SIT 3.2

FOCUSED SITE ASSESSMENT WORK PLAN

SOUTH 154TH STREET TRANSIT-ORIENTED DEVELOPMENT PROPERTY

Prepared for
CITY OF SEATAC
SEATAC, WASHINGTON
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MAUL FOSTER ALONGI

Prepared by
Maul Foster & Alongi, Inc.
411 First Avenue South, Suite 610, Seattle, WA 98104

WORK PLAN
SOUTH 154TH STREET TRANSIT-ORIENTED DEVELOPMENT PROPERTY

The material and data in this plan were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI. INC.

Yen-Vy Van, LHG
Senior Hydrogeologist

Justin L. Clary, PE
Principal Engineer

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ACRONYMS AND ABBREVIATIONS

AEG	Associated Environmental Group, LLC
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
the City	City of SeaTac, Washington
COI	chemical of interest
CSM	conceptual site model
CUL	cleanup level
DCE	dichloroethene
DRO	diesel-range organics
Ecology	Washington State Department of Ecology
ESA	environmental site assessment
Golder	Golder Associates, Inc.
HVOC	halogenated volatile organic compound
MFA	Maul Foster & Alongi, Inc.
MTCA	Model Toxics Control Act
PCE	tetrachloroethene
Property	South 154th Street Transit-Oriented Development Property, SeaTac, Washington
RRO	residual-range organics
SAP	sampling and analysis plan
TCE	trichloroethene
TPH-HCID	petroleum hydrocarbon identification
TOD	Transit-Oriented Development
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound

1 INTRODUCTION

Maul Foster & Alongi, Inc. (MFA) has prepared this focused site assessment work plan for the City of SeaTac, Washington (the City) to further characterize the nature and extent of environmental impacts at the City's proposed South 154th Street Transit-Oriented Development (TOD) property in SeaTac, Washington (Figure 1). The proposed TOD comprises the following seven parcels: King County parcels 00430013 (parking garage), 0043000015 (Bakaro Mall), 0043000018 (parking lot), 0043000019 (residential), 0043000020 (Betty Brite Dry Cleaners, Pancake Chef, and retail businesses), 0043000100 (parking lot), and 0043000093 (Dalsan Financial Services). The City owns parcels 00430013, 0043000015, 0043000018, and 0043000019 and is in negotiation to acquire the remaining three parcels (0043000020, 0043000100, and 0043000093). The Property comprises these three parcels and is the focus of the site assessment. The Property currently is used for a variety of commercial applications, including a dry cleaner; money transfer services; retail clothing, food, and beauty supplies; a hair salon; a restaurant; and a law office.

A dry-cleaning business has operated at parcel 0043000020 since 1959. Additionally, historical archival information indicates that an oil burner served as the heating source at this parcel. The potential exists that, historically, a heating oil underground storage tank (UST), was used at this parcel. Activities associated with the dry cleaner's operations and the oil burner may have resulted in the release of hazardous substances that have potentially impacted environmental media at the Property. An investigation conducted by Golder Associates, Inc. (Golder) in 2009 detected elevated concentrations of tetrachloroethene (PCE) and trichloroethene (TCE) in soil vapor in Betty Brite Dry Cleaners and PCE-impacted groundwater underlying the adjoining parking lot to the east (inferred downgradient). Groundwater samples were also analyzed for petroleum hydrocarbon identification TPH-HCID) and associated volatile organic compounds (VOCs). Petroleum hydrocarbons were not detected; however, benzene was identified in one of the groundwater samples collected beneath the parking lot adjacent to Betty Brite Dry Cleaners.

1.1 Regulatory Framework

The City received an Integrated Planning Grant from the Washington State Department of Ecology (Ecology) supporting site assessment and development of a community-based plan to transform the Property into a revitalized asset for the community. This work plan has been developed to further assess the nature and extent of contamination at the Property. The focused site assessment will be conducted in general accordance with guidance put forth in the Model Toxics Control Act (MTCA) (Washington Administrative Code 173-340).

1.2 Purpose and Objectives

The purpose of this focused site assessment is to generate data to further characterize the nature and extent of contaminants in selected areas of the Property to allow for risk screening and to support an

evaluation of potential cleanup actions (if needed). The activities outlined in this work plan are also intended to support the following project objectives:

- Development of a conceptual site model (CSM) and data quality objectives for site characterization
- Further characterization of the nature and extent of hazardous substances in environmental media above MTCA cleanup levels (CULs) and potential sources of contamination
- Evaluation of potential risk to current and reasonably likely future human receptors on the Property
- Evaluation of potential cleanup options for impacted media at the Property.

1.3 Work Plan Organization

This document is organized as follows:

- ***Section 2*** discusses background information and the physical setting of the Property.
- ***Section 3*** describes the preliminary CSM.
- ***Section 4*** discusses the site assessment scope of work.
- ***Section 5*** describes the project management plan.

The following appendices are attached:

- Appendix A—a sampling and analysis plan (SAP). The SAP consists of a field sampling plan and a quality assurance project plan.
- Appendix B—analytical results from the 2009 Golder investigation.

Standard field operating procedures for collecting soil and reconnaissance groundwater samples, scheduling analyses, cleaning equipment, and managing waste are described in the SAP (Appendix A). If procedures differ from the SAP, the deviations will be documented in the site characterization report. The SAP addresses practices related to the handling and disposal of investigation-derived waste. The quality assurance project plan defines the laboratory and field analytical quality procedures and the quality assurance and quality control requirements for sampling and analysis.

2 BACKGROUND AND PHYSICAL SETTING

The background and physical setting information summarized below for the Property has been obtained from site visits, interviews with the City and with community stakeholders, and historical sampling and reporting.

2.1 Site Description

The Property is located in southwest quarter of section 22, township 23 north, range 4 east, of the Willamette Meridian (see Figure 1). The Property comprises three parcels: an irregular, 0.43-acre tax parcel (parcel number 0043000020); an irregular, rectangular-shaped, 0.11-acre tax parcel (parcel number 0043000100); and a triangular-shaped, 0.05-acre tax parcel (parcel number 0043000093). The Property's general surface topography ranges from sloping to the east-southeast at parcel number 0043000020 to generally flat, with a slight downward slope to the east, at the remaining parcels.

Parcel 0443000020 is currently zoned "Community Business" with an "Urban Center" overlay (CB-C), and parcels 0043000100 and 0043000093 are zoned "Commercial" (C). Parcel 0443000020, located at the southwest corner of South 152nd Street and Military Road South, is occupied by the law offices of Brian Wicks (15201 Military Road South), Tsehay Beauty Supply (15203 Military Road South), Mana Market and Shuruba Salon (15205 Military Road South), Betty Brite Dry Cleaners (15209 Military Road South), Tarak Mini Market and Halal (15213 Military Road South), and the Pancake Chef (15215 Military Road South) (Figure 2). The Pancake Chef is located on the western edge of the parcel and shares its eastern wall with the back (western) side of the retail strip mall below, where the above-mentioned six businesses are located. The parking lot for the Pancake Chef is located on the roof of the retail strip mall. Parcels 0043000100 and 0043000093, located at the southeast corner of South 152nd Street and Military Road South, are currently occupied by a parking lot and a money transfer service business, respectively.

2.2 Site History

Archival records indicate a dry-cleaning business has operated at parcel 0043000020 since building construction in 1959. Betty Brite Dry Cleaners has operated at this location since at least 1999. Archival records also indicate that a two-story office building has occupied parcel 0043000093 from 1949 to the present. Historical usages included real estate and insurance businesses. The adjoining parcel to the north, parcel 0043000100, has historically been used as a parking lot.

MFA conducted a Phase I environmental site assessment (ESA) at the Property in July 2013 (MFA, 2013). MFA identified the following recognized environmental conditions:

- **Betty Brite Dry Cleaners.** A Phase II ESA, conducted by Golder in 2009, confirmed that historical operations of dry-cleaning businesses at parcel 0043000020 have adversely impacted the subsurface, including soil vapor, soil, and groundwater. PCE concentrations above MTCA Method A CULs were identified in groundwater at borings advanced in the parking lot east (inferred downgradient) of the dry-cleaning business. PCE and TCE were identified in soil vapor samples collected below the subslab inside the business and outside, beneath the adjoining parking lot. PCE, detected in a soil sample collected at 14 to 16 feet below ground surface (bgs) in the adjoining parking lot, was below the MTCA Method A CUL (Golder, 2009). The presence of petroleum hydrocarbons was not identified in the soil samples collected. However, benzene was reported in groundwater at concentrations below the associated MTCA Method A CUL. The nature and extent of the impacts have

not been delineated and a risk screening was not performed as part of any prior ESA activities.

- **Inactive Oil Furnace.** An inactive oil furnace is located in a utility closet behind the strip mall, accessed only from the mini-market business at parcel 0043000020. The presence of the furnace as well as archival information regarding the heating source at this parcel indicate the potential presence of an abandoned heating oil UST at this parcel.

The nature and extent of halogenated VOC (HVOC) contamination at the Property associated with dry-cleaning operations have not been characterized. Additionally, evaluation of the potential presence of an abandoned historical UST and associated impacts has not been completed.

2.3 Geology and Hydrogeology

According to the Geologic Map of the Washington—Northwest Quadrant, the Property and vicinity are underlain by Quaternary glacial till (Dragovich et al., 2002). The till deposits typically consist of "...unsorted, unstratified, highly compacted mixture of clay, silt, sand, gravel, and boulders deposited by glacial ice; may contain interbedded stratified sand, silt, and gravel. Includes part of the Vashon Drift undivided..." (Dragovich et al., 2002).

Subsurface investigations and groundwater monitoring and sampling activities completed by Associated Environmental Group, LLC (AEG) at the Desmoines Chevron Service Station, located approximately 600 feet northeast of the Property, indicate that groundwater was encountered at depths ranging approximately from 13 to 18 feet bgs. The direction of groundwater flow, based on surveyed groundwater elevations, is generally to the southeast (AEG, 2010). MFA also reviewed well logs of properties located within approximately 0.25 mile of the Property. The well logs indicate the presence of perched groundwater, at approximately 13 to 15 feet bgs, typically underlain by glacial till at depths ranging from 15 to 20 feet bgs.

The direction of shallow groundwater flow can be highly variable because of the presence of variable depth to perched groundwater at the Property and in the vicinity. Therefore, no definite statement can be made regarding the direction of shallow groundwater flow without groundwater elevations from multiple, established monitoring wells. However, based on surface topography and regional discharge points, the direction of regional groundwater flow in the area appears to be east-southeast, toward the Duwamish Waterway/Green River. At its closest point, the Duwamish Waterway/Green River is located approximately 1.8 to 1.9 miles east-southeast of the Property.

3 PRELIMINARY CONCEPTUAL SITE MODEL

A CSM describes potential chemical sources, release mechanisms, environmental transport processes, exposure routes, and receptors. The primary purpose of the CSM is to describe pathways by which human and ecological receptors could be exposed to site-related chemicals. A complete exposure pathway consists of four necessary elements: (1) a source and mechanism of chemical release to the

environment, (2) an environmental transport medium for a released chemical, (3) a point of potential contact with the impacted medium (referred to as the exposure point), and (4) an exposure route (e.g., soil ingestion) at the exposure point. The potential release mechanisms and pathways are described below.

3.1 Potential Sources and Release Mechanisms

Based on documented historical uses, prior site characterization investigations, Ecology observations of site conditions and activities, and anecdotal evidence obtained during site reconnaissance activities and stakeholder interviews, it appears that the following site-related activities and sources may have contributed to contamination of environmental media at the Property:

- Historical and current dry-cleaning operations involving the use of solvents
- Historical operation of an oil burner and likely use of a heating oil UST

These historical operations and potential associated release mechanisms are very likely to have resulted in contaminant releases to surface and subsurface soil and groundwater.

3.2 Fate and Transport Processes

Contaminant releases to the surface or subsurface have the potential to migrate laterally and vertically to the water table, resulting in impacts to subsurface soil and dissolved-phase impacts to shallow groundwater (if present) beneath the Property. VOCs associated with dry-cleaning solvents and petroleum hydrocarbons present in the surface and subsurface may also partition to the vapor phase in the subsurface soil media and, after migration, via the dissolved-phase of groundwater contamination.

Contaminant vapors partitioned from contaminated soil and groundwater media could result in impacts to indoor or outdoor air quality.

3.3 Potential Exposure Scenarios

Depending on the extent of impacts at the Property, the following are potentially current or future exposure pathways:

- Incidental ingestion of and dermal contact with chemicals in surface and/or subsurface soil and groundwater
- Inhalation of fugitive dusts generated from surface and/or subsurface soil
- Inhalation of outdoor air vapors that have emanated from soil or groundwater
- Inhalation of indoor air vapors from groundwater and/or subsurface soil because of vapor intrusion into the buildings

These potential exposure pathways will be evaluated further upon completion of the site characterization.

3.4 Potential Receptors

The following current and future human and ecological receptors may potentially be exposed to chemicals originating from the Property:

- Occupational workers
- Construction and trench workers
- Off-site residents

4 SCOPE OF WORK

This section describes the objectives and scope of work for the site assessment. The field investigations will be conducted in general accordance with the methods and protocol described in the SAP (see Appendix A).

4.1 Site Assessment Objectives

Site assessment objectives as they relate to hazardous substances potentially present at the Property include the following:

- Identification and characterization of hazardous-substance source areas at the Property. Source areas will be characterized through a review of historical information and the results of previously conducted investigations and by the collection of environmental samples for observation, field screening, and chemical analyses.
- Evaluation of contaminant migration pathways at the Property. Key elements relevant to contaminant migration include, but are not limited to, preferential migration pathways and volatilization of VOCs.
- Further determination of the nature, extent, and distribution of hazardous substances in environmental media at the Property.
- Identification of current and reasonably likely future human and ecological receptors that may be exposed to hazardous substances at the Property. Relevant contaminant migration pathways and the nature, extent, and distribution of hazardous substances in affected media will be considered in this evaluation.
- Through the performance of a risk screening, evaluation of the risk to human health and the environment from releases of hazardous substances at the Property.

- Generation or use of data of sufficient quality for site characterization and risk screening at the Property.
- Development of the information necessary to evaluate and design source control measures to address contaminant releases from the Property, if deemed necessary.

The proposed site assessment scope of work is intended to meet these objectives as they relate to the chemicals of interest (COIs) identified in the next section.

4.2 Environmental Conditions

Elevated concentrations of PCE, at concentrations above the Ecology MTCA Method A CUL, were identified in groundwater collected from borings B-3 and B-4, advanced in the adjoining parking lot, adjacent east (inferred downgradient) of the Betty Brite Dry Cleaners. PCE and TCE were identified in soil vapor samples collected below the subslab inside the dry-cleaner shop (borings BB-1 through BB-4) and outside, below the adjoining parking lot at borings BB-5 through BB-8. Additionally, PCE was detected in a soil sample collected at 14 to 16 feet bgs at boring B-1 in the adjoining parking lot (Golder, 2009). The presence of petroleum hydrocarbons was not identified in soil samples collected during the investigation; however, benzene was reported in groundwater at levels below the MTCA Method A CUL.

Additional historical features at the Property that are potential source areas have not been investigated. Proposed investigation locations are near potential historical sources of impacts. The potential historical sources of impacts on the Property include (see Figure 2):

- Former oil burner—archival information indicates that the Betty Brite Dry Cleaners building used an oil burner as the heating source. Heating oil is a potential source of impact. The likelihood exists that an abandoned historical UST may be on parcel 0043000020.

These potential sources of impacts are summarized in the attached table, along with the corresponding COIs that may be associated with each potential source, and will be evaluated during the site assessment.

To assess the impacts of the potential sources, soil and reconnaissance groundwater samples will be collected. Up to four borings in the dry-cleaning establishment are proposed, to be installed using direct-push drilling techniques. Up to five borings, using a hollow-stem auger drilling rig, are proposed for areas adjacent to the east and west of the dry-cleaning business. Soil and groundwater samples will be collected from all borings. Figure 3 presents proposed boring locations. Actual locations may be adjusted based on field conditions.

4.2.1 Utility Locate

A public utility locate will be requested. Prior to subsurface exploration, a private utility locate contractor will attempt to locate on-site utilities, including the orientation of any water and sewer

mains or side sewer lines at the Property. Sampling locations may be adjusted based on information obtained from the utility locates.

4.2.2 Geophysical Survey

Prior to subsurface exploration, a geophysical survey will be conducted, employing both electromagnetic induction and ground penetrating radar to identify the potential presence and depth of an abandoned heating oil UST associated with a historical oil burner furnace at parcel 0043000020 (Figure 2). Sampling locations may be adjusted based on information obtained from the geophysical survey.

4.2.3 Soil

MFA will conduct a limited investigation of the lateral and vertical extent of HVOCs and potential total petroleum hydrocarbon and associated VOC impacts to soil within the property boundaries. The investigation will be in general accordance with the methodology outlined in the SAP. Soil cores will be advanced from ground surface to the boring completion depth.

Soil samples will be screened using a photoionization meter or an organic vapor monitor. Visual and olfactory observations will also be recorded. The attached table summarizes the anticipated range of sampling depths. If there is field evidence of impacts, the sampling depths may be altered. Soil samples will be collected from the vadose zone and at or near the bottom of the boreholes for assessment of vertical extent of potential impact.

Soil samples from borings MFA BB-1 through MFA BB-4, collected in the interior of Betty Brite Dry Cleaners to further investigate the dry cleaner's impacts to the subsurface, will be analyzed for the following:

- HVOCs, specifically PCE and its breakdown products (TCE, cis-1,2-dichloroethene [cis-1,2-DCE], trans-1,2-DCE, 1,1-DCE, and vinyl chloride) by U.S. Environmental Protection Agency (USEPA) 8260C

The following additional analyses may be conducted at interior borings MFA BB-1 through MFA BB-4, depending on the findings of the geophysical survey:

- Diesel-range organics (DRO) and residual-range organics (RRO) by Ecology Method NWTPH-Dx
- VOCs (specifically benzene, toluene, ethylbenzene, and xylenes [BTEX]) by USEPA 80210B

Soil samples from borings MFA B-5 through MFA B-9, collected immediately to the east and west of the Betty Brite Dry Cleaners to characterize the extent of HVOC impacts and investigate the potential for petroleum hydrocarbon impacts to the subsurface from a historical heating oil UST, will be analyzed for the following COIs (see the attached table):

- HVOCs, specifically PCE and its breakdown products (TCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, and vinyl chloride) by USEPA 8260C
- DRO and RRO by Ecology Method NWTPH-Dx
- VOCs (specifically BTEX) by USEPA 80210B, and/or
- Petroleum hydrocarbon identification (TPH-HCID) by Northwest Method NWTPH-HCID (borings MFA B-7 and MFA B-8)

Followup analyses will depend on the potential type of petroleum hydrocarbons identified at borings MFA B-7 and MFA B-8, but may include the following analytes (Table 1 in the SAP):

- Gasoline-range organics by Method NWTPH-Gx
- DRO and RRO by Northwest Method NWTPH-Dx
- Polycyclic aromatic hydrocarbons by USEPA Method 8270 selective ion monitoring
- Polychlorinated biphenyls by USEPA Method 8082
- Extractable petroleum hydrocarbons by NWTPH-EPH

Soil analytical results will be compared to MTCA Method A CULs for unrestricted land use. In the event that chemicals detected are not included in the Method A list, or the site is determined to be complex (e.g., multiple chemicals of potential concern), then MTCA Method B soil CULs for unrestricted land use may be used.

4.2.4 Groundwater

MFA will collect reconnaissance groundwater samples from selected borings to evaluate the potential presence of COIs (Figure 3). Up to nine groundwater samples may be collected and analyzed (see the attached table). Groundwater sampling will be conducted using the methods and protocol outlined in the SAP (Appendix A).

Groundwater sample collected from boreholes MFA B-1 through MFA B-4 will be analyzed for COIs associated with the operations at Betty Brite Dry Cleaners:

- HVOCs by USEPA 8260C

DRO and RRO by Northwest Method NWTPH-Dx

VOCs (specifically BTEX) by USEPA 80210B

Selected groundwater samples from MFA B-2, MFA B-3, MFA B-5, and MFA B-6 will also be analyzed for the following geochemical parameters to pre-screen for the presence of electron acceptors for assessment of the potential reductive dechlorination process:

- Nitrate by USEPA 353.2

- Ferrous iron by USEPA ApplEnvMic7-87-1536
- Sulfate by ASTM D516-02
- Sulfide by SM 4500-S2
- Chloride by SM 4500-Cl
- Methane by RSK 175

Additionally, similar to the soil media analysis outlined above, groundwater samples from borings MFA B-5 through MFA B-9 will be analyzed for COIs:

- HVOCs, specifically PCE and its breakdown products (TCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, and vinyl chloride), by USEPA 8260C
- DRO and RRO by Northwest Method NWTPH-Dx
- VOCs (specifically BTEX) by USEPA 80210B, and/or
- TPH-HCID by Ecology Method NWTPH-HCID (at selected locales—borings MFA B-7 and MFA B-8)

Followup analyses may depend on the type of petroleum hydrocarbons identified and may be similar to the analysis schedule for soil.

Groundwater analytical results will be compared to MTCA Method A groundwater CULs. In the event that chemicals detected are not included in the Method A list, or the Property is determined to be complex (e.g., multiple chemicals of potential concern), then MTCA Method B groundwater CULs for unrestricted land use may be used.

4.3 Risk Screening

MFA will assess the potential risk posed by the COIs to human health and to ecological receptors. The risk screening will be completed in accordance with MTCA guidance for the potentially complete pathways identified in the preliminary CSM.

5 PROJECT MANAGEMENT PLAN

The following describes the roles of key personnel on the project.

Mr. Jeff Robinson will be the project director for the City. Mr. Robinson will be kept informed of the status of the project and of project activities. Mr. Robinson will be provided with data, reports, and other project-related documents prepared by MFA before their submittal to Ecology. He will be responsible for communicating with the property owner, will participate in discussions with Ecology, and will coordinate on-site activities with the property owner and MFA.

Mr. Justin Clary will be the principal engineer and will be responsible for managing the overall completion of the site assessment and for communication of project status to the project director and the Ecology project manager. Mr. Clary will review data, reports, and other project-related documents prepared by MFA before their submittal to the City or to Ecology. Mr. Clary will also assist project staff with technical issues.

Ms. Jacqueline Gruber will be the project manager for MFA. Ms. Gruber will coordinate with project task leaders and will communicate with Mr. Robinson. She will be responsible for allocating the resources necessary to ensure that the objectives of the site assessment are met.

Ms. Yen-Vy Van will be responsible for technical assistance to assigned staff; assist with resolution of technical or logistical challenges that may be encountered during the investigation; assist with field activities and write and review reports; and participate in discussions with Ecology at the request of the City.

Mr. Kyle Roslund will assist with field activities and will write and review reports.

Ms. Madi Novak will perform the baseline human health and ecological risk screening and will be involved with overall data management. Ms. Novak will participate in discussions with Ecology at the request of the City.

5.1 Schedule

The following is the anticipated site assessment schedule:

Task	Start Date	Completion Time Frame (calendar weeks)
Complete work plan	Week of April 25, 2014.	2
Ecology work plan/SAP review	Week of April 28, 2014	2 to 4
Fieldwork	After receipt of Ecology's comments and approval on the work plan. Time frame includes fieldwork and laboratory analyses and appropriate followup analysis.	10
Draft site assessment report	After completion of fieldwork and receipt of final data packages.	4
Final site assessment report	Receipt of Ecology comments on draft site assessment report	2

The time frames for the work to be performed may change, based on changes to the scope of work and issues involving site access, and subject to subcontractor availability and Ecology approval.

