/L			Prep Date: 9/18/2015	RunNo: 25014					
Client ID: LCSW	Batch ID: 11883				Analysis Date: 9/21/2015	SeqNo: 471240					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	2.03	0.0999	3.995	0	50.8	26.7	106				
2-Methylnaphthalene	2.09	0.0999	3.995	0	52.4	35.4	110				
1-Methylnaphthalene	2.18	0.0999	3.995	0	54.6	37.5	116				
Surr: 2-Fluorobiphenyl	1.14		1.998		56.9	23.9	122				
Surr: Terphenyl-d14	1.95		1.998		97.5	33.4	135				

Sample ID 1509236-009BDUP	SampType: DUP	Units: µg/L			Prep Date: 9/18/2015	RunNo: 25014					
Client ID: MW-5	Batch ID: 11883				Analysis Date: 9/21/2015	SeqNo: 471230					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	0.0998						0		30	
2-Methylnaphthalene	ND	0.0998						0		30	
1-Methylnaphthalene	0.628	0.0998						0.7139	12.8	30	
Surr: 2-Fluorobiphenyl	1.02		1.996		51.1	23.9	122		0		
Surr: Terphenyl-d14	1.71		1.996		85.8	33.4	135		0		

Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID 1509236-010BMS	SampType: MS		Units: µg/L	Prep Date: 9/18/2015	RunNo: 25014						
Client ID: MW-6	Batch ID: 11883			Analysis Date: 9/21/2015	SeqNo: 471232						
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	2.17	0.100	3.998	0	54.4	31.2	104				
2-Methylnaphthalene	2.04	0.100	3.998	0	51.0	33.9	109				
1-Methylnaphthalene	2.60	0.100	3.998	0.5680	50.9	33.2	110				
Surr: 2-Fluorobiphenyl	1.06		1.999		53.1	23.9	122				
Surr: Terphenyl-d14	1.77		1.999		88.5	33.4	135				



Date: 10/5/2015

Work Order: 1509236
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Sample Moisture (Percent Moisture)

Sample ID 1509236-001ADUP	SampType: DUP	Units: wt%			Prep Date: 9/24/2015	RunNo: 25060					
Client ID: SS-1	Batch ID: R25060				Analysis Date: 9/24/2015	SeqNo: 472339					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	14.3	0.500						22.18	43.4	20	R

Sample ID 1509325-004ADUP	SampType: DUP	Units: wt%			Prep Date: 9/24/2015	RunNo: 25060					
Client ID: BATCH	Batch ID: R25060				Analysis Date: 9/24/2015	SeqNo: 472348					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	16.7	0.500						27.56	48.8	20	R



Sample Log-In Check List

Client Name: EPI	Work Order Number: 1509236
Logged by: Erica Silva	Date Received: 9/17/2015 2:23:00 PM

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
2. How was the sample delivered? Courier

Log In

3. Coolers are present? Yes No NA
4. Shipping container/cooler in good condition? Yes No
5. Custody Seals present on shipping container/cooler?
(Refer to comments for Custody Seals not intact) Yes No Not Required
6. Was an attempt made to cool the samples? Yes No NA
7. Were all items received at a temperature of >0°C to 10.0°C * Yes No NA
8. Sample(s) in proper container(s)? Yes No
9. Sufficient sample volume for indicated test(s)? Yes No
10. Are samples properly preserved? Yes No
11. Was preservative added to bottles? Yes No NA
12. Is there headspace in the VOA vials? Yes No NA
13. Did all samples containers arrive in good condition(unbroken)? Yes No
14. Does paperwork match bottle labels? Yes No
15. Are matrices correctly identified on Chain of Custody? Yes No
16. Is it clear what analyses were requested? Yes No
17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler	9.2
Sample	9.8
Temp Blank	7.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



ALS Environmental
 8620 Holly Drive, Suite 100
 Everett, WA 98208
 Phone (425) 356-2600
 Fax (425) 356-2606
 http://www.alsglobal.com

Fernox Analytical

**Chain Of Custody/
 Laboratory Analysis Request**

Date 9/16/15 Page 2 of 2

ALS Job# (Laboratory Use Only)
1509234

PROJECT ID: <u>65201.6</u>				ANALYSIS REQUESTED				OTHER (Specify)	
REPORT TO COMPANY: <u>EPI</u>				NWTPH-HCIU					
PROJECT MANAGER: <u>Sean Trimble</u>				NWTPH-DX					
ADDRESS: <u>1180 NW Apple St #310</u>				NWTPH-GX					
PHONE: <u>425-375-0054</u> FAX: <u>425-375-0054</u>				BTEX by EPA-8021					
P.O. #: <u>EPI</u> E-MAIL: <u>sean@epi-wa.com</u>				MTBE by EPA-8021 <input type="checkbox"/> EPA-8260 <input type="checkbox"/>					
INVOICE TO COMPANY:				Halogenated Volatiles by EPA 8260					
ATTENTION:				Volatile Organic Compounds by EPA 8260					
ADDRESS:				EDB / EDC by EPA 8260 SIM (water)					
SAMPLE I.D.				EDB / EDC by EPA 8260 (soil)					
DATE				Semivolatile Organic Compounds by EPA 8270					
TIME				Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM <input type="checkbox"/>					
TYPE				PCB <input type="checkbox"/> Pesticides <input type="checkbox"/> by EPA 8081/8062					
LAB#				Metals-MTCA-5 <input type="checkbox"/> RCRA-8 <input type="checkbox"/> Pri Pol <input type="checkbox"/> TAL <input type="checkbox"/>					
				Metals Other (Specify)					
1. <u>MU-3</u>				TCLP-Metals <input type="checkbox"/> VOA <input type="checkbox"/> Semi-Vol <input type="checkbox"/> Pest <input type="checkbox"/> Herbs <input type="checkbox"/>					
2. <u>MU-4</u>				<u>XX Naphthalenes</u>					
3. <u>---</u>				<u>BY 8270 SIM</u>					
4. <u>---</u>									
5. <u>---</u>									
6. <u>---</u>									
7. <u>---</u>									
8. <u>---</u>									
9. <u>---</u>									
10. <u>---</u>									
				NUMBER OF CONTAINERS					
				RECEIVED IN GOOD CONDITION?					

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: Sean Trimble EPI 9/17/15 1235

Received By: Russ 82

2. Relinquished By: Secondary Personnel 09/17/15 2:23PM

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis

Fuels & Hydrocarbon Analysis

10 5 3 2 1 1

Specify:

OTHER:

*Turnaround requested less than standard may incur Rush Charges



3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.

Kristin Addis
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: Mossman Residence
Work Order Number: 1311324

December 17, 2013

Attention Kristin Addis:

Fremont Analytical, Inc. received 8 sample(s) on 11/27/2013 for the analyses presented in the following report.

Petroleum Fractionation by EPA Method TO-15
Volatile Organic Compounds by EPA Method TO-15

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal

CC:
Thom Morin

DoD/ELAP Certification #L2371, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)



Date: 03/16/2017

CLIENT: Environmental Partners, Inc.
Project: Mossman Residence
Work Order: 1311324

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1311324-001	A-2ss	11/26/2013 9:01 AM	11/27/2013 10:40 AM
1311324-002	A-2IA	11/26/2013 9:02 AM	11/27/2013 10:40 AM
1311324-003	A-5AM	11/26/2013 9:06 AM	11/27/2013 10:40 AM
1311324-004	A-1IA	11/26/2013 9:00 AM	11/27/2013 10:40 AM
1311324-005	A-3IA	11/26/2013 9:05 AM	11/27/2013 10:40 AM
1311324-006	A-4cs	11/26/2013 9:15 AM	11/27/2013 10:40 AM
1311324-007	A-1ss	11/26/2013 8:57 AM	11/27/2013 10:40 AM
1311324-008	A-3ss	11/26/2013 9:04 AM	11/27/2013 10:40 AM

CLIENT: Environmental Partners, Inc.

Project: Mossman Residence

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Air samples are reported in ppbv and ug/m3.

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-2ss

Date Sampled: 11/26/2013

Lab ID: 1311324-001A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
<u>Petroleum Fractionation by EPA Method TO-15</u>					
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,2,3-Trimethylbenzene	<0.500	<2.46	0.500	2.46	TO-15 11/28/2013 MD
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47	TO-15 11/28/2013 MD
1,3-Butadiene	<0.500	<1.11	0.500	1.11	TO-15 11/28/2013 MD
p-isopropyltoluene	<0.500	<2.74	0.500	2.74	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC5-8)	<50.0	<190	50.0	190	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC9-12)	<50.0	<294	50.0	294	TO-15 11/28/2013 MD
Aromatic Hydrocarbon (EC9-10)	<50.0	<252	50.0	252	TO-15 11/28/2013 MD
Benzene	<0.200	<0.639	0.200	0.639	TO-15 11/28/2013 MD
Cyclohexane	<0.200	<0.688	0.200	0.688	TO-15 11/28/2013 MD
Decane	<0.500	<2.91	0.500	2.91	TO-15 11/28/2013 MD
Ethylbenzene	<0.300	<1.30	0.300	1.30	TO-15 11/28/2013 MD
Heptane	<0.500	<2.01	0.500	2.01	TO-15 11/28/2013 MD
Isopentane	<0.500	<1.48	0.500	1.48	TO-15 11/28/2013 MD
m,p-Xylene	<0.200	<0.868	0.200	0.868	TO-15 11/28/2013 MD
Dodecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
n-Hexane	<0.200	<0.705	0.200	0.705	TO-15 11/28/2013 MD
Nonane	<0.500	<2.62	0.500	2.62	TO-15 11/28/2013 MD
Undecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
Octane	<0.500	<2.34	0.500	2.34	TO-15 11/28/2013 MD
o-Xylene	<0.200	<0.868	0.200	0.868	TO-15 11/28/2013 MD
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721	TO-15 11/28/2013 MD
Toluene	<0.200	<0.754	0.200	0.754	TO-15 11/28/2013 MD
Surr: 4-Bromofluorobenzene	87.5 %Rec	--	70-130	--	TO-15 11/28/2013 MD

Volatile Organic Compounds by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,1,1-Trichloroethane	<0.200	<1.09	0.200	1.09	EPA-TO-15 11/28/2013 SG
1,1,2,2-Tetrachloroethane	<0.300	<2.06	0.300	2.06	EPA-TO-15 11/28/2013 SG
CFC-113	<0.500	<3.83	0.500	3.83	EPA-TO-15 11/28/2013 SG
1,1,2-Trichloroethane (TCA)	<0.500	<2.73	0.500	2.73	EPA-TO-15 11/28/2013 SG
1,1-Dichloroethane	<0.200	<0.810	0.200	0.810	EPA-TO-15 11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-2ss

Date Sampled: 11/26/2013

Lab ID: 1311324-001A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
1,1-Dichloroethene (DCE)	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
1,2,4-Trichlorobenzene	<0.300	<2.23	0.300	2.23		EPA-TO-15	11/28/2013 SG
1,2,4-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,2-Dibromoethane (EDB)	<0.200	<1.54	0.200	1.54		EPA-TO-15	11/28/2013 SG
1,2-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,2-Dichloroethane	<0.200	<0.809	0.200	0.809		EPA-TO-15	11/28/2013 SG
1,2-Dichloropropane	<0.500	<2.31	0.500	2.31		EPA-TO-15	11/28/2013 SG
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,3-Butadiene	<0.500	<1.11	0.500	1.11		EPA-TO-15	11/28/2013 SG
1,3-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dioxane	<1.00	<3.60	1.00	3.60		EPA-TO-15	11/28/2013 SG
(MEK) 2-Butanone	<0.500	<1.47	0.500	1.47		EPA-TO-15	11/28/2013 SG
2-Hexanone	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Isopropyl Alcohol	<1.00	<2.46	1.00	2.46		EPA-TO-15	11/28/2013 SG
4-Methyl-2-pentanone (MIBK)	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Acetone	1.82	4.33	1.00	2.38		EPA-TO-15	11/28/2013 SG
Acrolein	<0.500	<1.15	0.500	1.15		EPA-TO-15	11/28/2013 SG
Benzene	<0.200	<0.639	0.200	0.639		EPA-TO-15	11/28/2013 SG
Benzyl chloride	<0.500	<2.59	0.500	2.59		EPA-TO-15	11/28/2013 SG
Dichlorobromomethane	<0.300	<2.01	0.300	2.01		EPA-TO-15	11/28/2013 SG
Bromoform	<0.200	<2.07	0.200	2.07		EPA-TO-15	11/28/2013 SG
Bromomethane	<0.500	<1.94	0.500	1.94		EPA-TO-15	11/28/2013 SG
Carbon disulfide	<0.200	<0.623	0.200	0.623		EPA-TO-15	11/28/2013 SG
Carbon tetrachloride	<0.200	<1.26	0.200	1.26		EPA-TO-15	11/28/2013 SG
Chlorobenzene	<0.200	<0.921	0.200	0.921		EPA-TO-15	11/28/2013 SG
Dibromochloromethane	<0.500	<4.26	0.500	4.26		EPA-TO-15	11/28/2013 SG
Chloroethane	<0.500	<1.32	0.500	1.32		EPA-TO-15	11/28/2013 SG
Chloroform	<0.200	<0.977	0.200	0.977		EPA-TO-15	11/28/2013 SG
Chloromethane	<0.500	<1.03	0.500	1.03		EPA-TO-15	11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-2ss

Date Sampled: 11/26/2013

Lab ID: 1311324-001A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
<u>Volatile Organic Compounds by EPA Method TO-15</u>							
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
cis-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
cis-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	11/28/2013 SG
Cyclohexane	<0.200	<0.688	0.200	0.688		EPA-TO-15	11/28/2013 SG
Dichlorodifluoromethane (CFC-12)	0.444	2.19	0.300	1.48		EPA-TO-15	11/28/2013 SG
Dichlorotetrafluoroethane (CFC-114)	<0.500	<3.50	0.500	3.50		EPA-TO-15	11/28/2013 SG
Ethyl acetate	<1.00	<3.60	1.00	3.60		EPA-TO-15	11/28/2013 SG
Ethylbenzene	<0.300	<1.30	0.300	1.30		EPA-TO-15	11/28/2013 SG
Heptane	<0.500	<2.01	0.500	2.01		EPA-TO-15	11/28/2013 SG
Hexachlorobutadiene	<1.00	<10.7	1.00	10.7		EPA-TO-15	11/28/2013 SG
m,p-Xylene	<0.200	<0.868	0.200	0.868		EPA-TO-15	11/28/2013 SG
Methyl methacrylate	<0.300	<1.23	0.300	1.23		EPA-TO-15	11/28/2013 SG
Methylene chloride	<0.500	<1.74	0.500	1.74		EPA-TO-15	11/28/2013 SG
Naphthalene	0.494	2.59	0.300	1.57		EPA-TO-15	11/28/2013 SG
n-Hexane	<0.200	<0.705	0.200	0.705		EPA-TO-15	11/28/2013 SG
o-Xylene	<0.200	<0.868	0.200	0.868		EPA-TO-15	11/28/2013 SG
4-Ethyltoluene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
Propylene	<0.500	<0.861	0.500	0.861		EPA-TO-15	11/28/2013 SG
Styrene	<0.300	<1.28	0.300	1.28		EPA-TO-15	11/28/2013 SG
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721		EPA-TO-15	11/28/2013 SG
Tetrachloroethene (PCE)	0.541	3.67	0.300	2.03		EPA-TO-15	11/28/2013 SG
Tetrahydrofuran	<0.500	<1.47	0.500	1.47		EPA-TO-15	11/28/2013 SG
Toluene	<0.200	<0.754	0.200	0.754		EPA-TO-15	11/28/2013 SG
trans-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
trans-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	11/28/2013 SG
Trichloroethene (TCE)	<0.200	<1.07	0.200	1.07		EPA-TO-15	11/28/2013 SG
Trichlorofluoromethane (CFC-11)	<0.300	<1.69	0.300	1.69		EPA-TO-15	11/28/2013 SG
Vinyl acetate	<1.00	<3.52	1.00	3.52		EPA-TO-15	11/28/2013 SG
Vinyl chloride	<0.200	<0.511	0.200	0.511		EPA-TO-15	11/28/2013 SG
Surr: 4-Bromofluorobenzene	87.5 %Rec	--	70-130	--		EPA-TO-15	11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-2IA

Date Sampled: 11/26/2013

Lab ID: 1311324-002A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
<u>Petroleum Fractionation by EPA Method TO-15</u>					
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,2,3-Trimethylbenzene	<0.500	<2.46	0.500	2.46	TO-15 11/28/2013 MD
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47	TO-15 11/28/2013 MD
1,3-Butadiene	<0.500	<1.11	0.500	1.11	TO-15 11/28/2013 MD
p-isopropyltoluene	<0.500	<2.74	0.500	2.74	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC5-8)	<50.0	<190	50.0	190	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC9-12)	<50.0	<294	50.0	294	TO-15 11/28/2013 MD
Aromatic Hydrocarbon (EC9-10)	<50.0	<252	50.0	252	TO-15 11/28/2013 MD
Benzene	0.370	1.18	0.200	0.639	TO-15 11/28/2013 MD
Cyclohexane	<0.200	<0.688	0.200	0.688	TO-15 11/28/2013 MD
Decane	<0.500	<2.91	0.500	2.91	TO-15 11/28/2013 MD
Ethylbenzene	<0.300	<1.30	0.300	1.30	TO-15 11/28/2013 MD
Heptane	<0.500	<2.01	0.500	2.01	TO-15 11/28/2013 MD
Isopentane	<0.500	<1.48	0.500	1.48	TO-15 11/28/2013 MD
m,p-Xylene	0.268	1.16	0.200	0.868	TO-15 11/28/2013 MD
Dodecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
n-Hexane	0.219	0.773	0.200	0.705	TO-15 11/28/2013 MD
Nonane	<0.500	<2.62	0.500	2.62	TO-15 11/28/2013 MD
Undecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
Octane	<0.500	<2.34	0.500	2.34	TO-15 11/28/2013 MD
o-Xylene	<0.200	<0.868	0.200	0.868	TO-15 11/28/2013 MD
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721	TO-15 11/28/2013 MD
Toluene	0.811	3.06	0.200	0.754	TO-15 11/28/2013 MD
Surr: 4-Bromofluorobenzene	88.2 %Rec	--	70-130	--	TO-15 11/28/2013 MD

Volatile Organic Compounds by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,1,1-Trichloroethane	<0.200	<1.09	0.200	1.09	EPA-TO-15 11/28/2013 SG
1,1,2,2-Tetrachloroethane	<0.300	<2.06	0.300	2.06	EPA-TO-15 11/28/2013 SG
CFC-113	<0.500	<3.83	0.500	3.83	EPA-TO-15 11/28/2013 SG
1,1,2-Trichloroethane (TCA)	<0.500	<2.73	0.500	2.73	EPA-TO-15 11/28/2013 SG
1,1-Dichloroethane	<0.200	<0.810	0.200	0.810	EPA-TO-15 11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-2IA

Date Sampled: 11/26/2013

Lab ID: 1311324-002A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
1,1-Dichloroethene (DCE)	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
1,2,4-Trichlorobenzene	<0.300	<2.23	0.300	2.23		EPA-TO-15	11/28/2013 SG
1,2,4-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,2-Dibromoethane (EDB)	<0.200	<1.54	0.200	1.54		EPA-TO-15	11/28/2013 SG
1,2-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,2-Dichloroethane	<0.200	<0.809	0.200	0.809		EPA-TO-15	11/28/2013 SG
1,2-Dichloropropane	<0.500	<2.31	0.500	2.31		EPA-TO-15	11/28/2013 SG
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,3-Butadiene	<0.500	<1.11	0.500	1.11		EPA-TO-15	11/28/2013 SG
1,3-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dioxane	<1.00	<3.60	1.00	3.60		EPA-TO-15	11/28/2013 SG
(MEK) 2-Butanone	<0.500	<1.47	0.500	1.47		EPA-TO-15	11/28/2013 SG
2-Hexanone	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Isopropyl Alcohol	<1.00	<2.46	1.00	2.46		EPA-TO-15	11/28/2013 SG
4-Methyl-2-pentanone (MIBK)	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Acetone	2.63	6.24	1.00	2.38		EPA-TO-15	11/28/2013 SG
Acrolein	<0.500	<1.15	0.500	1.15		EPA-TO-15	11/28/2013 SG
Benzene	0.370	1.18	0.200	0.639		EPA-TO-15	11/28/2013 SG
Benzyl chloride	<0.500	<2.59	0.500	2.59		EPA-TO-15	11/28/2013 SG
Dichlorobromomethane	<0.300	<2.01	0.300	2.01		EPA-TO-15	11/28/2013 SG
Bromoform	<0.200	<2.07	0.200	2.07		EPA-TO-15	11/28/2013 SG
Bromomethane	<0.500	<1.94	0.500	1.94		EPA-TO-15	11/28/2013 SG
Carbon disulfide	<0.200	<0.623	0.200	0.623		EPA-TO-15	11/28/2013 SG
Carbon tetrachloride	<0.200	<1.26	0.200	1.26		EPA-TO-15	11/28/2013 SG
Chlorobenzene	<0.200	<0.921	0.200	0.921		EPA-TO-15	11/28/2013 SG
Dibromochloromethane	<0.500	<4.26	0.500	4.26		EPA-TO-15	11/28/2013 SG
Chloroethane	<0.500	<1.32	0.500	1.32		EPA-TO-15	11/28/2013 SG
Chloroform	<0.200	<0.977	0.200	0.977		EPA-TO-15	11/28/2013 SG
Chloromethane	<0.500	<1.03	0.500	1.03		EPA-TO-15	11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-2IA

Date Sampled: 11/26/2013

Lab ID: 1311324-002A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
<u>Volatile Organic Compounds by EPA Method TO-15</u>							
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
cis-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
cis-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	11/28/2013 SG
Cyclohexane	<0.200	<0.688	0.200	0.688		EPA-TO-15	11/28/2013 SG
Dichlorodifluoromethane (CFC-12)	0.483	2.39	0.300	1.48		EPA-TO-15	11/28/2013 SG
Dichlorotetrafluoroethane (CFC-114)	<0.500	<3.50	0.500	3.50		EPA-TO-15	11/28/2013 SG
Ethyl acetate	<1.00	<3.60	1.00	3.60		EPA-TO-15	11/28/2013 SG
Ethylbenzene	<0.300	<1.30	0.300	1.30		EPA-TO-15	11/28/2013 SG
Heptane	<0.500	<2.01	0.500	2.01		EPA-TO-15	11/28/2013 SG
Hexachlorobutadiene	<1.00	<10.7	1.00	10.7		EPA-TO-15	11/28/2013 SG
m,p-Xylene	0.268	1.16	0.200	0.868		EPA-TO-15	11/28/2013 SG
Methyl methacrylate	<0.300	<1.23	0.300	1.23		EPA-TO-15	11/28/2013 SG
Methylene chloride	<0.500	<1.74	0.500	1.74		EPA-TO-15	11/28/2013 SG
Naphthalene	<0.300	<1.57	0.300	1.57		EPA-TO-15	11/28/2013 SG
n-Hexane	0.219	0.773	0.200	0.705		EPA-TO-15	11/28/2013 SG
o-Xylene	<0.200	<0.868	0.200	0.868		EPA-TO-15	11/28/2013 SG
4-Ethyltoluene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
Propylene	2.44	4.19	0.500	0.861		EPA-TO-15	11/28/2013 SG
Styrene	<0.300	<1.28	0.300	1.28		EPA-TO-15	11/28/2013 SG
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721		EPA-TO-15	11/28/2013 SG
Tetrachloroethene (PCE)	<0.300	<2.03	0.300	2.03		EPA-TO-15	11/28/2013 SG
Tetrahydrofuran	<0.500	<1.47	0.500	1.47		EPA-TO-15	11/28/2013 SG
Toluene	0.811	3.06	0.200	0.754		EPA-TO-15	11/28/2013 SG
trans-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
trans-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	11/28/2013 SG
Trichloroethene (TCE)	<0.200	<1.07	0.200	1.07		EPA-TO-15	11/28/2013 SG
Trichlorofluoromethane (CFC-11)	<0.300	<1.69	0.300	1.69		EPA-TO-15	11/28/2013 SG
Vinyl acetate	<1.00	<3.52	1.00	3.52		EPA-TO-15	11/28/2013 SG
Vinyl chloride	<0.200	<0.511	0.200	0.511		EPA-TO-15	11/28/2013 SG
Surr: 4-Bromofluorobenzene	88.2 %Rec	--	70-130	--		EPA-TO-15	11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-5AM