LIMITATIONS

The services undertaken in completing this plan were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This plan is solely for the use and information of our client unless otherwise noted. Any reliance on this plan by a third party is at such party's sole risk.

Opinions and recommendations contained in this plan apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this plan.

The purpose of an environmental assessment is to reasonably evaluate the potential for or actual impact of past practices on a given site area. In performing an environmental assessment, it is understood that a balance must be struck between a reasonable inquiry into the environmental issues and an exhaustive analysis of each conceivable issue of potential concern. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation is thorough enough to exclude the presence of hazardous materials at a given site. If hazardous conditions have not been identified during the assessment, such a finding should not, therefore, be construed as a guarantee of the absence of such materials on the site.

Environmental conditions that cannot be identified by visual observation may exist at the site. Where subsurface work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.

Except where there is express concern of our client, or where specific environmental contaminants have been previously reported by others, naturally occurring toxic substances, potential environmental contaminants inside buildings, or contaminant concentrations that are not of current environmental concern may not be reflected in this document.

REFERENCES

AEG. 2010. Phase II environmental site assessment—Desmoines Chevron Station, 15060 Tukwila International Blvd., Tukwila, Washington. Associated Environmental Group, LLC.

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TABLE

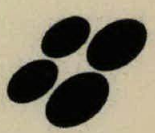


Table
Potential Source Areas and Chemicals of Interest
City of SeaTac South 154th Transit-Oriented Development Property
SeaTac, Washington

Potential Source Area[a]	Sample Identification	Sample Type	Soil Sample Collection Depth (feet bgs)	Number of Samples (Soil)	Number of Samples (GW)	Chemicals of Interest in Soil[b,c,d]	Chemicals of Interest in GW[c,d,e]
Betty Brite Dry Cleaners—interior of business adjacent to dry cleaning machine	MFA B-1 through MFA B-4	Borings	2 to 16	8	4	HVOC/VOC/TPH-Dx	HVOC, TPH-Dx, nitrate, iron II, sulfate, sulfide, chloride, methane
Betty Brite Dry Cleaners—adjoining parking lot, southeast and inferred downgradient of shop	MFA B-5	Boring	2 to 30	2	1	TPH-Dx/ VOCs/HVOCs	TPH-Dx/ VOCs/HVOCs; nitrate, iron II, sulfate, sulfide, chloride, methane
Betty Brite Dry Cleaners—adjoining parking lot, east and inferred downgradient of shop	MFA B-6	Boring	2 to 30	2	1	HVOC	TPH-Dx/ VOCs/HVOCs; nitrate, iron II, sulfate, sulfide, chloride, methane
Betty Brite Dry Cleaners—downgradient northeast of shop (Parcel 00430000100)	MFA B-7	Boring	2 to 30	2	1	HVOC/TPH-HCID	HVOC/TPH-HCID
Betty Brite Dry Cleaners—downgradient southeast of shop (Parcel 0043000093)	MFA B-8	Boring	2 to 30	2	1	HVOC/TPH-HCID	HVOC/TPH-HCID
Potential abandoned UST (heating oil)—west side of Betty Brite Cleaners Parcel 0043000020	MFA B-9.	Boring	2 to 30	2	1	TPH-Dx/ VOCs/HVOCs	TPH-Dx/ VOCs/HVOCs

Table
Potential Source Areas and Chemicals of Interest
City of SeaTac South 154th Transit-Oriented Development Property
SeaTac, Washington

NOTES:

bgs = below ground surface.

BTEX = benzene, toluene, ethylbenzene, and xylenes.

cPAH = polycyclic aromatic hydrocarbons by USEPA Method 8270C selective ion monitoring.

DRO = diesel-range organics.

EDB =1,2-dibromoethane.

EDC = 1,2-dichloroethane.

EPH = extractable petroleum hydrocarbons.

GRO = gasoline-range petroleum hydrocarbons.

GW = groundwater.

HCID = hydrocarbon identification.

HVOC = halogenated volatile organic compounds.

MTBE = methyl-tert-butylether.

PCB = polychlorinated biphenyls by USEPA Method 8082.

RRO = residual-range organics.

SVOC = semivolatile organic compound.

TPH-Dx = total petroleum hydrocarbons—diesel- and lube-oil range.

TPH-HCID = total petroleum hydrocarbons identification.

USEPA = U.S. Environmental Protection Agency.

UST = underground storage tank.

VOC = volatile organic compound.

VPH = volatile petroleum hydrocarbon.

[a]Potential sources and source area locations are approximated from Tetra Tech initial investigation reports and anecdotal evidence.

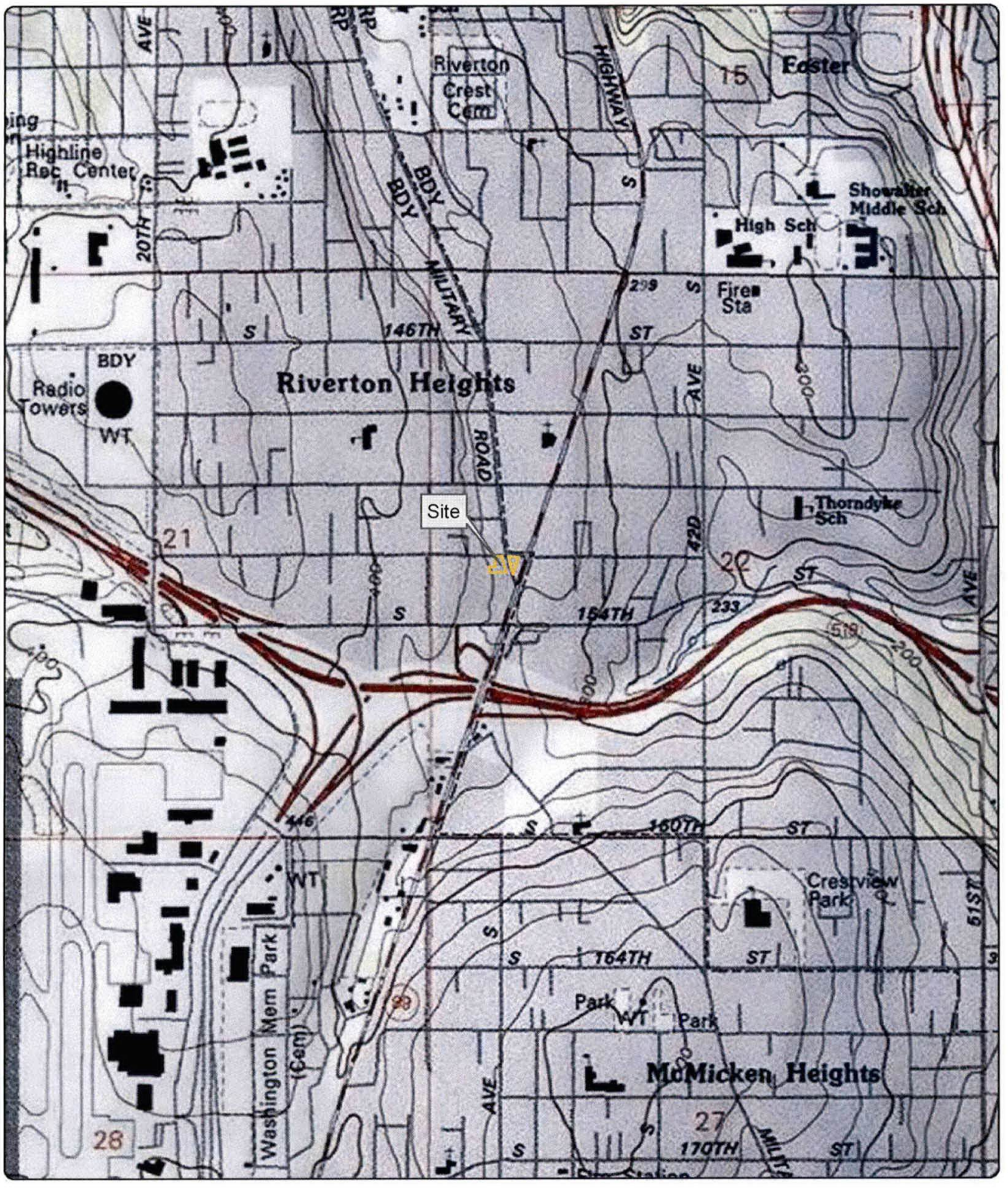
[b]Soil samples to be analyzed for GRO and VOCs, including EDB, EDC, and MTBE, will be collected using the USEPA 5035 method.

[c]Followup analyses for GRO detections may include VOCs (including n-hexane, BTEX, EDB, MTBE, EDC, and naphthalene), cPAHs, lead, and VPH.

[d]Followup analyses for HCID analysis may include GRO, DRO, and/or RRO, total metals, VOCs, SVOCs, cPAHs; VPH; EPH; and/or PCBs.

[e]Specified geochemical parameters (nitrate, iron II, sulfate, sulfide, chloride, and methane) to be analyzed at selected borings.

FIGURES



Site Address: 15209 Military Road South, SeaTac, Washington
Source: US Geological Survey (2013) 7.5 minute
topographic quadrangle: Tacoma
Section 22, Township 23 North, Range 4 East

Legend

Site Location

Figure 1
Site Location

S. 154th Street TOD
Seatac, Washington

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0 1,000 2,000
Feet

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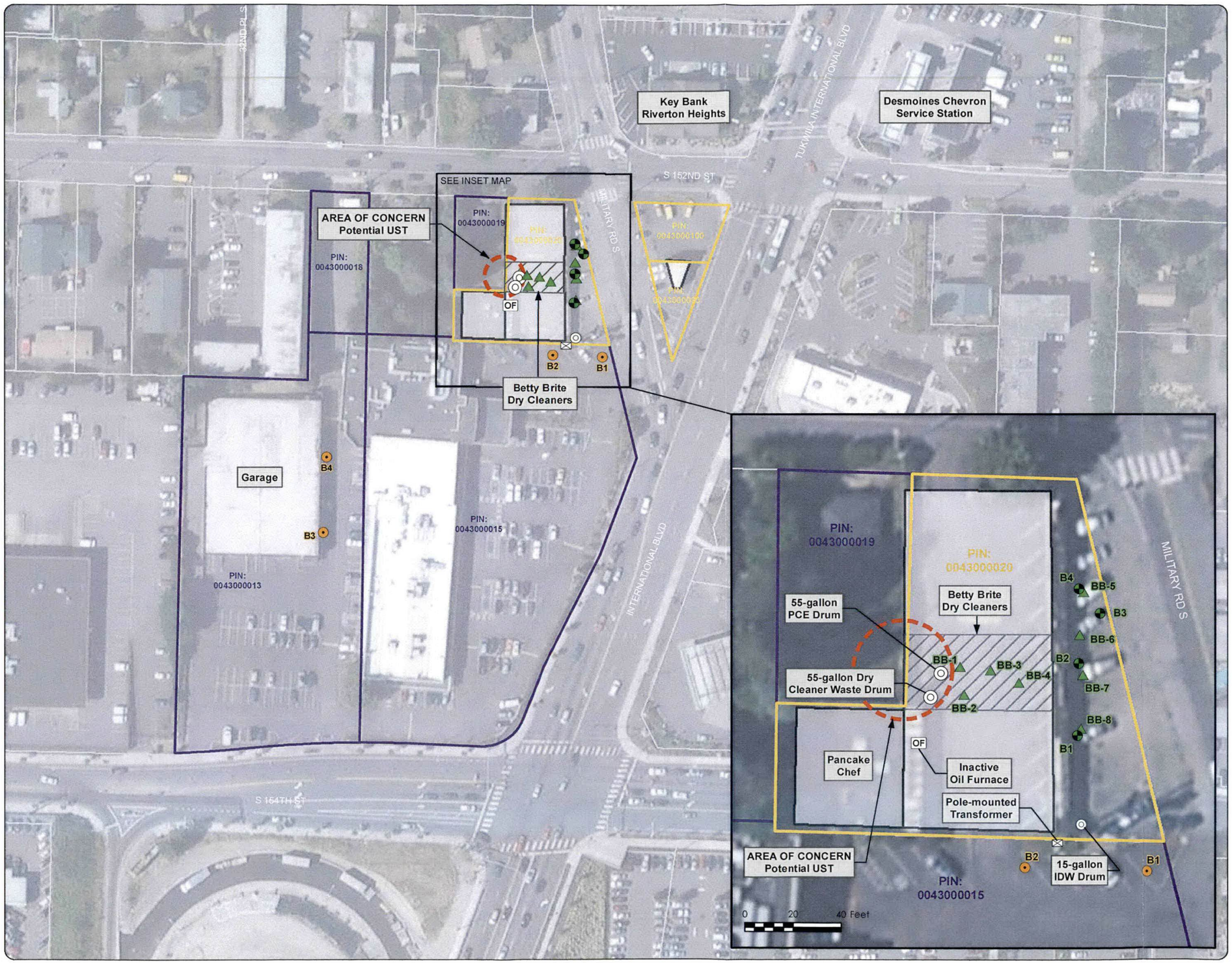
Print Date: 4/30/2014
Approved By: ywan
Produced By: apadilla
Project: 0879.01.02

Figure 2
Historical Site Features

S. 154th Street TOD
Seatac, Washington



Legend

2009 Golder Investigation
- Groundwater Sample
- Soil Vapor Sample

2009 EAI Phase II Investigation
- Soil Boring

Site Features
- 15-gallon Drum
- 55-gallon Drum
- OF Inactive Oil Furnace
- Pole-Mounted Transformer
- Area of Concern
- Betty Brite Dry Cleaners
- Building Extent
- Target Properties
- City-owned Parcels

Notes:
1. Building and sample locations obtained from 2009 Environmental Associates, Inc. Preliminary Phase II, SeaTac Center, and a 2009 Golder Associates, Inc. draft report on groundwater, soil, and soil vapor investigation, Pancake Chef property.
2. Feature locations are appoximate.
3. IDW = investigation-derived waste.
4. PCE = tetrachloroethene.
5. UST = underground storage tank.

0 50 100
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online; roads and parcels obtained from King County GIS (2011).

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Print Date: 4/30/2014
Approved By: yvan
Produced By: apadilla
Project: 0879.01.02

Figure 3
Proposed Boring Locations

S. 154th Street TOD
Seatac, Washington

Legend

2014 MFA Environmental Assessment
- Proposed Soil/ Groundwater Sample

2009 Golder Investigation
- Groundwater Sample
- Soil Vapor Sample

2009 EAI Phase II Investigation
- Soil Boring

Site Features
- OF Inactive Oil Furnace
- Pole-Mounted Transformer
- Area of Concern
- Betty Brite Dry Cleaners
- Building Extent
- Target Properties
- City-owned Parcels

Sewer Lines (Approximate)
- Laterals
- Main Pipes

City Stormwater Features
- Unknown Type CB/MH
- CB Type 1/1L
- CB Type 2/3
- MH
- Discharge Points
- Fitting
- Cleanout
- Main Pipes
- Culverts
- Laterals
- Ditch

Notes:
1. Building and sample locations obtained from 2009 Environmental Associates, Inc. Preliminary Phase II, SeaTac Center, and a 2009 Golder Associates, Inc. draft report on groundwater, soil, and soil vapor investigation, Pancake Chef property.
2. Feature locations are appoximate.
3. UST = Underground storage tank.

0 50 100
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online; roads, parcels, and stormwater features obtained from King County GIS; sewer lines are approximate and were digitized from drawings provided by Valley View sewer district.

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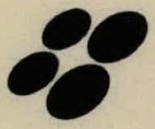
Path: X:\0879.01 City of SeaTac\Projects\Fig3_Proposed Sampling Locations.mxd
Print Date: 4/30/2014
Approved By: yvan
Produced By: apadilla
Project: 0879.01.02

APPENDIX A

SAMPLING AND ANALYSIS PLAN



SAMPLING AND ANALYSIS PLAN

SOUTH 154TH STREET TRANSIT-ORIENTED DEVELOPMENT PROPERTY

Prepared for
CITY OF SEATAC
SEATAC, WASHINGTON
May 8, 2014
Project No. 0879.01.02

MAUL FOSTER ALONGI

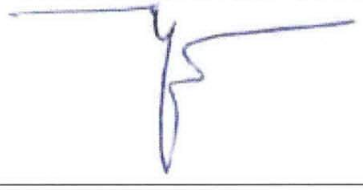
Prepared by
Maul Foster & Alongi, Inc.
411 First Avenue South, Suite 610, Seattle, WA 98104

SAMPLING AND ANALYSIS PLAN

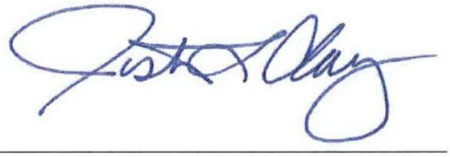
SOUTH 154TH STREET TRANSIT-ORIENTED DEVELOPMENT PROPERTY

The material and data in this plan were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.



Yen-Vy Van, LHG
Senior Hydrogeologist



Justin L. Clary, PE
Principal Engineer

CONTENTS

CONTENTS (CONTINUED)

TABLES AND ILLUSTRATIONS

FOLLOWING PLAN:

TABLES

FIGURES

ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
City	City of SeaTac, Washington
COC	chain of custody
COI	chemical of interest
DCE	dichloroethene
DRO	diesel-range organic
Ecology	Washington State Department of Ecology
FSDS	field sampling data sheet
Golder	Golder Associates, Inc.
HVOC	halogenated volatile organic compound
IDW	investigation-derived waste
IPG	Integrated Planning Grant
LCS	laboratory control sample
LDS	laboratory duplicate sample
MFA	Maul Foster & Alongi, Inc.
MS/MSD	matrix spike and matrix spike duplicate
MTCA	Model Toxics Control Act
PCE	tetrachloroethene
pH	potential hydrogen
PID	photoionization detector
Property	South 154th Street Transit-Oriented Development in SeaTac, Washington
PRT	post run tubing
QA	quality assurance
QC	quality control
RRO	residual-range organic
SAP	sampling and analysis plan
TCE	trichloroethene
TOD	Transit-Oriented Development
TPH-HCID	total petroleum hydrocarbons identification
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound
WAC	Washington Administrative Code

1 INTRODUCTION

Maul Foster & Alongi, Inc. (MFA) has prepared this sampling and analysis plan (SAP) consistent with the requirements of the Washington Administrative Code (WAC) 173-340-820 for the City of SeaTac, Washington (the City) to guide the collection of samples during the focused site assessment investigation at selected parcels associated with the City's proposed South 154th Street Transit-Oriented Development (TOD) property in SeaTac, Washington (the Property) (Figure 1 of MFA, 2014). The proposed TOD comprises the following seven parcels: King County parcels 00430013 (parking garage), 0043000015 (Bakaro Mall), 0043000018 (parking lot), 0043000019 (residential), 0043000020 (Betty Brite Dry Cleaners, Pancake Chef, and retail businesses), 0043000100 (parking lot), and 0043000093 (Dalsan Financial Services). The City owns parcels 00430013, 0043000015, 0043000018, and 0043000019, and is in negotiation to acquire the remaining three parcels (0043000020, 0043000100, and 0043000093). These three parcels are the focus of the site assessment. The Property currently is used for a variety of commercial applications, including a dry cleaner; money transfer services; retail clothing, food, and beauty supplies; a hair salon; a restaurant; a law office; and a money transfer service business.

The work described in this SAP is being conducted by the City under an Integrated Planning Grant (IPG) provided by the Washington State Department of Ecology (Ecology). The IPG funds will allow the City to assess the environmental condition of the Property. The procedures described in this SAP will be used for various phases and tasks of the project. The goal of the sampling is to obtain reliable data about physical, environmental, and chemical conditions at the Property in order to support the goals and objectives of the focused site assessment.

This SAP has been prepared consistent with the requirements of Ecology's Guidance on Sampling and Data Analysis Methods (Ecology, 1995), Guidance for Preparing Quality Assurance Project Plans for Environmental Studies (Ecology, 2004), Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action (Ecology, 2009), and the 1993 Model Toxics Control Act (MTCA) (WAC Chapter 173-340).

1.1 Investigation Objectives

The primary objective of the SAP is to establish procedures for the collection of data of sufficient quality to evaluate the nature and extent of impacted soil and groundwater at the Property. The site assessment work plan references the relevant procedures and protocols from this SAP; identifies specific media to be sampled; and identifies [provides] [discusses] the locations, frequency, and types of field or laboratory analyses that will be conducted. The SAP is meant to ensure that reliable data are obtained in support of the development of remedial actions at the Property if such actions are necessary for the protection of human health and the environment. It provides a consistent set of procedures that will be used throughout the various work phases identified in the work plan (MFA, 2014).

Once the nature and extent of soil and groundwater impacts have been determined, further investigation, which may involve the collection of other media (e.g., soil gas, indoor or ambient air, subslab vapor), may be proposed. The procedures for collection of samples of other media are summarized in this SAP, in case these are necessary in future scopes of work.

If a phase of work or an otherwise unforeseen change in methodology requires modification to this SAP, an addendum may be prepared that describes the specific revision(s), or the alternative procedures used will be documented in the site assessment report. Procedures are provided that will be used to direct the investigation process so that the following conditions are met:

- Data collected are of high quality, representative, and verifiable.
- Use of resources is cost effective.
- Data can be used by the City and Ecology to support selection and implementation of remedial actions, if necessary.

This SAP describes methods that will be used for sampling environmental media, decontaminating equipment, and managing investigation-derived waste (IDW). It also includes procedures for collecting, analyzing, evaluating, and reporting useful data. This SAP includes quality assurance (QA) procedures for field activities, quality control (QC) procedures, and data validation [noun].

2 ACCESS AND SITE PREPARATION

2.1 Access

The City has obtained signed agreements from all the current businesses at the Property, granting access for MFA to conduct subsurface investigation under the IPG. MFA will coordinate activities directly with the City, Ecology, and retail tenants at the Property and will notify the City and the Ecology project manager before beginning work at the Property.

2.2 Site Preparation and Coordination

Before subsurface field sampling programs begin at the Property, public and private utility-locating services will be used to check for underground utilities and pipelines near the proposed sample locations. A geophysical survey will be conducted, employing both electromagnetic induction and ground penetrating radar to identify the potential presence and depth of an abandoned heating oil underground storage tank associated with a historical oil burner furnace at parcel 0043000020 (Figure 2 of MFA, 2014). MFA will coordinate fieldwork with the City to define the locations of possible on-site utilities and piping or other subsurface obstructions. Ecology will be notified a minimum of 48 hours before field activities begin.

3 SOIL AND GROUNDWATER ASSESSMENT

The proposed locations of soil and reconnaissance groundwater borings are shown on Figure 3 of the focused site assessment work plan (MFA, 2014). Subsurface soil and reconnaissance samples in the Betty Brite Dry Cleaners establishment will be collected using a direct-push drill rig (i.e., Geoprobe™), limited access rig. Subsurface investigation at remaining locales at the Property (i.e., outside the dry-cleaning business) will be advanced using a hollow-stem auger drill rig to enable exploration to depths below the glacial till (at approximately 15 to 20 feet below ground surface [bgs]) for vertical assessment at areas of known soil and/or groundwater impacts and at locales hydraulically downgradient of potential sources of environmental concern.

Field screening will include measuring soil headspace vapor using a photoionization detector (PID) or an organic vapor monitor and documenting visual and olfactory observations.