Date Sampled: 11/26/2013

Lab ID: 1311324-003A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
<u>Petroleum Fractionation by EPA Method TO-15</u>					
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,2,3-Trimethylbenzene	<0.500	<2.46	0.500	2.46	TO-15 11/28/2013 MD
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47	TO-15 11/28/2013 MD
1,3-Butadiene	<0.500	<1.11	0.500	1.11	TO-15 11/28/2013 MD
p-isopropyltoluene	<0.500	<2.74	0.500	2.74	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC5-8)	<50.0	<190	50.0	190	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC9-12)	<50.0	<294	50.0	294	TO-15 11/28/2013 MD
Aromatic Hydrocarbon (EC9-10)	<50.0	<252	50.0	252	TO-15 11/28/2013 MD
Benzene	0.249	0.795	0.200	0.639	TO-15 11/28/2013 MD
Cyclohexane	<0.200	<0.688	0.200	0.688	TO-15 11/28/2013 MD
Decane	<0.500	<2.91	0.500	2.91	TO-15 11/28/2013 MD
Ethylbenzene	<0.300	<1.30	0.300	1.30	TO-15 11/28/2013 MD
Heptane	<0.500	<2.01	0.500	2.01	TO-15 11/28/2013 MD
Isopentane	<0.500	<1.48	0.500	1.48	TO-15 11/28/2013 MD
m,p-Xylene	0.206	0.897	0.200	0.868	TO-15 11/28/2013 MD
Dodecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
n-Hexane	<0.200	<0.705	0.200	0.705	TO-15 11/28/2013 MD
Nonane	<0.500	<2.62	0.500	2.62	TO-15 11/28/2013 MD
Undecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
Octane	<0.500	<2.34	0.500	2.34	TO-15 11/28/2013 MD
o-Xylene	<0.200	<0.868	0.200	0.868	TO-15 11/28/2013 MD
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721	TO-15 11/28/2013 MD
Toluene	0.475	1.79	0.200	0.754	TO-15 11/28/2013 MD
Surr: 4-Bromofluorobenzene	89.6 %Rec	--	70-130	--	TO-15 11/28/2013 MD

Volatile Organic Compounds by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,1,1-Trichloroethane	<0.200	<1.09	0.200	1.09	EPA-TO-15 11/28/2013 SG
1,1,2,2-Tetrachloroethane	<0.300	<2.06	0.300	2.06	EPA-TO-15 11/28/2013 SG
CFC-113	<0.500	<3.83	0.500	3.83	EPA-TO-15 11/28/2013 SG
1,1,2-Trichloroethane (TCA)	<0.500	<2.73	0.500	2.73	EPA-TO-15 11/28/2013 SG
1,1-Dichloroethane	<0.200	<0.810	0.200	0.810	EPA-TO-15 11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-5AM

Date Sampled: 11/26/2013

Lab ID: 1311324-003A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
1,1-Dichloroethene (DCE)	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
1,2,4-Trichlorobenzene	<0.300	<2.23	0.300	2.23		EPA-TO-15	11/28/2013 SG
1,2,4-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,2-Dibromoethane (EDB)	<0.200	<1.54	0.200	1.54		EPA-TO-15	11/28/2013 SG
1,2-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,2-Dichloroethane	<0.200	<0.809	0.200	0.809		EPA-TO-15	11/28/2013 SG
1,2-Dichloropropane	<0.500	<2.31	0.500	2.31		EPA-TO-15	11/28/2013 SG
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,3-Butadiene	<0.500	<1.11	0.500	1.11		EPA-TO-15	11/28/2013 SG
1,3-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dioxane	<1.00	<3.60	1.00	3.60		EPA-TO-15	11/28/2013 SG
(MEK) 2-Butanone	<0.500	<1.47	0.500	1.47		EPA-TO-15	11/28/2013 SG
2-Hexanone	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Isopropyl Alcohol	<1.00	<2.46	1.00	2.46		EPA-TO-15	11/28/2013 SG
4-Methyl-2-pentanone (MIBK)	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Acetone	1.49	3.54	1.00	2.38		EPA-TO-15	11/28/2013 SG
Acrolein	<0.500	<1.15	0.500	1.15		EPA-TO-15	11/28/2013 SG
Benzene	0.249	0.795	0.200	0.639		EPA-TO-15	11/28/2013 SG
Benzyl chloride	<0.500	<2.59	0.500	2.59		EPA-TO-15	11/28/2013 SG
Dichlorobromomethane	<0.300	<2.01	0.300	2.01		EPA-TO-15	11/28/2013 SG
Bromoform	<0.200	<2.07	0.200	2.07		EPA-TO-15	11/28/2013 SG
Bromomethane	<0.500	<1.94	0.500	1.94		EPA-TO-15	11/28/2013 SG
Carbon disulfide	<0.200	<0.623	0.200	0.623		EPA-TO-15	11/28/2013 SG
Carbon tetrachloride	<0.200	<1.26	0.200	1.26		EPA-TO-15	11/28/2013 SG
Chlorobenzene	<0.200	<0.921	0.200	0.921		EPA-TO-15	11/28/2013 SG
Dibromochloromethane	<0.500	<4.26	0.500	4.26		EPA-TO-15	11/28/2013 SG
Chloroethane	<0.500	<1.32	0.500	1.32		EPA-TO-15	11/28/2013 SG
Chloroform	<0.200	<0.977	0.200	0.977		EPA-TO-15	11/28/2013 SG
Chloromethane	<0.500	<1.03	0.500	1.03		EPA-TO-15	11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-5AM

Date Sampled: 11/26/2013

Lab ID: 1311324-003A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
<u>Volatile Organic Compounds by EPA Method TO-15</u>							
cis-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
cis-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	11/28/2013 SG
Cyclohexane	<0.200	<0.688	0.200	0.688		EPA-TO-15	11/28/2013 SG
Dichlorodifluoromethane (CFC-12)	0.460	2.27	0.300	1.48		EPA-TO-15	11/28/2013 SG
Dichlorotetrafluoroethane (CFC-114)	<0.500	<3.50	0.500	3.50		EPA-TO-15	11/28/2013 SG
Ethyl acetate	<1.00	<3.60	1.00	3.60		EPA-TO-15	11/28/2013 SG
Ethylbenzene	<0.300	<1.30	0.300	1.30		EPA-TO-15	11/28/2013 SG
Heptane	<0.500	<2.01	0.500	2.01		EPA-TO-15	11/28/2013 SG
Hexachlorobutadiene	<1.00	<10.7	1.00	10.7		EPA-TO-15	11/28/2013 SG
m,p-Xylene	0.206	0.897	0.200	0.868		EPA-TO-15	11/28/2013 SG
Methyl methacrylate	<0.300	<1.23	0.300	1.23		EPA-TO-15	11/28/2013 SG
Methylene chloride	<0.500	<1.74	0.500	1.74		EPA-TO-15	11/28/2013 SG
Naphthalene	<0.300	<1.57	0.300	1.57		EPA-TO-15	11/28/2013 SG
n-Hexane	<0.200	<0.705	0.200	0.705		EPA-TO-15	11/28/2013 SG
o-Xylene	<0.200	<0.868	0.200	0.868		EPA-TO-15	11/28/2013 SG
4-Ethyltoluene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
Propylene	<0.500	<0.861	0.500	0.861		EPA-TO-15	11/28/2013 SG
Styrene	<0.300	<1.28	0.300	1.28		EPA-TO-15	11/28/2013 SG
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721		EPA-TO-15	11/28/2013 SG
Tetrachloroethene (PCE)	<0.300	<2.03	0.300	2.03		EPA-TO-15	11/28/2013 SG
Tetrahydrofuran	<0.500	<1.47	0.500	1.47		EPA-TO-15	11/28/2013 SG
Toluene	0.475	1.79	0.200	0.754		EPA-TO-15	11/28/2013 SG
trans-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
trans-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	11/28/2013 SG
Trichloroethene (TCE)	<0.200	<1.07	0.200	1.07		EPA-TO-15	11/28/2013 SG
Trichlorofluoromethane (CFC-11)	<0.300	<1.69	0.300	1.69		EPA-TO-15	11/28/2013 SG
Vinyl acetate	<1.00	<3.52	1.00	3.52		EPA-TO-15	11/28/2013 SG
Vinyl chloride	<0.200	<0.511	0.200	0.511		EPA-TO-15	11/28/2013 SG
Surr: 4-Bromofluorobenzene	89.6 %Rec	--	70-130	--		EPA-TO-15	11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-11A

Date Sampled: 11/26/2013

Lab ID: 1311324-004A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
<u>Petroleum Fractionation by EPA Method TO-15</u>					
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,2,3-Trimethylbenzene	<0.500	<2.46	0.500	2.46	TO-15 11/28/2013 MD
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47	TO-15 11/28/2013 MD
1,3-Butadiene	<0.500	<1.11	0.500	1.11	TO-15 11/28/2013 MD
p-isopropyltoluene	<0.500	<2.74	0.500	2.74	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC5-8)	<50.0	<190	50.0	190	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC9-12)	<50.0	<294	50.0	294	TO-15 11/28/2013 MD
Aromatic Hydrocarbon (EC9-10)	<50.0	<252	50.0	252	TO-15 11/28/2013 MD
Benzene	0.388	1.24	0.200	0.639	TO-15 11/28/2013 MD
Cyclohexane	<0.200	<0.688	0.200	0.688	TO-15 11/28/2013 MD
Decane	<0.500	<2.91	0.500	2.91	TO-15 11/28/2013 MD
Ethylbenzene	<0.300	<1.30	0.300	1.30	TO-15 11/28/2013 MD
Heptane	<0.500	<2.01	0.500	2.01	TO-15 11/28/2013 MD
Isopentane	<0.500	<1.48	0.500	1.48	TO-15 11/28/2013 MD
m,p-Xylene	0.256	1.11	0.200	0.868	TO-15 11/28/2013 MD
Dodecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
n-Hexane	0.240	0.845	0.200	0.705	TO-15 11/28/2013 MD
Nonane	<0.500	<2.62	0.500	2.62	TO-15 11/28/2013 MD
Undecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
Octane	<0.500	<2.34	0.500	2.34	TO-15 11/28/2013 MD
o-Xylene	<0.200	<0.868	0.200	0.868	TO-15 11/28/2013 MD
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721	TO-15 11/28/2013 MD
Toluene	0.740	2.79	0.200	0.754	TO-15 11/28/2013 MD
Surr: 4-Bromofluorobenzene	89.4 %Rec	--	70-130	--	TO-15 11/28/2013 MD

Volatile Organic Compounds by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,1,1-Trichloroethane	<0.200	<1.09	0.200	1.09	EPA-TO-15 11/28/2013 SG
1,1,2,2-Tetrachloroethane	<0.300	<2.06	0.300	2.06	EPA-TO-15 11/28/2013 SG
CFC-113	<0.500	<3.83	0.500	3.83	EPA-TO-15 11/28/2013 SG
1,1,2-Trichloroethane (TCA)	<0.500	<2.73	0.500	2.73	EPA-TO-15 11/28/2013 SG
1,1-Dichloroethane	<0.200	<0.810	0.200	0.810	EPA-TO-15 11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-11A

Date Sampled: 11/26/2013

Lab ID: 1311324-004A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
<u>Volatile Organic Compounds by EPA Method TO-15</u>							
1,1-Dichloroethene (DCE)	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
1,2,4-Trichlorobenzene	<0.300	<2.23	0.300	2.23		EPA-TO-15	11/28/2013 SG
1,2,4-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,2-Dibromoethane (EDB)	<0.200	<1.54	0.200	1.54		EPA-TO-15	11/28/2013 SG
1,2-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,2-Dichloroethane	<0.200	<0.809	0.200	0.809		EPA-TO-15	11/28/2013 SG
1,2-Dichloropropane	<0.500	<2.31	0.500	2.31		EPA-TO-15	11/28/2013 SG
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,3-Butadiene	<0.500	<1.11	0.500	1.11		EPA-TO-15	11/28/2013 SG
1,3-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dioxane	<1.00	<3.60	1.00	3.60		EPA-TO-15	11/28/2013 SG
(MEK) 2-Butanone	<0.500	<1.47	0.500	1.47		EPA-TO-15	11/28/2013 SG
2-Hexanone	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Isopropyl Alcohol	<1.00	<2.46	1.00	2.46		EPA-TO-15	11/28/2013 SG
4-Methyl-2-pentanone (MIBK)	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Acetone	2.07	4.93	1.00	2.38		EPA-TO-15	11/28/2013 SG
Acrolein	<0.500	<1.15	0.500	1.15		EPA-TO-15	11/28/2013 SG
Benzene	0.388	1.24	0.200	0.639		EPA-TO-15	11/28/2013 SG
Benzyl chloride	<0.500	<2.59	0.500	2.59		EPA-TO-15	11/28/2013 SG
Dichlorobromomethane	<0.300	<2.01	0.300	2.01		EPA-TO-15	11/28/2013 SG
Bromoform	<0.200	<2.07	0.200	2.07		EPA-TO-15	11/28/2013 SG
Bromomethane	<0.500	<1.94	0.500	1.94		EPA-TO-15	11/28/2013 SG
Carbon disulfide	<0.200	<0.623	0.200	0.623		EPA-TO-15	11/28/2013 SG
Carbon tetrachloride	<0.200	<1.26	0.200	1.26		EPA-TO-15	11/28/2013 SG
Chlorobenzene	<0.200	<0.921	0.200	0.921		EPA-TO-15	11/28/2013 SG
Dibromochloromethane	<0.500	<4.26	0.500	4.26		EPA-TO-15	11/28/2013 SG
Chloroethane	<0.500	<1.32	0.500	1.32		EPA-TO-15	11/28/2013 SG
Chloroform	<0.200	<0.977	0.200	0.977		EPA-TO-15	11/28/2013 SG
Chloromethane	<0.500	<1.03	0.500	1.03		EPA-TO-15	11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-11A

Date Sampled: 11/26/2013

Lab ID: 1311324-004A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
<u>Volatile Organic Compounds by EPA Method TO-15</u>							
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
cis-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
cis-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	11/28/2013 SG
Cyclohexane	<0.200	<0.688	0.200	0.688		EPA-TO-15	11/28/2013 SG
Dichlorodifluoromethane (CFC-12)	0.468	2.32	0.300	1.48		EPA-TO-15	11/28/2013 SG
Dichlorotetrafluoroethane (CFC-114)	<0.500	<3.50	0.500	3.50		EPA-TO-15	11/28/2013 SG
Ethyl acetate	<1.00	<3.60	1.00	3.60		EPA-TO-15	11/28/2013 SG
Ethylbenzene	<0.300	<1.30	0.300	1.30		EPA-TO-15	11/28/2013 SG
Heptane	<0.500	<2.01	0.500	2.01		EPA-TO-15	11/28/2013 SG
Hexachlorobutadiene	<1.00	<10.7	1.00	10.7		EPA-TO-15	11/28/2013 SG
m,p-Xylene	0.256	1.11	0.200	0.868		EPA-TO-15	11/28/2013 SG
Methyl methacrylate	<0.300	<1.23	0.300	1.23		EPA-TO-15	11/28/2013 SG
Methylene chloride	<0.500	<1.74	0.500	1.74		EPA-TO-15	11/28/2013 SG
Naphthalene	<0.300	<1.57	0.300	1.57		EPA-TO-15	11/28/2013 SG
n-Hexane	0.240	0.845	0.200	0.705		EPA-TO-15	11/28/2013 SG
o-Xylene	<0.200	<0.868	0.200	0.868		EPA-TO-15	11/28/2013 SG
4-Ethyltoluene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
Propylene	2.93	5.04	0.500	0.861		EPA-TO-15	11/28/2013 SG
Styrene	<0.300	<1.28	0.300	1.28		EPA-TO-15	11/28/2013 SG
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721		EPA-TO-15	11/28/2013 SG
Tetrachloroethene (PCE)	<0.300	<2.03	0.300	2.03		EPA-TO-15	11/28/2013 SG
Tetrahydrofuran	<0.500	<1.47	0.500	1.47		EPA-TO-15	11/28/2013 SG
Toluene	0.740	2.79	0.200	0.754		EPA-TO-15	11/28/2013 SG
trans-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
trans-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	11/28/2013 SG
Trichloroethene (TCE)	<0.200	<1.07	0.200	1.07		EPA-TO-15	11/28/2013 SG
Trichlorofluoromethane (CFC-11)	<0.300	<1.69	0.300	1.69		EPA-TO-15	11/28/2013 SG
Vinyl acetate	<1.00	<3.52	1.00	3.52		EPA-TO-15	11/28/2013 SG
Vinyl chloride	<0.200	<0.511	0.200	0.511		EPA-TO-15	11/28/2013 SG
Surr: 4-Bromofluorobenzene	89.4 %Rec	--	70-130	--		EPA-TO-15	11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-3IA

Date Sampled: 11/26/2013

Lab ID: 1311324-005A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
<u>Petroleum Fractionation by EPA Method TO-15</u>					
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,2,3-Trimethylbenzene	<0.500	<2.46	0.500	2.46	TO-15 11/28/2013 MD
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47	TO-15 11/28/2013 MD
1,3-Butadiene	<0.500	<1.11	0.500	1.11	TO-15 11/28/2013 MD
p-isopropyltoluene	<0.500	<2.74	0.500	2.74	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC5-8)	<50.0	<190	50.0	190	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC9-12)	<50.0	<294	50.0	294	TO-15 11/28/2013 MD
Aromatic Hydrocarbon (EC9-10)	<50.0	<252	50.0	252	TO-15 11/28/2013 MD
Benzene	0.358	1.14	0.200	0.639	TO-15 11/28/2013 MD
Cyclohexane	<0.200	<0.688	0.200	0.688	TO-15 11/28/2013 MD
Decane	<0.500	<2.91	0.500	2.91	TO-15 11/28/2013 MD
Ethylbenzene	<0.300	<1.30	0.300	1.30	TO-15 11/28/2013 MD
Heptane	<0.500	<2.01	0.500	2.01	TO-15 11/28/2013 MD
Isopentane	<0.500	<1.48	0.500	1.48	TO-15 11/28/2013 MD
m,p-Xylene	0.244	1.06	0.200	0.868	TO-15 11/28/2013 MD
Dodecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
n-Hexane	0.223	0.787	0.200	0.705	TO-15 11/28/2013 MD
Nonane	<0.500	<2.62	0.500	2.62	TO-15 11/28/2013 MD
Undecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
Octane	<0.500	<2.34	0.500	2.34	TO-15 11/28/2013 MD
o-Xylene	<0.200	<0.868	0.200	0.868	TO-15 11/28/2013 MD
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721	TO-15 11/28/2013 MD
Toluene	0.702	2.65	0.200	0.754	TO-15 11/28/2013 MD
Surr: 4-Bromofluorobenzene	90.5 %Rec	--	70-130	--	TO-15 11/28/2013 MD

Volatile Organic Compounds by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,1,1-Trichloroethane	<0.200	<1.09	0.200	1.09	EPA-TO-15 11/28/2013 SG
1,1,2,2-Tetrachloroethane	<0.300	<2.06	0.300	2.06	EPA-TO-15 11/28/2013 SG
CFC-113	<0.500	<3.83	0.500	3.83	EPA-TO-15 11/28/2013 SG
1,1,2-Trichloroethane (TCA)	<0.500	<2.73	0.500	2.73	EPA-TO-15 11/28/2013 SG
1,1-Dichloroethane	<0.200	<0.810	0.200	0.810	EPA-TO-15 11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-3IA

Date Sampled: 11/26/2013

Lab ID: 1311324-005A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
<u>Volatile Organic Compounds by EPA Method TO-15</u>							
1,1-Dichloroethene (DCE)	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
1,2,4-Trichlorobenzene	<0.300	<2.23	0.300	2.23		EPA-TO-15	11/28/2013 SG
1,2,4-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,2-Dibromoethane (EDB)	<0.200	<1.54	0.200	1.54		EPA-TO-15	11/28/2013 SG
1,2-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,2-Dichloroethane	<0.200	<0.809	0.200	0.809		EPA-TO-15	11/28/2013 SG
1,2-Dichloropropane	<0.500	<2.31	0.500	2.31		EPA-TO-15	11/28/2013 SG
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,3-Butadiene	<0.500	<1.11	0.500	1.11		EPA-TO-15	11/28/2013 SG
1,3-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dioxane	<1.00	<3.60	1.00	3.60		EPA-TO-15	11/28/2013 SG
(MEK) 2-Butanone	<0.500	<1.47	0.500	1.47		EPA-TO-15	11/28/2013 SG
2-Hexanone	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Isopropyl Alcohol	<1.00	<2.46	1.00	2.46		EPA-TO-15	11/28/2013 SG
4-Methyl-2-pentanone (MIBK)	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Acetone	2.35	5.58	1.00	2.38		EPA-TO-15	11/28/2013 SG
Acrolein	<0.500	<1.15	0.500	1.15		EPA-TO-15	11/28/2013 SG
Benzene	0.358	1.14	0.200	0.639		EPA-TO-15	11/28/2013 SG
Benzyl chloride	<0.500	<2.59	0.500	2.59		EPA-TO-15	11/28/2013 SG
Dichlorobromomethane	<0.300	<2.01	0.300	2.01		EPA-TO-15	11/28/2013 SG
Bromoform	<0.200	<2.07	0.200	2.07		EPA-TO-15	11/28/2013 SG
Bromomethane	<0.500	<1.94	0.500	1.94		EPA-TO-15	11/28/2013 SG
Carbon disulfide	<0.200	<0.623	0.200	0.623		EPA-TO-15	11/28/2013 SG
Carbon tetrachloride	<0.200	<1.26	0.200	1.26		EPA-TO-15	11/28/2013 SG
Chlorobenzene	<0.200	<0.921	0.200	0.921		EPA-TO-15	11/28/2013 SG
Dibromochloromethane	<0.500	<4.26	0.500	4.26		EPA-TO-15	11/28/2013 SG
Chloroethane	<0.500	<1.32	0.500	1.32		EPA-TO-15	11/28/2013 SG
Chloroform	<0.200	<0.977	0.200	0.977		EPA-TO-15	11/28/2013 SG
Chloromethane	<0.500	<1.03	0.500	1.03		EPA-TO-15	11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-3IA

Date Sampled: 11/26/2013

Lab ID: 1311324-005A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
<u>Volatile Organic Compounds by EPA Method TO-15</u>					
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
cis-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793	EPA-TO-15 11/28/2013 SG
cis-1,3-dichloropropene	<0.500	<2.27	0.500	2.27	EPA-TO-15 11/28/2013 SG
Cyclohexane	<0.200	<0.688	0.200	0.688	EPA-TO-15 11/28/2013 SG
Dichlorodifluoromethane (CFC-12)	0.448	2.21	0.300	1.48	EPA-TO-15 11/28/2013 SG
Dichlorotetrafluoroethane (CFC-114)	<0.500	<3.50	0.500	3.50	EPA-TO-15 11/28/2013 SG
Ethyl acetate	<1.00	<3.60	1.00	3.60	EPA-TO-15 11/28/2013 SG
Ethylbenzene	<0.300	<1.30	0.300	1.30	EPA-TO-15 11/28/2013 SG
Heptane	<0.500	<2.01	0.500	2.01	EPA-TO-15 11/28/2013 SG
Hexachlorobutadiene	<1.00	<10.7	1.00	10.7	EPA-TO-15 11/28/2013 SG
m,p-Xylene	0.244	1.06	0.200	0.868	EPA-TO-15 11/28/2013 SG
Methyl methacrylate	<0.300	<1.23	0.300	1.23	EPA-TO-15 11/28/2013 SG
Methylene chloride	<0.500	<1.74	0.500	1.74	EPA-TO-15 11/28/2013 SG
Naphthalene	<0.300	<1.57	0.300	1.57	EPA-TO-15 11/28/2013 SG
n-Hexane	0.223	0.787	0.200	0.705	EPA-TO-15 11/28/2013 SG
o-Xylene	<0.200	<0.868	0.200	0.868	EPA-TO-15 11/28/2013 SG
4-Ethyltoluene	<0.300	<1.47	0.300	1.47	EPA-TO-15 11/28/2013 SG
Propylene	2.82	4.86	0.500	0.861	EPA-TO-15 11/28/2013 SG
Styrene	<0.300	<1.28	0.300	1.28	EPA-TO-15 11/28/2013 SG
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721	EPA-TO-15 11/28/2013 SG
Tetrachloroethene (PCE)	<0.300	<2.03	0.300	2.03	EPA-TO-15 11/28/2013 SG
Tetrahydrofuran	<0.500	<1.47	0.500	1.47	EPA-TO-15 11/28/2013 SG
Toluene	0.702	2.65	0.200	0.754	EPA-TO-15 11/28/2013 SG
trans-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793	EPA-TO-15 11/28/2013 SG
trans-1,3-dichloropropene	<0.500	<2.27	0.500	2.27	EPA-TO-15 11/28/2013 SG
Trichloroethene (TCE)	<0.200	<1.07	0.200	1.07	EPA-TO-15 11/28/2013 SG
Trichlorofluoromethane (CFC-11)	<0.300	<1.69	0.300	1.69	EPA-TO-15 11/28/2013 SG
Vinyl acetate	<1.00	<3.52	1.00	3.52	EPA-TO-15 11/28/2013 SG
Vinyl chloride	<0.200	<0.511	0.200	0.511	EPA-TO-15 11/28/2013 SG
Surr: 4-Bromofluorobenzene	90.5 %Rec	--	70-130	--	EPA-TO-15 11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-4cs

Date Sampled: 11/26/2013

Lab ID: 1311324-006A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
<u>Petroleum Fractionation by EPA Method TO-15</u>					
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,2,3-Trimethylbenzene	<0.500	<2.46	0.500	2.46	TO-15 11/28/2013 MD
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47	TO-15 11/28/2013 MD
1,3-Butadiene	<0.500	<1.11	0.500	1.11	TO-15 11/28/2013 MD
p-isopropyltoluene	<0.500	<2.74	0.500	2.74	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC5-8)	<50.0	<190	50.0	190	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC9-12)	<50.0	<294	50.0	294	TO-15 11/28/2013 MD
Aromatic Hydrocarbon (EC9-10)	<50.0	<252	50.0	252	TO-15 11/28/2013 MD
Benzene	0.264	0.842	0.200	0.639	TO-15 11/28/2013 MD
Cyclohexane	<0.200	<0.688	0.200	0.688	TO-15 11/28/2013 MD
Decane	<0.500	<2.91	0.500	2.91	TO-15 11/28/2013 MD
Ethylbenzene	<0.300	<1.30	0.300	1.30	TO-15 11/28/2013 MD
Heptane	<0.500	<2.01	0.500	2.01	TO-15 11/28/2013 MD
Isopentane	<0.500	<1.48	0.500	1.48	TO-15 11/28/2013 MD
m,p-Xylene	0.242	1.05	0.200	0.868	TO-15 11/28/2013 MD
Dodecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
n-Hexane	<0.200	<0.705	0.200	0.705	TO-15 11/28/2013 MD
Nonane	<0.500	<2.62	0.500	2.62	TO-15 11/28/2013 MD
Undecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
Octane	<0.500	<2.34	0.500	2.34	TO-15 11/28/2013 MD
o-Xylene	<0.200	<0.868	0.200	0.868	TO-15 11/28/2013 MD
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721	TO-15 11/28/2013 MD
Toluene	0.526	1.98	0.200	0.754	TO-15 11/28/2013 MD
Surr: 4-Bromofluorobenzene	91.2 %Rec	--	70-130	--	TO-15 11/28/2013 MD

Volatile Organic Compounds by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,1,1-Trichloroethane	<0.200	<1.09	0.200	1.09	EPA-TO-15 11/28/2013 SG
1,1,2,2-Tetrachloroethane	<0.300	<2.06	0.300	2.06	EPA-TO-15 11/28/2013 SG
CFC-113	<0.500	<3.83	0.500	3.83	EPA-TO-15 11/28/2013 SG
1,1,2-Trichloroethane (TCA)	<0.500	<2.73	0.500	2.73	EPA-TO-15 11/28/2013 SG
1,1-Dichloroethane	<0.200	<0.810	0.200	0.810	EPA-TO-15 11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-4cs

Date Sampled: 11/26/2013

Lab ID: 1311324-006A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
1,1-Dichloroethene (DCE)	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
1,2,4-Trichlorobenzene	<0.300	<2.23	0.300	2.23		EPA-TO-15	11/28/2013 SG
1,2,4-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,2-Dibromoethane (EDB)	<0.200	<1.54	0.200	1.54		EPA-TO-15	11/28/2013 SG
1,2-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,2-Dichloroethane	<0.200	<0.809	0.200	0.809		EPA-TO-15	11/28/2013 SG
1,2-Dichloropropane	<0.500	<2.31	0.500	2.31		EPA-TO-15	11/28/2013 SG
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,3-Butadiene	<0.500	<1.11	0.500	1.11		EPA-TO-15	11/28/2013 SG
1,3-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dioxane	<1.00	<3.60	1.00	3.60		EPA-TO-15	11/28/2013 SG
(MEK) 2-Butanone	<0.500	<1.47	0.500	1.47		EPA-TO-15	11/28/2013 SG
2-Hexanone	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Isopropyl Alcohol	<1.00	<2.46	1.00	2.46		EPA-TO-15	11/28/2013 SG
4-Methyl-2-pentanone (MIBK)	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Acetone	<1.00	<2.38	1.00	2.38		EPA-TO-15	11/28/2013 SG
Acrolein	<0.500	<1.15	0.500	1.15		EPA-TO-15	11/28/2013 SG
Benzene	0.264	0.842	0.200	0.639		EPA-TO-15	11/28/2013 SG
Benzyl chloride	<0.500	<2.59	0.500	2.59		EPA-TO-15	11/28/2013 SG
Dichlorobromomethane	<0.300	<2.01	0.300	2.01		EPA-TO-15	11/28/2013 SG
Bromoform	<0.200	<2.07	0.200	2.07		EPA-TO-15	11/28/2013 SG
Bromomethane	<0.500	<1.94	0.500	1.94		EPA-TO-15	11/28/2013 SG
Carbon disulfide	<0.200	<0.623	0.200	0.623		EPA-TO-15	11/28/2013 SG
Carbon tetrachloride	<0.200	<1.26	0.200	1.26		EPA-TO-15	11/28/2013 SG
Chlorobenzene	<0.200	<0.921	0.200	0.921		EPA-TO-15	11/28/2013 SG
Dibromochloromethane	<0.500	<4.26	0.500	4.26		EPA-TO-15	11/28/2013 SG
Chloroethane	<0.500	<1.32	0.500	1.32		EPA-TO-15	11/28/2013 SG
Chloroform	<0.200	<0.977	0.200	0.977		EPA-TO-15	11/28/2013 SG
Chloromethane	<0.500	<1.03	0.500	1.03		EPA-TO-15	11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-4cs

Date Sampled: 11/26/2013

Lab ID: 1311324-006A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
<u>Volatile Organic Compounds by EPA Method TO-15</u>							
cis-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
cis-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	11/28/2013 SG
Cyclohexane	<0.200	<0.688	0.200	0.688		EPA-TO-15	11/28/2013 SG
Dichlorodifluoromethane (CFC-12)	0.659	3.26	0.300	1.48		EPA-TO-15	11/28/2013 SG
Dichlorotetrafluoroethane (CFC-114)	<0.500	<3.50	0.500	3.50		EPA-TO-15	11/28/2013 SG
Ethyl acetate	<1.00	<3.60	1.00	3.60		EPA-TO-15	11/28/2013 SG
Ethylbenzene	<0.300	<1.30	0.300	1.30		EPA-TO-15	11/28/2013 SG
Heptane	<0.500	<2.01	0.500	2.01		EPA-TO-15	11/28/2013 SG
Hexachlorobutadiene	<1.00	<10.7	1.00	10.7		EPA-TO-15	11/28/2013 SG
m,p-Xylene	0.242	1.05	0.200	0.868		EPA-TO-15	11/28/2013 SG
Methyl methacrylate	<0.300	<1.23	0.300	1.23		EPA-TO-15	11/28/2013 SG
Methylene chloride	<0.500	<1.74	0.500	1.74		EPA-TO-15	11/28/2013 SG
Naphthalene	<0.300	<1.57	0.300	1.57		EPA-TO-15	11/28/2013 SG
n-Hexane	<0.200	<0.705	0.200	0.705		EPA-TO-15	11/28/2013 SG
o-Xylene	<0.200	<0.868	0.200	0.868		EPA-TO-15	11/28/2013 SG
4-Ethyltoluene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
Propylene	<0.500	<0.861	0.500	0.861		EPA-TO-15	11/28/2013 SG
Styrene	<0.300	<1.28	0.300	1.28		EPA-TO-15	11/28/2013 SG
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721		EPA-TO-15	11/28/2013 SG
Tetrachloroethene (PCE)	<0.300	<2.03	0.300	2.03		EPA-TO-15	11/28/2013 SG
Tetrahydrofuran	<0.500	<1.47	0.500	1.47		EPA-TO-15	11/28/2013 SG
Toluene	0.526	1.98	0.200	0.754		EPA-TO-15	11/28/2013 SG
trans-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
trans-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	11/28/2013 SG
Trichloroethene (TCE)	<0.200	<1.07	0.200	1.07		EPA-TO-15	11/28/2013 SG
Trichlorofluoromethane (CFC-11)	<0.300	<1.69	0.300	1.69		EPA-TO-15	11/28/2013 SG
Vinyl acetate	<1.00	<3.52	1.00	3.52		EPA-TO-15	11/28/2013 SG
Vinyl chloride	<0.200	<0.511	0.200	0.511		EPA-TO-15	11/28/2013 SG
Surr: 4-Bromofluorobenzene	91.2 %Rec	--	70-130	--		EPA-TO-15	11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-1ss

Date Sampled: 11/26/2013

Lab ID: 1311324-007A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
<u>Petroleum Fractionation by EPA Method TO-15</u>					
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,2,3-Trimethylbenzene	<0.500	<2.46	0.500	2.46	TO-15 11/28/2013 MD
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47	TO-15 11/28/2013 MD
1,3-Butadiene	<0.500	<1.11	0.500	1.11	TO-15 11/28/2013 MD
p-isopropyltoluene	<0.500	<2.74	0.500	2.74	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC5-8)	<50.0	<190	50.0	190	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC9-12)	<50.0	<294	50.0	294	TO-15 11/28/2013 MD
Aromatic Hydrocarbon (EC9-10)	<50.0	<252	50.0	252	TO-15 11/28/2013 MD
Benzene	<0.200	<0.639	0.200	0.639	TO-15 11/28/2013 MD
Cyclohexane	<0.200	<0.688	0.200	0.688	TO-15 11/28/2013 MD
Decane	<0.500	<2.91	0.500	2.91	TO-15 11/28/2013 MD
Ethylbenzene	<0.300	<1.30	0.300	1.30	TO-15 11/28/2013 MD
Heptane	<0.500	<2.01	0.500	2.01	TO-15 11/28/2013 MD
Isopentane	<0.500	<1.48	0.500	1.48	TO-15 11/28/2013 MD
m,p-Xylene	<0.200	<0.868	0.200	0.868	TO-15 11/28/2013 MD
Dodecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
n-Hexane	<0.200	<0.705	0.200	0.705	TO-15 11/28/2013 MD
Nonane	<0.500	<2.62	0.500	2.62	TO-15 11/28/2013 MD
Undecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
Octane	<0.500	<2.34	0.500	2.34	TO-15 11/28/2013 MD
o-Xylene	<0.200	<0.868	0.200	0.868	TO-15 11/28/2013 MD
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721	TO-15 11/28/2013 MD
Toluene	<0.200	<0.754	0.200	0.754	TO-15 11/28/2013 MD
Surr: 4-Bromofluorobenzene	90.9 %Rec	--	70-130	--	TO-15 11/28/2013 MD

Volatile Organic Compounds by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,1,1-Trichloroethane	<0.200	<1.09	0.200	1.09	EPA-TO-15 11/28/2013 SG
1,1,2,2-Tetrachloroethane	<0.300	<2.06	0.300	2.06	EPA-TO-15 11/28/2013 SG
CFC-113	<0.500	<3.83	0.500	3.83	EPA-TO-15 11/28/2013 SG
1,1,2-Trichloroethane (TCA)	<0.500	<2.73	0.500	2.73	EPA-TO-15 11/28/2013 SG
1,1-Dichloroethane	<0.200	<0.810	0.200	0.810	EPA-TO-15 11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-1ss

Date Sampled: 11/26/2013

Lab ID: 1311324-007A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
1,1-Dichloroethene (DCE)	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
1,2,4-Trichlorobenzene	<0.300	<2.23	0.300	2.23		EPA-TO-15	11/28/2013 SG
1,2,4-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,2-Dibromoethane (EDB)	<0.200	<1.54	0.200	1.54		EPA-TO-15	11/28/2013 SG
1,2-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,2-Dichloroethane	<0.200	<0.809	0.200	0.809		EPA-TO-15	11/28/2013 SG
1,2-Dichloropropane	<0.500	<2.31	0.500	2.31		EPA-TO-15	11/28/2013 SG
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,3-Butadiene	<0.500	<1.11	0.500	1.11		EPA-TO-15	11/28/2013 SG
1,3-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dioxane	<1.00	<3.60	1.00	3.60		EPA-TO-15	11/28/2013 SG
(MEK) 2-Butanone	<0.500	<1.47	0.500	1.47		EPA-TO-15	11/28/2013 SG
2-Hexanone	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Isopropyl Alcohol	<1.00	<2.46	1.00	2.46		EPA-TO-15	11/28/2013 SG
4-Methyl-2-pentanone (MIBK)	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Acetone	1.74	4.13	1.00	2.38		EPA-TO-15	11/28/2013 SG
Acrolein	<0.500	<1.15	0.500	1.15		EPA-TO-15	11/28/2013 SG
Benzene	<0.200	<0.639	0.200	0.639		EPA-TO-15	11/28/2013 SG
Benzyl chloride	<0.500	<2.59	0.500	2.59		EPA-TO-15	11/28/2013 SG
Dichlorobromomethane	<0.300	<2.01	0.300	2.01		EPA-TO-15	11/28/2013 SG
Bromoform	<0.200	<2.07	0.200	2.07		EPA-TO-15	11/28/2013 SG
Bromomethane	<0.500	<1.94	0.500	1.94		EPA-TO-15	11/28/2013 SG
Carbon disulfide	<0.200	<0.623	0.200	0.623		EPA-TO-15	11/28/2013 SG
Carbon tetrachloride	<0.200	<1.26	0.200	1.26		EPA-TO-15	11/28/2013 SG
Chlorobenzene	<0.200	<0.921	0.200	0.921		EPA-TO-15	11/28/2013 SG
Dibromochloromethane	<0.500	<4.26	0.500	4.26		EPA-TO-15	11/28/2013 SG
Chloroethane	<0.500	<1.32	0.500	1.32		EPA-TO-15	11/28/2013 SG
Chloroform	<0.200	<0.977	0.200	0.977		EPA-TO-15	11/28/2013 SG
Chloromethane	<0.500	<1.03	0.500	1.03		EPA-TO-15	11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-1ss

Date Sampled: 11/26/2013

Lab ID: 1311324-007A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
<u>Volatile Organic Compounds by EPA Method TO-15</u>							
cis-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
cis-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	11/28/2013 SG
Cyclohexane	<0.200	<0.688	0.200	0.688		EPA-TO-15	11/28/2013 SG
Dichlorodifluoromethane (CFC-12)	0.431	2.13	0.300	1.48		EPA-TO-15	11/28/2013 SG
Dichlorotetrafluoroethane (CFC-114)	<0.500	<3.50	0.500	3.50		EPA-TO-15	11/28/2013 SG
Ethyl acetate	<1.00	<3.60	1.00	3.60		EPA-TO-15	11/28/2013 SG
Ethylbenzene	<0.300	<1.30	0.300	1.30		EPA-TO-15	11/28/2013 SG
Heptane	<0.500	<2.01	0.500	2.01		EPA-TO-15	11/28/2013 SG
Hexachlorobutadiene	<1.00	<10.7	1.00	10.7		EPA-TO-15	11/28/2013 SG
m,p-Xylene	<0.200	<0.868	0.200	0.868		EPA-TO-15	11/28/2013 SG
Methyl methacrylate	<0.300	<1.23	0.300	1.23		EPA-TO-15	11/28/2013 SG
Methylene chloride	<0.500	<1.74	0.500	1.74		EPA-TO-15	11/28/2013 SG
Naphthalene	0.669	3.50	0.300	1.57		EPA-TO-15	11/28/2013 SG
n-Hexane	<0.200	<0.705	0.200	0.705		EPA-TO-15	11/28/2013 SG
o-Xylene	<0.200	<0.868	0.200	0.868		EPA-TO-15	11/28/2013 SG
4-Ethyltoluene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
Propylene	<0.500	<0.861	0.500	0.861		EPA-TO-15	11/28/2013 SG
Styrene	<0.300	<1.28	0.300	1.28		EPA-TO-15	11/28/2013 SG
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721		EPA-TO-15	11/28/2013 SG
Tetrachloroethene (PCE)	0.405	2.75	0.300	2.03		EPA-TO-15	11/28/2013 SG
Tetrahydrofuran	<0.500	<1.47	0.500	1.47		EPA-TO-15	11/28/2013 SG
Toluene	<0.200	<0.754	0.200	0.754		EPA-TO-15	11/28/2013 SG
trans-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
trans-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	11/28/2013 SG
Trichloroethene (TCE)	<0.200	<1.07	0.200	1.07		EPA-TO-15	11/28/2013 SG
Trichlorofluoromethane (CFC-11)	<0.300	<1.69	0.300	1.69		EPA-TO-15	11/28/2013 SG
Vinyl acetate	<1.00	<3.52	1.00	3.52		EPA-TO-15	11/28/2013 SG
Vinyl chloride	<0.200	<0.511	0.200	0.511		EPA-TO-15	11/28/2013 SG
Surr: 4-Bromofluorobenzene	90.9 %Rec	--	70-130	--		EPA-TO-15	11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-3ss

Date Sampled: 11/26/2013

Lab ID: 1311324-008A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
<u>Petroleum Fractionation by EPA Method TO-15</u>					
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,2,3-Trimethylbenzene	<0.500	<2.46	0.500	2.46	TO-15 11/28/2013 MD
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47	TO-15 11/28/2013 MD
1,3-Butadiene	<0.500	<1.11	0.500	1.11	TO-15 11/28/2013 MD
p-isopropyltoluene	<0.500	<2.74	0.500	2.74	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC5-8)	<50.0	<190	50.0	190	TO-15 11/28/2013 MD
Aliphatic Hydrocarbon (EC9-12)	<50.0	<294	50.0	294	TO-15 11/28/2013 MD
Aromatic Hydrocarbon (EC9-10)	<50.0	<252	50.0	252	TO-15 11/28/2013 MD
Benzene	0.405	1.29	0.200	0.639	TO-15 11/28/2013 MD
Cyclohexane	<0.200	<0.688	0.200	0.688	TO-15 11/28/2013 MD
Decane	<0.500	<2.91	0.500	2.91	TO-15 11/28/2013 MD
Ethylbenzene	<0.300	<1.30	0.300	1.30	TO-15 11/28/2013 MD
Heptane	<0.500	<2.01	0.500	2.01	TO-15 11/28/2013 MD
Isopentane	<0.500	<1.48	0.500	1.48	TO-15 11/28/2013 MD
m,p-Xylene	<0.200	<0.868	0.200	0.868	TO-15 11/28/2013 MD
Dodecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
n-Hexane	<0.200	<0.705	0.200	0.705	TO-15 11/28/2013 MD
Nonane	<0.500	<2.62	0.500	2.62	TO-15 11/28/2013 MD
Undecane	<0.500	<3.48	0.500	3.48	TO-15 11/28/2013 MD
Octane	<0.500	<2.34	0.500	2.34	TO-15 11/28/2013 MD
o-Xylene	<0.200	<0.868	0.200	0.868	TO-15 11/28/2013 MD
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721	TO-15 11/28/2013 MD
Toluene	<0.200	<0.754	0.200	0.754	TO-15 11/28/2013 MD
Surr: 4-Bromofluorobenzene	92.2 %Rec	--	70-130	--	TO-15 11/28/2013 MD

Volatile Organic Compounds by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,1,1-Trichloroethane	0.211	1.15	0.200	1.09	EPA-TO-15 11/28/2013 SG
1,1,2,2-Tetrachloroethane	<0.300	<2.06	0.300	2.06	EPA-TO-15 11/28/2013 SG
CFC-113	<0.500	<3.83	0.500	3.83	EPA-TO-15 11/28/2013 SG
1,1,2-Trichloroethane (TCA)	<0.500	<2.73	0.500	2.73	EPA-TO-15 11/28/2013 SG
1,1-Dichloroethane	<0.200	<0.810	0.200	0.810	EPA-TO-15 11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-3ss

Date Sampled: 11/26/2013

Lab ID: 1311324-008A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
1,1-Dichloroethene (DCE)	<0.200	<0.793	0.200	0.793		EPA-TO-15	11/28/2013 SG
1,2,4-Trichlorobenzene	<0.300	<2.23	0.300	2.23		EPA-TO-15	11/28/2013 SG
1,2,4-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,2-Dibromoethane (EDB)	<0.200	<1.54	0.200	1.54		EPA-TO-15	11/28/2013 SG
1,2-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,2-Dichloroethane	<0.200	<0.809	0.200	0.809		EPA-TO-15	11/28/2013 SG
1,2-Dichloropropane	<0.500	<2.31	0.500	2.31		EPA-TO-15	11/28/2013 SG
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	11/28/2013 SG
1,3-Butadiene	<0.500	<1.11	0.500	1.11		EPA-TO-15	11/28/2013 SG
1,3-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	11/28/2013 SG
1,4-Dioxane	<1.00	<3.60	1.00	3.60		EPA-TO-15	11/28/2013 SG
(MEK) 2-Butanone	<0.500	<1.47	0.500	1.47		EPA-TO-15	11/28/2013 SG
2-Hexanone	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Isopropyl Alcohol	<1.00	<2.46	1.00	2.46		EPA-TO-15	11/28/2013 SG
4-Methyl-2-pentanone (MIBK)	<1.00	<4.10	1.00	4.10		EPA-TO-15	11/28/2013 SG
Acetone	2.10	4.99	1.00	2.38		EPA-TO-15	11/28/2013 SG
Acrolein	<0.500	<1.15	0.500	1.15		EPA-TO-15	11/28/2013 SG
Benzene	0.405	1.29	0.200	0.639		EPA-TO-15	11/28/2013 SG
Benzyl chloride	<0.500	<2.59	0.500	2.59		EPA-TO-15	11/28/2013 SG
Dichlorobromomethane	<0.300	<2.01	0.300	2.01		EPA-TO-15	11/28/2013 SG
Bromoform	<0.200	<2.07	0.200	2.07		EPA-TO-15	11/28/2013 SG
Bromomethane	<0.500	<1.94	0.500	1.94		EPA-TO-15	11/28/2013 SG
Carbon disulfide	0.295	0.920	0.200	0.623		EPA-TO-15	11/28/2013 SG
Carbon tetrachloride	<0.200	<1.26	0.200	1.26		EPA-TO-15	11/28/2013 SG
Chlorobenzene	<0.200	<0.921	0.200	0.921		EPA-TO-15	11/28/2013 SG
Dibromochloromethane	<0.500	<4.26	0.500	4.26		EPA-TO-15	11/28/2013 SG
Chloroethane	<0.500	<1.32	0.500	1.32		EPA-TO-15	11/28/2013 SG
Chloroform	<0.200	<0.977	0.200	0.977		EPA-TO-15	11/28/2013 SG
Chloromethane	<0.500	<1.03	0.500	1.03		EPA-TO-15	11/28/2013 SG



Client: Environmental Partners, Inc.