Soil and groundwater samples will be analyzed following the program outlined in the work plan table (MFA, 2014). If there is evidence of impacts in the field, the sample depths may be altered in order to collect samples in and/or beneath the impacted areas. Additional analyses may be recommended based on field observations.

3.1 Borings

The borings will be advanced using a direct-push drill rig and a hollow-stem auger drill rig. Soil and groundwater samples will be collected using industry-standard sampling techniques. In the event that refusal is met before the desired boring depth is reached (i.e., significant debris, cobbles, glacial till, or bedrock are encountered), a different type of drilling technology may be considered.

Reconnaissance groundwater samples will be collected using a stainless steel (e.g., Geoprobe) water sampler at probe boring locations. The water sampler will be advanced to the desired depth. The casing around the water sampler will be pulled back, exposing the screen. If water does not flow into the screen within 15 minutes, the sampler will be removed and a temporary well will be installed. This will consist of placing 0.010-inch machine slot screen with polyvinyl chloride riser into the boring and allowing the boring to stay open overnight. This procedure will enable potential perched groundwater to collect in the boring. If no water is observed in the boring, then the boring will be abandoned. Temporary screen and risers will also be installed at borings advanced by hollow-stem auger drill rig and will follow the same sampling strategy as the probe borings.

If practicable, at least one casing volume of water will be purged before sample collection. Groundwater will be purged using new polyethylene tubing or a stainless steel bailer, following procedures summarized in Section 5.1. If there is enough water, some will be used to measure water quality field parameters, including items such as potential hydrogen (pH), specific conductance, and temperature.

New, disposable tubing will be used at each location to collect water samples. Nondisposable equipment used for water sample collection will be decontaminated both before its use at the facility and after each sample is collected.

Samples will be labeled, preserved, and shipped to the analytical laboratory under standard chain-of-custody (COC) procedures.

3.2 Documentation

A log of soil samples will be prepared by a geologist or hydrogeologist licensed by the State of Washington or a person working under the direct supervision of a geologist or hydrogeologist licensed by the State of Washington. Boring logs will include information such as the project name and location, the name of the drilling contractor, the drilling method, the sampling method, sample depths, blow counts (if applicable), a description of soil encountered, and screened intervals. Soils will be described using American Society for Testing and Materials designation D2488-00, Standard Practice for Description and Identification of Soils (Visual-Manual Procedures). The information will be recorded on the MFA boring log form shown in Attachment A or in field notes.

3.3 Boring Decommissioning

After a boring is no longer needed, it will be decommissioned with bentonite chips or with bentonite grout in accordance with the WAC for Minimum Standards for Construction and Maintenance of Wells (WAC 173-160, 1998).

3.4 Monitoring Wells

No permanent monitoring wells are currently proposed in this plan. Monitoring wells (if installed) will be constructed according to the Washington well construction standards (Chapter 173-160 WAC) and as described below:

- Monitoring wells will be constructed with 2-inch-diameter polyvinyl chloride or stainless steel riser pipe and screened sections. The well screens will consist of 0.010-inch machine slots. The monitoring wells may be constructed with prepacked well screen with 10 x 20 washed silica sand or by placing materials downhole, following the WAC regulation listed above.
- Additional filter pack may be placed around the prepacked screen (if used). The additional filter pack will consist of graded 10 x 20 washed silica sand and will extend a maximum of 1 foot below the bottom of the screen and 3 feet above the top of the screen. A weighted line will be used to monitor the level of the filter pack during installation. The filter pack may be surged during installation.
- Bentonite grout or hydrated chips (e.g., 0.75-inch minus) will be used to seal the annulus above the filter pack. Potable water will be used. A weighted line will be used to measure the top of the bentonite chips as they are poured into place.

- At least 24 hours after installation of a well, the well will be developed by surging, bailing, or pumping to remove sediment that may have accumulated during installation and to improve the hydraulic connection with the water-bearing zone.
- Water quality field parameters such as specific conductance, pH, temperature, and turbidity will be measured during well development as deemed appropriate. The wells will be developed until the turbidity measurements are 10 nephelometric turbidity units or less, or until there is no noticeable decrease in turbidity. To the extent practical, water quality field parameters will be considered stable when the specific conductance is within 10 percent of the previous reading, pH is within 0.1 standard unit of the previous reading, and temperature is within 0.1 degree Celsius of the previous reading.

3.5 Groundwater Elevations

Water level measurements to the nearest 0.01 foot will be taken, using an electronic water level indicator. If it is not known, the depth of the boring or the monitoring well will also be measured. The depth to water will be measured from the top of the casing (typically the polyvinyl chloride riser pipe) at the surveyed elevation point. This reference point will be marked so that future readings are taken from the same reference point. In addition, the well condition (if applicable), including the condition of the lock, monument integrity, and legibility of well labels, will be recorded for each location. Gauging equipment will be decontaminated between wells in accordance with the procedures outlined in Section 3.7.

3.6 Surveying

The location of the borings, surface samples, and other features of interest will be surveyed using a global positioning unit (e.g., Trimble™) capable of submeter accuracy. If monitoring wells are installed, they will be surveyed by a licensed surveyor.

3.7 Equipment Cleaning and Decontamination

3.7.1 Drilling Equipment

The working area of the drill rig and downhole drilling equipment will be steam-cleaned or pressure-washed after arrival on the Property and after use in each boring or monitoring well. Decontamination fluids will be transferred to drums approved by the Washington State Department of Transportation, and will be managed according to the procedures outlined in Section 3.8.

3.7.2 Sampling Equipment

Nondisposable sampling equipment and reusable materials that contact the soil or water will be decontaminated before and after each sample and sampling location. Decontamination will consist of the following:

- Tap-water rinse (may consist of an equivalent high-pressure or hot-water rinse). Visible soil to be removed by scrubbing.
- Nonphosphate detergent wash, consisting of a dilute mixture of Liqui-Nox® (or equivalent) and tap water.
- Distilled-water rinse.
- Methanol solution rinse (1:1 solution of methanol with distilled water).
- Distilled-water rinse.

Decontamination fluids will be transferred to drums for management.

3.8 Management of Investigation-Derived Waste

IDW may include items such as soil cuttings, purged groundwater, decontamination fluids, sampling debris, and personal protective equipment. The IDW will be segregated into solids, liquids, and sampling debris (e.g., personal protective equipment, tubing, bailers). IDW will be stored in a designated area on the Property in drums approved by the Washington State Department of Transportation.

Drums will be labeled with their contents, the approximate volume of material, the date of collection, and the origin of the material. The drums will be sealed, secured, and transferred to a designated area on the Property, pending characterization.

Analytical data from the soil-sampling and groundwater-sampling activities at borings advanced for investigation of potential impacts from halogenated solvents (associated with dry-cleaning operations), previously described, will be used to characterize the soil cuttings, drilling fluids, purge water, and decontamination fluids generated during the drilling and sampling at these selected borings.

IDW associated with halogenated solvent contamination, at concentrations above Ecology MTCA Method A cleanup levels, will follow procedures and analytical tests set forth in WAC 173-303-090 and WAC 17-303-100 for designation as either F-listed wastes or dangerous waste, in accordance with Ecology MTCA cleanup regulations. The IDW will be disposed of at the Waste Management Arlington facility, a regulated landfill in Arlington, Oregon, that accepts both F-listed and dangerous-waste products.

4 SOIL SAMPLING

Soil samples will be collected for lithologic description, field screening, and chemical analyses, as described below. The sampling intervals, depths, and initial sample analysis schedule are specified in the work plan (MFA, 2014).

4.1 Procedure

Samples will be prepared, handled, and documented as follows:

- Soil sampling equipment will be decontaminated before it is used at each sampling location (see Section 3.7).
- Samples will be obtained using new, uncontaminated gloves or decontaminated, stainless steel spoon, trowel, or knife.
- Soil will be field-screened by measuring soil vapor headspace and documenting visual and olfactory observations. If headspace measurements are collected, a representative amount of soil will be placed in a new, food-grade, zip-lock plastic bag. Samples will then be warmed and agitated before headspace analysis is conducted by carefully piercing the bag with the PID. Field-screen results will be documented in the field book or boring log.
- Soil that will be analyzed for volatile organic compounds (VOCs) and halogenated VOCs (HVOCs) will be transferred directly from freshly exposed soil into laboratory-supplied containers, using the appropriate U.S. Environmental Protection Agency (USEPA) 5035A sampling procedures. The samples will be placed in 40-milliliter vials. Depending on the soil type, 5 milligrams of soil will be added to the prepared vials preserved with sodium bisulfate monohydrate or methanol. A soil sample will also be collected in an unpreserved glass jar to be analyzed for total petroleum hydrocarbons identification (TPH-HCID). The work plan table presents potential source areas and chemicals of interest (COIs) (MFA, 2014).
- Large particles (i.e., larger than 0.25 inch) may be removed before the sample is placed in a laboratory-supplied container.
- Soil samples will be transferred directly from the sampling device into laboratory-supplied glass jars, using a new, uncontaminated-gloved hand or decontaminated, stainless steel spoon, trowel, or knife.
- Sample containers will be labeled, packed in iced shipping containers with COC documentation (see Section 9), and hand-delivered or shipped to the laboratory.
- Sampling information will be recorded in a field notebook, on a field sampling data sheet (FSDS), and on the COC form.
- Generally, duplicate soil samples should be collected at the frequency of one duplicate sample for every 20 samples collected.

4.2 Nomenclature

Soil samples will be labeled with a prefix to describe the location identification number, an "S" to indicate a soil sample matrix, and the sample depth in feet. The depth interval should be specified as the middle of the sampling interval. For example, a soil sample collected from a boring at location 12 and at 20 feet bgs will have the sample nomenclature of B12-S-20.0.

Duplicate soil samples will replace the location number with "DUP," and the sample will have the same sample time as the primary sample. A duplicate sample of the abovementioned sample would appear as BDUP-S-20.0. To avoid confusion, duplicate samples should not be collected from multiple locations at the same depth on the same day and time.

Relevant sample information will be documented on the exploratory boring log (see Attachment A) or an FSDS (see Attachment B).

4.3 Composite Soil Sampling

Should soil stockpiles be created on site in the future, characterization of each stockpile will be completed through collection of representative composite soil samples. A clean shovel or hand auger will be used to dig up to 1.5 feet into the pile from at least three subsample locations. Each of the subsamples will be collected at least 0.5 foot bgs by hand with clean, disposable gloves. Subsample locations will be selected to obtain representative material, based on visual inspection and best professional judgment. To the extent possible, subsamples should consist of fine-particle-sized material, with larger rocks and debris removed. Subsamples will be combined and homogenized. The discrete samples will be placed into laboratory-supplied containers and submitted to the laboratory and held. The composite sample of the material source will be transferred to a laboratory-supplied glass container(s).

5 GROUNDWATER SAMPLING

During drilling, reconnaissance groundwater samples may be collected for chemical analyses, as described below. If monitoring wells are installed, groundwater samples may be collected following the procedure outlined below.

5.1 Reconnaissance Groundwater Sampling

Reconnaissance groundwater samples will be collected using conventional methods associated with the drilling method (e.g., inertia or peristaltic pump). Before groundwater sampling, the boring will be purged to minimize solids and to ensure that a representative sample is collected.

Groundwater will be transferred directly into laboratory-supplied containers specific to the analysis required, as outlined in Section 9. If there is enough water, water quality field parameters (e.g., temperature, specific conductance, pH, turbidity) will be measured.

5.2 Monitoring Well Groundwater Sampling

If monitoring wells are installed, a peristaltic pump will collect groundwater samples, using standard low-flow sampling techniques. If possible, groundwater samples should be collected from the middle

of the screened interval or, if the water level is below the top of the screen, from the middle of the water column. New, disposable tubing will be used at each monitoring location.

Before collection of groundwater samples, the water level will be measured and the well will be purged. If a peristaltic pump is used, the well should be purged at a USEPA-approved, low flow rate (e.g., 0.1 to 0.5 liter per minute). A minimum of one well volume will be purged before sample collection or until selected water quality field parameters (e.g., temperature, specific conductance, pH, turbidity) have stabilized. If the well goes dry during purging, a sample can be collected once the well recharges enough water. During purging, the flow rates, water levels, and water quality parameters will be recorded on an appropriate field form or in the field notes. Groundwater will be transferred directly into laboratory-supplied containers specific to the analysis required.

5.3 Nomenclature

Groundwater samples will be labeled with a prefix to describe the sampling location identification number, a "W" to indicate a water sample matrix, and the midpoint of the screened or open area sample depth in feet. For example, a reconnaissance groundwater sample collected from a boring at location 4 and with a screen from 30 feet to 35 feet bgs will have the sample nomenclature of B4-W-32.5.

Duplicate reconnaissance groundwater samples will replace the location number with "DUP," and the sample will have the same sample time as the primary sample. To avoid confusion, avoid collecting more than one a duplicate sample from the same depth at the same date and time. A duplicate sample of the abovementioned sample would appear as BDUP-W-32.5.

Relevant sample information will be documented on the exploratory boring log (see Attachment A) or an FSDS (see Attachment B); documentation may include items such as the screened interval or open space, equipment used, water quality field parameters, and the amount of water purged before sampling. The screened interval or open boring will be recorded on the boring log.

6 SOIL VAPOR SAMPLING

If soil vapor sampling is performed, it should be conducted as described below.

6.1 Procedure

Soil borings for soil vapor sample collection will be advanced using direct-push technology (e.g., Geoprobe). A "post run tubing" (PRT) system will be used to reduce problems that may occur with sampling directly through the steel rods. The PRT system uses an adapter and tubing to isolate the soil gas sample from the drill rods, thereby reducing possible leaks of ambient air from the rod joints into the sample. A PRT point holder and expendable point are attached to the leading end of a sampling screen. The drill rods will be advanced to the desired sample depth. The PRT adapter attached to the sample tubing is threaded into the reverse thread fitting in the top of the point holder.

The rods are then retracted to release the expendable point, exposing the screen and creating an opening where soil gas can enter the PRT system.

The upper end of the tubing will be connected to the purging/sampling system (Figure 1). A flow controller may be attached to the sample setup to regulate the flow of soil vapor into the sample container. The line will be purged for one minute or a period of time sufficient to achieve a purge volume that equals at least three volumes of the PRT system and sampling train, and then the sample will be collected using a laboratory-supplied stainless steel canister (e.g., Summa canister), or other appropriate container.

If a leak check is deemed necessary, helium will be contained around the sampling apparatus and sampling location, using a small, tent-like structure or shroud, to serve as a leak-check compound to verify the integrity of the sampling system before the sample is collected. See the attached Figure 1 for sample system configuration.

6.2 Nomenclature

Soil vapor samples will be labeled with a prefix to describe the sampling location identification number, "SV" to indicate the soil vapor sample matrix, and the midpoint of the screened or open area sample depth. For example, a soil vapor sample collected from a boring at location 4 and with an open screen from 5 feet to 7 feet bgs will have the sample number B4-SV-6.0.

Duplicate soil vapor samples will replace the location number with "DUP," and the sample will have the same sample time as the primary sample. A duplicate sample of the abovementioned sample would appear as BDUP-SV-6.0.

Relevant sample information will be documented on the exploratory boring log (see Attachment A) or an FSDS (see Attachment B); documentation should include the screened interval or open space, equipment used, and helium meter readings.

7 SUBSLAB SOIL VAPOR SAMPLING

If subslab soil vapor sampling is performed, it should be conducted as described below.

7.1 Procedure

Subslab soil vapor sampling may be performed to evaluate vapors that collect under a building's foundation. The following procedures may be followed to install subslab soil vapor sampling points.

Subslab utilities, such as water, sewer, and electrical, should be located and marked on the slab before drilling or cutting. If it is determined that a building has a moisture barrier and/or a tension slab, special care should be taken when drilling or cutting through the concrete slab. Subslab samples will not be collected if the slab is in contact with, or potentially could come into contact with, groundwater.

After removal of the floor covering, a 1.0- to 1.25-inch-diameter hole will be drilled through the concrete slab (see Figure 2). A hammer drill can be used to drill the holes. A vacuum should be used to remove drill cuttings from the borehole.

Vapor probes will be constructed of 1/8-inch- or 1/4-inch-diameter, stainless steel tubing (e.g., Swagelok®) with a permeable probe tip. A Teflon™ sealing disk should be placed, as needed, between the probe tip and the blank riser pipe to prevent the downward migration of materials into the sand pack. Dry, granular bentonite should be used to fill the borehole annular space to above the base of the concrete foundation. Hydrated bentonite should then be placed above the dry granular bentonite. The bentonite for this portion of probe construction should be hydrated to ensure proper sealing. Care should be used in placement of the bentonite to prevent post-emplacement expansion, which might compromise both the probe and the cement seal. The remainder of the hole should be filled with bentonite grout if the probe installation is temporary, or with cement if the installation is permanent. Before the introduction of the bentonite grout or cement, the existing concrete surfaces in the borehole should be cleaned with a damp towel to increase the likelihood of a good seal. The vapor probe tip should be surrounded by a sand filter pack to ensure proper airflow to the probe tip.

Water used in the construction of the probe should be deionized, the bentonite grout should be contaminant-free and quick drying, and the metal probe components should be stainless steel and should be cleaned to remove manufacturer-applied cutting oils.

Before sampling, at least two hours should elapse following installation of a probe to allow the construction materials to cure and the subsurface to equilibrate (USEPA, 2006).

The upper end of the tubing will be connected to the purging/sampling system (Figure 3). A flow controller will be attached to the sample setup to regulate the flow of soil vapor into the sample container. Before sampling, the line will be purged for one minute or a period of time sufficient to achieve a purge volume that equals at least three volumes. Relevant sampling information, such as the sampling start and stop times, the initial and final canister vacuum readings, and weather conditions, should be recorded. If a stainless steel canister is used, the sample should be rejected or the data qualified if the initial canister pressure is not at least 28 inches of mercury or if the final canister pressure is greater than 5 inches of mercury.

Upon completion of the sampling events, the foundation probes will be decommissioned by overdrilling the probe tip, probe tubing, bentonite, and grout. The borehole will be filled with grout and concrete patch material.

7.2 Nomenclature

Subslab soil vapor samples will be labeled with a prefix to describe the sampling location identification number, "BV" to indicate the subslab soil vapor sample matrix, and the midpoint of the screened or open area sample depth. For example, a subslab soil vapor sample collected from location 4 and with an open screen from 5 feet to 7 feet bgs will have the sample number L04-BV-6.0.

Duplicate soil vapor samples will replace the location number with "DUP," and the sample will have the same sample time as the primary sample. A duplicate sample of the abovementioned sample would appear as LDUP-SV.

Samples will be documented in field notes and will include the equipment used and the screened interval or open space.

8 INDOOR/BACKGROUND AIR SAMPLING

If indoor or outdoor air sampling is performed, it should be conducted as described below.

8.1 Procedure

Indoor air samples should be collected from each level, if applicable, of each building included in the assessment. Indoor air samples will be collected approximately 3 to 5 feet above the floor. If outdoor ambient air samples are collected, they should be taken from locations upwind of the building at approximately the same time as the indoor air sample collection.

A flow controller should be attached to the sample setup to regulate the flow of air into the sample container. If a 6-liter, stainless steel canister is used, the valve will be opened to collect the sample over a 24-hour period. Field data will be recorded, including items such as a description of the sample location, sampling start and stop times, the initial and final canister vacuum readings, and weather conditions. The sample should be rejected or the data qualified if the initial canister pressure is not at least -28 inch of mercury or if the final canister pressure is greater than -5 inch of mercury.

8.2 Nomenclature

Indoor air samples will be labeled with a prefix to describe the sampling location identification number prefixed by L, "IA" to indicate the indoor air sample matrix, and a height above ground, in feet. Background air samples will be labeled with a prefix to describe the sampling location identification number prefixed by L, "BA" to indicate the background air sample matrix, and a height above ground, in feet. For example, an indoor air sample collected at location 4, 3 feet off the ground, will have the sample number L04-IA-4.0.

Duplicate air samples will replace the location number with "DUP," and the sample will have the same sample time as the primary sample. A duplicate sample of the abovementioned sample would appear as LDUP-IA-4.0.

Relevant sample information may be documented on an FSDS (see Attachment B) and should include items such as a description of the sample location, the screened interval or open space, and equipment used. Record field data before and after the sampling, including items such as the sampling start and stop times, the initial and final canister vacuum readings, temperature, relative humidity, and

observations of conditions that may influence sampling results (e.g., presence or use of products that may contain COIs; open windows/doors; ventilation systems).

9 ANALYTICAL METHODS

9.1 Chemicals of Interest

Tetrachloroethene (PCE) and benzene were detected in subsurface groundwater, and PCE and trichloroethene (TCE) were detected in soil vapor (in the subslab inside Betty Brite Dry Cleaners, and outside in the adjoining parking lot) during a 2009 investigation (Golder, 2009). The following chemicals may be associated with known or suspected former site activities and have been identified as COIs: HVOCs; total petroleum hydrocarbons and associated petroleum hydrocarbons; and VOCs, specifically benzene, toluene, ethylbenzene, and total xylenes (BTEX). COIs will be analyzed as outlined in the work plan table (MFA, 2014).

9.2 Laboratory Test Methods and Reporting Limits

9.2.1 Soil and Groundwater

In accordance with the QA/QC requirements set forth in this SAP, an accredited laboratory may perform the following analyses. Laboratory methods are summarized in the work plan table (MFA, 2014).

- HVOCs, specifically PCE and its breakdown products (TCE, cis-1,2-dichloroethene [cis-1,2-DCE], trans-1,2-DCE, 1,1-DCE, and vinyl chloride) by USEPA 8260C
- Diesel-range organics (DROs) and residual-range organics (RROs) by Northwest Method NWTPH-Dx
- VOCs (specifically BTEX) by USEPA 80210B
- TPH-HCID by Ecology Method NWTPH-HCID

Followup analyses will depend on the potential type of petroleum hydrocarbons identified and may include the following analytes:

- Gasoline-range organics by Ecology Method NWTPH-Gx
- DROs and RROs by Ecology Method NWTPH-Dx
- Polycyclic aromatic hydrocarbons by USEPA Method 8270 selective ion monitoring
- Polychlorinated biphenyls by USEPA Method 8082
- Extractable petroleum hydrocarbons by Ecology Method NWTPH-EPH

Selected groundwater samples from MFA B-2, MFA B-3, MFA B-5, and MFA B-6 will also be analyzed for the following geochemical parameters to prescreen for the presence of electron acceptors for assessment of the potential reductive dechlorination process:

- Nitrate by USEPA 353.2
- Ferrous iron by USEPA ApplEnvMic7-87-1536
- Sulfate by ASTM D516-02
- Sulfide by SM 4500-S2
- Chloride by SM 4500-Cl
- Methane by RSK 175

9.2.2 Soil Vapor/Subslab Vapor Sampling

In the event that soil vapor/subslab vapor sampling is recommended at the Property, chemical analyses will be determined based on chemical impacts observed in soil and/or groundwater. For example, samples may be analyzed for selected compounds by Modified USEPA Method TO-15 selective ion monitoring or USEPA Method TO-17. An accredited laboratory will provide a 1-liter, stainless steel canister (e.g., Summa canister) or sorbent tube for each sample to be analyzed for VOCs.

9.2.3 Indoor/Background Air Sampling

In the event that indoor air/background air sampling is recommended at the Property, chemical analyses will be determined based on chemical impacts observed in soil, groundwater, and/or vapor sampling. For example, samples may be analyzed for selected VOC compounds by Modified USEPA Method TO-15 selective ion monitoring to achieve low reporting limits. An accredited laboratory may provide a 6-liter, stainless steel canister (e.g., Summa canister) or sorbent tube for each sample.