WorkOrder: 1311324

Project: Mossman Residence

Client Sample ID: A-3ss

Date Sampled: 11/26/2013

Lab ID: 1311324-008A

Date Received: 11/27/2013

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
<u>Volatile Organic Compounds by EPA Method TO-15</u>					
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
cis-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793	EPA-TO-15 11/28/2013 SG
cis-1,3-dichloropropene	<0.500	<2.27	0.500	2.27	EPA-TO-15 11/28/2013 SG
Cyclohexane	<0.200	<0.688	0.200	0.688	EPA-TO-15 11/28/2013 SG
Dichlorodifluoromethane (CFC-12)	0.455	2.25	0.300	1.48	EPA-TO-15 11/28/2013 SG
Dichlorotetrafluoroethane (CFC-114)	<0.500	<3.50	0.500	3.50	EPA-TO-15 11/28/2013 SG
Ethyl acetate	<1.00	<3.60	1.00	3.60	EPA-TO-15 11/28/2013 SG
Ethylbenzene	<0.300	<1.30	0.300	1.30	EPA-TO-15 11/28/2013 SG
Heptane	<0.500	<2.01	0.500	2.01	EPA-TO-15 11/28/2013 SG
Hexachlorobutadiene	<1.00	<10.7	1.00	10.7	EPA-TO-15 11/28/2013 SG
m,p-Xylene	<0.200	<0.868	0.200	0.868	EPA-TO-15 11/28/2013 SG
Methyl methacrylate	<0.300	<1.23	0.300	1.23	EPA-TO-15 11/28/2013 SG
Methylene chloride	<0.500	<1.74	0.500	1.74	EPA-TO-15 11/28/2013 SG
Naphthalene	1.09	5.73	0.300	1.57	EPA-TO-15 11/28/2013 SG
n-Hexane	<0.200	<0.705	0.200	0.705	EPA-TO-15 11/28/2013 SG
o-Xylene	<0.200	<0.868	0.200	0.868	EPA-TO-15 11/28/2013 SG
4-Ethyltoluene	<0.300	<1.47	0.300	1.47	EPA-TO-15 11/28/2013 SG
Propylene	<0.500	<0.861	0.500	0.861	EPA-TO-15 11/28/2013 SG
Styrene	<0.300	<1.28	0.300	1.28	EPA-TO-15 11/28/2013 SG
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721	EPA-TO-15 11/28/2013 SG
Tetrachloroethene (PCE)	0.488	3.31	0.300	2.03	EPA-TO-15 11/28/2013 SG
Tetrahydrofuran	<0.500	<1.47	0.500	1.47	EPA-TO-15 11/28/2013 SG
Toluene	<0.200	<0.754	0.200	0.754	EPA-TO-15 11/28/2013 SG
trans-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793	EPA-TO-15 11/28/2013 SG
trans-1,3-dichloropropene	<0.500	<2.27	0.500	2.27	EPA-TO-15 11/28/2013 SG
Trichloroethene (TCE)	<0.200	<1.07	0.200	1.07	EPA-TO-15 11/28/2013 SG
Trichlorofluoromethane (CFC-11)	<0.300	<1.69	0.300	1.69	EPA-TO-15 11/28/2013 SG
Vinyl acetate	<1.00	<3.52	1.00	3.52	EPA-TO-15 11/28/2013 SG
Vinyl chloride	<0.200	<0.511	0.200	0.511	EPA-TO-15 11/28/2013 SG
Surr: 4-Bromofluorobenzene	92.2 %Rec	--	70-130	--	EPA-TO-15 11/28/2013 SG

Work Order: 1311324
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Petroleum Fractionation by EPA Method TO-15

Sample ID	LCS-R11613	SampType:	LCS	Units:	ppbv	Prep Date:	11/28/2013	RunNo:	11613		
Client ID:	LCSW	Batch ID:	R11613	Analysis Date:	11/28/2013	SeqNo:	232631				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trimethylbenzene	4.68	0.500	5.000	0	93.6	70	130				
1,3,5-Trimethylbenzene	4.85	0.300	5.000	0	97.0	70	130				
1,3-Butadiene	4.79	0.500	5.000	0	95.9	70	130				
Aliphatic Hydrocarbon (EC5-8)	55.7	50.0	50.00	0	111	70	130				
Aliphatic Hydrocarbon (EC9-12)	77.5	50.0	80.00	0	96.9	70	130				
Aromatic Hydrocarbon (EC9-10)	69.4	50.0	70.00	0	99.1	70	130				
Benzene	4.85	0.200	5.000	0	97.0	70	130				
Cyclohexane	5.07	0.200	5.000	0	101	70	130				
Decane	4.78	0.500	5.000	0	95.6	70	130				
Dodecane	5.56	0.500	5.000	0	111	70	130				
Ethylbenzene	4.92	0.300	5.000	0	98.4	70	130				
Heptane	5.05	0.500	5.000	0	101	70	130				
Isopentane	4.99	0.500	5.000	0	99.7	70	130				
m,p-Xylene	9.94	0.200	10.00	0	99.4	70	130				
Methyl tert-butyl ether (MTBE)	4.66	0.200	5.000	0	93.3	70	130				
n-Hexane	4.98	0.200	5.000	0	99.7	70	130				
Nonane	5.29	0.500	5.000	0	106	70	130				
Octane	5.83	0.500	5.000	0	117	70	130				
o-Xylene	4.93	0.200	5.000	0	98.7	70	130				
p-isopropyltoluene	4.86	0.500	5.000	0	97.1	70	130				
Toluene	4.81	0.200	5.000	0	96.1	70	130				
Undecane	5.20	0.500	5.000	0	104	70	130				
Surr: 4-Bromofluorobenzene	9.54		10.00		95.4	70	130				

Sample ID	MB-R11613	SampType:	MBLK	Units:	ppbv	Prep Date:	11/28/2013	RunNo:	11613		
Client ID:	MBLKW	Batch ID:	R11613	Analysis Date:	11/28/2013	SeqNo:	232632				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trimethylbenzene	ND	0.500									
1,3,5-Trimethylbenzene	ND	0.300									

Work Order: 1311324
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Petroleum Fractionation by EPA Method TO-15

Sample ID MB-R11613	SampType: MBLK	Units: ppbv	Prep Date: 11/28/2013	RunNo: 11613							
Client ID: MBLKW	Batch ID: R11613		Analysis Date: 11/28/2013	SeqNo: 232632							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,3-Butadiene	ND	0.500									
Aliphatic Hydrocarbon (EC5-8)	ND	50.0									
Aliphatic Hydrocarbon (EC9-12)	ND	50.0									
Aromatic Hydrocarbon (EC9-10)	ND	50.0									
Benzene	ND	0.200									
Cyclohexane	ND	0.200									
Decane	ND	0.500									
Dodecane	ND	0.500									
Ethylbenzene	ND	0.300									
Heptane	ND	0.500									
Isopentane	ND	0.500									
m,p-Xylene	ND	0.200									
Methyl tert-butyl ether (MTBE)	ND	0.200									
n-Hexane	ND	0.200									
Nonane	ND	0.500									
Octane	ND	0.500									
o-Xylene	ND	0.200									
p-isopropyltoluene	ND	0.500									
Toluene	ND	0.200									
Undecane	ND	0.500									
Surr: 4-Bromofluorobenzene	9.54		10.00		95.4	70	130				

Work Order: 1311324
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method TO-15

Sample ID	LCS-R11416	SampType:	LCS	Units:	ppbv	Prep Date:	11/28/2013	RunNo:	11416		
Client ID:	LCSW	Batch ID:	R11416	Analysis Date:	11/28/2013	SeqNo:	228405				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics	325	1.00	400.0	0	81.3	70	130				
Propylene	5.07	0.500	5.000	0	101	70	130				
Dichlorodifluoromethane (CFC-12)	5.16	0.300	5.000	0	103	70	130				
Chloromethane	4.60	0.500	5.000	0	92.0	70	130				
Dichlorotetrafluoroethane (CFC-114)	4.97	0.500	5.000	0	99.4	70	130				
Vinyl chloride	4.98	0.200	5.000	0	99.6	70	130				
1,3-Butadiene	4.79	0.500	5.000	0	95.9	70	130				
Bromomethane	4.81	0.500	5.000	0	96.2	70	130				
Trichlorofluoromethane (CFC-11)	5.24	0.300	5.000	0	105	70	130				
Chloroethane	5.14	0.500	5.000	0	103	70	130				
Acrolein	4.90	0.500	5.000	0	98.0	70	130				
1,1-Dichloroethene (DCE)	4.78	0.200	5.000	0	95.5	70	130				
Acetone	5.04	1.00	5.000	0	101	70	130				
Isopropyl Alcohol	4.99	1.00	5.000	0	99.8	70	130				
Methylene chloride	4.96	0.500	5.000	0	99.2	70	130				
Carbon disulfide	5.17	0.200	5.000	0	103	70	130				
trans-1,2-Dichloroethene	4.82	0.200	5.000	0	96.3	70	130				
Methyl tert-butyl ether (MTBE)	4.66	0.200	5.000	0	93.3	70	130				
n-Hexane	4.98	0.200	5.000	0	99.7	70	130				
1,1-Dichloroethane	5.03	0.200	5.000	0	101	70	130				
Vinyl acetate	5.19	1.00	5.000	0	104	70	130				
cis-1,2-Dichloroethene	4.74	0.200	5.000	0	94.8	70	130				
(MEK) 2-Butanone	4.91	0.500	5.000	0	98.2	70	130				
Ethyl acetate	5.03	1.00	5.000	0	101	70	130				
Chloroform	4.87	0.200	5.000	0	97.4	70	130				
Tetrahydrofuran	4.86	0.500	5.000	0	97.3	70	130				
1,1,1-Trichloroethane	4.79	0.200	5.000	0	95.9	70	130				
Carbon tetrachloride	4.82	0.200	5.000	0	96.5	70	130				
1,2-Dichloroethane	4.87	0.200	5.000	0	97.3	70	130				
Benzene	4.85	0.200	5.000	0	97.0	70	130				
Cyclohexane	5.07	0.200	5.000	0	101	70	130				

Work Order: 1311324
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method TO-15

Sample ID	LCS-R11416	SampType:	LCS	Units:	ppbv	Prep Date:	11/28/2013	RunNo:	11416
Client ID:	LCSW	Batch ID:	R11416			Analysis Date:	11/28/2013	SeqNo:	228405

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	4.81	0.200	5.000	0	96.2	70	130				
1,2-Dichloropropane	4.94	0.500	5.000	0	98.8	70	130				
Methyl methacrylate	4.95	0.300	5.000	0	98.9	70	130				
Dichlorobromomethane	4.88	0.300	5.000	0	97.6	70	130				
1,4-Dioxane	5.11	1.00	5.000	0	102	70	130				
cis-1,3-dichloropropene	4.88	0.500	5.000	0	97.6	70	130				
Toluene	4.81	0.200	5.000	0	96.1	70	130				
trans-1,3-dichloropropene	4.68	0.500	5.000	0	93.6	70	130				
1,1,2-Trichloroethane (TCA)	4.88	0.500	5.000	0	97.6	70	130				
Tetrachloroethene (PCE)	4.73	0.300	5.000	0	94.7	70	130				
Dibromochloromethane	4.73	0.500	5.000	0	94.6	70	130				
1,2-Dibromoethane (EDB)	4.76	0.200	5.000	0	95.2	70	130				
Chlorobenzene	4.98	0.200	5.000	0	99.5	70	130				
Ethylbenzene	4.92	0.300	5.000	0	98.4	70	130				
m,p-Xylene	9.94	0.200	10.00	0	99.4	70	130				
o-Xylene	4.93	0.200	5.000	0	98.7	70	130				
Styrene	4.89	0.300	5.000	0	97.7	70	130				
Bromoform	4.88	0.200	5.000	0	97.5	70	130				
1,1,1,2-Tetrachloroethane	5.12	0.300	5.000	0	102	70	130				
1,3,5-Trimethylbenzene	4.85	0.300	5.000	0	97.0	70	130				
1,2,4-Trimethylbenzene	4.87	0.300	5.000	0	97.4	70	130				
Benzyl chloride	5.13	0.500	5.000	0	103	70	130				
4-Ethyltoluene	4.93	0.300	5.000	0	98.6	70	130				
1,3-Dichlorobenzene	5.20	0.300	5.000	0	104	70	130				
1,4-Dichlorobenzene	5.26	0.300	5.000	0	105	70	130				
1,2-Dichlorobenzene	5.01	0.300	5.000	0	100	70	130				
1,2,4-Trichlorobenzene	4.90	0.300	5.000	0	98.0	70	130				
Hexachlorobutadiene	5.50	1.00	5.000	0	110	70	130				
Naphthalene	5.60	0.300	5.000	0	112	70	130				
2-Hexanone	5.33	1.00	5.000	0	107	70	130				
4-Methyl-2-pentanone (MIBK)	5.10	1.00	5.000	0	102	70	130				

Work Order: 1311324
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method TO-15

Sample ID LCS-R11416	SampType: LCS	Units: ppbv	Prep Date: 11/28/2013	RunNo: 11416							
Client ID: LCSW	Batch ID: R11416		Analysis Date: 11/28/2013	SeqNo: 228405							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

CFC-113	4.99	0.500	5.000	0	99.8	70	130				
Heptane	5.05	0.500	5.000	0	101	70	130				
Surr: 4-Bromofluorobenzene	9.54		10.00		95.4	70	130				

Sample ID MB-R11416	SampType: MBLK	Units: ppbv	Prep Date: 11/28/2013	RunNo: 11416							
Client ID: MBLKW	Batch ID: R11416		Analysis Date: 11/28/2013	SeqNo: 228407							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline Range Organics	ND	1.00									
Propylene	ND	0.500									
Dichlorodifluoromethane (CFC-12)	ND	0.300									
Chloromethane	ND	0.500									
Dichlorotetrafluoroethane (CFC-114)	ND	0.500									
Vinyl chloride	ND	0.200									
1,3-Butadiene	ND	0.500									
Bromomethane	ND	0.500									
Trichlorofluoromethane (CFC-11)	ND	0.300									
Chloroethane	ND	0.500									
Acrolein	ND	0.500									
1,1-Dichloroethene (DCE)	ND	0.200									
Acetone	ND	1.00									
Isopropyl Alcohol	ND	1.00									
Methylene chloride	ND	0.500									
Carbon disulfide	ND	0.200									
trans-1,2-Dichloroethene	ND	0.200									
Methyl tert-butyl ether (MTBE)	ND	0.200									
n-Hexane	ND	0.200									
1,1-Dichloroethane	ND	0.200									
Vinyl acetate	ND	1.00									
cis-1,2-Dichloroethene	ND	0.200									

Work Order: 1311324
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method TO-15

Sample ID MB-R11416	SampType: MBLK	Units: ppbv	Prep Date: 11/28/2013	RunNo: 11416							
Client ID: MBLKW	Batch ID: R11416		Analysis Date: 11/28/2013	SeqNo: 228407							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

(MEK) 2-Butanone	ND	0.500									
Ethyl acetate	ND	1.00									
Chloroform	ND	0.200									
Tetrahydrofuran	ND	0.500									
1,1,1-Trichloroethane	ND	0.200									
Carbon tetrachloride	ND	0.200									
1,2-Dichloroethane	ND	0.200									
Benzene	ND	0.200									
Cyclohexane	ND	0.200									
Trichloroethene (TCE)	ND	0.200									
1,2-Dichloropropane	ND	0.500									
Methyl methacrylate	ND	0.300									
Dichlorobromomethane	ND	0.300									
1,4-Dioxane	ND	1.00									
cis-1,3-dichloropropene	ND	0.500									
Toluene	ND	0.200									
trans-1,3-dichloropropene	ND	0.500									
1,1,2-Trichloroethane (TCA)	ND	0.500									
Tetrachloroethene (PCE)	ND	0.300									
Dibromochloromethane	ND	0.500									
1,2-Dibromoethane (EDB)	ND	0.200									
Chlorobenzene	ND	0.200									
Ethylbenzene	ND	0.300									
m,p-Xylene	ND	0.200									
o-Xylene	ND	0.200									
Styrene	ND	0.300									
Bromoform	ND	0.200									
1,1,2,2-Tetrachloroethane	ND	0.300									
1,3,5-Trimethylbenzene	ND	0.300									
1,2,4-Trimethylbenzene	ND	0.300									
Benzyl chloride	ND	0.500									

Work Order: 1311324
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method TO-15

Sample ID MB-R11416	SampType: MBLK	Units: ppbv	Prep Date: 11/28/2013	RunNo: 11416							
Client ID: MBLKW	Batch ID: R11416		Analysis Date: 11/28/2013	SeqNo: 228407							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

4-Ethyltoluene	ND	0.300									
1,3-Dichlorobenzene	ND	0.300									
1,4-Dichlorobenzene	ND	0.300									
1,2-Dichlorobenzene	ND	0.300									
1,2,4-Trichlorobenzene	ND	0.300									
Hexachlorobutadiene	ND	1.00									
Naphthalene	ND	0.300									
2-Hexanone	ND	1.00									
4-Methyl-2-pentanone (MIBK)	ND	1.00									
CFC-113	ND	0.500									
Heptane	ND	0.500									
Surr: 4-Bromofluorobenzene	7.72		10.00		77.2	70	130				

Sample ID 1311309-001AREP	SampType: REP	Units: ppbv	Prep Date: 11/28/2013	RunNo: 11416							
Client ID: BATCH	Batch ID: R11416		Analysis Date: 11/28/2013	SeqNo: 228403							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline Range Organics	371	4.00						347.0	6.72	0	
Propylene	ND	2.00						0		30	
Dichlorodifluoromethane (CFC-12)	ND	1.20						0		30	
Chloromethane	ND	2.00						0		30	
Dichlorotetrafluoroethane (CFC-114)	ND	2.00						0		30	
Vinyl chloride	ND	0.800						0		30	
1,3-Butadiene	ND	2.00						0		30	
Bromomethane	ND	2.00						0		30	
Trichlorofluoromethane (CFC-11)	ND	1.20						0		30	
Chloroethane	ND	2.00						0		30	
Acrolein	ND	2.00						0		30	
1,1-Dichloroethene (DCE)	ND	0.800						0		30	
Acetone	ND	4.00						0		30	



Work Order: 1311324
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method TO-15

Sample ID 1311309-001AREP	SampType: REP	Units: ppbv	Prep Date: 11/28/2013	RunNo: 11416							
Client ID: BATCH	Batch ID: R11416		Analysis Date: 11/28/2013	SeqNo: 228403							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Isopropyl Alcohol	ND	4.00						0		30	
Methylene chloride	ND	2.00						0		30	
Carbon disulfide	ND	0.800						0		30	
trans-1,2-Dichloroethene	ND	0.800						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.800						0		30	
n-Hexane	2.19	0.800						2.192	0.109	30	
1,1-Dichloroethane	ND	0.800						0		30	
Vinyl acetate	ND	4.00						0		30	
cis-1,2-Dichloroethene	ND	0.800						0		30	
(MEK) 2-Butanone	ND	2.00						0		30	
Ethyl acetate	ND	4.00						0		30	
Chloroform	ND	0.800						0		30	
Tetrahydrofuran	30.8	2.00						31.37	1.83	30	
1,1,1-Trichloroethane	ND	0.800						0		30	
Carbon tetrachloride	ND	0.800						0		30	
1,2-Dichloroethane	ND	0.800						0		30	
Benzene	ND	0.800						0		30	
Cyclohexane	ND	0.800						0		30	
Trichloroethene (TCE)	ND	0.800						0		30	
1,2-Dichloropropane	ND	2.00						0		30	
Methyl methacrylate	ND	1.20						0		30	
Dichlorobromomethane	ND	1.20						0		30	
1,4-Dioxane	ND	4.00						0		30	
cis-1,3-dichloropropene	ND	2.00						0		30	
Toluene	0.801	0.800						0.8244	2.85	30	
trans-1,3-dichloropropene	ND	2.00						0		30	
1,1,2-Trichloroethane (TCA)	ND	2.00						0		30	
Tetrachloroethene (PCE)	ND	1.20						0		30	
Dibromochloromethane	ND	2.00						0		30	
1,2-Dibromoethane (EDB)	ND	0.800						0		30	
Chlorobenzene	ND	0.800						0		30	

Work Order: 1311324
CLIENT: Environmental Partners, Inc.
Project: Mossman Residence

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method TO-15

Sample ID	1311309-001AREP	SampType:	REP	Units:	ppbv	Prep Date:	11/28/2013	RunNo:	11416		
Client ID:	BATCH	Batch ID:	R11416			Analysis Date:	11/28/2013	SeqNo:	228403		

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene	ND	1.20						0		30	
m,p-Xylene	ND	0.800						0		30	
o-Xylene	ND	0.800						0		30	
Styrene	ND	1.20						0		30	
Bromoform	ND	0.800						0		30	
1,1,2,2-Tetrachloroethane	ND	1.20						0		30	
1,3,5-Trimethylbenzene	ND	1.20						0		30	
1,2,4-Trimethylbenzene	ND	1.20						0		30	
Benzyl chloride	ND	2.00						0		30	
4-Ethyltoluene	ND	1.20						0		30	
1,3-Dichlorobenzene	ND	1.20						0		30	
1,4-Dichlorobenzene	ND	1.20						0		30	
1,2-Dichlorobenzene	ND	1.20						0		30	
1,2,4-Trichlorobenzene	ND	1.20						0		30	
Hexachlorobutadiene	ND	4.00						0		30	
Naphthalene	ND	1.20						0		30	
2-Hexanone	ND	4.00						0		30	
4-Methyl-2-pentanone (MIBK)	ND	4.00						0		30	
CFC-113	ND	2.00						0		30	
Heptane	ND	2.00						0		30	
Surr: 4-Bromofluorobenzene	32.8		40.00		82.0	70	130		0		

Client Name: **EPI**
 Logged by: **Clare Griggs**

Work Order Number: **1311324**
 Date Received: **11/27/2013 10:40:00 AM**

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
 2. How was the sample delivered? Courier

Log In

3. Coolers are present? Yes No NA

Air Samples

4. Shipping container/cooler in good condition? Yes No
 5. Custody Seals present on shipping container/cooler?
 (Refer to comments for Custody Seals not intact) Yes No Not Required
 6. Was an attempt made to cool the samples? Yes No NA
 7. Were all items received at a temperature of >0°C to 10.0°C* Yes No NA
 8. Sample(s) in proper container(s)? Yes No
 9. Sufficient sample volume for indicated test(s)? Yes No
 10. Are samples properly preserved? Yes No
 11. Was preservative added to bottles? Yes No NA
 12. Is there headspace in the VOA vials? Yes No NA
 13. Did all samples containers arrive in good condition(unbroken)? Yes No
 14. Does paperwork match bottle labels? Yes No
 15. Are matrices correctly identified on Chain of Custody? Yes No
 16. Is it clear what analyses were requested? Yes No
 17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



Fremont Analytical

3600 Fremont Ave N
WA 98103
Seattle, Tel: 206-352-3790
Fax: 206-352-7178

Air Chain of Custody Record

Laboratory Project No (Internal): 131324

Date: November 26, 2013

Page: 1 of: 1

Client: EPI

Project Name: Massman Residence

Address: 295 NE Gilman Blvd Suite 201

Location: Sammamish, WA

City, State, Zip: Issaquah WA 98019

Tel: 425-358-0001

Collected by: K. Addis

Reports To (PM): K. Addis, T. Morin

Email: kristin@epi-wa.com thamm@epi-wa.com

Project No: 65201.3 Task 3

Sample Name	Canister Serial #	Sample Date	Sample Time	Indoor/Outdoor	Sample Volume	Container Type	Lab Cert. Vacuum Pressure	Field Initial Sample Pressure	Field Final Sample Pressure	Analysis Requested	Internal		
											Receipt Date	Final (psi)	
1 A-2SS	12671	11/26/13	0901	O	6L	Summa	10mtorr	-29	-2	TO-15 with Massachusetts	11/27/13	-1	
2 A-2IA	12665		0902	I	6L	Summa	10mtorr	-31	-2	Aromatic Petroleum Hydrocarbon fractionation		-2	
3 A-5AM	12669		0906	O	6L	Summa	10mtorr	-30	-4			-1	
4 A-1IA	12666		0900	I	6L	Summa	10mtorr	-30	-2			-1	
5 A-3IA	13969		0905	I	6L	Summa	10mtorr	-30	-2			-3	
6 A-4cs	13973		0915	O	6L	Summa	10mtorr	-30	-1			0	
7 A-1ss	13972		0857	O	6L	Summa	10mtorr	-28	-2			-2	
8 A-3ss	13975	✓	0904	O	6L	Summa	10mtorr	-30	-2	✓	✓	✓	-3
9													
10													

Condition: _____ Seals Intact: Y N N/A

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x <u>Kristin Addis</u>	<u>11/27/13 10:40</u>	x <u>Kevin Gilman</u>	<u>11-27-13 10:40</u>
Relinquished	Date/Time	Received	Date/Time
x		x	

IAI → STD Rush (specify)



3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: Mossman
Work Order Number: 1810270

October 26, 2018

Attention Sean Trimble:

Fremont Analytical, Inc. received 9 sample(s) on 10/12/2018 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "Mike C. Ridgeway".

Mike Ridgeway
Laboratory Director

CC:
Joe Sherrod



Date: 10/26/2018

CLIENT: Environmental Partners, Inc.
Project: Mossman
Work Order: 1810270

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1810270-001	MW-7	10/12/2018 8:53 AM	10/12/2018 3:29 PM
1810270-002	MW-5	10/12/2018 9:42 AM	10/12/2018 3:29 PM
1810270-003	MW-1	10/12/2018 10:19 AM	10/12/2018 3:29 PM
1810270-004	MW-8	10/12/2018 10:59 AM	10/12/2018 3:29 PM
1810270-005	MW-6	10/12/2018 11:45 AM	10/12/2018 3:29 PM
1810270-006	MW-3	10/12/2018 1:28 PM	10/12/2018 3:29 PM
1810270-007	MW-4	10/12/2018 2:10 PM	10/12/2018 3:29 PM
1810270-008	Dup-1	10/12/2018 12:00 AM	10/12/2018 3:29 PM
1810270-009	Trip Blank	10/08/2018 3:00 PM	10/12/2018 3:29 PM

CLIENT: Environmental Partners, Inc.

Project: Mossman

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

- * - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



Client: Environmental Partners, Inc.

Collection Date: 10/12/2018 8:53:00 AM

Project: Mossman

Lab ID: 1810270-001

Matrix: Water

Client Sample ID: MW-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 22299

Analyst: SB

Diesel (Fuel Oil)	ND	49.9		µg/L	1	10/16/2018 3:37:56 PM
Heavy Oil	ND	99.7		µg/L	1	10/16/2018 3:37:56 PM
Surr: 2-Fluorobiphenyl	84.5	50 - 150		%Rec	1	10/16/2018 3:37:56 PM
Surr: o-Terphenyl	90.2	50 - 150		%Rec	1	10/16/2018 3:37:56 PM

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 22301

Analyst: TN

Naphthalene	ND	1.00		µg/L	1	10/16/2018 7:24:00 AM
Surr: Dibromofluoromethane	92.2	45.4 - 152		%Rec	1	10/16/2018 7:24:00 AM
Surr: Toluene-d8	94.6	40.1 - 139		%Rec	1	10/16/2018 7:24:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	64.2 - 128		%Rec	1	10/16/2018 7:24:00 AM



Client: Environmental Partners, Inc.

Collection Date: 10/12/2018 9:42:00 AM

Project: Mossman

Lab ID: 1810270-002

Matrix: Water

Client Sample ID: MW-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 22299

Analyst: SB

Diesel (Fuel Oil)	ND	49.9		µg/L	1	10/16/2018 5:37:39 PM
Diesel Range Organics (C12-C24)	764	49.9		µg/L	1	10/16/2018 5:37:39 PM
Heavy Oil	ND	99.7		µg/L	1	10/16/2018 5:37:39 PM
Surr: 2-Fluorobiphenyl	91.6	50 - 150		%Rec	1	10/16/2018 5:37:39 PM
Surr: o-Terphenyl	92.2	50 - 150		%Rec	1	10/16/2018 5:37:39 PM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (~C12-C24).

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 22301

Analyst: TN

Naphthalene	ND	1.00		µg/L	1	10/16/2018 7:55:00 AM
Surr: Dibromofluoromethane	86.9	45.4 - 152		%Rec	1	10/16/2018 7:55:00 AM
Surr: Toluene-d8	88.0	40.1 - 139		%Rec	1	10/16/2018 7:55:00 AM
Surr: 1-Bromo-4-fluorobenzene	108	64.2 - 128		%Rec	1	10/16/2018 7:55:00 AM



Client: Environmental Partners, Inc.

Collection Date: 10/12/2018 10:19:00 AM

Project: Mossman

Lab ID: 1810270-003

Matrix: Water

Client Sample ID: MW-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 22299

Analyst: SB

Diesel (Fuel Oil)	ND	49.8		µg/L	1	10/16/2018 6:07:33 PM
Diesel Range Organics (C12-C24)	578	49.8		µg/L	1	10/16/2018 6:07:33 PM
Heavy Oil	ND	99.6		µg/L	1	10/16/2018 6:07:33 PM
Surr: 2-Fluorobiphenyl	84.8	50 - 150		%Rec	1	10/16/2018 6:07:33 PM
Surr: o-Terphenyl	86.2	50 - 150		%Rec	1	10/16/2018 6:07:33 PM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (~C12-C24).

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 22301

Analyst: TN

Naphthalene	ND	1.00		µg/L	1	10/16/2018 8:27:00 AM
Surr: Dibromofluoromethane	102	45.4 - 152		%Rec	1	10/16/2018 8:27:00 AM
Surr: Toluene-d8	105	40.1 - 139		%Rec	1	10/16/2018 8:27:00 AM
Surr: 1-Bromo-4-fluorobenzene	110	64.2 - 128		%Rec	1	10/16/2018 8:27:00 AM



Client: Environmental Partners, Inc.

Collection Date: 10/12/2018 10:59:00 AM

Project: Mossman

Lab ID: 1810270-004

Matrix: Water

Client Sample ID: MW-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 22299 Analyst: SB

Diesel (Fuel Oil)	ND	49.8		µg/L	1	10/16/2018 6:37:32 PM
Heavy Oil	ND	99.7		µg/L	1	10/16/2018 6:37:32 PM
Surr: 2-Fluorobiphenyl	97.0	50 - 150		%Rec	1	10/16/2018 6:37:32 PM
Surr: o-Terphenyl	102	50 - 150		%Rec	1	10/16/2018 6:37:32 PM

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 22301 Analyst: TN

Naphthalene	ND	1.00		µg/L	1	10/16/2018 9:31:00 AM
Surr: Dibromofluoromethane	98.0	45.4 - 152		%Rec	1	10/16/2018 9:31:00 AM
Surr: Toluene-d8	98.7	40.1 - 139		%Rec	1	10/16/2018 9:31:00 AM
Surr: 1-Bromo-4-fluorobenzene	105	64.2 - 128		%Rec	1	10/16/2018 9:31:00 AM



Client: Environmental Partners, Inc.

Collection Date: 10/12/2018 11:45:00 AM

Project: Mossman

Lab ID: 1810270-005

Matrix: Water

Client Sample ID: MW-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 22299

Analyst: SB

Diesel (Fuel Oil)	ND	49.7		µg/L	1	10/16/2018 7:07:24 PM
Diesel Range Organics (C12-C24)	642	49.7		µg/L	1	10/16/2018 7:07:24 PM
Heavy Oil	ND	99.4		µg/L	1	10/16/2018 7:07:24 PM
Surr: 2-Fluorobiphenyl	93.1	50 - 150		%Rec	1	10/16/2018 7:07:24 PM
Surr: o-Terphenyl	95.2	50 - 150		%Rec	1	10/16/2018 7:07:24 PM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (~C12-C24).

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 22301

Analyst: TN

Naphthalene	ND	1.00		µg/L	1	10/16/2018 10:02:00 AM
Surr: Dibromofluoromethane	95.8	45.4 - 152		%Rec	1	10/16/2018 10:02:00 AM
Surr: Toluene-d8	93.9	40.1 - 139		%Rec	1	10/16/2018 10:02:00 AM
Surr: 1-Bromo-4-fluorobenzene	111	64.2 - 128		%Rec	1	10/16/2018 10:02:00 AM



Client: Environmental Partners, Inc.

Collection Date: 10/12/2018 1:28:00 PM

Project: Mossman

Lab ID: 1810270-006

Matrix: Water

Client Sample ID: MW-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 22299

Analyst: SB

Diesel (Fuel Oil)	ND	49.9		µg/L	1	10/16/2018 7:37:17 PM
Diesel Range Organics (C12-C24)	712	49.9		µg/L	1	10/16/2018 7:37:17 PM
Heavy Oil	ND	99.7		µg/L	1	10/16/2018 7:37:17 PM
Surr: 2-Fluorobiphenyl	90.4	50 - 150		%Rec	1	10/16/2018 7:37:17 PM
Surr: o-Terphenyl	89.8	50 - 150		%Rec	1	10/16/2018 7:37:17 PM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (~C12-C24).

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 22343

Analyst: IH

Naphthalene	ND	0.0991		µg/L	1	10/23/2018 4:08:50 PM
2-Methylnaphthalene	ND	0.0991		µg/L	1	10/23/2018 4:08:50 PM
1-Methylnaphthalene	0.396	0.0991		µg/L	1	10/23/2018 4:08:50 PM
Surr: 2-Fluorobiphenyl	106	46.7 - 140		%Rec	1	10/23/2018 4:08:50 PM
Surr: Terphenyl-d14	87.5	20.8 - 124		%Rec	1	10/23/2018 4:08:50 PM

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 22301

Analyst: TN

Naphthalene	ND	1.00		µg/L	1	10/16/2018 10:34:00 AM
Surr: Dibromofluoromethane	96.1	45.4 - 152		%Rec	1	10/16/2018 10:34:00 AM
Surr: Toluene-d8	93.8	40.1 - 139		%Rec	1	10/16/2018 10:34:00 AM
Surr: 1-Bromo-4-fluorobenzene	114	64.2 - 128		%Rec	1	10/16/2018 10:34:00 AM



Client: Environmental Partners, Inc.

Collection Date: 10/12/2018 2:10:00 PM

Project: Mossman

Lab ID: 1810270-007

Matrix: Water

Client Sample ID: MW-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 22299 Analyst: SB

Diesel (Fuel Oil)	ND	49.9		µg/L	1	10/16/2018 10:06:04 PM
Diesel Range Organics (C12-C24)	5,130	499	D	µg/L	10	10/17/2018 5:58:58 PM
Heavy Oil	ND	99.7		µg/L	1	10/16/2018 10:06:04 PM
Surr: 2-Fluorobiphenyl	94.7	50 - 150		%Rec	1	10/16/2018 10:06:04 PM
Surr: o-Terphenyl	84.9	50 - 150		%Rec	1	10/16/2018 10:06:04 PM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (~C12-C24).

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 22343 Analyst: IH

Naphthalene	0.575	0.0995		µg/L	1	10/23/2018 4:29:34 PM
2-Methylnaphthalene	0.106	0.0995		µg/L	1	10/23/2018 4:29:34 PM
1-Methylnaphthalene	0.498	0.0995		µg/L	1	10/23/2018 4:29:34 PM
Surr: 2-Fluorobiphenyl	108	46.7 - 140		%Rec	1	10/23/2018 4:29:34 PM
Surr: Terphenyl-d14	88.6	20.8 - 124		%Rec	1	10/23/2018 4:29:34 PM

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 22301 Analyst: TN

Naphthalene	ND	1.00		µg/L	1	10/16/2018 11:06:00 AM
Surr: Dibromofluoromethane	90.7	45.4 - 152		%Rec	1	10/16/2018 11:06:00 AM
Surr: Toluene-d8	90.6	40.1 - 139		%Rec	1	10/16/2018 11:06:00 AM
Surr: 1-Bromo-4-fluorobenzene	113	64.2 - 128		%Rec	1	10/16/2018 11:06:00 AM



Client: Environmental Partners, Inc.
Project: Mossman
Lab ID: 1810270-008
Client Sample ID: Dup-1

Collection Date: 10/12/2018
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 22299 Analyst: SB

Diesel (Fuel Oil)	ND	49.8		µg/L	1	10/16/2018 10:35:44 PM
Diesel Range Organics (C12-C24)	623	49.8		µg/L	1	10/16/2018 10:35:44 PM
Heavy Oil	ND	99.7		µg/L	1	10/16/2018 10:35:44 PM
Surr: 2-Fluorobiphenyl	92.9	50 - 150		%Rec	1	10/16/2018 10:35:44 PM
Surr: o-Terphenyl	96.6	50 - 150		%Rec	1	10/16/2018 10:35:44 PM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (~C12-C24).

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 22301 Analyst: TN

Naphthalene	ND	1.00		µg/L	1	10/16/2018 2:40:00 AM
Surr: Dibromofluoromethane	96.2	45.4 - 152		%Rec	1	10/16/2018 2:40:00 AM
Surr: Toluene-d8	96.5	40.1 - 139		%Rec	1	10/16/2018 2:40:00 AM
Surr: 1-Bromo-4-fluorobenzene	98.5	64.2 - 128		%Rec	1	10/16/2018 2:40:00 AM

Work Order: 1810270
CLIENT: Environmental Partners, Inc.
Project: Mossman

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID MB-22299	SampType: MBLK	Units: µg/L	Prep Date: 10/15/2018	RunNo: 46954							
Client ID: MBLKW	Batch ID: 22299		Analysis Date: 10/16/2018	SeqNo: 913286							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	49.7									
Heavy Oil	ND	99.4									
Surr: 2-Fluorobiphenyl	62.9		79.54		79.0	50	150				
Surr: o-Terphenyl	69.1		79.54		86.8	50	150				

Sample ID LCS-22299	SampType: LCS	Units: µg/L	Prep Date: 10/15/2018	RunNo: 46954							
Client ID: LCSW	Batch ID: 22299		Analysis Date: 10/16/2018	SeqNo: 913287							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	690	49.7	994.9	0	69.4	65	135				
Surr: 2-Fluorobiphenyl	64.4		79.59		80.9	50	150				
Surr: o-Terphenyl	65.0		79.59		81.6	50	150				

Sample ID 1810261-001CDUP	SampType: DUP	Units: µg/L	Prep Date: 10/15/2018	RunNo: 46954							
Client ID: BATCH	Batch ID: 22299		Analysis Date: 10/16/2018	SeqNo: 913622							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	49.9						0		30	
Heavy Oil	ND	99.8						0		30	
Surr: 2-Fluorobiphenyl	69.7		79.87		87.3	50	150		0		
Surr: o-Terphenyl	75.6		79.87		94.7	50	150		0		

Sample ID 1810270-001BMS	SampType: MS	Units: µg/L	Prep Date: 10/15/2018	RunNo: 46954							
Client ID: MW-7	Batch ID: 22299		Analysis Date: 10/16/2018	SeqNo: 913624							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	727	49.9	997.7	21.18	70.7	65	135				
Surr: 2-Fluorobiphenyl	74.1		79.81		92.9	50	150				
Surr: o-Terphenyl	69.4		79.81		87.0	50	150				

Work Order: 1810270
 CLIENT: Environmental Partners, Inc.
 Project: Mossman

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID	1810270-001BMS	SampType:	MS	Units:	µg/L	Prep Date:	10/15/2018	RunNo:	46954				
Client ID:	MW-7	Batch ID:	22299			Analysis Date:	10/16/2018	SeqNo:	913624				
Analyte		Result		RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	1810270-001BMSD	SampType:	MSD	Units:	µg/L	Prep Date:	10/15/2018	RunNo:	46954				
Client ID:	MW-7	Batch ID:	22299			Analysis Date:	10/16/2018	SeqNo:	913625				
Analyte		Result		RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)		730		49.8	996.8	21.18	71.1	65	135	726.8	0.366	30	
Surr: 2-Fluorobiphenyl		70.2			79.74		88.0	50	150		0		
Surr: o-Terphenyl		64.9			79.74		81.4	50	150		0		

Sample ID	1810272-004BDUP	SampType:	DUP	Units:	µg/L	Prep Date:	10/15/2018	RunNo:	46954				
Client ID:	BATCH	Batch ID:	22299			Analysis Date:	10/17/2018	SeqNo:	913638				
Analyte		Result		RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)		ND		49.9						0		30	
Diesel Range Organics (C12-C24)		36,600		49.9						40,150	9.17	30	E
Heavy Oil		ND		99.7						0		30	
Surr: 2-Fluorobiphenyl		108			79.79		135	50	150		0		
Surr: o-Terphenyl		65.0			79.79		81.5	50	150		0		

NOTES:

NWTPH-DX method requires all detections to be reported. The detection of Diesel does not resemble any known petroleum distillate. The chromatographic pattern is of several peaks observed in the Diesel range.

E - Estimated value. The amount exceeds the linear working range of the instrument.

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (~C12-C24).

Work Order: 1810270
 CLIENT: Environmental Partners, Inc.
 Project: Mossman

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID	MB-22343	SampType:	MBLK	Units:	µg/L	Prep Date:	10/19/2018	RunNo:	47098		
Client ID:	MBLKW	Batch ID:	22343			Analysis Date:	10/23/2018	SeqNo:	916188		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	0.0999									
2-Methylnaphthalene	ND	0.0999									
1-Methylnaphthalene	ND	0.0999									
Surr: 2-Fluorobiphenyl	2.24		1.998		112	46.7	140				
Surr: Terphenyl-d14	2.25		1.998		113	20.8	124				

Sample ID	LCS-22343	SampType:	LCS	Units:	µg/L	Prep Date:	10/19/2018	RunNo:	47098		
Client ID:	LCSW	Batch ID:	22343			Analysis Date:	10/23/2018	SeqNo:	916189		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	3.01	0.0999	3.996	0	75.4	30.4	113				
2-Methylnaphthalene	3.06	0.0999	3.996	0	76.5	33.2	126				
1-Methylnaphthalene	3.09	0.0999	3.996	0	77.3	30.2	119				
Surr: 2-Fluorobiphenyl	2.46		1.998		123	46.7	140				
Surr: Terphenyl-d14	2.29		1.998		114	20.8	124				

Sample ID	LCSD-22343	SampType:	LCSD	Units:	µg/L	Prep Date:	10/19/2018	RunNo:	47098		
Client ID:	LCSW02	Batch ID:	22343			Analysis Date:	10/23/2018	SeqNo:	916190		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	2.94	0.0999	3.996	0	73.6	30.4	113	3.012	2.32	30	
2-Methylnaphthalene	2.98	0.0999	3.996	0	74.5	33.2	126	3.058	2.71	30	
1-Methylnaphthalene	3.00	0.0999	3.996	0	75.2	30.2	119	3.087	2.75	30	
Surr: 2-Fluorobiphenyl	2.08		1.998		104	46.7	140		0	0	
Surr: Terphenyl-d14	2.10		1.998		105	20.8	124		0	0	

Work Order: 1810270
CLIENT: Environmental Partners, Inc.
Project: Mossman

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260C

Sample ID	LCS-22301	SampType:	LCS	Units:	µg/L	Prep Date:	10/15/2018	RunNo:	46955		
Client ID:	LCSW	Batch ID:	22301			Analysis Date:	10/15/2018	SeqNo:	913318		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	22.0	1.00	20.00	0	110	41.8	165				
Surr: Dibromofluoromethane	23.8		25.00		95.2	45.4	152				
Surr: Toluene-d8	24.3		25.00		97.2	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	29.5		25.00		118	64.2	128				

Sample ID	LCSD-22301	SampType:	LCSD	Units:	µg/L	Prep Date:	10/15/2018	RunNo:	46955		
Client ID:	LCSW02	Batch ID:	22301			Analysis Date:	10/15/2018	SeqNo:	913319		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	23.4	1.00	20.00	0	117	41.8	165	21.98	6.28	20	
Surr: Dibromofluoromethane	23.9		25.00		95.6	45.4	152		0		
Surr: Toluene-d8	24.2		25.00		96.6	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	29.0		25.00		116	64.2	128		0		

Sample ID	MB-22301	SampType:	MBLK	Units:	µg/L	Prep Date:	10/15/2018	RunNo:	46955		
Client ID:	MBLKW	Batch ID:	22301			Analysis Date:	10/15/2018	SeqNo:	913320		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	ND	1.00									I
Surr: Dibromofluoromethane	25.0		25.00		99.9	45.4	152				
Surr: Toluene-d8	24.7		25.00		98.8	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.7		25.00		103	64.2	128				

NOTES:

I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Sample ID	1810279-001ADUP	SampType:	DUP	Units:	µg/L	Prep Date:	10/15/2018	RunNo:	46955		
Client ID:	BATCH	Batch ID:	22301			Analysis Date:	10/16/2018	SeqNo:	913315		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	ND	1.00						0		30	I
-------------	----	------	--	--	--	--	--	---	--	----	---

Work Order: 1810270
CLIENT: Environmental Partners, Inc.
Project: Mossman

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260C

Sample ID 1810279-001ADUP	SampType: DUP	Units: µg/L			Prep Date: 10/15/2018	RunNo: 46955					
Client ID: BATCH	Batch ID: 22301				Analysis Date: 10/16/2018	SeqNo: 913315					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: Dibromofluoromethane	24.6		25.00		98.3	45.4	152		0		
Surr: Toluene-d8	25.5		25.00		102	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	23.4		25.00		93.6	64.2	128		0		

NOTES:

I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Sample ID 1810270-008ADUP	SampType: DUP	Units: µg/L			Prep Date: 10/15/2018	RunNo: 46955					
Client ID: Dup-1	Batch ID: 22301				Analysis Date: 10/16/2018	SeqNo: 913313					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	ND	1.00						0		30	
Surr: Dibromofluoromethane	23.9		25.00		95.8	45.4	152		0		
Surr: Toluene-d8	24.2		25.00		96.7	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	26.0		25.00		104	64.2	128		0		

Client Name: **EPI**

 Work Order Number: **1810270**

 Logged by: **Clare Griggs**

 Date Received: **10/12/2018 3:29:00 PM**

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
2. How was the sample delivered? Client

Log In

3. Coolers are present? Yes No NA
4. Shipping container/cooler in good condition? Yes No
5. Custody Seals present on shipping container/cooler?
(Refer to comments for Custody Seals not intact) Yes No Not Required
6. Was an attempt made to cool the samples? Yes No NA
7. Were all items received at a temperature of >0°C to 10.0°C * Yes No NA
- Refer to item information.
8. Sample(s) in proper container(s)? Yes No
9. Sufficient sample volume for indicated test(s)? Yes No
10. Are samples properly preserved? Yes No
11. Was preservative added to bottles? Yes No NA
12. Is there headspace in the VOA vials? Yes No NA
13. Did all samples containers arrive in good condition(unbroken)? Yes No
14. Does paperwork match bottle labels? Yes No
15. Are matrices correctly identified on Chain of Custody? Yes No
16. Is it clear what analyses were requested? Yes No
17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler 1	4.8
Cooler 2	3.5
Sample 1	11.2
Sample 2	12.3
Temp Blank 2	12.8

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



Client Name: **EPI**
Logged by: **Clare Griggs**

Work Order Number: **1810270**
Date Received: **10/12/2018 3:29:00 PM**

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 10/12/18 Page: 1 of 1

Project Name: Mossman

Project No: 65201

Collected by: J. Shernid

Location: Sammamish, WA

Report to (PM): Sean Trimble / Joe Shernid

PM Email: sean@epi-wa.com joes@epi-wa.com

Laboratory Project No (Internal): 1810270

Special Remarks:
Add analysis per S.I. 10/19/18
1-Methylnaphthalene,
2-Methylnaphthalene, and
Naphthalene. VMS

Sample Disposal: Return to client Disposal by lab (after 30 days)

Client: EPI
Address: 1180 NW Maple St.
City, State, zip: Issaquah, WA, 98027
Telephone: 425-395-0016
Fax:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOCs (EPA 8260 / 624)	GV/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) Dissolved (D)	Anions (IC)***	EDB (8011)	Naphthalenes by GLE	Comments
1 MW-7	10/12	0853	W				X											
2 MW-5		0942					X											
3 MW-1		1019					X											
4 MW-8		1059					X											
5 MW-6		1145					X											
6 MW-3		1328					X											
7 MW-4		1410					X											
8 Dup-1							X											
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water
 **Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl Ti U V Zn
 ***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished: [Signature] Date/Time: 10/12/18 1529
 Received: [Signature] Date/Time: 10/12/18 1529

Turn-around Time:
 Standard
 3 Day
 2 Day
 Next Day
 Same Day (specify) _____

www.fremontanalytical.com



3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

TRC

Sean Trimble
1180 NW Maple St. Ste 310
Issaquah, WA 98074

RE: Mossman

Work Order Number: 2001434

January 31, 2020

Attention Sean Trimble:

Fremont Analytical, Inc. received 8 sample(s) on 1/24/2020 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Volatile Organic Compounds by EPA Method 8260D

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

CC:
Joe Sherrod



Date: 01/31/2020

CLIENT: TRC
Project: Mossman
Work Order: 2001434

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2001434-001	MW-1	01/23/2020 10:40 AM	01/24/2020 3:35 PM
2001434-002	MW-4	01/23/2020 11:16 AM	01/24/2020 3:35 PM
2001434-003	MW-6	01/23/2020 11:40 AM	01/24/2020 3:35 PM
2001434-004	MW-3	01/23/2020 12:03 PM	01/24/2020 3:35 PM
2001434-005	MW-8	01/23/2020 12:35 PM	01/24/2020 3:35 PM
2001434-006	MW-7	01/23/2020 12:40 PM	01/24/2020 3:35 PM
2001434-007	Dup-1	01/23/2020 12:00 AM	01/24/2020 3:35 PM
2001434-008	Trip Blank	01/21/2020 4:48 PM	01/24/2020 3:35 PM

CLIENT: TRC
Project: Mossman

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

- * - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



Client: TRC

Collection Date: 1/23/2020 10:40:00 AM

Project: Mossman

Lab ID: 2001434-001

Matrix: Water

Client Sample ID: MW-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 27291

Analyst: DW

Diesel (Fuel Oil)	ND	49.5		µg/L	1	1/30/2020 7:05:25 PM
Diesel Range Organics (C12-C24)	651	49.5		µg/L	1	1/30/2020 7:05:25 PM
Heavy Oil	ND	99.1		µg/L	1	1/30/2020 7:05:25 PM
Surr: 2-Fluorobiphenyl	68.8	50 - 150		%Rec	1	1/30/2020 7:05:25 PM
Surr: o-Terphenyl	66.6	50 - 150		%Rec	1	1/30/2020 7:05:25 PM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (~C12-C24).

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 27276

Analyst: KT

Naphthalene	ND	1.00		µg/L	1	1/28/2020 1:54:19 PM
Surr: Dibromofluoromethane	100	81.1 - 118		%Rec	1	1/28/2020 1:54:19 PM
Surr: Toluene-d8	101	85.7 - 113		%Rec	1	1/28/2020 1:54:19 PM
Surr: 1-Bromo-4-fluorobenzene	98.2	84.2 - 111		%Rec	1	1/28/2020 1:54:19 PM



Client: TRC

Collection Date: 1/23/2020 11:16:00 AM

Project: Mossman

Lab ID: 2001434-002

Matrix: Water

Client Sample ID: MW-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 27291

Analyst: DW

Diesel (Fuel Oil)	ND	49.8		µg/L	1	1/30/2020 8:05:40 PM
Diesel Range Organics (C12-C24)	115	49.8		µg/L	1	1/30/2020 8:05:40 PM
Heavy Oil	ND	99.6		µg/L	1	1/30/2020 8:05:40 PM
Surr: 2-Fluorobiphenyl	72.4	50 - 150		%Rec	1	1/30/2020 8:05:40 PM
Surr: o-Terphenyl	73.8	50 - 150		%Rec	1	1/30/2020 8:05:40 PM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (~C12-C24).

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 27279

Analyst: SB

Naphthalene	ND	0.0999		µg/L	1	1/30/2020 3:33:59 PM
2-Methylnaphthalene	ND	0.0999		µg/L	1	1/30/2020 3:33:59 PM
1-Methylnaphthalene	ND	0.0999		µg/L	1	1/30/2020 3:33:59 PM
Surr: 2-Fluorobiphenyl	87.1	42.6 - 159		%Rec	1	1/30/2020 3:33:59 PM
Surr: Terphenyl-d14	83.3	8.99 - 147		%Rec	1	1/30/2020 3:33:59 PM

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 27276

Analyst: KT

Naphthalene	ND	1.00		µg/L	1	1/28/2020 2:54:56 PM
Surr: Dibromofluoromethane	98.4	81.1 - 118		%Rec	1	1/28/2020 2:54:56 PM
Surr: Toluene-d8	100	85.7 - 113		%Rec	1	1/28/2020 2:54:56 PM
Surr: 1-Bromo-4-fluorobenzene	98.4	84.2 - 111		%Rec	1	1/28/2020 2:54:56 PM



Client: TRC

Collection Date: 1/23/2020 11:40:00 AM

Project: Mossman

Lab ID: 2001434-003

Matrix: Water

Client Sample ID: MW-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 27291

Analyst: DW

Diesel (Fuel Oil)	ND	49.9		µg/L	1	1/30/2020 8:35:50 PM
Diesel Range Organics (C12-C24)	60.6	49.9		µg/L	1	1/30/2020 8:35:50 PM
Heavy Oil	ND	99.9		µg/L	1	1/30/2020 8:35:50 PM
Surr: 2-Fluorobiphenyl	71.5	50 - 150		%Rec	1	1/30/2020 8:35:50 PM
Surr: o-Terphenyl	72.5	50 - 150		%Rec	1	1/30/2020 8:35:50 PM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (~C12-C24).

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 27276

Analyst: KT

Naphthalene	ND	1.00		µg/L	1	1/28/2020 3:25:03 PM
Surr: Dibromofluoromethane	98.9	81.1 - 118		%Rec	1	1/28/2020 3:25:03 PM
Surr: Toluene-d8	101	85.7 - 113		%Rec	1	1/28/2020 3:25:03 PM
Surr: 1-Bromo-4-fluorobenzene	98.4	84.2 - 111		%Rec	1	1/28/2020 3:25:03 PM



Client: TRC
Project: Mossman
Lab ID: 2001434-004
Client Sample ID: MW-3

Collection Date: 1/23/2020 12:03:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 27302 Analyst: DW

Diesel (Fuel Oil)	ND	49.9		µg/L	1	1/31/2020 12:33:58 PM
Diesel Range Organics (C12-C24)	425	49.9		µg/L	1	1/31/2020 12:33:58 PM
Heavy Oil	ND	99.9		µg/L	1	1/31/2020 12:33:58 PM
Surr: 2-Fluorobiphenyl	79.9	50 - 150		%Rec	1	1/31/2020 12:33:58 PM
Surr: o-Terphenyl	77.1	50 - 150		%Rec	1	1/31/2020 12:33:58 PM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (~C12-C24).