9.3 QA/QC Samples Generated in Field

To ensure that field samples and quantitative field measurements are representative of the media collected and conditions being measured, sample collection and measurement methods will follow procedures documented in Section 4.1. QC samples collected in the field include field equipment rinsate blanks, trip blanks, and field duplicates. Field QC samples will be identified on the FSDSs. Field and trip blank results may indicate possible contamination introduced by field or laboratory procedures; field duplicates indicate precision in both field and laboratory procedures.

9.4 Laboratory Operations

In the laboratory, QC samples may include matrix spike and matrix spike duplicate (MS/MSD) samples, laboratory control samples (LCSs), surrogate spike samples, and method blanks, as well as other QC samples and procedures as required by the individual methods.

9.5 Sample Containers, Preservation, and Handling

9.5.1 Preservation

Water samples will be collected in laboratory-supplied containers, as generally specified; see the summary in Table 1.

Soil samples for HVOC and VOC analyses will be collected in 40-milliliter glass vials, using the USEPA 5035A method. Other soil samples will be collected in glass jars. The soil and groundwater samples will be stored in iced coolers at approximately 4 degrees Celsius. Sample containers will be supplied by the laboratory.

9.5.2 Sample Packaging and Shipping

Soil and groundwater samples will be stored in iced shipping containers or a refrigerator designated for samples, and then transported to the analytical laboratory in containers. Air samples will be transported to the analytical laboratory in shipping containers or boxes.

9.6 Sample Custody

Sample custody will be tracked from point of origin through analysis and disposal, using a COC form, which will be filled out with the appropriate sample and analytical information after samples are collected.

The following items will be recorded on the COC form:

- Project name
- Project number
- MFA project manager
- Sampler name(s)
- Sample number, date and time collected, media, number of bottles submitted
- Requested analyses for each sample
- Type of data package required
- Turnaround requirements
- Signature, printed name, and organization name of persons having custody of samples; date and time of transfer
- Additional instructions or considerations that would affect analysis (nonaqueous layers, archiving, etc.)

Persons in possession of the samples will be required to sign and date the COC form whenever samples are transferred between individuals or organizations. The COC will be included in the shipping containers. The laboratory will implement its in-house custody procedures, which begin when sample custody is transferred to laboratory personnel.

If samples are shipped via air or ground transportation (by a third party), the following custody procedures will be followed. The COC will be signed and custody will be relinquished to the carrier. The signed COC(s) will be packed in shipping containers with the samples, and a custody seal will be placed on the container. The shipping documentation will be used by the carrier to document custody of the package while it is in transit to the laboratory.

At the analytical laboratory, a designated sample custodian will accept custody of the samples and will verify that the COC form matches the samples received. The shipping container or set of containers is given a laboratory identification number, and each sample is assigned a unique sequential identification number.

9.7 Instrumentation

9.7.1 Field Instrumentation

Field instruments will be used during the investigations. The following field equipment may require calibration before use and periodically during sampling activities:

- pH meter
- Conductivity meter
- Dissolved-oxygen meter
- Oxygen/reduction potential meter
- Turbidity meter
- Thermometer
- PID
- Electronic water-level probe

Field-instrument calibration and preventive maintenance will follow the manufacturers' guidelines, and deviations from the established guidelines will be documented.

9.7.1.1 Field Calibration

Generally, field instruments should be calibrated daily before work begins. Field personnel may decide to calibrate more than once a day if inconsistent or unusual readings occur, or if conditions warrant more frequent calibration. Calibration activities should be recorded in logbooks or field notebooks. To ensure that field instruments are properly calibrated and remain operable, the following procedures will be used, at a minimum:

- Operation, maintenance, and calibration will be performed in accordance with the instrument manufacturers' specifications.
- Standards used to calibrate field instruments will meet the minimum requirements for source and purity recommended in the equipment operation manual. Standards will be checked for expiration dates that may be printed on the bottle. Standards that have expired should not be used.
- Acceptable criteria for calibration will be based on the limits set in the operations manual.
- Users of the equipment should be trained in the proper calibration and operation of the instrument.
- Operation and maintenance manuals for each field instrument should be available to persons using the equipment.
- Field instruments will be inspected before they are taken to the site.
- Field instruments will be calibrated at the start of each workday. Meters will be recalibrated, as necessary, during the work period.
- Calibration procedures (including items such as time, standards used, and calibration results) should be recorded in a field notebook. The information should be available if problems are encountered.

9.7.1.2 Preventive Maintenance

Preventive maintenance of field instruments and equipment will follow the operations manuals. A schedule of preventive-maintenance activities should be followed to minimize downtime and ensure the accuracy of measurement systems. Maintenance will be documented in the field notebook.

9.7.2 Laboratory Instrumentation

Specific laboratory instrument calibration procedures, frequency of calibration, and preparation of calibration standards will be according to the method requirements as developed by the USEPA, following procedures presented in SW-846 (USEPA, 1986).

9.7.2.1 Laboratory Calibration and Preventive Maintenance

The laboratory calibration ranges specified in SW-846 (USEPA, 1986) will be followed.

Preventive maintenance of laboratory equipment will be the responsibility of the laboratory personnel and analysts. This maintenance includes routine care and cleaning of instruments and inspection and monitoring of carrier gases, solvents, and glassware used in analyses. The preventive-maintenance approach for specific equipment should follow the manufacturers' specifications, good laboratory practices, and industry standard techniques.

Precision and accuracy data will be examined for trends and excursions beyond control limits to determine evidence of instrument malfunction. Maintenance should be performed when an instrument begins to change, as indicated by the degradation of peak resolution, shift in calibration curves, decrease in sensitivity, or failure to meet any of the QC criteria.

9.8 Laboratory QA/QC Samples

The laboratory QC samples will be used to assess the accuracy and precision of the laboratory analysis. Each category of laboratory QA/QC will be performed by the laboratory as required by method-specific guidelines. The acceptance criteria presented in the guidelines will be adhered to, and samples that do not meet the criteria will be reanalyzed or qualified, as appropriate.

9.8.1 Calibration Verification

Instruments will initially be calibrated at the start of the project or sample run, as required, and when any ongoing calibration does not meet control criteria. The number of points used in the initial calibration is defined in the analytical method. Calibration will be continued as specified in the analytical method to track instrument performance. If a continuing calibration does not meet control limits, analysis of project samples will be suspended until the source of the control failure is either eliminated or reduced to within control specifications.

9.8.2 Matrix Spike/Matrix Spike Duplicate

MS samples are analyzed to assess the matrix effects on the accuracy of analytical measurements. MS/MSD samples will be prepared by spiking investigative samples with known amounts of analytes before extraction and preparation and analysis. The recoveries for the MS/MSD samples will be used to assess the accuracy and precision in the analytical method by measuring how well the analytical method recovers the target compounds in the investigative matrices. For each matrix type, at least one set of MS/MSD samples will be analyzed for each batch of samples of 20 (or fewer) samples received.

9.8.3 Method Blanks

Method blanks are prepared using analyte-free (reagent) water and are processed with the same methodology (e.g., extraction, digestion) as the associated investigative samples. Method blanks are used to document contamination resulting in the laboratory from the analytical process. A method blank shall be prepared and analyzed in every analytical batch. The method blank results are used to verify that reagents and preparation do not impart unacceptable bias to the investigative sample results. The presence of analytes in the method blank sample will be evaluated against method-specific thresholds. If analytes are present in the method blank above the method-specific threshold, corrective action will be taken to eliminate the source of contamination before proceeding with analysis. Investigative samples of an analytical batch associated with method blank results outside acceptance limits will be appropriately qualified by the data validation contractor.

9.8.4 Laboratory Control Samples

LCSs are prepared by spiking laboratory-certified, reagent-grade water with the analytes of interest or a certified reference material that has been prepared and analyzed. The result for percent recovery of the LCS is a data quality indicator of the accuracy of the analytical method and laboratory performance.

9.8.5 Laboratory Duplicate Samples

Laboratory duplicate samples (LDSs) are prepared by the laboratory by splitting an investigative sample into two separate aliquots and performing separate sample preparation and analysis on each aliquot. The results for relative percent difference of the primary investigative sample and the respective LDSs are used to measure precision in the analytical method and laboratory performance. For nonaqueous matrices, sample heterogeneity may affect the measured precision for the LDSs.

9.9 Field QC

The following samples will be prepared by the sampling personnel in the field and submitted to the laboratory:

- **Equipment Rinsate Blanks**—To ensure that decontamination procedures are sufficient, an equipment rinsate blank will be collected when nondedicated, nondisposable equipment is used. At least one equipment rinsate blank will be collected for every 20 samples collected. If more than 20 samples are collected with the same equipment, or if high concentrations of contaminants are encountered, additional equipment rinsate blanks may be collected. Equipment rinsate blanks will be collected by passing laboratory deionized/distilled water through or over nondisposable sampling equipment.
- **Trip Blanks**—A trip blank monitors the potential for sample contamination during sample collection and transport. A trip blank consists of reagent-grade water in a new sample container, which is prepared at the same time as the sample containers. The trip blank will accompany the samples throughout collection, shipment, and storage. At least one trip blank should be included with each cooler in which samples for VOC analyses are stored.
- **Field Duplicates**—Field duplicates are collected to measure sampling and laboratory precision. At least one duplicate sample will be collected for every 20 samples.

9.10 Data Reduction, Validation, and Reporting

The analytical laboratory will submit analytical data packages that include laboratory QA/QC results to permit independent and conclusive determination of data quality. MFA will determine data quality, using the data evaluation procedures described in this section. The results of the MFA evaluation will be used to determine if the project data quality objectives are met.

9.10.1 Field Data Reduction

Daily internal QC checks will be performed for field activities. Checks will consist of reviewing field notes and field activity memoranda to confirm that the specified measurements, calibrations, and procedures are being followed. The need for corrective action will be assessed on an ongoing basis, in consultation with the project manager.

9.10.2 Laboratory Evaluation

Initial data reduction, evaluation, and reporting at the analytical laboratory will be carried out as described in USEPA SW-846 manuals for analyses (USEPA, 1986), as appropriate. Additional laboratory data qualifiers may be defined and reported to further explain the laboratory's QC concerns about a particular sample result. Additional data qualifiers will be defined in the laboratory's case narrative reports.

9.10.3 Data Deliverables

Laboratory data deliverables are listed below. Electronic deliverables will contain the same data that are presented in the hard-copy report.

- Transmittal cover letter
- Case narrative
- Analytical results
- COC
- Surrogate recoveries
- Method blank results
- MS/MSD results
- Laboratory duplicate results

9.10.4 MFA Evaluation

9.10.4.1 Data QA/QC Review

MFA will evaluate the laboratory data for precision, completeness, accuracy, and compliance with the analytical method. MFA will review data according to applicable sections of USEPA organics and inorganics procedures (USEPA, 2008, 2010), as well as appropriate laboratory method-specific guidelines (USEPA, 1986).

Data qualifiers, as defined by the USEPA, are used to classify sample data according to their conformance to QC requirements. Common qualifiers are listed below:

- J—Estimate, qualitatively correct but quantitatively suspect.
- R—Reject, data not suitable for any purpose.
- U—Not detected at a specified reporting limit.

Poor surrogate recovery, blank contamination, or calibration problems, among other things, can require qualification of the sample data. When sample data are qualified, the reasons for the qualification should be stated in the data evaluation report.

QC criteria not defined in the guidelines for evaluating analytical data are adopted, where appropriate, from the analytical method.

The following information will be reviewed during data evaluation, as applicable:

- Sampling locations and blind sample numbers
- Sampling dates
- Requested analysis
- COC documentation
- Sample preservation
- Holding times
- Method blanks
- Surrogate recoveries
- MS/MSD results
- Laboratory duplicates (if analyzed)
- Field duplicates
- Field blanks
- LCSs
- Method reporting limits above requested levels
- Additional comments or difficulties reported by the laboratory
- Overall assessment

The results of the data evaluation review will be summarized for each data package. Data qualifiers will be assigned to sample results on the basis of USEPA guidelines, as applicable.

9.10.4.2 Data Management and Reduction

MFA uses a database (i.e., EQuIS™) to manage laboratory data. The laboratory will provide the analytical results in electronic, EQuIS-compatible format. Following data evaluation, data qualifiers will be entered into the database.

Data may be reduced to summarize particular data sets and to aid interpretation of the results. Statistical analyses may also be applied to results. Data-reduction QC checks will be performed on hand-entered data, calculations, and data graphically displayed. Data may be further reduced and managed using one or more of the following computer software applications:

- Microsoft Excel (spreadsheet)
- EQuIS (database)
- Microsoft Access (database)

- AutoCad and/or Arc GIS (graphics)
- USEPA ProUCL (statistical software)

10 REPORTING

After the data are received, MFA will generate a data report, which will summarize and screen the data against the applicable criteria.

LIMITATIONS

The services undertaken in completing this plan were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This plan is solely for the use and information of our client unless otherwise noted. Any reliance on this plan by a third party is at such party's sole risk.

Opinions and recommendations contained in this plan apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this plan.

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TABLES

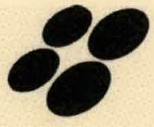


Table 1
Soil Sample Handling Summary
City of SeaTac South 154th Street TOD Property
SeaTac, Washington

Analyte	Method	Suggested Volume	Container	Number of Containers	Preservative	Storage Temperature	Holding Time from Collection
Total Petroleum Hydrocarbons-Hydrocarbon Identification	NWTPH-HCID	4 ounces	Glass Jar	1	none	4 degrees C	14 days
Total Petroleum Hydrocarbons—Diesel and Oil	NWTPH-Dx	4 ounces	Glass Jar	1	none	4 degrees C	14 days
Total Petroleum Hydrocarbons—Gasoline	NWTPH-Gx	5035 Sample Kit	VOA/Glass Jar	1 5035 Sample Kit	5035 Sample Kit	4 degrees C	14 days
Total Metals	USEPA 6010	4 ounces	Glass Jar	1	none	4 degrees C	six months
Mercury	USEPA SW7471	4 ounces	Glass Jar	1	none	4 degrees C	28 days
PAHs	USEPA 8270 SIM	4 ounces	Glass Jar	1	none	4 degrees C	14 days
PCBs	USEPA 8082	4 ounces	Glass Jar	1	none	4 degrees C	365 days
VOCs	USEPA 8260B	5035 Sample Kit	VOA/Glass Jar	1 5035 Sample Kit	5035 Sample Kit	4 degrees C	14 days
1,2-dibromoethane	USEPA 8260B SIM	5035 Sample Kit	VOA/Glass Jar	1 5035 Sample Kit	5035 Sample Kit	4 degrees C	14 days
SVOCs	USEPA 8270	4 ounces	Glass Jar	1	none	4 degrees C	14 days
VPH	NWTPH-VPH	5035 Sample Kit	VOA/Glass Jar	1 5035 Sample Kit	5035 Sample Kit	4 degrees C	14 days
EPH	NWTPH-EPH	4 ounces	Glass Jar	1	none	4 degrees C	14 days

NOTES:

5035 Sample Kit consists of two prepared 40-milliliter VOAs with 5 milliliters of sodium bisulfate, two prepared 40-milliliter VOAs with 5 milliliters of methanol; OR two prepared, capped soil plungers; and one 2-ounce jar for moisture content determination.

Total metals are aluminum, arsenic, chromium (total), silver, barium, selenium, lead, titanium, and cadmium.

C = Celsius.

EPH = extractable petroleum hydrocarbons.

NWTPH = Northwest Total Petroleum Hydrocarbons.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

SIM = selective ion monitoring.

SVOC = semivolatile organic compound.

Table 1
Soil Sample Handling Summary
City of SeaTac South 154th Street TOD Property
SeaTac, Washington

SW = solid waste.
TOD = Transit-Oriented Development.
USEPA = U.S. Environmental Protection Agency.
VOA = volatile organic analysis vial.
VOC = volatile organic compound.
VPH = volatile petroleum hydrocarbons.

Table 2
Groundwater Sample Handling Summary
City of SeaTac South 154th TOD Property
SeaTac, Washington

Analyte	Method	Suggested Volume	Container	Number of Containers	Preservative	Storage Temperature	Holding Time from Collection
Total Petroleum Hydrocarbons-Hydrocarbon Identification	NWTPH-HCID	4 ounces	Glass Jar	1	none	4 degrees C	14 days
Gasoline-range organics	NWTPH-Gx	40 milliliter	VOA	3	HCL pH < 2	4 degrees C	14 days
Diesel- and residual-range organics	NWTPH-Dx	125 milliliter	Amber Glass	1	HCL pH < 2	4 degrees C	14 days
Total and dissolved metals	USEPA 6020	500 milliliter	Polyethylene	1	HNO_3 pH < 2	4 degrees C	six months
VOCs	USEPA 8260C	40 milliliter	VOA	3	HCL pH < 2	4 degrees C	14 days
PCBs	USEPA 8082	1 liter	Amber Glass	2	none	4 degrees C	365 days
PAHs	USEPA 8270	1 liter	Amber Glass	2	none	4 degrees C	7 days
SVOCs	USEPA 8270	250 milliliter	Amber Glass	1	none	4 degrees C	7 days
EDB	USEPA 8011	40 milliliter	VOA	3	none	4 degrees C	7 days

NOTES:

Total metals are aluminum, arsenic, chromium, mercury, silver, barium, selenium, lead, titanium, and cadmium.

C = Celsius.

EDB = 1,2-dibromoethane.

HCL = hydrochloric acid.

HNO_3 = nitric acid.

NWTPH = Northwest Total Petroleum Hydrocarbons.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

SVOC = semivolatile organic compound.

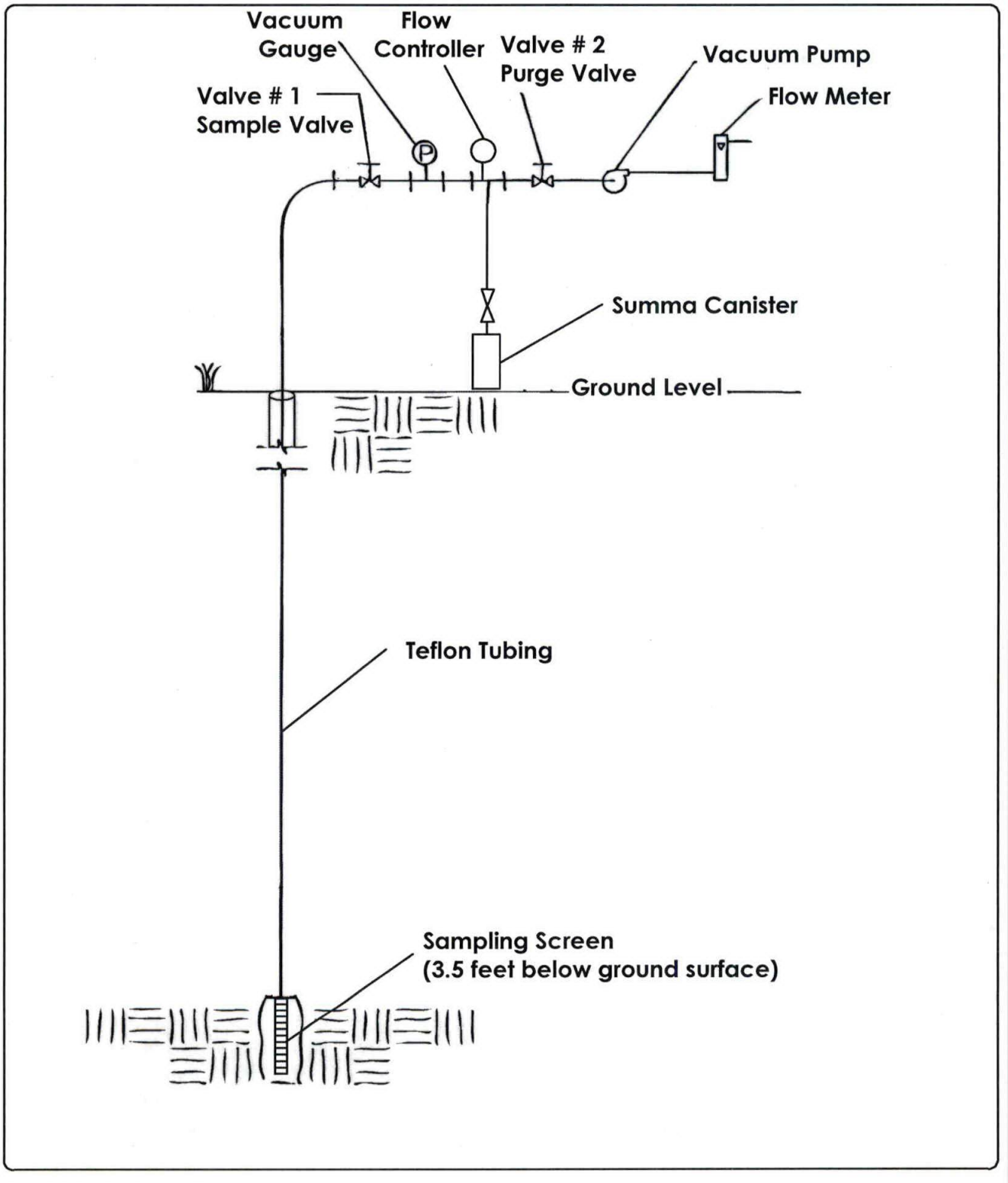
TOD = Transit-Oriented Development.

USEPA = U.S. Environmental Protection Agency.

VOA = volatile organic analysis vial.

VOC = volatile organic compound.