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 27279 Analyst: SB

Naphthalene	ND	0.0993		µg/L	1	1/30/2020 3:55:09 PM
2-Methylnaphthalene	ND	0.0993		µg/L	1	1/30/2020 3:55:09 PM
1-Methylnaphthalene	0.145	0.0993		µg/L	1	1/30/2020 3:55:09 PM
Surr: 2-Fluorobiphenyl	90.6	42.6 - 159		%Rec	1	1/30/2020 3:55:09 PM
Surr: Terphenyl-d14	66.6	8.99 - 147		%Rec	1	1/30/2020 3:55:09 PM

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 27276 Analyst: KT

Naphthalene	ND	1.00		µg/L	1	1/28/2020 3:55:20 PM
Surr: Dibromofluoromethane	100	81.1 - 118		%Rec	1	1/28/2020 3:55:20 PM
Surr: Toluene-d8	102	85.7 - 113		%Rec	1	1/28/2020 3:55:20 PM
Surr: 1-Bromo-4-fluorobenzene	94.3	84.2 - 111		%Rec	1	1/28/2020 3:55:20 PM



Client: TRC
Project: Mossman
Lab ID: 2001434-005
Client Sample ID: MW-8

Collection Date: 1/23/2020 12:35:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 27291 Analyst: DW

Diesel (Fuel Oil)	ND	49.5		µg/L	1	1/30/2020 9:36:02 PM
Heavy Oil	ND	99.1		µg/L	1	1/30/2020 9:36:02 PM
Surr: 2-Fluorobiphenyl	61.7	50 - 150		%Rec	1	1/30/2020 9:36:02 PM
Surr: o-Terphenyl	64.5	50 - 150		%Rec	1	1/30/2020 9:36:02 PM

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 27276 Analyst: KT

Naphthalene	ND	1.00		µg/L	1	1/28/2020 4:25:43 PM
Surr: Dibromofluoromethane	99.1	81.1 - 118		%Rec	1	1/28/2020 4:25:43 PM
Surr: Toluene-d8	101	85.7 - 113		%Rec	1	1/28/2020 4:25:43 PM
Surr: 1-Bromo-4-fluorobenzene	99.5	84.2 - 111		%Rec	1	1/28/2020 4:25:43 PM



Client: TRC
Project: Mossman
Lab ID: 2001434-006
Client Sample ID: MW-7

Collection Date: 1/23/2020 12:40:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 27291 Analyst: DW

Diesel (Fuel Oil)	ND	49.5		µg/L	1	1/30/2020 10:05:57 PM
Heavy Oil	ND	98.9		µg/L	1	1/30/2020 10:05:57 PM
Surr: 2-Fluorobiphenyl	65.3	50 - 150		%Rec	1	1/30/2020 10:05:57 PM
Surr: o-Terphenyl	69.8	50 - 150		%Rec	1	1/30/2020 10:05:57 PM

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 27276 Analyst: KT

Naphthalene	ND	1.00		µg/L	1	1/28/2020 4:55:58 PM
Surr: Dibromofluoromethane	100	81.1 - 118		%Rec	1	1/28/2020 4:55:58 PM
Surr: Toluene-d8	101	85.7 - 113		%Rec	1	1/28/2020 4:55:58 PM
Surr: 1-Bromo-4-fluorobenzene	93.2	84.2 - 111		%Rec	1	1/28/2020 4:55:58 PM



Client: TRC

Collection Date: 1/23/2020

Project: Mossman

Lab ID: 2001434-007

Matrix: Water

Client Sample ID: Dup-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 27291

Analyst: DW

Diesel (Fuel Oil)	ND	49.8		µg/L	1	1/30/2020 10:36:09 PM
Diesel Range Organics (C12-C24)	96.9	49.8		µg/L	1	1/30/2020 10:36:09 PM
Heavy Oil	ND	99.5		µg/L	1	1/30/2020 10:36:09 PM
Surr: 2-Fluorobiphenyl	56.1	50 - 150		%Rec	1	1/30/2020 10:36:09 PM
Surr: o-Terphenyl	64.4	50 - 150		%Rec	1	1/30/2020 10:36:09 PM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (~C12-C24).

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 27276

Analyst: KT

Naphthalene	ND	1.00		µg/L	1	1/28/2020 5:26:18 PM
Surr: Dibromofluoromethane	99.7	81.1 - 118		%Rec	1	1/28/2020 5:26:18 PM
Surr: Toluene-d8	102	85.7 - 113		%Rec	1	1/28/2020 5:26:18 PM
Surr: 1-Bromo-4-fluorobenzene	98.7	84.2 - 111		%Rec	1	1/28/2020 5:26:18 PM

Work Order: 2001434

CLIENT: TRC

Project: Mossman

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: MB-27302	SampType: MBLK	Units: µg/L				Prep Date: 1/30/2020	RunNo: 57005				
Client ID: MBLKW	Batch ID: 27302					Analysis Date: 1/31/2020	SeqNo: 1137460				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	49.9									
Heavy Oil	ND	99.8									
Surr: 2-Fluorobiphenyl	59.6		79.85		74.6	50	150				
Surr: o-Terphenyl	63.4		79.85		79.4	50	150				

Sample ID: LCS-27302	SampType: LCS	Units: µg/L				Prep Date: 1/30/2020	RunNo: 57005				
Client ID: LCSW	Batch ID: 27302					Analysis Date: 1/31/2020	SeqNo: 1137461				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	778	49.6	993.0	0	78.4	65	135				
Surr: 2-Fluorobiphenyl	63.7		79.44		80.2	50	150				
Surr: o-Terphenyl	61.9		79.44		78.0	50	150				

Sample ID: LCS-27302	SampType: LCS	Units: µg/L				Prep Date: 1/30/2020	RunNo: 57005				
Client ID: LCSW02	Batch ID: 27302					Analysis Date: 1/31/2020	SeqNo: 1137462				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	754	49.7	993.4	0	75.9	65	135	778.1	3.09	30	
Surr: 2-Fluorobiphenyl	59.9		79.48		75.4	50	150		0		
Surr: o-Terphenyl	59.1		79.48		74.4	50	150		0		

Sample ID: 2001450-001BDUP	SampType: DUP	Units: µg/L				Prep Date: 1/30/2020	RunNo: 57005				
Client ID: BATCH	Batch ID: 27302					Analysis Date: 1/31/2020	SeqNo: 1137500				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	49.9						0		30	
Heavy Oil	ND	99.8						0		30	
Surr: 2-Fluorobiphenyl	52.2		79.82		65.4	50	150		0		
Surr: o-Terphenyl	49.2		79.82		61.7	50	150		0		



Work Order: 2001434

CLIENT: TRC

Project: Mossman

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: 2001450-001BDUP	SampType: DUP	Units: µg/L	Prep Date: 1/30/2020	RunNo: 57005							
Client ID: BATCH	Batch ID: 27302	Analysis Date: 1/31/2020	SeqNo: 1137500								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Work Order: 2001434

CLIENT: TRC

Project: Mossman

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: MB-27291	SampType: MBLK	Units: µg/L				Prep Date: 1/29/2020	RunNo: 57027				
Client ID: MBLKW	Batch ID: 27291					Analysis Date: 1/30/2020	SeqNo: 1137183				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	49.9									
Heavy Oil	ND	99.8									
Surr: 2-Fluorobiphenyl	43.1		79.81		54.0	50	150				
Surr: o-Terphenyl	55.2		79.81		69.2	50	150				

Sample ID: LCS-27291	SampType: LCS	Units: µg/L				Prep Date: 1/29/2020	RunNo: 57027				
Client ID: LCSW	Batch ID: 27291					Analysis Date: 1/30/2020	SeqNo: 1137184				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	694	49.7	993.4	0	69.9	65	135				
Surr: 2-Fluorobiphenyl	52.8		79.47		66.4	50	150				
Surr: o-Terphenyl	55.4		79.47		69.7	50	150				

Sample ID: LCS-27291	SampType: LCS	Units: µg/L				Prep Date: 1/29/2020	RunNo: 57027				
Client ID: LCSW02	Batch ID: 27291					Analysis Date: 1/30/2020	SeqNo: 1137185				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	728	50.0	999.2	0	72.8	65	135	694.0	4.75	30	
Surr: 2-Fluorobiphenyl	61.6		79.94		77.0	50	150		0		
Surr: o-Terphenyl	60.5		79.94		75.7	50	150		0		

Sample ID: 2001434-001BDUP	SampType: DUP	Units: µg/L				Prep Date: 1/29/2020	RunNo: 57027				
Client ID: MW-1	Batch ID: 27291					Analysis Date: 1/30/2020	SeqNo: 1137187				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	49.9						650.9	15.4	30	
Diesel Range Organics (C12-C24)	759	49.9						650.9	15.4	30	
Heavy Oil	ND	99.9						0		30	
Surr: 2-Fluorobiphenyl	62.0		79.91		77.6	50	150		0		

Work Order: 2001434

CLIENT: TRC

Project: Mossman

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: 2001434-001BDUP	SampType: DUP	Units: µg/L	Prep Date: 1/29/2020	RunNo: 57027							
Client ID: MW-1	Batch ID: 27291	Analysis Date: 1/30/2020	SeqNo: 1137187								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: o-Terphenyl	58.2		79.91		72.8	50	150			0	

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (~C12-C24).

Work Order: 2001434

CLIENT: TRC

Project: Mossman

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: MB-27279	SampType: MBLK	Units: µg/L	Prep Date: 1/28/2020	RunNo: 57024							
Client ID: MBLKW	Batch ID: 27279		Analysis Date: 1/30/2020	SeqNo: 1137138							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	0.100									
2-Methylnaphthalene	ND	0.100									
1-Methylnaphthalene	ND	0.100									
Surr: 2-Fluorobiphenyl	1.63		2.001		81.4	42.6	159				
Surr: Terphenyl-d14	2.15		2.001		107	8.99	147				

Sample ID: LCS-27279	SampType: LCS	Units: µg/L	Prep Date: 1/28/2020	RunNo: 57024							
Client ID: LCSW	Batch ID: 27279		Analysis Date: 1/30/2020	SeqNo: 1137139							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	3.11	0.0996	3.986	0	78.1	50.6	120				
2-Methylnaphthalene	3.35	0.0996	3.986	0	84.0	54.8	128				
1-Methylnaphthalene	3.38	0.0996	3.986	0	84.7	52.4	129				
Surr: 2-Fluorobiphenyl	1.66		1.993		83.5	42.6	159				
Surr: Terphenyl-d14	1.61		1.993		81.0	8.99	147				

Sample ID: LCS-27279	SampType: LCS	Units: µg/L	Prep Date: 1/28/2020	RunNo: 57024							
Client ID: LCSW02	Batch ID: 27279		Analysis Date: 1/30/2020	SeqNo: 1137140							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	3.09	0.0978	3.912	0	78.9	50.6	120	3.113	0.870	30	
2-Methylnaphthalene	3.32	0.0978	3.912	0	84.8	54.8	128	3.350	0.935	30	
1-Methylnaphthalene	3.33	0.0978	3.912	0	85.0	52.4	129	3.377	1.51	30	
Surr: 2-Fluorobiphenyl	1.66		1.956		84.8	42.6	159		0	0	
Surr: Terphenyl-d14	1.73		1.956		88.6	8.99	147		0	0	

Work Order: 2001434

CLIENT: TRC

Project: Mossman

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 2001375-001CDUP	SampType: DUP	Units: µg/L	Prep Date: 1/29/2020	RunNo: 57024							
Client ID: BATCH	Batch ID: 27279	Analysis Date: 1/30/2020	SeqNo: 1137142								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	0.0993						0		30	
2-Methylnaphthalene	ND	0.0993						0		30	
1-Methylnaphthalene	ND	0.0993						0		30	
Surr: 2-Fluorobiphenyl	1.70		1.986		85.4	42.6	159		0		
Surr: Terphenyl-d14	1.93		1.986		97.1	8.99	147		0		

Work Order: 2001434

CLIENT: TRC

Project: Mossman

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: LCS-27276	SampType: LCS	Units: µg/L				Prep Date: 1/28/2020	RunNo: 57001				
Client ID: LCSW	Batch ID: 27276					Analysis Date: 1/28/2020	SeqNo: 1136541				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene
 Surr: Dibromofluoromethane
 Surr: Toluene-d8
 Surr: 1-Bromo-4-fluorobenzene

20.2
24.8
24.9
25.7

1.00

20.00
25.00
25.00
25.00

0

101
99.4
99.6
103

54.7
81.1
85.7
84.2

151
118
113
111

Sample ID: LCS-27276	SampType: LCS	Units: µg/L				Prep Date: 1/28/2020	RunNo: 57001				
Client ID: LCSW02	Batch ID: 27276					Analysis Date: 1/28/2020	SeqNo: 1136542				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene
 Surr: Dibromofluoromethane
 Surr: Toluene-d8
 Surr: 1-Bromo-4-fluorobenzene

21.9
24.8
24.7
25.7

1.00

20.00
25.00
25.00
25.00

0

110
99.0
98.9
103

54.7
81.1
85.7
84.2

151
118
113
111

20.21

8.14
0
0
0

20

Sample ID: MB-27276	SampType: MBLK	Units: µg/L				Prep Date: 1/28/2020	RunNo: 57001				
Client ID: MBLKW	Batch ID: 27276					Analysis Date: 1/28/2020	SeqNo: 1136543				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene
 Surr: Dibromofluoromethane
 Surr: Toluene-d8
 Surr: 1-Bromo-4-fluorobenzene

ND
25.1
25.3
24.7

1.00

25.00
25.00
25.00

100
101
98.8

81.1
85.7
84.2

118
113
111

Sample ID: 2001434-001ADUP	SampType: DUP	Units: µg/L				Prep Date: 1/28/2020	RunNo: 57001				
Client ID: MW-1	Batch ID: 27276					Analysis Date: 1/28/2020	SeqNo: 1136518				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene
 Surr: Dibromofluoromethane

ND
25.2

1.00

25.00

101

81.1
118

0
0

30

Work Order: 2001434

CLIENT: TRC

Project: Mossman

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: 2001434-001ADUP	SampType: DUP	Units: µg/L			Prep Date: 1/28/2020	RunNo: 57001					
Client ID: MW-1	Batch ID: 27276				Analysis Date: 1/28/2020	SeqNo: 1136518					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: Toluene-d8	25.1		25.00		100	85.7	113		0		
Surr: 1-Bromo-4-fluorobenzene	24.7		25.00		98.7	84.2	111		0		

Sample ID: 2001438-001ADUP	SampType: DUP	Units: µg/L			Prep Date: 1/28/2020	RunNo: 57001					
Client ID: BATCH	Batch ID: 27276				Analysis Date: 1/28/2020	SeqNo: 1136526					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	ND	1.00						0		30	
Surr: Dibromofluoromethane	25.2		25.00		101	81.1	118		0		
Surr: Toluene-d8	25.6		25.00		102	85.7	113		0		
Surr: 1-Bromo-4-fluorobenzene	23.2		25.00		92.9	84.2	111		0		

Client Name: **TRCI**
 Logged by: **Clare Griggs**

Work Order Number: **2001434**
 Date Received: **1/24/2020 3:35:00 PM**

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
 2. How was the sample delivered? Courier

Log In

3. Coolers are present? Yes No NA
 4. Shipping container/cooler in good condition? Yes No
 5. Custody Seals present on shipping container/cooler?
 (Refer to comments for Custody Seals not intact) Yes No Not Required
 6. Was an attempt made to cool the samples? Yes No NA
 7. Were all items received at a temperature of >0°C to 10.0°C* Yes No NA
 8. Sample(s) in proper container(s)? Yes No
 9. Sufficient sample volume for indicated test(s)? Yes No
 10. Are samples properly preserved? Yes No
 11. Was preservative added to bottles? Yes No NA
 12. Is there headspace in the VOA vials? Yes No NA
 13. Did all samples containers arrive in good condition(unbroken)? Yes No
 14. Does paperwork match bottle labels? Yes No
 15. Are matrices correctly identified on Chain of Custody? Yes No
 16. Is it clear what analyses were requested? Yes No
 17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text" value="Sean Trimble"/>	Date:	<input type="text" value="1/24/2020"/>
By Whom:	<input type="text" value="Clare Griggs"/>	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="Confirming COC/methods."/>		
Client Instructions:	<input type="text" value="See revised COC."/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler 1	8.4
Cooler 2	5.6
Sample 1	8.6
Sample 2	7.3
Temp Blank 1	1.4

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



Client Name: **TRCI**
Logged by: **Clare Griggs**

Work Order Number: **2001434**
Date Received: **1/24/2020 3:35:00 PM**

Item #	Temp °C
Temp Blank 2	7.3

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

G-Logics

Jon Stordahl
40 Second Ave. SE
Issaquah, WA 98027

RE: Mossman

Work Order Number: 2005187

June 03, 2020

Attention Jon Stordahl:

Fremont Analytical, Inc. received 25 sample(s) on 5/15/2020 for the analyses presented in the following report.

***Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Sample Moisture (Percent Moisture)
Volatile Petroleum Hydrocarbons by NWVPH***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

CLIENT: G-Logics
Project: Mossman
Work Order: 2005187

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2005187-001	MW-9-4	05/14/2020 8:50 AM	05/15/2020 10:50 AM
2005187-002	MW-9-7	05/14/2020 9:15 AM	05/15/2020 10:50 AM
2005187-003	MW-9-10	05/14/2020 9:20 AM	05/15/2020 10:50 AM
2005187-004	GB-1-4	05/14/2020 10:00 AM	05/15/2020 10:50 AM
2005187-005	GB-1-6	05/14/2020 10:10 AM	05/15/2020 10:50 AM
2005187-006	GB-1-7	05/14/2020 10:15 AM	05/15/2020 10:50 AM
2005187-007	GB-1-9	05/14/2020 10:20 AM	05/15/2020 10:50 AM
2005187-008	GB-2-4	05/14/2020 10:25 AM	05/15/2020 10:50 AM
2005187-009	GB-2-7	05/14/2020 10:45 AM	05/15/2020 10:50 AM
2005187-010	GB-2-9	05/14/2020 10:50 AM	05/15/2020 10:50 AM
2005187-011	GB-3-2	05/14/2020 11:10 AM	05/15/2020 10:50 AM
2005187-012	GB-3-4	05/14/2020 11:00 AM	05/15/2020 10:50 AM
2005187-013	GB-3-6	05/14/2020 11:20 AM	05/15/2020 10:50 AM
2005187-014	GB-3-8	05/14/2020 11:25 AM	05/15/2020 10:50 AM
2005187-015	GB-4-2	05/14/2020 11:45 AM	05/15/2020 10:50 AM
2005187-016	GB-4-4	05/14/2020 11:40 AM	05/15/2020 10:50 AM
2005187-017	GB-4-8	05/14/2020 12:10 PM	05/15/2020 10:50 AM
2005187-018	GB-5-4	05/14/2020 12:30 PM	05/15/2020 10:50 AM
2005187-019	GB-5-7	05/14/2020 12:45 PM	05/15/2020 10:50 AM
2005187-020	GB-6-1	05/14/2020 12:50 PM	05/15/2020 10:50 AM
2005187-021	GB-6-4	05/14/2020 12:55 PM	05/15/2020 10:50 AM
2005187-022	GB-6-6	05/14/2020 1:00 PM	05/15/2020 10:50 AM
2005187-023	GB-7-6	05/14/2020 2:05 PM	05/15/2020 10:50 AM
2005187-024	GB-7-8	05/14/2020 2:00 PM	05/15/2020 10:50 AM
2005187-025	GB-7-9	05/14/2020 2:15 PM	05/15/2020 10:50 AM

CLIENT: G-Logics

Project: Mossman

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

6/3/2020: Revision 1 includes additional analysis requested by client.

Qualifiers:

- * - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



Client: G-Logics

Collection Date: 5/14/2020 9:15:00 AM

Project: Mossman

Lab ID: 2005187-002

Matrix: Soil

Client Sample ID: MW-9-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28384

Analyst: DW

Diesel (Fuel Oil)	ND	31.6		mg/Kg-dry	1	5/21/2020 2:57:27 AM
Heavy Oil	ND	79.1		mg/Kg-dry	1	5/21/2020 2:57:27 AM
Heavy Oil Range Organics (C24-37)	180	79.1		mg/Kg-dry	1	5/21/2020 2:57:27 AM
Surr: 2-Fluorobiphenyl	36.0	50 - 150	S	%Rec	1	5/21/2020 2:57:27 AM
Surr: o-Terphenyl	36.4	50 - 150	S	%Rec	1	5/21/2020 2:57:27 AM

NOTES:

S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Heavy Oil Range Organics - Indicates unresolved compounds in the Oil range inconsistent with a known petroleum standard.

Sample Moisture (Percent Moisture)

Batch ID: R59252

Analyst: EH

Percent Moisture	43.1	0.500		wt%	1	5/19/2020 12:14:02 PM
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Client: G-Logics

Collection Date: 5/14/2020 9:20:00 AM

Project: Mossman

Lab ID: 2005187-003

Matrix: Soil

Client Sample ID: MW-9-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>				Batch ID: 28384		Analyst: DW
Diesel (Fuel Oil)	ND	21.6		mg/Kg-dry	1	5/21/2020 4:56:12 AM
Heavy Oil	ND	54.0		mg/Kg-dry	1	5/21/2020 4:56:12 AM
Surr: 2-Fluorobiphenyl	101	50 - 150		%Rec	1	5/21/2020 4:56:12 AM
Surr: o-Terphenyl	103	50 - 150		%Rec	1	5/21/2020 4:56:12 AM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R59252		Analyst: EH
Percent Moisture	9.09	0.500		wt%	1	5/19/2020 12:14:02 PM



Client: G-Logics

Collection Date: 5/14/2020 10:15:00 AM

Project: Mossman

Lab ID: 2005187-006

Matrix: Soil

Client Sample ID: GB-1-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28384

Analyst: DW

Diesel (Fuel Oil)	1,540	34.4		mg/Kg-dry	1	5/21/2020 5:25:52 AM
Heavy Oil	ND	85.9		mg/Kg-dry	1	5/21/2020 5:25:52 AM
Heavy Oil Range Organics (C24-37)	174	85.9		mg/Kg-dry	1	5/21/2020 5:25:52 AM
Surr: 2-Fluorobiphenyl	107	50 - 150		%Rec	1	5/21/2020 5:25:52 AM
Surr: o-Terphenyl	114	50 - 150		%Rec	1	5/21/2020 5:25:52 AM

NOTES:

Heavy Oil Range Organics - Indicates unresolved compounds in the Oil range inconsistent with a known petroleum standard.

Sample Moisture (Percent Moisture)

Batch ID: R59252

Analyst: EH

Percent Moisture	43.9	0.500		wt%	1	5/19/2020 12:14:02 PM
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Client: G-Logics
Project: Mossman
Lab ID: 2005187-007
Client Sample ID: GB-1-9

Collection Date: 5/14/2020 10:20:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>				Batch ID: 28384		Analyst: DW
Diesel (Fuel Oil)	947	21.0		mg/Kg-dry	1	5/21/2020 5:55:37 AM
Heavy Oil	ND	52.6		mg/Kg-dry	1	5/21/2020 5:55:37 AM
Surr: 2-Fluorobiphenyl	99.6	50 - 150		%Rec	1	5/21/2020 5:55:37 AM
Surr: o-Terphenyl	104	50 - 150		%Rec	1	5/21/2020 5:55:37 AM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R59252		Analyst: EH
Percent Moisture	14.6	0.500		wt%	1	5/19/2020 12:14:02 PM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-009
Client Sample ID: GB-2-7

Collection Date: 5/14/2020 10:45:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28384 Analyst: DW

Diesel (Fuel Oil)	13,800	547	D	mg/Kg-dry	20	5/21/2020 5:50:27 PM
Heavy Oil	ND	68.3		mg/Kg-dry	1	5/21/2020 6:25:12 AM
Surr: 2-Fluorobiphenyl	103	50 - 150		%Rec	1	5/21/2020 6:25:12 AM
Surr: o-Terphenyl	112	50 - 150		%Rec	1	5/21/2020 6:25:12 AM

Volatile Petroleum Hydrocarbons by NWVPH

Batch ID: 28493 Analyst: CR

Aliphatic Hydrocarbon (C5-C6)	ND	2.57	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Aliphatic Hydrocarbon (C6-C8)	6.08	3.67	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Aliphatic Hydrocarbon (C8-C10)	87.8	2.06	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Aliphatic Hydrocarbon (C10-C12)	306	44.1	DH	mg/Kg-dry	20	6/1/2020 6:51:59 PM
Aromatic Hydrocarbon (C8-C10)	136	4.41	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Benzene	ND	0.881	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Toluene	ND	1.03	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Ethylbenzene	2.81	1.03	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
m,p-Xylene	9.67	1.91	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
o-Xylene	6.59	0.881	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Naphthalene	45.6	0.734	H	mg/Kg-dry	1	6/2/2020 12:29:04 AM
Surr: 1,4-Difluorobenzene	98.4	65 - 140	H	%Rec	1	6/2/2020 12:29:04 AM
Surr: Bromofluorobenzene	120	65 - 140	H	%Rec	1	6/2/2020 12:29:04 AM

Sample Moisture (Percent Moisture)

Batch ID: R59252 Analyst: EH

Percent Moisture	30.1	0.500		wt%	1	5/19/2020 12:14:02 PM
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Client: G-Logics

Collection Date: 5/14/2020 10:50:00 AM

Project: Mossman

Lab ID: 2005187-010

Matrix: Soil

Client Sample ID: GB-2-9

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28384

Analyst: DW

Diesel (Fuel Oil)	7,410	550	D	mg/Kg-dry	10	5/21/2020 6:50:01 PM
Heavy Oil	ND	137		mg/Kg-dry	1	5/21/2020 6:54:55 AM
Heavy Oil Range Organics (C24-37)	178	137		mg/Kg-dry	1	5/21/2020 6:54:55 AM
Surr: 2-Fluorobiphenyl	113	50 - 150		%Rec	1	5/21/2020 6:54:55 AM
Surr: o-Terphenyl	109	50 - 150		%Rec	1	5/21/2020 6:54:55 AM

NOTES:

Heavy Oil Range Organics - Indicates unresolved compounds in the Oil range inconsistent with a known petroleum standard.