FIGURES



Source: CH2MHill, Corvallis Applied Sciences Laboratory

Figure 1
Soil Gas/Evacuated Sampler System
S. 154th Street TOD
SeaTac, Washington

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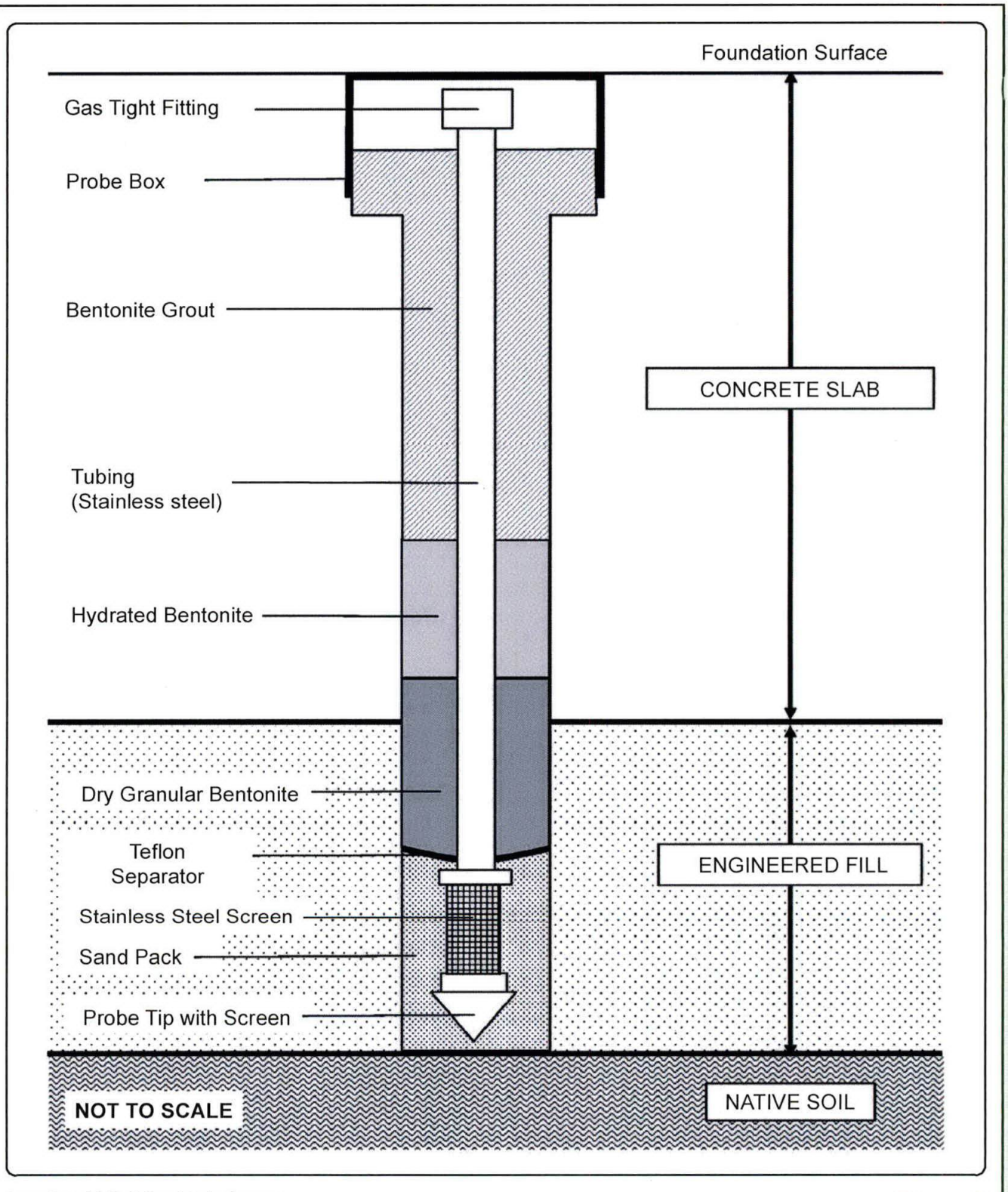
Print Date: 4/29/2014
Approved By: yvan
Produced By: rmaronn
Project: 0879.01.01



Source: State of California Vapor Intrusion Document October 2011 (DTSC - Cal/EPA).

Figure 2
Schematic Diagram of a Subslab Sampling Probe

S. 154th Street TOD
SeaTac, Washington

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Approved By: yvan
Produced By: rmarsnn
Project: 0879.01.01

Project: 0897.01.01 Produced By: rmaronn Approved By: yvan Print Date: 4/29/2014 Path: X:\0879.01 City of SeaTac\Projects\Fig3_Subslab Soil Gas Evacuated Sampler System Ground Level.mxd

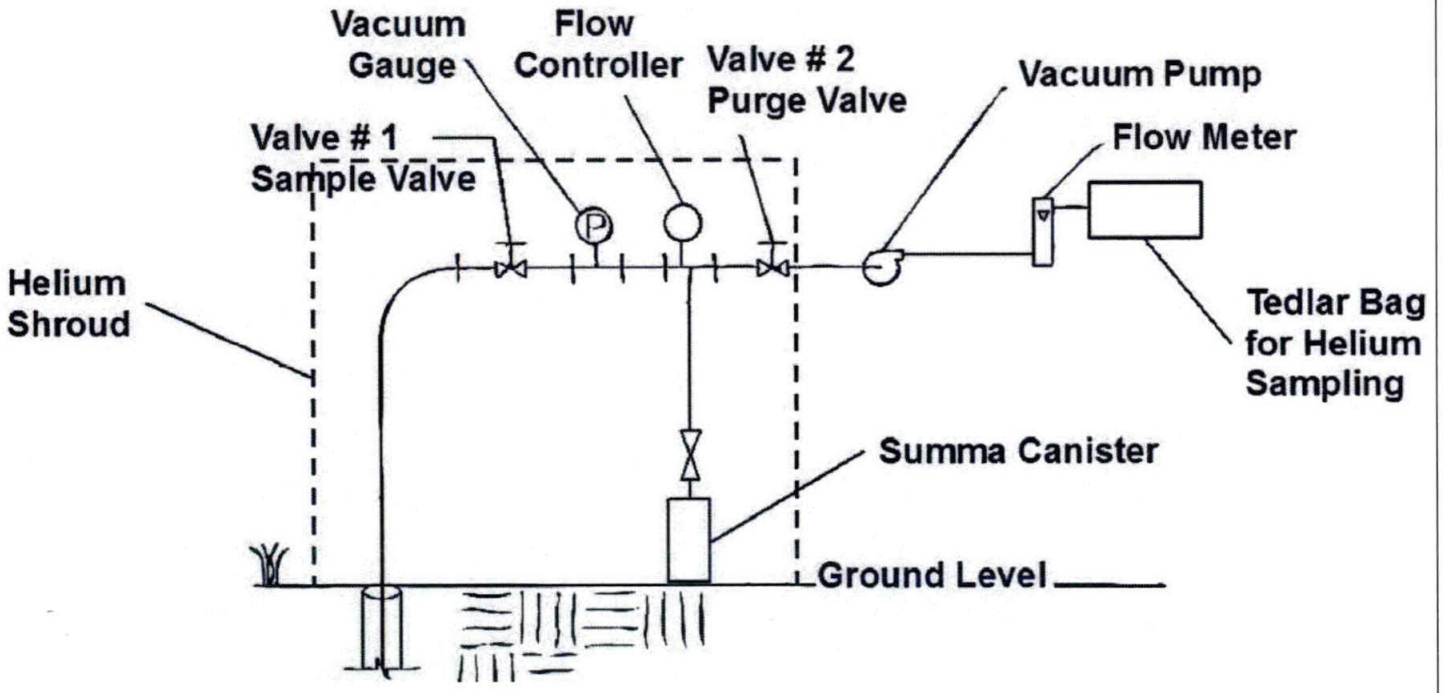


Figure 3
Subslab Soil Gas Evacuated Sampler System Ground Level
S. 154th Street TOD
SeaTac, Washington

Source: CH2MHill, Corvallis Applied Sciences Laboratory

MAUL FOSTER ALONGI
www.maulfoster.com

ATTACHMENT A

BORING LOG FORM

MAUL FOSTER ALONGI

Boring Log Form

Boring/Well No.:

Site:

Location:

Project #:

Drill Rig		MFA Staff:		Hole Dia:		Total Depth:	
Drilling Co.:			Water Level:		WLE Note:		
Start Date:		End Date:	Water Level:		WLE Note:		

Completion	Sample				Lithology							
	Top:		Time:	Depth:	Soil Type:				Color:			
	Length:				Top:		Fines:				Moisture:	
	Type:		Sample ID		Bottom:		Sand:				PID:	
	% Recov:				Soil Class:		Gravel:				Line Type:	
					Trace:				Impacts:			
					Notes:							
	Top:		Time:	Depth:	Soil Type:				Color:			
	Length:				Top:		Fines:				Moisture:	
	Type:		Sample ID		Bottom:		Sand:				PID:	
	% Recov:				Soil Class:		Gravel:				Line Type:	
					Trace:				Impacts:			
					Notes:							
	Top:		Time:	Depth:	Soil Type:				Color:			
	Length:				Top:		Fines:				Moisture:	
	Type:		Sample ID		Bottom:		Sand:				PID:	
	% Recov:				Soil Class:		Gravel:				Line Type:	
					Trace:				Impacts:			
					Notes:							
	Top:		Time:	Depth:	Soil Type:				Color:			
	Length:				Top:		Fines:				Moisture:	
	Type:		Sample ID		Bottom:		Sand:				PID:	
	% Recov:				Soil Class:		Gravel:				Line Type:	
					Trace:				Impacts:			
					Notes:							
	Top:		Time:	Depth:	Soil Type:				Color:			
	Length:				Top:		Fines:				Moisture:	
	Type:		Sample ID		Bottom:		Sand:				PID:	
	% Recov:				Soil Class:		Gravel:				Line Type:	
					Trace:				Impacts:			
					Notes:							
	Top:		Time:	Depth:	Soil Type:				Color:			
	Length:				Top:		Fines:				Moisture:	
	Type:		Sample ID		Bottom:		Sand:				PID:	
	% Recov:				Soil Class:		Gravel:				Line Type:	
					Trace:				Impacts:			
					Notes:							
	Top:		Time:	Depth:	Soil Type:				Color:			
	Length:				Top:		Fines:				Moisture:	
	Type:		Sample ID		Bottom:		Sand:				PID:	
	% Recov:				Soil Class:		Gravel:				Line Type:	
					Trace:				Impacts:			
					Notes:							
Borehole Notes:												

ATTACHMENT B

FIELD SAMPLING DATA SHEET FORMS

Maul Foster & Alongi, Inc.

7223 NE Hazel Dell Avenue, Suite B, Vancouver, WA 98665 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name		**Sample Location**					
Project #		**Sampler**					
Project Name		**Sampling Date**					
Sampling Event		**Sample Name**					
Sub Area		**Sample Depth**					
FSDS QA:		**Easting**		**Northing**		**TOC**	

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**EH**	**Turbidity**
Final Field Parameters									

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
	Groundwater		VOA-Glass		
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	0	

General Sampling Comments

Signature _____

Maul Foster & Alongi, Inc.

7223 NE Hazel Dell Avenue, Suite B, Vancouver, WA 98665 (360) 694-2691 Fax. (360) 906-1958

Soil Field Sampling Data Sheet

Client Name		**Sample Location**					
Project Number		**Sampler**					
Project Name		**Sampling Date**					
Sampling Event		**Sample Name**					
Sub Area		**Sample Depth**					
FSDS QA:		**Easting**		**Northing**		**TOC**	

Sample Information

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	Container Code	#
(1) Backhoe	Liquid	Composite			2 oz. soil	
					4 oz. soil	
					8 oz. soil	
					Other	
					Total Containers	0

Sample Description:

General Sampling Comments

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

Signature _____

APPENDIX A

SAMPLING AND ANALYSIS PLAN

MAUL FOSTER ALONGI

SAMPLING AND ANALYSIS PLAN

SOUTH 154TH STREET TRANSIT-ORIENTED DEVELOPMENT PROPERTY

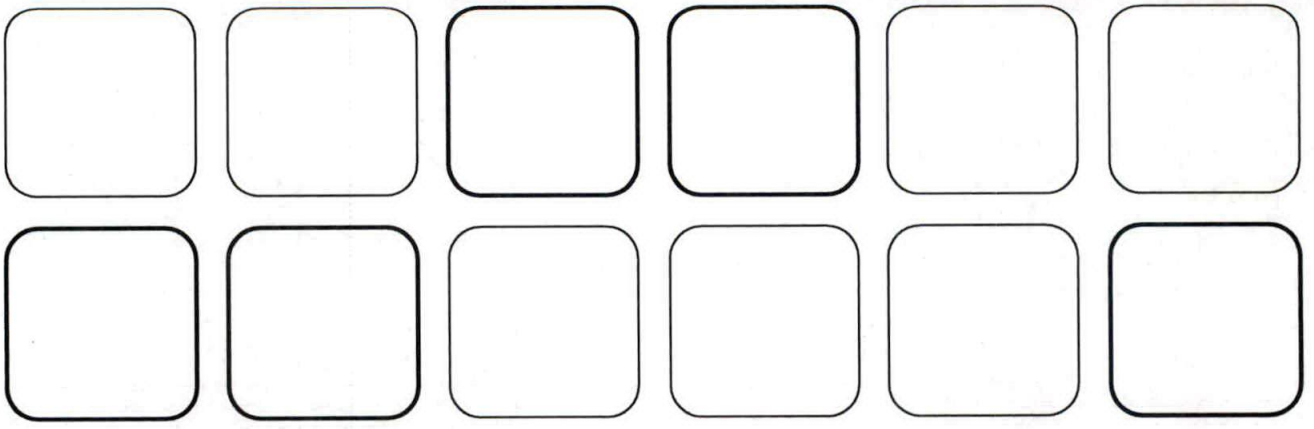
PREPARED FOR

CITY OF SEATAC

APRIL 30, 2014

PROJECT NO. 0879.01.02

PIONEERING CHANGE WITH INNOVATIVE SOLUTIONS



SAMPLING AND ANALYSIS PLAN

SOUTH 154TH STREET TRANSIT-ORIENTED DEVELOPMENT PROPERTY

Prepared for
CITY OF SEATAC
SEATAC, WASHINGTON
April 30, 2014
Project No. 0879.01.02

Prepared by
Maul Foster & Alongi, Inc.
411 1st Avenue South, Suite 610, Seattle, WA 98104

MAUL FOSTER ALONGI

SAMPLING AND ANALYSIS PLAN

SOUTH 154TH STREET TRANSIT-ORIENTED DEVELOPMENT PROPERTY

The material and data in this plan were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.

Yen-Vy Van, LHG
Senior Hydrogeologist

Justin L. Clary, PE
Principal Engineer

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CONTENTS (CONTINUED)

TABLES AND ILLUSTRATIONS

FOLLOWING PLAN:

TABLES

FIGURES

ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
City	City of SeaTac, Washington
COC	chain of custody
COI	chemical of interest
DCE	dichloroethene
DRO	diesel-range organic
Ecology	Washington State Department of Ecology
FSDS	field sampling data sheet
Golder	Golder Associates, Inc.
HVOC	halogenated volatile organic compound
IDW	investigation-derived waste
IPG	Integrated Planning Grant
LCS	laboratory control sample
LDS	laboratory duplicate sample
MFA	Maul Foster & Alongi, Inc.
MS/MSD	matrix spike and matrix spike duplicate
MTCA	Model Toxics Control Act
PCE	tetrachloroethene
pH	potential hydrogen
PID	photoionization detector
Property	South 154th Street Transit-Oriented Development in SeaTac, Washington
PRT	post run tubing
QA	quality assurance
QC	quality control
RRO	residual-range organic
SAP	sampling and analysis plan
TCE	trichloroethene
TOD	Transit-Oriented Development
TPH-HCID	total petroleum hydrocarbons identification
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound
WAC	Washington Administrative Code

1 INTRODUCTION

Maul Foster & Alongi, Inc. (MFA) has prepared this sampling and analysis plan (SAP) consistent with the requirements of the Washington Administrative Code (WAC) 173-340-820 for the City of SeaTac, Washington (the City) to guide the collection of samples during the focused site assessment investigation at selected parcels associated with the City's proposed South 154th Street Transit-Oriented Development (TOD) property in SeaTac, Washington (the Property) (Figure 1 of MFA, 2014). The proposed TOD comprises the following seven parcels: King County parcels 00430013 (parking garage), 0043000015 (Bakaro Mall), 0043000018 (parking lot), 0043000019 (residential), 0043000020 (Betty Brite Dry Cleaners, Pancake Chef, and retail businesses), 0043000100 (parking lot), and 0043000093 (Dalsan Financial Services). The City owns parcels 00430013, 0043000015, 0043000018, and 0043000019, and is in negotiation to acquire the remaining three parcels (0043000020, 0043000100, and 0043000093). These three parcels are the focus of the site assessment. The Property currently is used for a variety of commercial applications, including a dry cleaner; money transfer services; retail clothing, food, and beauty supplies; a hair salon; a restaurant; a law office; and a money transfer service business.

The work described in this SAP is being conducted by the City under an Integrated Planning Grant (IPG) provided by the Washington State Department of Ecology (Ecology). The IPG funds will allow the City to assess the environmental condition of the Property. The procedures described in this SAP will be used for various phases and tasks of the project. The goal of the sampling is to obtain reliable data about physical, environmental, and chemical conditions at the Property in order to support the goals and objectives of the focused site assessment.

This SAP has been prepared consistent with the requirements of Ecology's Guidance on Sampling and Data Analysis Methods (Ecology, 1995), Guidance for Preparing Quality Assurance Project Plans for Environmental Studies (Ecology, 2004), Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action (Ecology, 2009), and the 1993 Model Toxics Control Act (MTCA) (WAC Chapter 173-340).

1.1 Investigation Objectives

The primary objective of the SAP is to establish procedures for the collection of data of sufficient quality to evaluate the nature and extent of impacted soil and groundwater at the Property. The site assessment work plan references the relevant procedures and protocols from this SAP; identifies specific media to be sampled; and identifies [provides] [discusses] the locations, frequency, and types of field or laboratory analyses that will be conducted. The SAP is meant to ensure that reliable data are obtained in support of the development of remedial actions at the Property if such actions are necessary for the protection of human health and the environment. It provides a consistent set of procedures that will be used throughout the various work phases identified in the work plan (MFA, 2014).

Once the nature and extent of soil and groundwater impacts have been determined, further investigation, which may involve the collection of other media (e.g., soil gas, indoor or ambient air, subslab vapor), may be proposed. The procedures for collection of samples of other media are summarized in this SAP, in case these are necessary in future scopes of work.

If a phase of work or an otherwise unforeseen change in methodology requires modification to this SAP, an addendum may be prepared that describes the specific revision(s), or the alternative procedures used will be documented in the site assessment report. Procedures are provided that will be used to direct the investigation process so that the following conditions are met:

- Data collected are of high quality, representative, and verifiable.
- Use of resources is cost effective.
- Data can be used by the City and Ecology to support selection and implementation of remedial actions, if necessary.

This SAP describes methods that will be used for sampling environmental media, decontaminating equipment, and managing investigation-derived waste (IDW). It also includes procedures for collecting, analyzing, evaluating, and reporting useful data. This SAP includes quality assurance (QA) procedures for field activities, quality control (QC) procedures, and data validation [noun].

2 ACCESS AND SITE PREPARATION

2.1 Access

The City has obtained signed agreements from all the current businesses at the Property, granting access for MFA to conduct subsurface investigation under the IPG. MFA will coordinate activities directly with the City, Ecology, and retail tenants at the Property and will notify the City and the Ecology project manager before beginning work at the Property.

2.2 Site Preparation and Coordination

Before subsurface field sampling programs begin at the Property, public and private utility-locating services will be used to check for underground utilities and pipelines near the proposed sample locations. A geophysical survey will be conducted, employing both electromagnetic induction and ground penetrating radar to identify the potential presence and depth of an abandoned heating oil underground storage tank associated with a historical oil burner furnace at parcel 0043000020 (Figure 2 of MFA, 2014). MFA will coordinate fieldwork with the City to define the locations of possible on-site utilities and piping or other subsurface obstructions. Ecology will be notified a minimum of 48 hours before field activities begin.

3 SOIL AND GROUNDWATER ASSESSMENT

The proposed locations of soil and reconnaissance groundwater borings are shown on Figure 3 of the focused site assessment work plan (MFA, 2014). Subsurface soil and reconnaissance samples in the Betty Brite Dry Cleaners establishment will be collected using a direct-push drill rig (i.e., Geoprobe™), limited access rig. Subsurface investigation at remaining locales at the Property (i.e., outside the dry-cleaning business) will be advanced using a hollow-stem auger drill rig to enable exploration to depths below the glacial till (at approximately 15 to 20 feet below ground surface [bgs]) for vertical assessment at areas of known soil and/or groundwater impacts and at locales hydraulically downgradient of potential sources of environmental concern.

Field screening will include measuring soil headspace vapor using a photoionization detector (PID) or an organic vapor monitor and documenting visual and olfactory observations.

Soil and groundwater samples will be analyzed following the program outlined in the work plan table (MFA, 2014). If there is evidence of impacts in the field, the sample depths may be altered in order to collect samples in and/or beneath the impacted areas. Additional analyses may be recommended based on field observations.

3.1 Borings

The borings will be advanced using a direct-push drill rig and a hollow-stem auger drill rig. Soil and groundwater samples will be collected using industry-standard sampling techniques. In the event that refusal is met before the desired boring depth is reached (i.e., significant debris, cobbles, glacial till, or bedrock are encountered), a different type of drilling technology may be considered.

Reconnaissance groundwater samples will be collected using a stainless steel (e.g., Geoprobe) water sampler at probe boring locations. The water sampler will be advanced to the desired depth. The casing around the water sampler will be pulled back, exposing the screen. If water does not flow into the screen within 15 minutes, the sampler will be removed and a temporary well will be installed. This will consist of placing 0.010-inch machine slot screen with polyvinyl chloride riser into the boring and allowing the boring to stay open overnight. This procedure will enable potential perched groundwater to collect in the boring. If no water is observed in the boring, then the boring will be abandoned. Temporary screen and risers will also be installed at borings advanced by hollow-stem auger drill rig and will follow the same sampling strategy as the probe borings.

If practicable, at least one casing volume of water will be purged before sample collection. Groundwater will be purged using new polyethylene tubing or a stainless steel bailer, following procedures summarized in Section 5.1. If there is enough water, some will be used to measure water quality field parameters, including items such as potential hydrogen (pH), specific conductance, and temperature.

New, disposable tubing will be used at each location to collect water samples. Nondisposable equipment used for water sample collection will be decontaminated both before its use at the facility and after each sample is collected.

Samples will be labeled, preserved, and shipped to the analytical laboratory under standard chain-of-custody (COC) procedures.

3.2 Documentation

A log of soil samples will be prepared by a geologist or hydrogeologist licensed by the State of Washington or a person working under the direct supervision of a geologist or hydrogeologist licensed by the State of Washington. Boring logs will include information such as the project name and location, the name of the drilling contractor, the drilling method, the sampling method, sample depths, blow counts (if applicable), a description of soil encountered, and screened intervals. Soils will be described using American Society for Testing and Materials designation D2488-00, Standard Practice for Description and Identification of Soils (Visual-Manual Procedures). The information will be recorded on the MFA boring log form shown in Attachment A or in field notes.

3.3 Boring Decommissioning

After a boring is no longer needed, it will be decommissioned with bentonite chips or with bentonite grout in accordance with the WAC for Minimum Standards for Construction and Maintenance of Wells (WAC 173-160, 1998).

3.4 Monitoring Wells

No permanent monitoring wells are currently proposed in this plan. Monitoring wells (if installed) will be constructed according to the Washington well construction standards (Chapter 173-160 WAC) and as described below:

- Monitoring wells will be constructed with 2-inch-diameter polyvinyl chloride or stainless steel riser pipe and screened sections. The well screens will consist of 0.010-inch machine slots. The monitoring wells may be constructed with prepacked well screen with 10 x 20 washed silica sand or by placing materials downhole, following the WAC regulation listed above.
- Additional filter pack may be placed around the prepacked screen (if used). The additional filter pack will consist of graded 10 x 20 washed silica sand and will extend a maximum of 1 foot below the bottom of the screen and 3 feet above the top of the screen. A weighted line will be used to monitor the level of the filter pack during installation. The filter pack may be surged during installation.
- Bentonite grout or hydrated chips (e.g., 0.75-inch minus) will be used to seal the annulus above the filter pack. Potable water will be used. A weighted line will be used to measure the top of the bentonite chips as they are poured into place.

- At least 24 hours after installation of a well, the well will be developed by surging, bailing, or pumping to remove sediment that may have accumulated during installation and to improve the hydraulic connection with the water-bearing zone.
- Water quality field parameters such as specific conductance, pH, temperature, and turbidity will be measured during well development as deemed appropriate. The wells will be developed until the turbidity measurements are 10 nephelometric turbidity units or less, or until there is no noticeable decrease in turbidity. To the extent practical, water quality field parameters will be considered stable when the specific conductance is within 10 percent of the previous reading, pH is within 0.1 standard unit of the previous reading, and temperature is within 0.1 degree Celsius of the previous reading.

3.5 Groundwater Elevations

Water level measurements to the nearest 0.01 foot will be taken, using an electronic water level indicator. If it is not known, the depth of the boring or the monitoring well will also be measured. The depth to water will be measured from the top of the casing (typically the polyvinyl chloride riser pipe) at the surveyed elevation point. This reference point will be marked so that future readings are taken from the same reference point. In addition, the well condition (if applicable), including the condition of the lock, monument integrity, and legibility of well labels, will be recorded for each location. Gauging equipment will be decontaminated between wells in accordance with the procedures outlined in Section 3.7.

3.6 Surveying

The location of the borings, surface samples, and other features of interest will be surveyed using a global positioning unit (e.g., Trimble™) capable of submeter accuracy. If monitoring wells are installed, they will be surveyed by a licensed surveyor.

3.7 Equipment Cleaning and Decontamination

3.7.1 Drilling Equipment

The working area of the drill rig and downhole drilling equipment will be steam-cleaned or pressure-washed after arrival on the Property and after use in each boring or monitoring well. Decontamination fluids will be transferred to drums approved by the Washington State Department of Transportation, and will be managed according to the procedures outlined in Section 3.8.

3.7.2 Sampling Equipment

Nondisposable sampling equipment and reusable materials that contact the soil or water will be decontaminated before and after each sample and sampling location. Decontamination will consist of the following:

- Tap-water rinse (may consist of an equivalent high-pressure or hot-water rinse). Visible soil to be removed by scrubbing.
- Nonphosphate detergent wash, consisting of a dilute mixture of Liqui-Nox® (or equivalent) and tap water.
- Distilled-water rinse.
- Methanol solution rinse (1:1 solution of methanol with distilled water).
- Distilled-water rinse.

Decontamination fluids will be transferred to drums for management.

3.8 Management of Investigation-Derived Waste

IDW may include items such as soil cuttings, purged groundwater, decontamination fluids, sampling debris, and personal protective equipment. The IDW will be segregated into solids, liquids, and sampling debris (e.g., personal protective equipment, tubing, bailers). IDW will be stored in a designated area on the Property in drums approved by the Washington State Department of Transportation.

Drums will be labeled with their contents, the approximate volume of material, the date of collection, and the origin of the material. The drums will be sealed, secured, and transferred to a designated area on the Property, pending characterization.

Analytical data from the soil-sampling and groundwater-sampling activities at borings advanced for investigation of potential impacts from halogenated solvents (associated with dry-cleaning operations), previously described, will be used to characterize the soil cuttings, drilling fluids, purge water, and decontamination fluids generated during the drilling and sampling at these selected borings.

IDW associated with halogenated solvent contamination, at concentrations above Ecology MTCA Method A cleanup levels, will follow procedures and analytical tests set forth in WAC 173-303-090 and WAC 17-303-100 for designation as either F-listed wastes or dangerous waste, in accordance with Ecology MTCA cleanup regulations. The IDW will be disposed of at the Waste Management Arlington facility, a regulated landfill in Arlington, Oregon, that accepts both F-listed and dangerous-waste products.

4 SOIL SAMPLING

Soil samples will be collected for lithologic description, field screening, and chemical analyses, as described below. The sampling intervals, depths, and initial sample analysis schedule are specified in the work plan (MFA, 2014).

4.1 Procedure

Samples will be prepared, handled, and documented as follows:

- Soil sampling equipment will be decontaminated before it is used at each sampling location (see Section 3.7).
- Samples will be obtained using new, uncontaminated gloves or decontaminated, stainless steel spoon, trowel, or knife.
- Soil will be field-screened by measuring soil vapor headspace and documenting visual and olfactory observations. If headspace measurements are collected, a representative amount of soil will be placed in a new, food-grade, zip-lock plastic bag. Samples will then be warmed and agitated before headspace analysis is conducted by carefully piercing the bag with the PID. Field-screen results will be documented in the field book or boring log.
- Soil that will be analyzed for volatile organic compounds (VOCs) and halogenated VOCs (HVOCs) will be transferred directly from freshly exposed soil into laboratory-supplied containers, using the appropriate U.S. Environmental Protection Agency (USEPA) 5035A sampling procedures. The samples will be placed in 40-milliliter vials. Depending on the soil type, 5 milligrams of soil will be added to the prepared vials preserved with sodium bisulfate monohydrate or methanol. A soil sample will also be collected in an unpreserved glass jar to be analyzed for total petroleum hydrocarbons identification (TPH-HCID). The work plan table presents potential source areas and chemicals of interest (COIs) (MFA, 2014).
- Large particles (i.e., larger than 0.25 inch) may be removed before the sample is placed in a laboratory-supplied container.
- Soil samples will be transferred directly from the sampling device into laboratory-supplied glass jars, using a new, uncontaminated-gloved hand or decontaminated, stainless steel spoon, trowel, or knife.
- Sample containers will be labeled, packed in iced shipping containers with COC documentation (see Section 9), and hand-delivered or shipped to the laboratory.
- Sampling information will be recorded in a field notebook, on a field sampling data sheet (FSDS), and on the COC form.
- Generally, duplicate soil samples should be collected at the frequency of one duplicate sample for every 20 samples collected.

4.2 Nomenclature

Soil samples will be labeled with a prefix to describe the location identification number, an "S" to indicate a soil sample matrix, and the sample depth in feet. The depth interval should be specified as the middle of the sampling interval. For example, a soil sample collected from a boring at location 12 and at 20 feet bgs will have the sample nomenclature of B12-S-20.0.

Duplicate soil samples will replace the location number with "DUP," and the sample will have the same sample time as the primary sample. A duplicate sample of the abovementioned sample would appear as BDUP-S-20.0. To avoid confusion, duplicate samples should not be collected from multiple locations at the same depth on the same day and time.

Relevant sample information will be documented on the exploratory boring log (see Attachment A) or an FSDS (see Attachment B).

4.3 Composite Soil Sampling

Should soil stockpiles be created on site in the future, characterization of each stockpile will be completed through collection of representative composite soil samples. A clean shovel or hand auger will be used to dig up to 1.5 feet into the pile from at least three subsample locations. Each of the subsamples will be collected at least 0.5 foot bgs by hand with clean, disposable gloves. Subsample locations will be selected to obtain representative material, based on visual inspection and best professional judgment. To the extent possible, subsamples should consist of fine-particle-sized material, with larger rocks and debris removed. Subsamples will be combined and homogenized. The discrete samples will be placed into laboratory-supplied containers and submitted to the laboratory and held. The composite sample of the material source will be transferred to a laboratory-supplied glass container(s).

5 GROUNDWATER SAMPLING

During drilling, reconnaissance groundwater samples may be collected for chemical analyses, as described below. If monitoring wells are installed, groundwater samples may be collected following the procedure outlined below.

5.1 Reconnaissance Groundwater Sampling

Reconnaissance groundwater samples will be collected using conventional methods associated with the drilling method (e.g., inertia or peristaltic pump). Before groundwater sampling, the boring will be purged to minimize solids and to ensure that a representative sample is collected.

Groundwater will be transferred directly into laboratory-supplied containers specific to the analysis required, as outlined in Section 9. If there is enough water, water quality field parameters (e.g., temperature, specific conductance, pH, turbidity) will be measured.

5.2 Monitoring Well Groundwater Sampling

If monitoring wells are installed, a peristaltic pump will collect groundwater samples, using standard low-flow sampling techniques. If possible, groundwater samples should be collected from the middle

of the screened interval or, if the water level is below the top of the screen, from the middle of the water column. New, disposable tubing will be used at each monitoring location.

Before collection of groundwater samples, the water level will be measured and the well will be purged. If a peristaltic pump is used, the well should be purged at a USEPA-approved, low flow rate (e.g., 0.1 to 0.5 liter per minute). A minimum of one well volume will be purged before sample collection or until selected water quality field parameters (e.g., temperature, specific conductance, pH, turbidity) have stabilized. If the well goes dry during purging, a sample can be collected once the well recharges enough water. During purging, the flow rates, water levels, and water quality parameters will be recorded on an appropriate field form or in the field notes. Groundwater will be transferred directly into laboratory-supplied containers specific to the analysis required.

5.3 Nomenclature

Groundwater samples will be labeled with a prefix to describe the sampling location identification number, a "W" to indicate a water sample matrix, and the midpoint of the screened or open area sample depth in feet. For example, a reconnaissance groundwater sample collected from a boring at location 4 and with a screen from 30 feet to 35 feet bgs will have the sample nomenclature of B4-W-32.5.

Duplicate reconnaissance groundwater samples will replace the location number with "DUP," and the sample will have the same sample time as the primary sample. To avoid confusion, avoid collecting more than one a duplicate sample from the same depth at the same date and time. A duplicate sample of the abovementioned sample would appear as BDUP-W-32.5.

Relevant sample information will be documented on the exploratory boring log (see Attachment A) or an FSDS (see Attachment B); documentation may include items such as the screened interval or open space, equipment used, water quality field parameters, and the amount of water purged before sampling. The screened interval or open boring will be recorded on the boring log.

6 SOIL VAPOR SAMPLING

If soil vapor sampling is performed, it should be conducted as described below.

6.1 Procedure

Soil borings for soil vapor sample collection will be advanced using direct-push technology (e.g., Geoprobe). A "post run tubing" (PRT) system will be used to reduce problems that may occur with sampling directly through the steel rods. The PRT system uses an adapter and tubing to isolate the soil gas sample from the drill rods, thereby reducing possible leaks of ambient air from the rod joints into the sample. A PRT point holder and expendable point are attached to the leading end of a sampling screen. The drill rods will be advanced to the desired sample depth. The PRT adapter attached to the sample tubing is threaded into the reverse thread fitting in the top of the point holder.

The rods are then retracted to release the expendable point, exposing the screen and creating an opening where soil gas can enter the PRT system.

The upper end of the tubing will be connected to the purging/sampling system (Figure 1). A flow controller may be attached to the sample setup to regulate the flow of soil vapor into the sample container. The line will be purged for one minute or a period of time sufficient to achieve a purge volume that equals at least three volumes of the PRT system and sampling train, and then the sample will be collected using a laboratory-supplied stainless steel canister (e.g., Summa canister), or other appropriate container.

If a leak check is deemed necessary, helium will be contained around the sampling apparatus and sampling location, using a small, tent-like structure or shroud, to serve as a leak-check compound to verify the integrity of the sampling system before the sample is collected. See the attached Figure 1 for sample system configuration.

6.2 Nomenclature

Soil vapor samples will be labeled with a prefix to describe the sampling location identification number, "SV" to indicate the soil vapor sample matrix, and the midpoint of the screened or open area sample depth. For example, a soil vapor sample collected from a boring at location 4 and with an open screen from 5 feet to 7 feet bgs will have the sample number B4-SV-6.0.

Duplicate soil vapor samples will replace the location number with "DUP," and the sample will have the same sample time as the primary sample. A duplicate sample of the abovementioned sample would appear as BDUP-SV-6.0.

Relevant sample information will be documented on the exploratory boring log (see Attachment A) or an FSDS (see Attachment B); documentation should include the screened interval or open space, equipment used, and helium meter readings.

7 SUBSLAB SOIL VAPOR SAMPLING

If subslab soil vapor sampling is performed, it should be conducted as described below.

7.1 Procedure

Subslab soil vapor sampling may be performed to evaluate vapors that collect under a building's foundation. The following procedures may be followed to install subslab soil vapor sampling points.

Subslab utilities, such as water, sewer, and electrical, should be located and marked on the slab before drilling or cutting. If it is determined that a building has a moisture barrier and/or a tension slab, special care should be taken when drilling or cutting through the concrete slab. Subslab samples will not be collected if the slab is in contact with, or potentially could come into contact with, groundwater.

After removal of the floor covering, a 1.0- to 1.25-inch-diameter hole will be drilled through the concrete slab (see Figure 2). A hammer drill can be used to drill the holes. A vacuum should be used to remove drill cuttings from the borehole.

Vapor probes will be constructed of 1/8-inch- or 1/4-inch-diameter, stainless steel tubing (e.g., Swagelok®) with a permeable probe tip. A Teflon™ sealing disk should be placed, as needed, between the probe tip and the blank riser pipe to prevent the downward migration of materials into the sand pack. Dry, granular bentonite should be used to fill the borehole annular space to above the base of the concrete foundation. Hydrated bentonite should then be placed above the dry granular bentonite. The bentonite for this portion of probe construction should be hydrated to ensure proper sealing. Care should be used in placement of the bentonite to prevent post-emplacement expansion, which might compromise both the probe and the cement seal. The remainder of the hole should be filled with bentonite grout if the probe installation is temporary, or with cement if the installation is permanent. Before the introduction of the bentonite grout or cement, the existing concrete surfaces in the borehole should be cleaned with a damp towel to increase the likelihood of a good seal. The vapor probe tip should be surrounded by a sand filter pack to ensure proper airflow to the probe tip.

Water used in the construction of the probe should be deionized, the bentonite grout should be contaminant-free and quick drying, and the metal probe components should be stainless steel and should be cleaned to remove manufacturer-applied cutting oils.

Before sampling, at least two hours should elapse following installation of a probe to allow the construction materials to cure and the subsurface to equilibrate (USEPA, 2006).

The upper end of the tubing will be connected to the purging/sampling system (Figure 3). A flow controller will be attached to the sample setup to regulate the flow of soil vapor into the sample container. Before sampling, the line will be purged for one minute or a period of time sufficient to achieve a purge volume that equals at least three volumes. Relevant sampling information, such as the sampling start and stop times, the initial and final canister vacuum readings, and weather conditions, should be recorded. If a stainless steel canister is used, the sample should be rejected or the data qualified if the initial canister pressure is not at least 28 inches of mercury or if the final canister pressure is greater than 5 inches of mercury.

Upon completion of the sampling events, the foundation probes will be decommissioned by overdrilling the probe tip, probe tubing, bentonite, and grout. The borehole will be filled with grout and concrete patch material.

7.2 Nomenclature

Subslab soil vapor samples will be labeled with a prefix to describe the sampling location identification number, "BV" to indicate the subslab soil vapor sample matrix, and the midpoint of the screened or open area sample depth. For example, a subslab soil vapor sample collected from location 4 and with an open screen from 5 feet to 7 feet bgs will have the sample number L04-BV-6.0.

Duplicate soil vapor samples will replace the location number with "DUP," and the sample will have the same sample time as the primary sample. A duplicate sample of the abovementioned sample would appear as LDUP-SV.

Samples will be documented in field notes and will include the equipment used and the screened interval or open space.

8 INDOOR/BACKGROUND AIR SAMPLING

If indoor or outdoor air sampling is performed, it should be conducted as described below.

8.1 Procedure

Indoor air samples should be collected from each level, if applicable, of each building included in the assessment. Indoor air samples will be collected approximately 3 to 5 feet above the floor. If outdoor ambient air samples are collected, they should be taken from locations upwind of the building at approximately the same time as the indoor air sample collection.

A flow controller should be attached to the sample setup to regulate the flow of air into the sample container. If a 6-liter, stainless steel canister is used, the valve will be opened to collect the sample over a 24-hour period. Field data will be recorded, including items such as a description of the sample location, sampling start and stop times, the initial and final canister vacuum readings, and weather conditions. The sample should be rejected or the data qualified if the initial canister pressure is not at least -28 inch of mercury or if the final canister pressure is greater than -5 inch of mercury.

8.2 Nomenclature

Indoor air samples will be labeled with a prefix to describe the sampling location identification number prefixed by L, "IA" to indicate the indoor air sample matrix, and a height above ground, in feet. Background air samples will be labeled with a prefix to describe the sampling location identification number prefixed by L, "BA" to indicate the background air sample matrix, and a height above ground, in feet. For example, an indoor air sample collected at location 4, 3 feet off the ground, will have the sample number L04-IA-4.0.

Duplicate air samples will replace the location number with "DUP," and the sample will have the same sample time as the primary sample. A duplicate sample of the abovementioned sample would appear as LDUP-IA-4.0.

Relevant sample information may be documented on an FSDS (see Attachment B) and should include items such as a description of the sample location, the screened interval or open space, and equipment used. Record field data before and after the sampling, including items such as the sampling start and stop times, the initial and final canister vacuum readings, temperature, relative humidity, and

observations of conditions that may influence sampling results (e.g., presence or use of products that may contain COIs; open windows/doors; ventilation systems).

9 ANALYTICAL METHODS

9.1 Chemicals of Interest

Tetrachloroethene (PCE) and benzene were detected in subsurface groundwater, and PCE and trichloroethene (TCE) were detected in soil vapor (in the subslab inside Betty Brite Dry Cleaners, and outside in the adjoining parking lot) during a 2009 investigation (Golder, 2009). The following chemicals may be associated with known or suspected former site activities and have been identified as COIs: HVOCs; total petroleum hydrocarbons and associated petroleum hydrocarbons; and VOCs, specifically benzene, toluene, ethylbenzene, and total xylenes (BTEX). COIs will be analyzed as outlined in the work plan table (MFA, 2014).

9.2 Laboratory Test Methods and Reporting Limits

9.2.1 Soil and Groundwater

In accordance with the QA/QC requirements set forth in this SAP, an accredited laboratory may perform the following analyses. Laboratory methods are summarized in the work plan table (MFA, 2014).

- HVOCs, specifically PCE and its breakdown products (TCE, cis-1,2-dichloroethene [cis-1,2-DCE], trans-1,2-DCE, 1,1-DCE, and vinyl chloride) by USEPA 8260C
- Diesel-range organics (DROs) and residual-range organics (RROs) by Northwest Method NWTPH-Dx
- VOCs (specifically BTEX) by USEPA 80210B
- TPH-HCID by Ecology Method NWTPH-HCID

Followup analyses will depend on the potential type of petroleum hydrocarbons identified and may include the following analytes:

- Gasoline-range organics by Ecology Method NWTPH-Gx
- DROs and RROs by Ecology Method NWTPH-Dx
- Polycyclic aromatic hydrocarbons by USEPA Method 8270 selective ion monitoring
- Polychlorinated biphenyls by USEPA Method 8082
- Extractable petroleum hydrocarbons by Ecology Method NWTPH-EPH

Selected groundwater samples from MFA B-2, MFA B-3, MFA B-5, and MFA B-6 will also be analyzed for the following geochemical parameters to prescreen for the presence of electron acceptors for assessment of the potential reductive dechlorination process:

- Nitrate by USEPA 353.2
- Ferrous iron by USEPA ApplEnvMic7-87-1536
- Sulfate by ASTM D516-02
- Sulfide by SM 4500-S2
- Chloride by SM 4500-Cl
- Methane by RSK 175

9.2.2 Soil Vapor/Subslab Vapor Sampling

In the event that soil vapor/subslab vapor sampling is recommended at the Property, chemical analyses will be determined based on chemical impacts observed in soil and/or groundwater. For example, samples may be analyzed for selected compounds by Modified USEPA Method TO-15 selective ion monitoring or USEPA Method TO-17. An accredited laboratory will provide a 1-liter, stainless steel canister (e.g., Summa canister) or sorbent tube for each sample to be analyzed for VOCs.

9.2.3 Indoor/Background Air Sampling

In the event that indoor air/background air sampling is recommended at the Property, chemical analyses will be determined based on chemical impacts observed in soil, groundwater, and/or vapor sampling. For example, samples may be analyzed for selected VOC compounds by Modified USEPA Method TO-15 selective ion monitoring to achieve low reporting limits. An accredited laboratory may provide a 6-liter, stainless steel canister (e.g., Summa canister) or sorbent tube for each sample.

9.3 QA/QC Samples Generated in Field

To ensure that field samples and quantitative field measurements are representative of the media collected and conditions being measured, sample collection and measurement methods will follow procedures documented in Section 4.1. QC samples collected in the field include field equipment rinsate blanks, trip blanks, and field duplicates. Field QC samples will be identified on the FSDSs. Field and trip blank results may indicate possible contamination introduced by field or laboratory procedures; field duplicates indicate precision in both field and laboratory procedures.

9.4 Laboratory Operations

In the laboratory, QC samples may include matrix spike and matrix spike duplicate (MS/MSD) samples, laboratory control samples (LCSs), surrogate spike samples, and method blanks, as well as other QC samples and procedures as required by the individual methods.

9.5 Sample Containers, Preservation, and Handling

9.5.1 Preservation

Water samples will be collected in laboratory-supplied containers, as generally specified; see the summary in Table 1.

Soil samples for HVOC and VOC analyses will be collected in 40-milliliter glass vials, using the USEPA 5035A method. Other soil samples will be collected in glass jars. The soil and groundwater samples will be stored in iced coolers at approximately 4 degrees Celsius. Sample containers will be supplied by the laboratory.

9.5.2 Sample Packaging and Shipping

Soil and groundwater samples will be stored in iced shipping containers or a refrigerator designated for samples, and then transported to the analytical laboratory in containers. Air samples will be transported to the analytical laboratory in shipping containers or boxes.

9.6 Sample Custody

Sample custody will be tracked from point of origin through analysis and disposal, using a COC form, which will be filled out with the appropriate sample and analytical information after samples are collected.

The following items will be recorded on the COC form:

- Project name
- Project number
- MFA project manager
- Sampler name(s)
- Sample number, date and time collected, media, number of bottles submitted
- Requested analyses for each sample
- Type of data package required
- Turnaround requirements
- Signature, printed name, and organization name of persons having custody of samples; date and time of transfer
- Additional instructions or considerations that would affect analysis (nonaqueous layers, archiving, etc.)

Persons in possession of the samples will be required to sign and date the COC form whenever samples are transferred between individuals or organizations. The COC will be included in the shipping containers. The laboratory will implement its in-house custody procedures, which begin when sample custody is transferred to laboratory personnel.

If samples are shipped via air or ground transportation (by a third party), the following custody procedures will be followed. The COC will be signed and custody will be relinquished to the carrier. The signed COC(s) will be packed in shipping containers with the samples, and a custody seal will be placed on the container. The shipping documentation will be used by the carrier to document custody of the package while it is in transit to the laboratory.

At the analytical laboratory, a designated sample custodian will accept custody of the samples and will verify that the COC form matches the samples received. The shipping container or set of containers is given a laboratory identification number, and each sample is assigned a unique sequential identification number.

9.7 Instrumentation

9.7.1 Field Instrumentation

Field instruments will be used during the investigations. The following field equipment may require calibration before use and periodically during sampling activities:

- pH meter
- Conductivity meter
- Dissolved-oxygen meter
- Oxygen/reduction potential meter
- Turbidity meter
- Thermometer
- PID
- Electronic water-level probe

Field-instrument calibration and preventive maintenance will follow the manufacturers' guidelines, and deviations from the established guidelines will be documented.

9.7.1.1 Field Calibration

Generally, field instruments should be calibrated daily before work begins. Field personnel may decide to calibrate more than once a day if inconsistent or unusual readings occur, or if conditions warrant more frequent calibration. Calibration activities should be recorded in logbooks or field notebooks. To ensure that field instruments are properly calibrated and remain operable, the following procedures will be used, at a minimum:

- Operation, maintenance, and calibration will be performed in accordance with the instrument manufacturers' specifications.
- Standards used to calibrate field instruments will meet the minimum requirements for source and purity recommended in the equipment operation manual. Standards will be checked for expiration dates that may be printed on the bottle. Standards that have expired should not be used.
- Acceptable criteria for calibration will be based on the limits set in the operations manual.
- Users of the equipment should be trained in the proper calibration and operation of the instrument.
- Operation and maintenance manuals for each field instrument should be available to persons using the equipment.
- Field instruments will be inspected before they are taken to the site.
- Field instruments will be calibrated at the start of each workday. Meters will be recalibrated, as necessary, during the work period.
- Calibration procedures (including items such as time, standards used, and calibration results) should be recorded in a field notebook. The information should be available if problems are encountered.