Sample Moisture (Percent Moisture)

Batch ID: R59252

Analyst: EH

Percent Moisture	64.9	0.500		wt%	1	5/19/2020 12:14:02 PM
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Client: G-Logics
Project: Mossman
Lab ID: 2005187-012
Client Sample ID: GB-3-4

Collection Date: 5/14/2020 11:00:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>				Batch ID: 28384		Analyst: DW
Diesel (Fuel Oil)	3,740	207	D	mg/Kg-dry	10	5/21/2020 7:19:43 PM
Heavy Oil	ND	51.8		mg/Kg-dry	1	5/21/2020 7:24:36 AM
Surr: 2-Fluorobiphenyl	92.4	50 - 150		%Rec	1	5/21/2020 7:24:36 AM
Surr: o-Terphenyl	113	50 - 150		%Rec	1	5/21/2020 7:24:36 AM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R59252		Analyst: EH
Percent Moisture	7.53	0.500		wt%	1	5/19/2020 12:14:02 PM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-013
Client Sample ID: GB-3-6

Collection Date: 5/14/2020 11:20:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28384	Analyst: DW
Diesel (Fuel Oil)	64.9	19.8		mg/Kg-dry	1	5/21/2020 7:54:15 AM
Heavy Oil	ND	49.5		mg/Kg-dry	1	5/21/2020 7:54:15 AM
Surr: 2-Fluorobiphenyl	109	50 - 150		%Rec	1	5/21/2020 7:54:15 AM
Surr: o-Terphenyl	111	50 - 150		%Rec	1	5/21/2020 7:54:15 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R59252	Analyst: EH
Percent Moisture	8.76	0.500		wt%	1	5/19/2020 12:14:02 PM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-014
Client Sample ID: GB-3-8

Collection Date: 5/14/2020 11:25:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28384	Analyst: DW
Diesel (Fuel Oil)	ND	21.3		mg/Kg-dry	1	5/21/2020 8:23:54 AM
Heavy Oil	ND	53.3		mg/Kg-dry	1	5/21/2020 8:23:54 AM
Surr: 2-Fluorobiphenyl	100	50 - 150		%Rec	1	5/21/2020 8:23:54 AM
Surr: o-Terphenyl	103	50 - 150		%Rec	1	5/21/2020 8:23:54 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R59252	Analyst: EH
Percent Moisture	7.96	0.500		wt%	1	5/19/2020 12:14:02 PM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-015
Client Sample ID: GB-4-2

Collection Date: 5/14/2020 11:45:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28384 Analyst: DW

Diesel (Fuel Oil)	30,900	380	D	mg/Kg-dry	20	5/21/2020 7:49:25 PM
Heavy Oil	ND	47.5		mg/Kg-dry	1	5/21/2020 10:22:49 AM
Surr: 2-Fluorobiphenyl	165	50 - 150	S	%Rec	1	5/21/2020 10:22:49 AM
Surr: o-Terphenyl	97.3	50 - 150		%Rec	1	5/21/2020 10:22:49 AM

NOTES:

S - Outlying surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Volatile Petroleum Hydrocarbons by NWVPH

Batch ID: 28493 Analyst: CR

Aliphatic Hydrocarbon (C5-C6)	ND	2.10	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Aliphatic Hydrocarbon (C6-C8)	ND	3.00	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Aliphatic Hydrocarbon (C8-C10)	ND	1.68	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Aliphatic Hydrocarbon (C10-C12)	35.6	1.80	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Aromatic Hydrocarbon (C8-C10)	ND	3.60	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Benzene	ND	0.719	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Toluene	ND	0.839	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Ethylbenzene	ND	0.839	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
m,p-Xylene	ND	1.56	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
o-Xylene	ND	0.719	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Naphthalene	7.41	0.599	H	mg/Kg-dry	1	6/1/2020 10:22:36 PM
Surr: 1,4-Difluorobenzene	95.4	65 - 140	H	%Rec	1	6/1/2020 10:22:36 PM
Surr: Bromofluorobenzene	102	65 - 140	H	%Rec	1	6/1/2020 10:22:36 PM

Sample Moisture (Percent Moisture)

Batch ID: R59252 Analyst: EH

Percent Moisture	8.69	0.500		wt%	1	5/19/2020 12:14:02 PM
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Client: G-Logics
Project: Mossman
Lab ID: 2005187-016
Client Sample ID: GB-4-4

Collection Date: 5/14/2020 11:40:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28384 Analyst: DW

Diesel (Fuel Oil)	28,900	443	D	mg/Kg-dry	20	5/21/2020 8:19:06 PM
Heavy Oil	ND	55.4		mg/Kg-dry	1	5/21/2020 10:52:44 AM
Surr: 2-Fluorobiphenyl	173	50 - 150	S	%Rec	1	5/21/2020 10:52:44 AM
Surr: o-Terphenyl	152	50 - 150	S	%Rec	1	5/21/2020 10:52:44 AM

NOTES:

S - Outlying surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Sample Moisture (Percent Moisture)

Batch ID: R59252 Analyst: EH

Percent Moisture	11.5	0.500		wt%	1	5/19/2020 12:14:02 PM
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Client: G-Logics
Project: Mossman
Lab ID: 2005187-017
Client Sample ID: GB-4-8

Collection Date: 5/14/2020 12:10:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>				Batch ID: 28384		Analyst: DW
Diesel (Fuel Oil)	ND	21.8		mg/Kg-dry	1	5/21/2020 11:22:31 AM
Heavy Oil	ND	54.5		mg/Kg-dry	1	5/21/2020 11:22:31 AM
Surr: 2-Fluorobiphenyl	104	50 - 150		%Rec	1	5/21/2020 11:22:31 AM
Surr: o-Terphenyl	105	50 - 150		%Rec	1	5/21/2020 11:22:31 AM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R59252		Analyst: EH
Percent Moisture	8.23	0.500		wt%	1	5/19/2020 12:14:02 PM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-018
Client Sample ID: GB-5-4

Collection Date: 5/14/2020 12:30:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28384	Analyst: DW
Diesel (Fuel Oil)	ND	21.7		mg/Kg-dry	1	5/21/2020 11:52:19 AM
Heavy Oil	ND	54.3		mg/Kg-dry	1	5/21/2020 11:52:19 AM
Surr: 2-Fluorobiphenyl	111	50 - 150		%Rec	1	5/21/2020 11:52:19 AM
Surr: o-Terphenyl	113	50 - 150		%Rec	1	5/21/2020 11:52:19 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R59292	Analyst: CJ
Percent Moisture	10.3	0.500		wt%	1	5/21/2020 8:55:29 AM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-020
Client Sample ID: GB-6-1

Collection Date: 5/14/2020 12:50:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>				Batch ID: 28384		Analyst: DW
Diesel (Fuel Oil)	105	23.7		mg/Kg-dry	1	5/21/2020 12:22:13 PM
Heavy Oil	ND	59.4		mg/Kg-dry	1	5/21/2020 12:22:13 PM
Surr: 2-Fluorobiphenyl	104	50 - 150		%Rec	1	5/21/2020 12:22:13 PM
Surr: o-Terphenyl	107	50 - 150		%Rec	1	5/21/2020 12:22:13 PM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R59292		Analyst: CJ
Percent Moisture	20.5	0.500		wt%	1	5/21/2020 8:55:29 AM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-021
Client Sample ID: GB-6-4

Collection Date: 5/14/2020 12:55:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28384	Analyst: DW
Diesel (Fuel Oil)	ND	23.1		mg/Kg-dry	1	5/21/2020 12:52:01 PM
Heavy Oil	ND	57.7		mg/Kg-dry	1	5/21/2020 12:52:01 PM
Surr: 2-Fluorobiphenyl	98.7	50 - 150		%Rec	1	5/21/2020 12:52:01 PM
Surr: o-Terphenyl	101	50 - 150		%Rec	1	5/21/2020 12:52:01 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R59292	Analyst: CJ
Percent Moisture	18.1	0.500		wt%	1	5/21/2020 8:55:29 AM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-023
Client Sample ID: GB-7-6

Collection Date: 5/14/2020 2:05:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>				Batch ID: 28384		Analyst: DW
Diesel (Fuel Oil)	ND	20.5		mg/Kg-dry	1	5/21/2020 1:21:46 PM
Heavy Oil	ND	51.2		mg/Kg-dry	1	5/21/2020 1:21:46 PM
Surr: 2-Fluorobiphenyl	112	50 - 150		%Rec	1	5/21/2020 1:21:46 PM
Surr: o-Terphenyl	114	50 - 150		%Rec	1	5/21/2020 1:21:46 PM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R59292		Analyst: CJ
Percent Moisture	7.79	0.500		wt%	1	5/21/2020 8:55:29 AM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-024
Client Sample ID: GB-7-8

Collection Date: 5/14/2020 2:00:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28384	Analyst: DW
Diesel (Fuel Oil)	1,530	25.2		mg/Kg-dry	1	5/21/2020 1:51:33 PM
Heavy Oil	ND	62.9		mg/Kg-dry	1	5/21/2020 1:51:33 PM
Surr: 2-Fluorobiphenyl	115	50 - 150		%Rec	1	5/21/2020 1:51:33 PM
Surr: o-Terphenyl	118	50 - 150		%Rec	1	5/21/2020 1:51:33 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R59292	Analyst: CJ
Percent Moisture	27.7	0.500		wt%	1	5/21/2020 8:55:29 AM



Client: G-Logics
Project: Mossman
Lab ID: 2005187-025
Client Sample ID: GB-7-9

Collection Date: 5/14/2020 2:15:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28403	Analyst: DW
Diesel (Fuel Oil)	ND	31.6		mg/Kg-dry	1	5/21/2020 11:17:45 PM
Heavy Oil	ND	79.0		mg/Kg-dry	1	5/21/2020 11:17:45 PM
Surr: 2-Fluorobiphenyl	79.1	50 - 150		%Rec	1	5/21/2020 11:17:45 PM
Surr: o-Terphenyl	81.9	50 - 150		%Rec	1	5/21/2020 11:17:45 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R59292	Analyst: CJ
Percent Moisture	44.8	0.500		wt%	1	5/21/2020 8:55:29 AM

Work Order: 2005187
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
 Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: MB-28403	SampType: MBLK	Units: mg/Kg	Prep Date: 5/21/2020	RunNo: 59334							
Client ID: MBLKS	Batch ID: 28403		Analysis Date: 5/21/2020	SeqNo: 1186030							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	16.0		20.00		79.8	50	150				
Surr: o-Terphenyl	16.7		20.00		83.6	50	150				

Sample ID: LCS-28403	SampType: LCS	Units: mg/Kg	Prep Date: 5/21/2020	RunNo: 59334							
Client ID: LCSS	Batch ID: 28403		Analysis Date: 5/21/2020	SeqNo: 1186031							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	460	20.0	500.0	0	92.1	65	135				
Surr: 2-Fluorobiphenyl	16.7		20.00		83.6	50	150				
Surr: o-Terphenyl	17.5		20.00		87.7	50	150				

Sample ID: 2005257-003ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 5/21/2020	RunNo: 59334							
Client ID: BATCH	Batch ID: 28403		Analysis Date: 5/22/2020	SeqNo: 1186040							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	22.6						0		30	
Heavy Oil	ND	56.6						0		30	
Surr: 2-Fluorobiphenyl	20.0		22.65		88.2	50	150		0		
Surr: o-Terphenyl	20.7		22.65		91.3	50	150		0		

Sample ID: 2005257-003AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 5/21/2020	RunNo: 59334							
Client ID: BATCH	Batch ID: 28403		Analysis Date: 5/22/2020	SeqNo: 1186041							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	461	22.8	570.5	0	80.7	65	135				
Surr: 2-Fluorobiphenyl	23.2		22.82		102	50	150				
Surr: o-Terphenyl	22.2		22.82		97.2	50	150				

Work Order: 2005187
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: 2005257-003AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 5/21/2020	RunNo: 59334							
Client ID: BATCH	Batch ID: 28403	Analysis Date: 5/22/2020	SeqNo: 1186041								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 2005257-003AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 5/21/2020	RunNo: 59334							
Client ID: BATCH	Batch ID: 28403	Analysis Date: 5/22/2020	SeqNo: 1186042								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	472	20.4	510.9	0	92.4	65	135	460.5	2.52	30	
Surr: 2-Fluorobiphenyl	18.7		20.44		91.4	50	150		0		
Surr: o-Terphenyl	19.7		20.44		96.3	50	150		0		

Work Order: 2005187
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
 Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: MB-28384	SampType: MBLK	Units: mg/Kg	Prep Date: 5/19/2020	RunNo: 59327							
Client ID: MBLKS	Batch ID: 28384		Analysis Date: 5/21/2020	SeqNo: 1185828							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	19.4		20.00		97.0	50	150				
Surr: o-Terphenyl	19.8		20.00		98.8	50	150				

Sample ID: LCS-28384	SampType: LCS	Units: mg/Kg	Prep Date: 5/19/2020	RunNo: 59327							
Client ID: LCSS	Batch ID: 28384		Analysis Date: 5/21/2020	SeqNo: 1185829							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	475	20.0	500.0	0	95.1	65	135				
Surr: 2-Fluorobiphenyl	21.3		20.00		106	50	150				
Surr: o-Terphenyl	20.9		20.00		105	50	150				

Sample ID: 2005187-002ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 5/19/2020	RunNo: 59327							
Client ID: MW-9-7	Batch ID: 28384		Analysis Date: 5/21/2020	SeqNo: 1185831							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	31.6						0		30	
Heavy Oil	ND	79.0						179.6	7.12	30	
Heavy Oil Range Organics (C24-37)	167	79.0						179.6	7.12	30	
Surr: 2-Fluorobiphenyl	30.4		31.59		96.2	50	150		0		
Surr: o-Terphenyl	31.0		31.59		98.1	50	150		0		

NOTES:

Heavy Oil Range Organics - Indicates unresolved compounds in the Oil range inconsistent with a known petroleum standard.

Sample ID: 2005187-002AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 5/19/2020	RunNo: 59327							
Client ID: MW-9-7	Batch ID: 28384		Analysis Date: 5/21/2020	SeqNo: 1185832							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	506	32.0	799.8	0	63.2	65	135				S
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Work Order: 2005187
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
 Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: 2005187-002AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 5/19/2020	RunNo: 59327							
Client ID: MW-9-7	Batch ID: 28384		Analysis Date: 5/21/2020	SeqNo: 1185832							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: 2-Fluorobiphenyl	18.0		31.99		56.4	50	150				
Surr: o-Terphenyl	17.8		31.99		55.7	50	150				

NOTES:
 S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID: 2005187-002AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 5/19/2020	RunNo: 59327							
Client ID: MW-9-7	Batch ID: 28384		Analysis Date: 5/21/2020	SeqNo: 1185833							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	608	31.8	796.2	0	76.4	65	135	505.7	18.4	30	
Surr: 2-Fluorobiphenyl	22.5		31.85		70.7	50	150		0		
Surr: o-Terphenyl	21.1		31.85		66.3	50	150		0		

Sample ID: 2005191-002ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 5/19/2020	RunNo: 59327							
Client ID: BATCH	Batch ID: 28384		Analysis Date: 5/21/2020	SeqNo: 1185855							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	21.2						24.33	65.5	30	
Heavy Oil	ND	53.0						0		30	
Surr: 2-Fluorobiphenyl	21.1		21.19		99.8	50	150		0		
Surr: o-Terphenyl	21.3		21.19		101	50	150		0		

Work Order: 2005187
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: LCS-28493	SampType: LCS	Units: mg/Kg				Prep Date: 5/29/2020	RunNo: 59556				
Client ID: LCSS	Batch ID: 28493					Analysis Date: 6/1/2020	SeqNo: 1190984				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	29.9	1.75	30.00	0	99.6	70	130				
Aliphatic Hydrocarbon (C6-C8)	9.63	2.50	10.00	0	96.3	70	130				
Aliphatic Hydrocarbon (C8-C10)	10.2	1.40	10.00	0	102	70	130				
Aliphatic Hydrocarbon (C10-C12)	10.3	1.50	10.00	0	103	70	130				
Aromatic Hydrocarbon (C8-C10)	43.2	3.00	40.00	0	108	70	130				
Benzene	10.3	0.600	10.00	0	103	70	130				
Toluene	10.3	0.700	10.00	0	103	70	130				
Ethylbenzene	10.5	0.700	10.00	0	105	70	130				
m,p-Xylene	21.2	1.30	20.00	0	106	70	130				
o-Xylene	10.6	0.600	10.00	0	106	70	130				
Naphthalene	12.7	0.500	10.00	0	127	70	130				
Surr: 1,4-Difluorobenzene	2.50		2.500		100	65	140				
Surr: Bromofluorobenzene	2.65		2.500		106	65	140				

Sample ID: MB-28493	SampType: MBLK	Units: mg/Kg				Prep Date: 5/29/2020	RunNo: 59556				
Client ID: MBLKS	Batch ID: 28493					Analysis Date: 6/1/2020	SeqNo: 1190985				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	1.75		0	0						
Aliphatic Hydrocarbon (C6-C8)	ND	2.50		0	0						
Aliphatic Hydrocarbon (C8-C10)	ND	1.40		0	0						
Aliphatic Hydrocarbon (C10-C12)	ND	1.50		0	0						
Aromatic Hydrocarbon (C8-C10)	ND	3.00		0	0						
Benzene	ND	0.600		0	0						
Toluene	ND	0.700		0	0						
Ethylbenzene	ND	0.700		0	0						
m,p-Xylene	ND	1.30		0	0						
o-Xylene	ND	0.600		0	0						
Naphthalene	ND	0.500		0	0						
Surr: 1,4-Difluorobenzene	2.25		2.500		90.0	65	140				

Work Order: 2005187
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: MB-28493	SampType: MBLK	Units: mg/Kg	Prep Date: 5/29/2020	RunNo: 59556							
Client ID: MBLKS	Batch ID: 28493		Analysis Date: 6/1/2020	SeqNo: 1190985							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: Bromofluorobenzene 2.43 2.500 97.3 65 140

Sample ID: 2005187-009BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 5/29/2020	RunNo: 59556							
Client ID: GB-2-7	Batch ID: 28493		Analysis Date: 6/1/2020	SeqNo: 1190978							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aliphatic Hydrocarbon (C5-C6)	ND	51.4		0	0			0		25	DH
Aliphatic Hydrocarbon (C6-C8)	ND	73.4		0	0			0		25	DH
Aliphatic Hydrocarbon (C8-C10)	43.8	41.1		0	0			77.55	55.5	25	DH
Aliphatic Hydrocarbon (C10-C12)	335	44.1		0	0			305.8	9.08	25	DH
Aromatic Hydrocarbon (C8-C10)	ND	88.1		0	0			0		25	DH
Benzene	ND	17.6		0	0			0		25	DH
Toluene	ND	20.6		0	0			0		25	DH
Ethylbenzene	ND	20.6		0	0			0		25	DH
m,p-Xylene	ND	38.2		0	0			0		25	DH
o-Xylene	ND	17.6		0	0			0		25	DH
Naphthalene	45.0	14.7		0	0			46.44	3.09	25	DH
Surr: 1,4-Difluorobenzene	68.6		73.42		93.4	65	140		0		DH
Surr: Bromofluorobenzene	73.7		73.42		100	65	140		0		DH

Sample ID: 2005187-015BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 5/29/2020	RunNo: 59556							
Client ID: GB-4-2	Batch ID: 28493		Analysis Date: 6/1/2020	SeqNo: 1190981							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aliphatic Hydrocarbon (C5-C6)	337	21.0	359.7	0	93.7	70	130				DH
Aliphatic Hydrocarbon (C6-C8)	123	30.0	119.9	0	103	70	130				DH
Aliphatic Hydrocarbon (C8-C10)	124	16.8	119.9	0	103	70	130				DH
Aliphatic Hydrocarbon (C10-C12)	127	18.0	119.9	17.44	91.8	70	130				DH
Aromatic Hydrocarbon (C8-C10)	494	36.0	479.6	0	103	70	130				DH
Benzene	124	7.19	119.9	0	103	70	130				DH

Work Order: 2005187
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: 2005187-015BMS	SampType: MS	Units: mg/Kg-dry				Prep Date: 5/29/2020	RunNo: 59556				
Client ID: GB-4-2	Batch ID: 28493					Analysis Date: 6/1/2020	SeqNo: 1190981				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	124	8.39	119.9	0	104	70	130				DH
Ethylbenzene	124	8.39	119.9	0	103	70	130				DH
m,p-Xylene	249	15.6	239.8	0	104	70	130				DH
o-Xylene	125	7.19	119.9	0	104	70	130				DH
Naphthalene	110	5.99	119.9	15.84	78.8	70	130				DH
Surr: 1,4-Difluorobenzene	30.1		29.97		101	65	140				DH
Surr: Bromofluorobenzene	30.0		29.97		99.9	65	140				DH

Sample ID: 2005187-015BMSD	SampType: MSD	Units: mg/Kg-dry				Prep Date: 5/29/2020	RunNo: 59556				
Client ID: GB-4-2	Batch ID: 28493					Analysis Date: 6/1/2020	SeqNo: 1190975				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	337	21.0	359.7	0	93.6	70	130	337.1	0.163	30	DH
Aliphatic Hydrocarbon (C6-C8)	121	30.0	119.9	0	101	70	130	123.5	1.95	30	DH
Aliphatic Hydrocarbon (C8-C10)	123	16.8	119.9	0	102	70	130	123.6	0.860	30	DH
Aliphatic Hydrocarbon (C10-C12)	120	18.0	119.9	17.44	85.3	70	130	127.5	6.27	30	DH
Aromatic Hydrocarbon (C8-C10)	471	36.0	479.6	0	98.3	70	130	493.9	4.69	30	DH
Benzene	114	7.19	119.9	0	95.4	70	130	123.7	7.83	30	DH
Toluene	115	8.39	119.9	0	95.8	70	130	124.3	7.91	30	DH
Ethylbenzene	115	8.39	119.9	0	96.0	70	130	123.7	7.14	30	DH
m,p-Xylene	232	15.6	239.8	0	96.8	70	130	249.0	7.00	30	DH
o-Xylene	117	7.19	119.9	0	97.9	70	130	125.1	6.46	30	DH
Naphthalene	133	5.99	119.9	15.84	97.5	70	130	110.3	18.5	30	DH
Surr: 1,4-Difluorobenzene	30.1		29.97		100	65	140		0		DH
Surr: Bromofluorobenzene	30.3		29.97		101	65	140		0		DH

Client Name: **GL**
 Logged by: **Carissa True**

Work Order Number: **2005187**
 Date Received: **5/15/2020 10:50:00 AM**

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
 2. How was the sample delivered? Client

Log In

3. Coolers are present? Yes No NA
 4. Shipping container/cooler in good condition? Yes No
 5. Custody Seals present on shipping container/cooler?
 (Refer to comments for Custody Seals not intact) Yes No Not Present
 6. Was an attempt made to cool the samples? Yes No NA
 7. Were all items received at a temperature of >2°C to 6°C * Yes No NA
 8. Sample(s) in proper container(s)? Yes No
 9. Sufficient sample volume for indicated test(s)? Yes No
 10. Are samples properly preserved? Yes No
 11. Was preservative added to bottles? Yes No NA
 12. Is there headspace in the VOA vials? Yes No NA
 13. Did all samples containers arrive in good condition(unbroken)? Yes No
 14. Does paperwork match bottle labels? Yes No
 15. Are matrices correctly identified on Chain of Custody? Yes No
 16. Is it clear what analyses were requested? Yes No
 17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text" value="Rorv Galloway"/>	Date:	<input type="text" value="5/27/2020"/>
By Whom:	<input type="text" value="Clare Griqgs"/>	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="Hold times may be expired for added analysis."/>		
Client Instructions:	<input type="text" value="OK to proceed out of hold."/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler 1	1.9
Sample1	5.9
Temp Blank 1	1.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

G-Logics

Jon Stordahl
40 Second Ave. SE
Issaquah, WA 98027

RE: Mossman

Work Order Number: 2005249

June 03, 2020

Attention Jon Stordahl:

Fremont Analytical, Inc. received 10 sample(s) on 5/20/2020 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Volatile Organic Compounds by EPA Method 8260D

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

CLIENT: G-Logics
Project: Mossman
Work Order: 2005249

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2005249-001	MW-7	05/19/2020 10:30 AM	05/20/2020 11:02 AM
2005249-002	MW-8	05/19/2020 11:15 AM	05/20/2020 11:02 AM
2005249-003	MW-6	05/19/2020 12:00 PM	05/20/2020 11:02 AM
2005249-004	MW-4	05/19/2020 12:50 PM	05/20/2020 11:02 AM
2005249-005	MW-3	05/19/2020 2:00 PM	05/20/2020 11:02 AM
2005249-006	MW-1	05/19/2020 2:50 PM	05/20/2020 11:02 AM
2005249-007	MW-5	05/19/2020 3:40 PM	05/20/2020 11:02 AM
2005249-008	MW-9	05/19/2020 4:35 PM	05/20/2020 11:02 AM
2005249-009	Dup-1	05/19/2020 12:00 AM	05/20/2020 11:02 AM
2005249-010	Trip Blank	05/07/2020 9:37 AM	05/20/2020 11:02 AM

CLIENT: G-Logics

Project: Mossman

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

6/3/2020: Revision 1 includes additional analysis requested by client.