9.7.1.2 Preventive Maintenance

Preventive maintenance of field instruments and equipment will follow the operations manuals. A schedule of preventive-maintenance activities should be followed to minimize downtime and ensure the accuracy of measurement systems. Maintenance will be documented in the field notebook.

9.7.2 Laboratory Instrumentation

Specific laboratory instrument calibration procedures, frequency of calibration, and preparation of calibration standards will be according to the method requirements as developed by the USEPA, following procedures presented in SW-846 (USEPA, 1986).

9.7.2.1 Laboratory Calibration and Preventive Maintenance

The laboratory calibration ranges specified in SW-846 (USEPA, 1986) will be followed.

Preventive maintenance of laboratory equipment will be the responsibility of the laboratory personnel and analysts. This maintenance includes routine care and cleaning of instruments and inspection and monitoring of carrier gases, solvents, and glassware used in analyses. The preventive-maintenance approach for specific equipment should follow the manufacturers' specifications, good laboratory practices, and industry standard techniques.

Precision and accuracy data will be examined for trends and excursions beyond control limits to determine evidence of instrument malfunction. Maintenance should be performed when an instrument begins to change, as indicated by the degradation of peak resolution, shift in calibration curves, decrease in sensitivity, or failure to meet any of the QC criteria.

9.8 Laboratory QA/QC Samples

The laboratory QC samples will be used to assess the accuracy and precision of the laboratory analysis. Each category of laboratory QA/QC will be performed by the laboratory as required by method-specific guidelines. The acceptance criteria presented in the guidelines will be adhered to, and samples that do not meet the criteria will be reanalyzed or qualified, as appropriate.

9.8.1 Calibration Verification

Instruments will initially be calibrated at the start of the project or sample run, as required, and when any ongoing calibration does not meet control criteria. The number of points used in the initial calibration is defined in the analytical method. Calibration will be continued as specified in the analytical method to track instrument performance. If a continuing calibration does not meet control limits, analysis of project samples will be suspended until the source of the control failure is either eliminated or reduced to within control specifications.

9.8.2 Matrix Spike/Matrix Spike Duplicate

MS samples are analyzed to assess the matrix effects on the accuracy of analytical measurements. MS/MSD samples will be prepared by spiking investigative samples with known amounts of analytes before extraction and preparation and analysis. The recoveries for the MS/MSD samples will be used to assess the accuracy and precision in the analytical method by measuring how well the analytical method recovers the target compounds in the investigative matrices. For each matrix type, at least one set of MS/MSD samples will be analyzed for each batch of samples of 20 (or fewer) samples received.

9.8.3 Method Blanks

Method blanks are prepared using analyte-free (reagent) water and are processed with the same methodology (e.g., extraction, digestion) as the associated investigative samples. Method blanks are used to document contamination resulting in the laboratory from the analytical process. A method blank shall be prepared and analyzed in every analytical batch. The method blank results are used to verify that reagents and preparation do not impart unacceptable bias to the investigative sample results. The presence of analytes in the method blank sample will be evaluated against method-specific thresholds. If analytes are present in the method blank above the method-specific threshold, corrective action will be taken to eliminate the source of contamination before proceeding with analysis. Investigative samples of an analytical batch associated with method blank results outside acceptance limits will be appropriately qualified by the data validation contractor.

9.8.4 Laboratory Control Samples

LCSs are prepared by spiking laboratory-certified, reagent-grade water with the analytes of interest or a certified reference material that has been prepared and analyzed. The result for percent recovery of the LCS is a data quality indicator of the accuracy of the analytical method and laboratory performance.

9.8.5 Laboratory Duplicate Samples

Laboratory duplicate samples (LDSs) are prepared by the laboratory by splitting an investigative sample into two separate aliquots and performing separate sample preparation and analysis on each aliquot. The results for relative percent difference of the primary investigative sample and the respective LDSs are used to measure precision in the analytical method and laboratory performance. For nonaqueous matrices, sample heterogeneity may affect the measured precision for the LDSs.

9.9 Field QC

The following samples will be prepared by the sampling personnel in the field and submitted to the laboratory:

- **Equipment Rinsate Blanks**—To ensure that decontamination procedures are sufficient, an equipment rinsate blank will be collected when nondedicated, nondisposable equipment is used. At least one equipment rinsate blank will be collected for every 20 samples collected. If more than 20 samples are collected with the same equipment, or if high concentrations of contaminants are encountered, additional equipment rinsate blanks may be collected. Equipment rinsate blanks will be collected by passing laboratory deionized/distilled water through or over nondisposable sampling equipment.
- **Trip Blanks**—A trip blank monitors the potential for sample contamination during sample collection and transport. A trip blank consists of reagent-grade water in a new sample container, which is prepared at the same time as the sample containers. The trip blank will accompany the samples throughout collection, shipment, and storage. At least one trip blank should be included with each cooler in which samples for VOC analyses are stored.
- **Field Duplicates**—Field duplicates are collected to measure sampling and laboratory precision. At least one duplicate sample will be collected for every 20 samples.

9.10 Data Reduction, Validation, and Reporting

The analytical laboratory will submit analytical data packages that include laboratory QA/QC results to permit independent and conclusive determination of data quality. MFA will determine data quality, using the data evaluation procedures described in this section. The results of the MFA evaluation will be used to determine if the project data quality objectives are met.

9.10.1 Field Data Reduction

Daily internal QC checks will be performed for field activities. Checks will consist of reviewing field notes and field activity memoranda to confirm that the specified measurements, calibrations, and procedures are being followed. The need for corrective action will be assessed on an ongoing basis, in consultation with the project manager.

9.10.2 Laboratory Evaluation

Initial data reduction, evaluation, and reporting at the analytical laboratory will be carried out as described in USEPA SW-846 manuals for analyses (USEPA, 1986), as appropriate. Additional laboratory data qualifiers may be defined and reported to further explain the laboratory's QC concerns about a particular sample result. Additional data qualifiers will be defined in the laboratory's case narrative reports.

9.10.3 Data Deliverables

Laboratory data deliverables are listed below. Electronic deliverables will contain the same data that are presented in the hard-copy report.

- Transmittal cover letter
- Case narrative
- Analytical results
- COC
- Surrogate recoveries
- Method blank results
- MS/MSD results
- Laboratory duplicate results

9.10.4 MFA Evaluation

9.10.4.1 Data QA/QC Review

MFA will evaluate the laboratory data for precision, completeness, accuracy, and compliance with the analytical method. MFA will review data according to applicable sections of USEPA organics and inorganics procedures (USEPA, 2008, 2010), as well as appropriate laboratory method-specific guidelines (USEPA, 1986).

Data qualifiers, as defined by the USEPA, are used to classify sample data according to their conformance to QC requirements. Common qualifiers are listed below:

- J—Estimate, qualitatively correct but quantitatively suspect.
- R—Reject, data not suitable for any purpose.
- U—Not detected at a specified reporting limit.

Poor surrogate recovery, blank contamination, or calibration problems, among other things, can require qualification of the sample data. When sample data are qualified, the reasons for the qualification should be stated in the data evaluation report.

QC criteria not defined in the guidelines for evaluating analytical data are adopted, where appropriate, from the analytical method.

The following information will be reviewed during data evaluation, as applicable:

- Sampling locations and blind sample numbers
- Sampling dates
- Requested analysis
- COC documentation
- Sample preservation
- Holding times
- Method blanks
- Surrogate recoveries
- MS/MSD results
- Laboratory duplicates (if analyzed)
- Field duplicates
- Field blanks
- LCSs
- Method reporting limits above requested levels
- Additional comments or difficulties reported by the laboratory
- Overall assessment

The results of the data evaluation review will be summarized for each data package. Data qualifiers will be assigned to sample results on the basis of USEPA guidelines, as applicable.

9.10.4.2 Data Management and Reduction

MFA uses a database (i.e.., EQuIS™) to manage laboratory data. The laboratory will provide the analytical results in electronic, EQuIS-compatible format. Following data evaluation, data qualifiers will be entered into the database.

Data may be reduced to summarize particular data sets and to aid interpretation of the results. Statistical analyses may also be applied to results. Data-reduction QC checks will be performed on hand-entered data, calculations, and data graphically displayed. Data may be further reduced and managed using one or more of the following computer software applications:

- Microsoft Excel (spreadsheet)
- EQuIS (database)
- Microsoft Access (database)

- AutoCad and/or Arc GIS (graphics)
- USEPA ProUCL (statistical software)

10 REPORTING

After the data are received, MFA will generate a data report, which will summarize and screen the data against the applicable criteria.

LIMITATIONS

The services undertaken in completing this plan were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This plan is solely for the use and information of our client unless otherwise noted. Any reliance on this plan by a third party is at such party's sole risk.

Opinions and recommendations contained in this plan apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this plan.

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TABLES

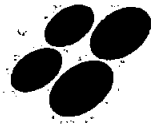


Table 1
Soil Sample Handling Summary
City of SeaTac South 154th Street TOD Property
SeaTac, Washington

Analyte	Method	Suggested Volume	Container	Number of Containers	Preservative	Storage Temperature	Holding Time from Collection
Total Petroleum Hydrocarbons-Hydrocarbon Identification	NWTPH-HCID	4 ounces	Glass Jar	1	none	4 degrees C	14 days
Total Petroleum Hydrocarbons—Diesel and Oil	NWTPH-Dx	4 ounces	Glass Jar	1	none	4 degrees C	14 days
Total Petroleum Hydrocarbons—Gasoline	NWTPH-Gx	5035 Sample Kit	VOA/Glass Jar	1 5035 Sample Kit	5035 Sample Kit	4 degrees C	14 days
Total Metals	USEPA 6010	4 ounces	Glass Jar	1	none	4 degrees C	six months
Mercury	USEPA SW7471	4 ounces	Glass Jar	1	none	4 degrees C	28 days
PAHs	USEPA 8270 SIM	4 ounces	Glass Jar	1	none	4 degrees C	14 days
PCBs	USEPA 8082	4 ounces	Glass Jar	1	none	4 degrees C	365 days
VOCs	USEPA 8260B	5035 Sample Kit	VOA/Glass Jar	1 5035 Sample Kit	5035 Sample Kit	4 degrees C	14 days
1,2-dibromoethane	USEPA 8260B SIM	5035 Sample Kit	VOA/Glass Jar	1 5035 Sample Kit	5035 Sample Kit	4 degrees C	14 days
SVOCs	USEPA 8270	4 ounces	Glass Jar	1	none	4 degrees C	14 days
VPH	NWTPH-VPH	5035 Sample Kit	VOA/Glass Jar	1 5035 Sample Kit	5035 Sample Kit	4 degrees C	14 days
EPH	NWTPH-EPH	4 ounces	Glass Jar	1	none	4 degrees C	14 days

NOTES:

5035 Sample Kit consists of two prepared 40-milliliter VOAs with 5 milliliters of sodium bisulfate, two prepared 40-milliliter VOAs with 5 milliliters of methanol; OR two prepared, capped soil plungers; and one 2-ounce jar for moisture content determination.

Total metals are aluminum, arsenic, chromium (total), silver, barium, selenium, lead, titanium, and cadmium.

C = Celsius.

EPH = extractable petroleum hydrocarbons.

NWTPH = Northwest Total Petroleum Hydrocarbons.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

SIM = selective ion monitoring.

SVOC = semivolatile organic compound.

Table 1
Soil Sample Handling Summary
City of SeaTac South 154th Street TOD Property
SeaTac, Washington

SW = solid waste.
TOD = Transit-Oriented Development.
USEPA = U.S. Environmental Protection Agency.
VOA = volatile organic analysis vial.
VOC = volatile organic compound.
VPH = volatile petroleum hydrocarbons.

Table 2
Groundwater Sample Handling Summary
City of SeaTac South 154th TOD Property
SeaTac, Washington

Analyte	Method	Suggested Volume	Container	Number of Containers	Preservative	Storage Temperature	Holding Time from Collection
Total Petroleum Hydrocarbons-Hydrocarbon Identification	NWTPH-HCID	4 ounces	Glass Jar	1	none	4 degrees C	14 days
Gasoline-range organics	NWTPH-Gx	40 milliliter	VOA	3	HCL pH < 2	4 degrees C	14 days
Diesel- and residual-range organics	NWTPH-Dx	125 milliliter	Amber Glass	1	HCL pH < 2	4 degrees C	14 days
Total and dissolved metals	USEPA 6020	500 milliliter	Polyethylene	1	HNO_3 pH < 2	4 degrees C	six months
VOCs	USEPA 8260C	40 milliliter	VOA	3	HCL pH < 2	4 degrees C	14 days
PCBs	USEPA 8082	1 liter	Amber Glass	2	none	4 degrees C	365 days
PAHs	USEPA 8270	1 liter	Amber Glass	2	none	4 degrees C	7 days
SVOCs	USEPA 8270	250 milliliter	Amber Glass	1	none	4 degrees C	7 days
EDB	USEPA 8011	40 milliliter	VOA	3	none	4 degrees C	7 days

NOTES:

Total metals are aluminum, arsenic, chromium, mercury, silver, barium, selenium, lead, titanium, and cadmium.

C = Celsius.

EDB = 1,2-dibromoethane.

HCL = hydrochloric acid.

HNO_3 = nitric acid.

NWTPH = Northwest Total Petroleum Hydrocarbons.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

SVOC = semivolatile organic compound.

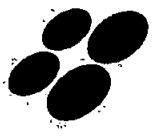
TOD = Transit-Oriented Development.

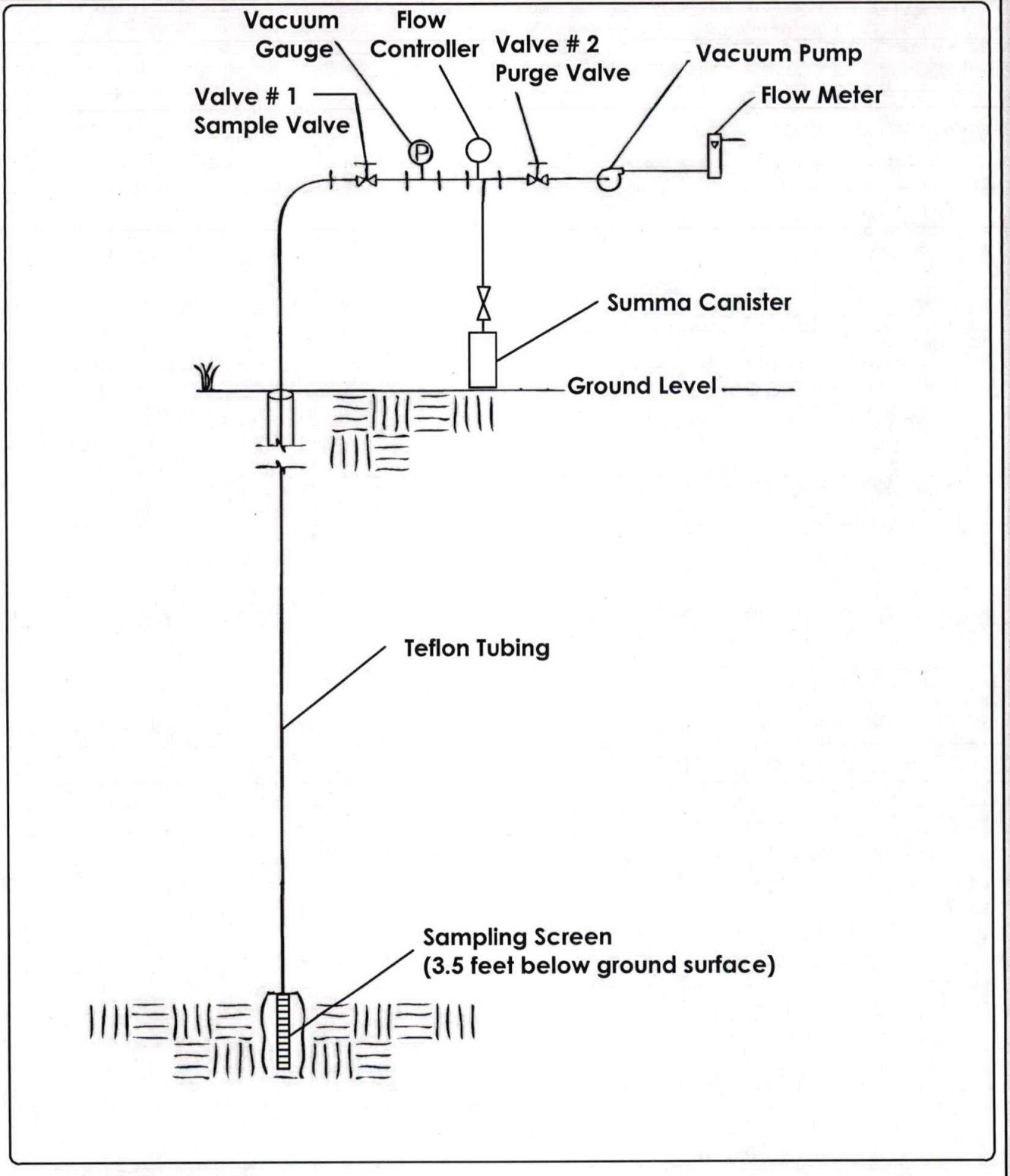
USEPA = U.S. Environmental Protection Agency.

VOA = volatile organic analysis vial.

VOC = volatile organic compound.

FIGURES



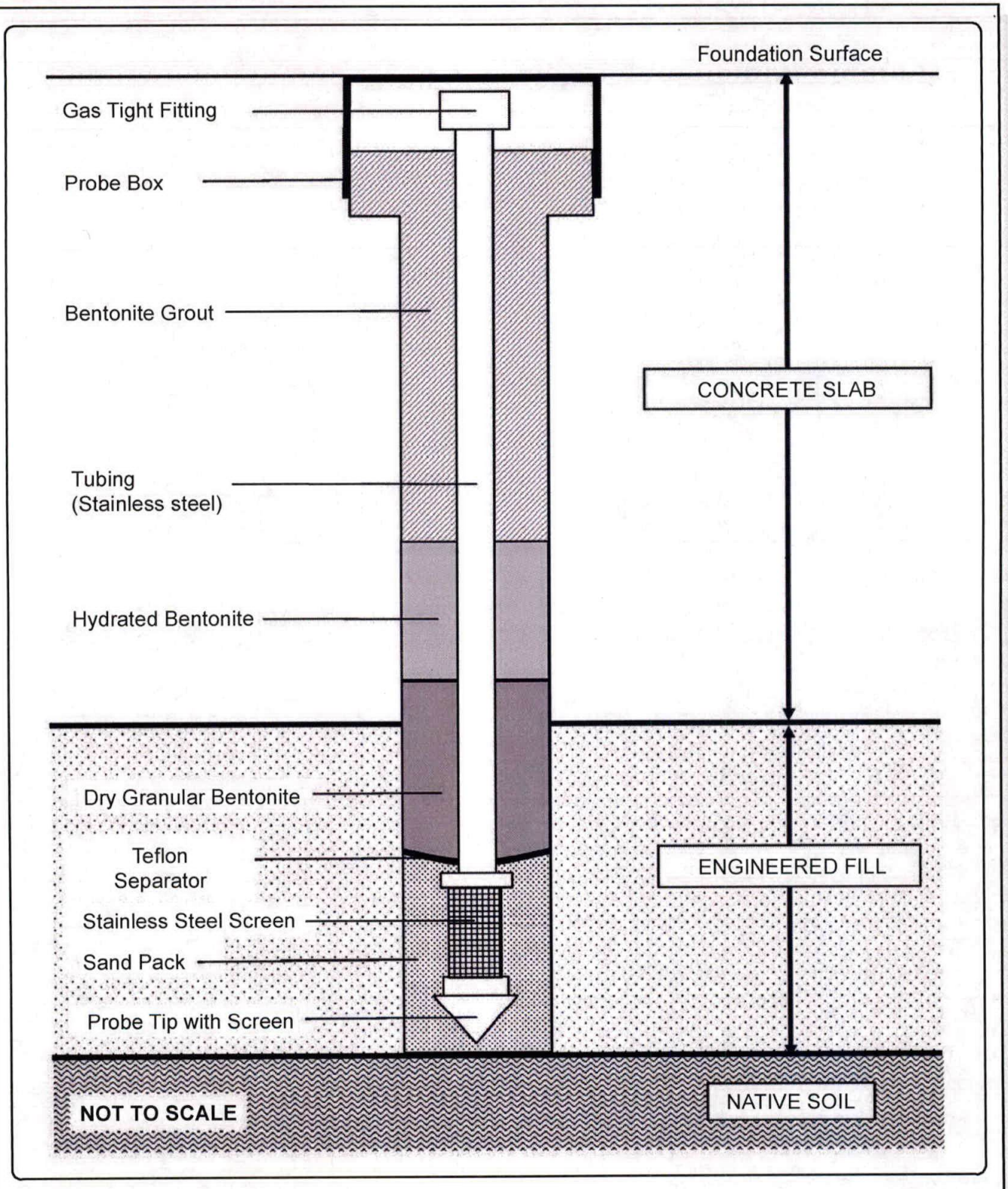


Source: CH2MHill, Corvallis Applied Sciences Laboratory

Figure 1
Soil Gas/Evacuated Sampler System
S. 154th Street TOD
SeaTac, Washington

MAUL FOSTER ALONGI
www.maulfoster.com

File: X:\8128.01\20\Projects\Fig4_Soil Gas_Evacuated Sampler System.mxd
Print Date: 4/29/2014
Approved By: yvan
Produced By: rmaronn
Project: 0879.01.01



Source: State of California Vapor Intrusion Document October 2011 (DTSC - Cal/EPA).