Qualifiers:

- * - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



CLIENT: G-Logics
Project: Mossman

Lab ID: 2005249-001
Client Sample ID: MW-7

Collection Date: 5/19/2020 10:30:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28418	Analyst: DW
Diesel (Fuel Oil)	ND	48.8		µg/L	1	5/27/2020 2:22:59 PM
Heavy Oil	ND	97.6		µg/L	1	5/27/2020 2:22:59 PM
Surr: 2-Fluorobiphenyl	87.4	50 - 150		%Rec	1	5/27/2020 2:22:59 PM
Surr: o-Terphenyl	96.2	50 - 150		%Rec	1	5/27/2020 2:22:59 PM

Lab ID: 2005249-002
Client Sample ID: MW-8

Collection Date: 5/19/2020 11:15:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28418	Analyst: DW
Diesel (Fuel Oil)	ND	49.7		µg/L	1	5/27/2020 2:52:47 PM
Heavy Oil	ND	99.5		µg/L	1	5/27/2020 2:52:47 PM
Surr: 2-Fluorobiphenyl	92.1	50 - 150		%Rec	1	5/27/2020 2:52:47 PM
Surr: o-Terphenyl	98.7	50 - 150		%Rec	1	5/27/2020 2:52:47 PM

Lab ID: 2005249-003
Client Sample ID: MW-6

Collection Date: 5/19/2020 12:00:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 28418	Analyst: DW
Diesel (Fuel Oil)	ND	49.7		µg/L	1	5/27/2020 3:22:29 PM
Diesel Range Organics (C12-C24)	51.2	49.7		µg/L	1	5/27/2020 3:22:29 PM
Heavy Oil	ND	99.4		µg/L	1	5/27/2020 3:22:29 PM
Surr: 2-Fluorobiphenyl	84.0	50 - 150		%Rec	1	5/27/2020 3:22:29 PM
Surr: o-Terphenyl	88.3	50 - 150		%Rec	1	5/27/2020 3:22:29 PM

NOTES:

Diesel Range Organics - Indicates the presence of unresolved organic compounds between Carbon Ranges C12-C24.



CLIENT: G-Logics
Project: Mossman

Lab ID: 2005249-004
Client Sample ID: MW-4

Collection Date: 5/19/2020 12:50:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28418 Analyst: DW

Diesel (Fuel Oil)	ND	49.3		µg/L	1	5/27/2020 3:52:13 PM
Diesel Range Organics (C12-C24)	1,060	49.3		µg/L	1	5/27/2020 3:52:13 PM
Heavy Oil	ND	98.5		µg/L	1	5/27/2020 3:52:13 PM
Surr: 2-Fluorobiphenyl	92.4	50 - 150		%Rec	1	5/27/2020 3:52:13 PM
Surr: o-Terphenyl	92.8	50 - 150		%Rec	1	5/27/2020 3:52:13 PM

NOTES:

Diesel Range Organics - Indicates the presence of unresolved organic compounds between Carbon Ranges C12-C24.

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 28479 Analyst: KT

Benzene	ND	1.00		µg/L	1	5/30/2020 8:24:01 PM
Toluene	ND	1.00		µg/L	1	5/30/2020 8:24:01 PM
Ethylbenzene	ND	1.00		µg/L	1	5/30/2020 8:24:01 PM
m,p-Xylene	ND	1.00		µg/L	1	5/30/2020 8:24:01 PM
o-Xylene	ND	1.00		µg/L	1	5/30/2020 8:24:01 PM
Naphthalene	1.40	1.00		µg/L	1	5/30/2020 8:24:01 PM
Surr: Dibromofluoromethane	94.7	83.7 - 117		%Rec	1	5/30/2020 8:24:01 PM
Surr: Toluene-d8	97.4	87.6 - 113		%Rec	1	5/30/2020 8:24:01 PM
Surr: 1-Bromo-4-fluorobenzene	99.3	81.2 - 113		%Rec	1	5/30/2020 8:24:01 PM



CLIENT: G-Logics
Project: Mossman

Lab ID: 2005249-005
Client Sample ID: MW-3

Collection Date: 5/19/2020 2:00:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28418 Analyst: DW

Diesel (Fuel Oil)	ND	49.9		µg/L	1	5/27/2020 4:22:02 PM
Diesel Range Organics (C12-C24)	613	49.9		µg/L	1	5/27/2020 4:22:02 PM
Heavy Oil	ND	99.7		µg/L	1	5/27/2020 4:22:02 PM
Surr: 2-Fluorobiphenyl	80.9	50 - 150		%Rec	1	5/27/2020 4:22:02 PM
Surr: o-Terphenyl	93.5	50 - 150		%Rec	1	5/27/2020 4:22:02 PM

NOTES:

Diesel Range Organics - Indicates the presence of unresolved organic compounds between Carbon Ranges C12-C24.

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 28479 Analyst: KT

Benzene	ND	1.00		µg/L	1	5/30/2020 8:54:12 PM
Toluene	ND	1.00		µg/L	1	5/30/2020 8:54:12 PM
Ethylbenzene	ND	1.00		µg/L	1	5/30/2020 8:54:12 PM
m,p-Xylene	ND	1.00		µg/L	1	5/30/2020 8:54:12 PM
o-Xylene	ND	1.00		µg/L	1	5/30/2020 8:54:12 PM
Naphthalene	ND	1.00		µg/L	1	5/30/2020 8:54:12 PM
Surr: Dibromofluoromethane	93.4	83.7 - 117		%Rec	1	5/30/2020 8:54:12 PM
Surr: Toluene-d8	96.7	87.6 - 113		%Rec	1	5/30/2020 8:54:12 PM
Surr: 1-Bromo-4-fluorobenzene	99.4	81.2 - 113		%Rec	1	5/30/2020 8:54:12 PM



CLIENT: G-Logics
Project: Mossman

Lab ID: 2005249-006
Client Sample ID: MW-1

Collection Date: 5/19/2020 2:50:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28418 Analyst: DW

Diesel (Fuel Oil)	ND	49.7		µg/L	1	5/27/2020 4:51:50 PM
Diesel Range Organics (C12-C24)	519	49.7		µg/L	1	5/27/2020 4:51:50 PM
Heavy Oil	ND	99.4		µg/L	1	5/27/2020 4:51:50 PM
Surr: 2-Fluorobiphenyl	96.6	50 - 150		%Rec	1	5/27/2020 4:51:50 PM
Surr: o-Terphenyl	99.7	50 - 150		%Rec	1	5/27/2020 4:51:50 PM

NOTES:

Diesel Range Organics - Indicates the presence of unresolved organic compounds between Carbon Ranges C12-C24.

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 28479 Analyst: KT

Benzene	ND	1.00		µg/L	1	5/30/2020 9:24:18 PM
Toluene	ND	1.00		µg/L	1	5/30/2020 9:24:18 PM
Ethylbenzene	ND	1.00		µg/L	1	5/30/2020 9:24:18 PM
m,p-Xylene	ND	1.00		µg/L	1	5/30/2020 9:24:18 PM
o-Xylene	ND	1.00		µg/L	1	5/30/2020 9:24:18 PM
Naphthalene	ND	1.00		µg/L	1	5/30/2020 9:24:18 PM
Surr: Dibromofluoromethane	93.9	83.7 - 117		%Rec	1	5/30/2020 9:24:18 PM
Surr: Toluene-d8	97.4	87.6 - 113		%Rec	1	5/30/2020 9:24:18 PM
Surr: 1-Bromo-4-fluorobenzene	99.8	81.2 - 113		%Rec	1	5/30/2020 9:24:18 PM

Lab ID: 2005249-007
Client Sample ID: MW-5

Collection Date: 5/19/2020 3:40:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28418 Analyst: DW

Diesel (Fuel Oil)	ND	49.4		µg/L	1	5/27/2020 5:21:40 PM
Heavy Oil	ND	98.8		µg/L	1	5/27/2020 5:21:40 PM
Surr: 2-Fluorobiphenyl	65.2	50 - 150		%Rec	1	5/27/2020 5:21:40 PM
Surr: o-Terphenyl	103	50 - 150		%Rec	1	5/27/2020 5:21:40 PM



CLIENT: G-Logics
Project: Mossman

Lab ID: 2005249-008
Client Sample ID: MW-9

Collection Date: 5/19/2020 4:35:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28418 Analyst: DW

Diesel (Fuel Oil)	ND	49.3		µg/L	1	5/27/2020 5:51:29 PM
Diesel Range Organics (C12-C24)	125	49.3		µg/L	1	5/27/2020 5:51:29 PM
Heavy Oil	ND	98.7		µg/L	1	5/27/2020 5:51:29 PM
Surr: 2-Fluorobiphenyl	69.1	50 - 150		%Rec	1	5/27/2020 5:51:29 PM
Surr: o-Terphenyl	80.2	50 - 150		%Rec	1	5/27/2020 5:51:29 PM

NOTES:

Diesel Range Organics - Indicates the presence of unresolved organic compounds between Carbon Ranges C12-C24.

Lab ID: 2005249-009
Client Sample ID: Dup-1

Collection Date: 5/19/2020
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 28418 Analyst: DW

Diesel (Fuel Oil)	ND	49.8		µg/L	1	5/27/2020 6:21:19 PM
Diesel Range Organics (C12-C24)	49.9	49.8		µg/L	1	5/27/2020 6:21:19 PM
Heavy Oil	ND	99.5		µg/L	1	5/27/2020 6:21:19 PM
Surr: 2-Fluorobiphenyl	81.3	50 - 150		%Rec	1	5/27/2020 6:21:19 PM
Surr: o-Terphenyl	93.9	50 - 150		%Rec	1	5/27/2020 6:21:19 PM

NOTES:

Diesel Range Organics - Indicates the presence of unresolved organic compounds between Carbon Ranges C12-C24.

Work Order: 2005249
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
 Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: MB-28418	SampType: MBLK	Units: µg/L	Prep Date: 5/22/2020	RunNo: 59384							
Client ID: MBLKW	Batch ID: 28418		Analysis Date: 5/26/2020	SeqNo: 1186782							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	99.9									
Surr: 2-Fluorobiphenyl	65.0		79.95		81.3	50	150				
Surr: o-Terphenyl	68.0		79.95		85.0	50	150				

Sample ID: LCS-28418	SampType: LCS	Units: µg/L	Prep Date: 5/22/2020	RunNo: 59384							
Client ID: LCSW	Batch ID: 28418		Analysis Date: 5/26/2020	SeqNo: 1186783							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	1,550	49.8	1,992	0	77.7	52	107				
Surr: 2-Fluorobiphenyl	150		159.3		94.0	50	150				
Surr: o-Terphenyl	152		159.3		95.6	50	150				

Sample ID: 2005219-001ADUP	SampType: DUP	Units: µg/L	Prep Date: 5/22/2020	RunNo: 59384							
Client ID: BATCH	Batch ID: 28418		Analysis Date: 5/26/2020	SeqNo: 1186786							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	49.8						0		30	
Heavy Oil	ND	99.6						0		30	
Surr: 2-Fluorobiphenyl	59.7		79.68		74.9	50	150		0		
Surr: o-Terphenyl	62.2		79.68		78.1	50	150		0		

Sample ID: 2005258-001BDUP	SampType: DUP	Units: µg/L	Prep Date: 5/22/2020	RunNo: 59384							
Client ID: BATCH	Batch ID: 28418		Analysis Date: 5/27/2020	SeqNo: 1187446							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel 1/ Kerosene	1,440	49.6						1,620	11.7	30	
Diesel (Fuel Oil)	ND	49.6						1,620	11.7	30	
Heavy Oil	ND	99.2						0		30	



Work Order: 2005249
CLIENT: G-Logics
Project: Mossman

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: 2005258-001BDUP	SampType: DUP	Units: µg/L	Prep Date: 5/22/2020	RunNo: 59384							
Client ID: BATCH	Batch ID: 28418	Analysis Date: 5/27/2020	SeqNo: 1187446								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	69.9		79.37		88.1	50	150		0		
Surr: o-Terphenyl	62.3		79.37		78.4	50	150		0		

Work Order: 2005249
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260D

Sample ID: LCS-28479		SampType: LCS			Units: µg/L		Prep Date: 5/29/2020		RunNo: 59499		
Client ID: LCSW		Batch ID: 28479					Analysis Date: 5/30/2020		SeqNo: 1189528		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.0	1.00	20.00	0	90.2	89	112				
Toluene	18.2	1.00	20.00	0	90.8	86.7	115				
Ethylbenzene	18.0	1.00	20.00	0	90.1	86.8	114				
m,p-Xylene	35.6	1.00	40.00	0	89.1	85.3	116				
o-Xylene	18.2	1.00	20.00	0	91.2	84.9	115				
Naphthalene	19.3	1.00	20.00	0	96.5	73.7	135				
Surr: Dibromofluoromethane	25.4		25.00		102	83.7	117				
Surr: Toluene-d8	25.0		25.00		99.9	87.6	113				
Surr: 1-Bromo-4-fluorobenzene	25.5		25.00		102	81.2	113				

Sample ID: MB-28479		SampType: MBLK			Units: µg/L		Prep Date: 5/29/2020		RunNo: 59499		
Client ID: MBLKW		Batch ID: 28479					Analysis Date: 5/30/2020		SeqNo: 1189529		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0747									MDL
Toluene	ND	0.0912									MDL
Ethylbenzene	ND	0.0868									MDL
m,p-Xylene	ND	0.173									MDL
o-Xylene	ND	0.0688									MDL
Naphthalene	ND	1.00									
Surr: Dibromofluoromethane	23.6		25.00		94.4	83.7	117				
Surr: Toluene-d8	24.4		25.00		97.7	87.6	113				
Surr: 1-Bromo-4-fluorobenzene	24.6		25.00		98.4	81.2	113				

NOTES:
 MDL - Analyte reported to Method Detection Limit (MDL)

Sample ID: 2005378-002ADUP		SampType: DUP			Units: µg/L		Prep Date: 5/29/2020		RunNo: 59499		
Client ID: BATCH		Batch ID: 28479					Analysis Date: 5/30/2020		SeqNo: 1189526		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00						0		30	

Work Order: 2005249
 CLIENT: G-Logics
 Project: Mossman

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260D

Sample ID: 2005378-002ADUP	SampType: DUP	Units: µg/L	Prep Date: 5/29/2020	RunNo: 59499							
Client ID: BATCH	Batch ID: 28479		Analysis Date: 5/30/2020	SeqNo: 1189526							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	1.00						0		30	
Ethylbenzene	ND	1.00						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	1.00						0		30	
Naphthalene	ND	1.00						0		30	
Surr: Dibromofluoromethane	24.4		25.00		97.8	83.7	117		0		
Surr: Toluene-d8	24.2		25.00		96.8	87.6	113		0		
Surr: 1-Bromo-4-fluorobenzene	24.6		25.00		98.5	81.2	113		0		

Sample ID: LCS D-28479	SampType: LCS D	Units: µg/L	Prep Date: 5/29/2020	RunNo: 59499							
Client ID: LCSW02	Batch ID: 28479		Analysis Date: 6/1/2020	SeqNo: 1189726							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	17.9	1.00	20.00	0	89.7	89	112	18.05	0.572	20	
Toluene	18.5	1.00	20.00	0	92.5	86.7	115	18.16	1.83	20	
Ethylbenzene	18.7	1.00	20.00	0	93.7	86.8	114	18.02	3.94	20	
m,p-Xylene	38.2	1.00	40.00	0	95.4	85.3	116	35.63	6.87	20	
o-Xylene	19.0	1.00	20.00	0	95.2	84.9	115	18.25	4.23	20	
Naphthalene	19.3	1.00	20.00	0	96.4	73.7	135	19.30	0.109	20	
Surr: Dibromofluoromethane	24.8		25.00		99.1	83.7	117		0		
Surr: Toluene-d8	24.5		25.00		98.0	87.6	113		0		
Surr: 1-Bromo-4-fluorobenzene	25.4		25.00		102	81.2	113		0		

Client Name: **GL**
 Logged by: **Carissa True**

Work Order Number: **2005249**
 Date Received: **5/20/2020 11:02:00 AM**

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
 2. How was the sample delivered? Client

Log In

3. Coolers are present? Yes No NA
 4. Shipping container/cooler in good condition? Yes No
 5. Custody Seals present on shipping container/cooler?
 (Refer to comments for Custody Seals not intact) Yes No Not Present
 6. Was an attempt made to cool the samples? Yes No NA
 7. Were all items received at a temperature of >2°C to 6°C * Yes No NA
 8. Sample(s) in proper container(s)? Yes No
 9. Sufficient sample volume for indicated test(s)? Yes No
 10. Are samples properly preserved? Yes No
 11. Was preservative added to bottles? Yes No NA
 12. Is there headspace in the VOA vials? Yes No NA
 13. Did all samples containers arrive in good condition(unbroken)? Yes No
 14. Does paperwork match bottle labels? Yes No
 15. Are matrices correctly identified on Chain of Custody? Yes No
 16. Is it clear what analyses were requested? Yes No
 17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text" value="Jon Stordahl"/>	Date:	<input type="text" value="5/20/2020"/>
By Whom:	<input type="text" value="Carissa True"/>	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input dup-1"="" received"="" type="text" value="Additional " volume=""/>		
Client Instructions:	<input type="text" value="See updated COC"/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler 1	4.9
Sample 1	5.0
Temp Blank 1	3.0

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



3600 Fremont Ave N
Seattle, WA 98103
Tel: 206.452.3790
Fax: 206.452.7178

Chain of Custody Record & Laboratory Services Agreement

Date: 5/19/20 Page 1 of 1

Laboratory Project No (internal): 2005249

Client: G-LOGICS

Project Name: MOSSMAN
Project No: 01-0864-B

Special Requests:
Hold VOAs for additional analyses

Address:

Collected by:

Edits by: LB 5/20 per J.S.

City, State, Zip:

Location:

Telephone:

Report To (PM): Jon Stordahl

Fax:

PM Email: jons@g-logics.com

Sample Name	Sample Date	Sample Time	Sample Type/Matrix	ANALYSIS															
				COBALT	COPPER	CHROMIUM	IRON	MANGANESE	NICKEL	LEAD	CADMIUM	ZINC	ALUMINUM	SILICA	PHOSPHORUS	SULFUR	AMMONIA	NITRATES	AMMONIUM
MW-7	5/19/20	1030	W																X
MW-8		1115																	X
MW-6		1200																	X
MW-4		1250																	X
MW-3		1400																	X
MW-1		1450																	X
MW-5		1540																	X
MW-9		1635																	X
Dup-1	5/19	24:00																	X

BTEX + Naph.

⊗ Add per J.S. 5/20/20
Std. corr.

Matrix: A-Air, B-Asbestos, C-Bulk, D-Drain, E-Drum, F-Dust, G-Filter, H-Flammable, I-Industrial, J-Industrial Water, K-Industrial Waste, L-Industrial Water, M-Industrial Waste, N-Industrial Water, O-Industrial Waste, P-Industrial Waste, Q-Industrial Waste, R-Industrial Waste, S-Industrial Waste, T-Industrial Waste, U-Industrial Waste, V-Industrial Waste, W-Industrial Waste, X-Industrial Waste, Y-Industrial Waste, Z-Industrial Waste.

Turn around Time:
 Standard
 1 Day
 2 Day
 Next Day
 Same Day

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Requested: [Signature] Date/Time: 5/20/20 0950

Received: [Signature] Date/Time: 5/20/20 1102

Attachment F
MTCATPH Calculation Worksheet

A2.2 Worksheet for Calculating Soil Cleanup Level for the Protection of Ground Water Quality (Leaching Pathway)

WAC 173-340-740 and 747

Date: 5/18/2020

Site Name: Mossman Residence

Sample Name: MW-4 at 5 feet bgs

Chemical of Concern or EC Group	Measured Soil Conc @dry basis	GW Cleanup Level	Adjusted Condition				
			Soil Conc being tested	Predicted Conc @Well	HQ @ Well	RISK @ Well	Pass or Fail?
			mg/kg	ug/L	mg/kg	ug/L	unitless
<u>Petroleum EC Fraction</u>							
AL_EC >5-6	0		0.00E+00	0.00E+00	0.00E+00		
AL_EC >6-8	0		0.00E+00	0.00E+00	0.00E+00		
AL_EC >8-10	830		2.70E+03	1.21E+00	5.03E-03		
AL_EC >10-12	2100		6.82E+03	1.96E-01	8.17E-04		
AL_EC >12-16	5500		1.79E+04	9.19E-03	1.91E-05		
AL_EC >16-21	6000		1.95E+04	1.27E-05	3.97E-10		
AL_EC >21-34	1000		3.25E+03	1.65E-11	5.15E-16		
AR_EC >8-10	220		7.15E+02	5.22E+01	6.53E-02		
AR_EC >10-12	630		2.05E+03	5.32E+01	3.32E-01		
AR_EC >12-16	1800		5.85E+03	3.06E+01	3.82E-02		
AR_EC >16-21	4000		1.30E+04	4.72E+00	9.83E-03		
AR_EC >21-34	550		1.79E+03	6.65E-03	1.04E-05		
Benzene	0	5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Toluene	0	1000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ethylbenzene	0	700	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Total Xylenes	0	1000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Naphthalene	7.2	160	2.34E+01	7.66E-01	4.79E-03		
1-Methyl Naphthalene	0		0.00E+00	0.00E+00	0.00E+00		
2-Methyl Naphthalene	0		0.00E+00	0.00E+00	0.00E+00		
n-Hexane	0		0.00E+00	0.00E+00	0.00E+00		
MTBE	0	20	0.00E+00	0.00E+00	0.00E+00		
Ethylene Dibromide (EDB)	0	0.01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
1,2 Dichloroethane (EDC)	0	5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Benzo(a)anthracene	0	for	0.00E+00	0.00E+00		0.00E+00	for
Benzo(b)fluoranthene	0	all	0.00E+00	0.00E+00		0.00E+00	all
Benzo(k)fluoranthene	0	cPAHs	0.00E+00	0.00E+00		0.00E+00	cPAHs
Benzo(a)pyrene	0	Risk=	0.00E+00	0.00E+00		0.00E+00	
Chrysene	0	1E-05	0.00E+00	0.00E+00		0.00E+00	
Dibenz(a,h)anthracene	0		0.00E+00	0.00E+00		0.00E+00	Σ Risk=
Indeno(1,2,3-cd)pyrene	0		0.00E+00	0.00E+00		0.00E+00	0.00E+00
Sum	22637.2		7.36E+04	1.43E+02	4.56E-01	0.00E+00	Pass

Site-Specific Hydrogeological Properties previously entered:			
Item	Symbol	Value	Units
Total soil porosity:	n	0.43	unitless
Volumetric water content:	θ_w	0.3	unitless
Volumetric air content:	θ_a	0.13	unitless
Soil bulk density measured:	ρ_b	1.5	kg/L
Fraction Organic Carbon:	f_{oc}	0.001	unitless
Dilution Factor:	DF	20	unitless

Target Ground Water TPH conc adjusted previously if any:	
Target Ground Water TPH Conc, ug/L ⇒	150

CALCULATE PROTECTIVE CONDITION OR TEST ADJUSTED CONDITION	
<input type="button" value="Calculate or"/>	
@ Protection of Surface Water Quality	
Pass or Fail? NA	
Tested TPH Soil Conc, mg/kg = 100% NAPL	
Predicted TPH GW Conc, ug/L = 1.43E+02	
RISK @ Well = NA	
HI @Well = NA	

DETAILED MODEL RESULTS	
Type of model used for computation:	4-Phase Model
Computation completed?	Yes!
Initial Weighted Average MW of NAPL, g/mol:	198.9
Equilibrated Weighted Average MW of NAPL, g/mol:	198.9
Initial Weighted Average Density of NAPL, kg/L:	0.849
Volumetric NAPL Content, θ_{NAPL} :	1.3E-01
NAPL Saturation (%), θ_{NAPL}/n :	30.23%
100% NAPL, mg/kg	73565.9
Mass Distribution Pattern @ 4-phase in soil pore system:	
Total Mass distributed in Water Phase: 0.00%	in Solid: 0.02%
Total Mass distributed in Air Phase: 0.00%	in NAPL: 99.98%
Please Check Soil Residual Saturation TPH Levels: Refer to Table 747-5!	