Figure 2
Schematic Diagram of a Subslab Sampling Probe

S. 154th Street TOD
SeaTac, Washington

MAUL FOSTER ALONGI
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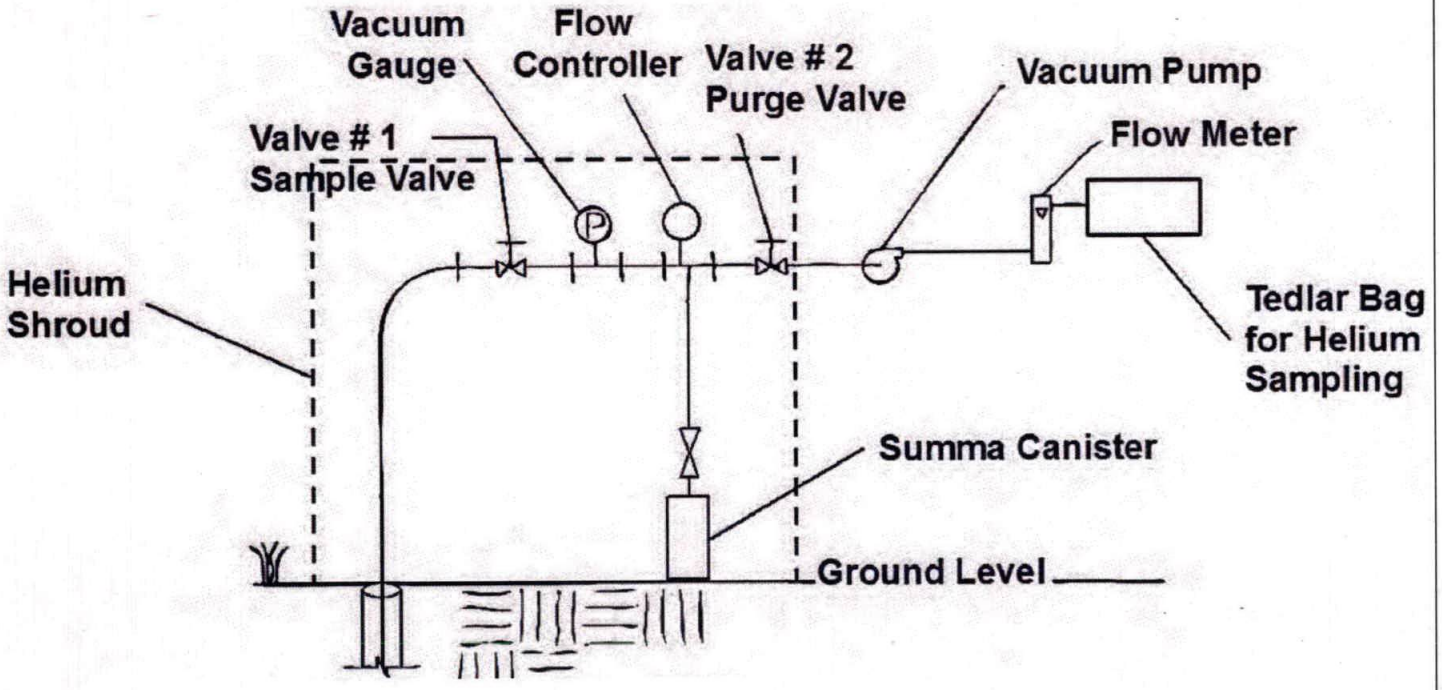


Figure 3
Subslab Soil Gas Evacuated Sampler System Ground Level
S. 154th Street TOD
SeaTac, Washington

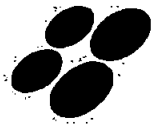
Source: CH2MHill, Corvallis Applied Sciences Laboratory

MAUL FOSTER ALONGI
www.maulfoster.com

Project: 0897.01.01 Produced By: rmaronn Approved By: yvan Print Date: 4/29/2014 Path: X:\0879.01 City of SeaTac\Projects\Fig3_Subslab Soil Gas Evacuated Sampler System Ground Level.mxd

ATTACHMENT A

BORING LOG FORM



MAUL FOSTER ALONGI

Boring Log Form

Boring/Well No.:	
Site:	
Location:	
Project #:	

Drill Rig		MFA Staff:		Hole Dia:		Total Depth:	
Drilling Co.:				Water Level:		WLE Note:	
Start Date:		End Date:		Water Level:		WLE Note:	

Completion	Sample			Lithology					
	Top:	Time:	Depth:	Soil Type:		Color:			
	Length:			Top:	Fines:			Moisture:	
	Type:	Sample ID		Bottom:	Sand:			PID:	
	% Recov:			Soil Class:	Gravel:			Line Type:	
				Trace:		Impacts:			
				Notes:					
	Top:	Time:	Depth:	Soil Type:		Color:			
	Length:			Top:	Fines:			Moisture:	
	Type:	Sample ID		Bottom:	Sand:			PID:	
	% Recov:			Soil Class:	Gravel:			Line Type:	
				Trace:		Impacts:			
				Notes:					
	Top:	Time:	Depth:	Soil Type:		Color:			
	Length:			Top:	Fines:			Moisture:	
	Type:	Sample ID		Bottom:	Sand:			PID:	
	% Recov:			Soil Class:	Gravel:			Line Type:	
				Trace:		Impacts:			
				Notes:					
	Top:	Time:	Depth:	Soil Type:		Color:			
	Length:			Top:	Fines:			Moisture:	
	Type:	Sample ID		Bottom:	Sand:			PID:	
	% Recov:			Soil Class:	Gravel:			Line Type:	
				Trace:		Impacts:			
				Notes:					
	Top:	Time:	Depth:	Soil Type:		Color:			
	Length:			Top:	Fines:			Moisture:	
	Type:	Sample ID		Bottom:	Sand:			PID:	
	% Recov:			Soil Class:	Gravel:			Line Type:	
				Trace:		Impacts:			
				Notes:					
	Top:	Time:	Depth:	Soil Type:		Color:			
	Length:			Top:	Fines:			Moisture:	
	Type:	Sample ID		Bottom:	Sand:			PID:	
	% Recov:			Soil Class:	Gravel:			Line Type:	
				Trace:		Impacts:			
				Notes:					
	Top:	Time:	Depth:	Soil Type:		Color:			
	Length:			Top:	Fines:			Moisture:	
	Type:	Sample ID		Bottom:	Sand:			PID:	
	% Recov:			Soil Class:	Gravel:			Line Type:	
				Trace:		Impacts:			
				Notes:					
Borehole Notes:									

ATTACHMENT B

FIELD SAMPLING DATA SHEET FORMS

Maul Foster & Alongi, Inc.

7223 NE Hazel Dell Avenue, Suite B, Vancouver, WA 98665 (360) 694-2691 Fax. (360) 906-1958

Soil Field Sampling Data Sheet

Client Name		**Sample Location**					
Project Number		**Sampler**					
Project Name		**Sampling Date**					
Sampling Event		**Sample Name**					
Sub Area		**Sample Depth**					
FSDS QA:		**Easting**		**Northing**		**TOC**	

Sample Information

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	Container Code	#
(1) Backhoe	Liquid	Composite			2 oz. soil	
					4 oz. soil	
					8 oz. soil	
					Other	
					Total Containers	0

Sample Description:

General Sampling Comments

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

Signature _____

Maul Foster & Alongi, Inc.

7223 NE Hazel Dell Avenue, Suite B, Vancouver, WA 98665 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name		**Sample Location**	
Project #		**Sampler**	
Project Name		**Sampling Date**	
Sampling Event		**Sample Name**	
Sub Area		**Sample Depth**	
FSDS QA:		**Easting**	**Northing**	**TOC**

Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW (Product Thickness)	DTB-DTW (Water Column)	Pore Volume (Gallons/ft x Water Column)

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

	Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
Final Field Parameters										

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
	Groundwater		VOA-Glass		
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	0	

General Sampling Comments

Signature _____

Dangerous Waste Site Identification Form

Site ID

DEPARTMENT OF ECOLOGY
State of Washington

Washington State Department of Ecology
Hazardous Waste Information
P.O. Box 47658
Olympia, WA 98504-7658
(800) 874-2022 (within state)
(360) 407-6170

Web site: www.ecy.wa.gov/programs/hwtr

For Ecology Use Only		Date Received:	
Form	Reviewed	Entered	Verified
Site ID			

1. Reason for Submittal

☒ To provide New Notification of Regulated Waste Activity (leave Section 2 blank complete remainder of form)

☐ To Reactivate Site Identification Number (complete entire form) Effective Date: _____ (mm/dd/yyyy)

2. RCRA Site ID Number:

3. Site Location Information

Company Name: Betty Brite Dry Cleaners
Site Address: 15209 Military Rd S
City/State/Zip: SeaTac, WA 98188
County: King
WA State UBI Number:
NAICS Code:
Type of Business: Drycleaners, retail

4. Company Mailing Address

Name: City of SeaTac
Mail Address: 4800 S. 188th Street
City/State/Zip: SeaTac, WA 98188-8605
Country: U.S.A.

5. Legal Owner

Name: City of SeaTac
Mail Address: 4800 S. 188th Street
City/State/Zip: SeaTac, WA 98188-8605
Phone Number (Ext): Area Code: 206 Number: 973-4750
Owner Since: 2013
Owner Type: ☐ Federal ☐ State ☐ County ☒ Municipal
☐ District ☐ Private ☐ Tribal ☐ Other

6. Land Owner

Name: City of SeaTac
Mail Address: 4800 S. 188th Street
City/State/Zip: SeaTac, WA 98188-8605
Phone Number (Ext): Area Code: 206 Number: 973-4750
Owner Type: ☐ Federal ☐ State ☐ County ☒ Municipal
☐ District ☐ Private ☐ Tribal Land
☐ Puyallup Trust ☐ Other

To ask about available formats for the visually impaired call 360-407-6700. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

Dangerous Waste Site Identification Form (continued)

Site ID

RCRA Site ID Number:

7. Site Operator

Name: Betty Brite Dry Cleaners

Mail Address: 15209 Military Rd S

City/State/Zip: SeaTac, WA 98188

Phone Number (Ext): Area Code: 206 Number: 973-4750

Operator Since: 1999

Operator Type: ☐ Federal ☐ State ☐ County ☐ Municipal

☐ District ☒ Private ☐ Tribal ☐ Other

8. Site Contact

Name: Yen-Vy Van, Maul Foster Alongi

Mail Address: 411 First Avenue South, Suite 610

City/State/Zip: Seattle, WA 98104

Phone Number (Ext): Area Code: 253 Number: 320-5378

Email Address: yvan@maulfoster.com

9. Form Contact

Name: Yen-Vy Van, Maul Foster Alongi

Mail Address: 411 First Avenue South, Suite 610

City/State/Zip: Seattle, WA 98104

Phone Number (Ext): Area Code: 253 Number: 320-5378

Email Address: yvan@maulfoster.com

10. Type of Regulated Waste Activity (Mark the appropriate boxes for activities that apply to your site)

A. Hazardous Waste Activities

1. Generator of Hazardous Waste

(Choose only one of the following four categories)

- ☐ a. LQG: Large Quantity Generator (Greater than 2,200 lbs/mo)
- ☐ b. MQG: Medium Quantity Generator (Between 220 – 2,200 lbs/mo)
- ☒ c. SQG: Small Quantity Generator (Less than 220 lbs/mo)
- ☐ d. XQG: No Regulated Waste Generated

2. Frequency of Generation

(Choose only one of the following three types)

- ☐ a. Monthly
- ☒ b. Batch
- ☐ c. One-time only
  - ☐ 1. Spills
  - ☐ 2. Cleanup

3. Transporter of Hazardous Waste

- ☐ a. Transport own waste
- ☐ b. Transport for commercial purposes

☐ 4. Recycler of On-Site Waste

(i.e., on-site use, reuse or reclamation of a waste after it has been generated)

☐ 5. Transfer Facility of Hazardous Waste

☐ 6. Permit-by-Rule (PBR)

☐ 7. Treatment-by-Generator (TBG)

☐ 8. Generator of Mixed Radioactive Waste

☐ 9. Importer of Hazardous Waste

☐ 10. Dangerous Waste Permitted Facility – also called a Treatment, Storage, or Disposal (TSD) Facility. (Requires an Ecology Part A or Part B permit for dangerous waste management). Note: On-site accumulation of waste by a generator does not usually require a permit for storage.

☐ 11. Recycler of Dangerous Waste Received from Off-Site (Regulated under the State Dangerous Waste Regulations WAC 173-303-120.)

12. Dangerous Waste Fuel Activity

- ☐ a. Generator of dangerous waste fuel
- ☐ b. Generator marketing to burner
- ☐ c. Other marketers (i.e., blender, distributor, etc.)
- d. Burner (indicate type of combustion unit)
  - ☐ 1. Utility boiler
  - ☐ 2. Industrial boiler
  - ☐ 3. Industrial furnace
- e. Deferrals/Exemptions (in federal registry only)
  - ☐ 1. Smelter deferral
  - ☐ 2. Small quantity exemption
  - ☐ 3. Other (specify):

☐ 13. Generator of Special Waste (Regulated under the State Dangerous Waste Regulations WAC 173-303-073.)

Dangerous Waste Site Identification Form (continued)

Site ID

RCRA Site ID Number:

B. Universal Waste Activities

1. Large Quantity Handler of Universal Waste

(Mark all boxes that apply)

	Generate	Accumulate
a. Batteries	☐	☐
b. Mercury Containing Equipment including thermostats	☐	☐
c. Lamps	☐	☐

☐ **2. Destination Facility for Universal Waste**

(Note: Please check this box if you either store waste from off-site sources prior to recycling or if you recycle waste from off-site sources without first storing the waste.)

C. Used Oil Activities

1. Off-specification Used Oil Burner Indicate type(s) of combustion devices

☐ 1. Utility boiler
☐ 2. Industrial boiler
☐ 3. Industrial furnace

2. Used Oil transporter Indicate type(s) of activity(s)

☐ a. Transporter
☐ b. Transfer facility

3. Used Oil Processor/Re-refiner Indicate type(s) of activity(s)

☐ a. Processor
☐ b. Re-refiner

4. Used Oil Fuel Marketer

☐ a. Directs shipment of used oil to used oil burner
☐ b. First claims the used oil meets the specifications

11. Description of Hazardous Wastes

A. Waste Codes for Federally Regulated Hazardous Wastes: Identify those codes that best describe your waste. (e.g., D001 – Ignitable, D002 – Corrosive, D003 – Reactive, etc.)

F002							

B. Waste Codes for State Regulated (i.e., non-Federal) Hazardous Wastes: Identify those codes that best describe your waste. (e.g., WT02 – Toxic, WP02 – Persistent, WSC2 – Solid Corrosive, etc.)

12. Comments

IDW (soil and purge groundwater) is from drilling activities for a subsurface investigation. Source of IDW: an active dry cleaner business (Betty Brite Dry Cleaners).

Additional sheets may be attached for comments if needed.

13. Certification

*** This form cannot be processed without a signature**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature

5-20-14

Date

JEFF ROBINSON

Name (print or type)

ECONOMIC DEV. MGR.

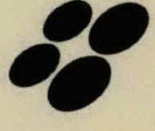
Title

14. Electronic Submittals

☒ I am interested in the electronic filing of my Dangerous Waste Annual Reporting and Site Identification information to Ecology over the Internet. Ecology will issue a PIN number, along with electronic filing instructions, in a letter addressed to the Form Contact in Section 9 on this form.

APPENDIX B

GOLDER ASSOCIATES, INC. 2009 INVESTIGATION ANALYTICAL RESULTS



DRAFT REPORT ON

GROUNDWATER, SOIL, AND SOIL VAPOR INVESTIGATION PANCAKE CHEF PROPERTY 15201 MILITARY ROAD SOUTH SEATAC, WASHINGTON

Submitted to:

Riddell Williams PS
1001 Fourth Avenue, Suite 4500
Seattle, Washington 98154-1192

Submitted by:

Golder Associates Inc.
18300 NE Union Hill Road, Suite 200
Redmond, Washington 98052

DRAFT

Amanda Cote, L.G.
Senior Environmental Project Scientist

DRAFT

Douglas J. Morell, Ph.D., L.Hg.
Principal

Distribution:

June 24, 2009

083-9356602

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1.0 INTRODUCTION

Golder Associates Inc. (Golder) performed a site assessment to determine current near surface soil vapor conditions and groundwater conditions at Pancake Chef located at 15201 Military Road South in SeaTac, Washington (Site). Figure 1 shows the site location. This work was authorized by Riddell Williams P.S. by Harry Edward Grant on May 28, 2009 and was conducted in accordance with our proposal dated April 17, 2008. This report provides a description of our site investigation, analytical results, and summary.

2.0 INVESTIGATION OBJECTIVES

Golder conducted a limited subsurface investigation at the Subject Property. The purpose of this investigation was to evaluate soil vapor, soil, and groundwater conditions on the east, north, and south sides of the subject property for evidence of impact from an onsite dry cleaning operation (Betty Brite Drycleaners).

A Phase I Environmental Site Assessment (ESA) of the Pancake Chef Property, completed by Golder and dated December 2, 2008 documented that a dry cleaners has operated on the Subject Property for at least thirty years. The original dry cleaning equipment was reportedly replaced in 1993. The current machine uses perchloroethylene (PCE). The type of chemicals used before 1993 are unknown.

3.0 SCOPE OF INVESTIGATION

3.1 Soil Vapor Investigation

Soil vapor samples were collected at locations inside the Betty Brite Cleaners and outside in the adjacent parking lot. This sampling was conducted at the Subject Property on March 5 and 6, 2009.

3.1.1 Interior Soil Vapor Sample Collection

Four soil vapor samples were obtained below the interior concrete floor of the drycleaners. Interior sample locations were selected based on proximity to the dry cleaning equipment or chemical storage area. Initially the concrete floors were cored to expose the underlying soil. The concrete slab was approximately 4.5-inches thick. Significant cracks were observed in the slab near the dry cleaning equipment. In addition, a background ambient interior air sample was collected for analysis in a summa canister for comparisons to the soil vapor results. The ambient air sample was collected near the cleaning equipment.

The sample identifications and locations collected inside the Betty Brite cleaners were:

BB-1	West (behind) of the dry cleaning machine.
BB-2	Southwest of the dry cleaning machine, adjacent to the PCE drum storage.
BB-3	East (front) of the dry cleaning machine
BB-4	East of the dry cleaning machine, near the front counter.
BB-1A	Indoor ambient, collected behind the dry cleaning machine.

Samples (designated BB-1 through BB-4) were obtained through a hand driven steel probe. The probe was driven to depths between 2 and 3 feet below the concrete slab before refusal. Soil vapor was drawn through short sections of HDPE tubing, fitted with secure connections that were inserted through the probe to the interface of the slab. A seal of modeling clay around the tubing was used to ensure the soil vapor collected was free of influence from the building interior.

Soil vapor samples were collected directly into the evacuated summa canisters. A pressure/ vacuum gauge, provided by the laboratory was used to check all connections for tightness before sample collection. Slightly less than six liters of sample was collected to keep the sample contained in the summa canisters at approximately 5 pounds per square inch (psi) pressure. The purged soil vapor from each probe was screened using a photoionization detector (PID). During screening of purged soil vapors, with the exception of BB-4, the PID detected low concentrations of volatile organic compounds (VOCs) at all the interior sample locations. Sample canisters were labeled with appropriate logging of data and forms prior to shipment. The canisters were sent to Air Toxics LTD. for expedited analysis using EPA Method TO-15.

3.1.2 Exterior Soil Vapor Sample Collection

Four soil vapor samples were collected from exterior locations in the parking lot adjacent to the Betty Brite Cleaners. Figure 2 shows the approximate locations of all the soil vapor sample locations. Soil vapor samples were obtained through the existing pavement with the use of a truck-mounted Geoprobe operated by ESN Northwest. Geoprobe borings were advanced to 3 feet below grade surface (bgs).

The exterior soil vapor samples were drawn through probes that were fitted with air-tight collection valves into six-liter summa canisters. The valves allow the Golder scientist to apply a purge routine and eventually collect the soil vapor sample through connection with the summa canister, without interference from exterior ambient air. A background ambient air sample designated BBOA was obtained for comparison to the exterior soil vapor sample results. The soil vapor samples were collected with 6-liter Summa canisters.

The sampling procedure was performed as required in the Golder Technical Procedure 2.2-4, 'Sampling and Analysis of Soil Gas'.

The procedure for soil vapor collection includes:

1. connection of a three-way soil vapor valve to the end of the probe,
2. purging three volumes of soil vapor from the probe with a vacuum device while monitoring with a photo-ionization detector (PID),
3. connection of the summa canister to the valve with secure fittings, and
4. opening of the valve for a predetermined amount of time to the evacuated summa canister,
5. Closing the summa canister connection and recording the end vacuum value on the chain of custody.

The purge routine in this case included three one-liter volumes of soil vapor, with monitoring by PID, to ensure the representative soil vapor was being drawn into the canister flow. During purging the PID did not detect VOCs in these boreholes. Although the PID is sensitive to the class of compounds being tested, the PID is not as sensitive as the analysis that was eventually applied to the samples at the certified testing laboratory. A pressure/ vacuum gauge, provided by the laboratory was used to check all connections for tightness before sample collection. The vacuum level of each canister was recorded before sample collection and was used to determine if leaking had occurred during equipment setup. There were no indications of leakage.

Since a restrictor/filter device was used in the sample train, the sample collection took place over a period of time ranging from 15 to 45 minutes. Slightly less than six liters of sample was collected to keep the sample contained in the summa canisters at approximately 5 pounds per square inch (psi) pressure. The actual value was recorded in field notes along with the ending vacuum gauge reading for each canister. The ending gauge value also helps the laboratory determine if there was leakage during transport. The laboratory reported no instances of leakage during transport. All summa canisters were labeled with tags attached to the canister, chain of custody documents were completed, and the canisters shipped for next day delivery. The soil vapor sample canisters were sent to Air Toxics LTD. for volatile organic compound analysis using EPA Method TO-15.

3.2 Geoprobe Soil and Groundwater Investigation

Golder Associates contracted ESN Northwest to drill four boreholes using a truck mounted Geoprobe-type drill rig (AMS Power Probe 9500 PTO). The boreholes were advanced in the asphalt-paved parking lot on June 9, 2009. Golder Associates was on site to supervise the drilling and to collect soil and groundwater samples for laboratory analysis.

Four borings (B-1 through B-4) were advanced in the asphalt-covered parking lot, adjacent to the east of the Betty Brite Cleaners. Approximate sample locations are shown on Figure 2. All borings were drilled to approximately 17 to 20 feet bgs. Refer to boring logs in Appendix A for more information.

The geologic material that was encountered is interpreted as glacial till consisting primarily of dense, fine-grained sands with gravel. A thin layer of wet sands with gravel was encountered in borings B-3 and B-4 at a depth of approximately 16 feet bgs. A minor amount of groundwater seepage was observed within this layer. To collect a grab groundwater sample from these borings, a temporary screen was set. Groundwater was allowed to equilibrate within the temporary well for 45 minutes to an hour. Golder used a peristaltic pump and dedicated tubing to collect grab groundwater samples from B-3 and B-4.

In an attempt to collect groundwater from a moist zone within B-1, a temporary well was set. However, after approximately 90 minutes there was no evidence of groundwater within the well. The temporary well at B-1 was abandoned. Groundwater was not encountered in boring B-2. Regional groundwater data suggests that this is a perched zone.

Three volatile organic compound (VOA) vials were collected at each well and the samples immediately placed on ice in a cooler for transport to the laboratory. Samples were transported to OnSite Environmental, Inc. of Redmond, Washington, for analysis by EPA Method 8260B. There are no issues with sample handling or reporting and all samples were tested within the recommended holding time

During the Geoprobe boring, soil samples were obtained from below pavement to depth. Soil samples were field-screened for VOCs using the PID. PID readings are included in the boring logs (Appendix A). Representative soil samples were collected.

4.0 INVESTIGATION RESULTS

4.1 Soil Vapor Analytical Results

Soil vapor samples were collected in 6 liter stainless steel Summa canisters and were delivered for EPA TO-15 analysis at a certified laboratory. All canisters were handled properly and within the suggested holding time prior to analysis. Analytical reports for soil vapor from Air Toxics, Ltd. in Folsom, California, are provided in Appendix B.

Multiple compounds were detected for each soil vapor sample. Detected results are summarized in Tables 1 and 2. All detected results are recorded as parts-per-billion by volume (ppbv) levels. The ppbv designation is appropriate for air contaminants where concentration by volume is assessed as opposed to weight by volume measurements.

A greater number of analytes were detected in the soil vapor samples collected from the interior of the Betty Brite cleaners, than the exterior locations. There were 18 distinct compounds detected in the soil vapor samples collected within the dry cleaners compared to a total of 15 compounds detected from exterior soil boreholes. Generally higher vapor detections are expected where a barrier, in this case concrete slab or asphalt paving, allows vapors to collect but not easily dissipate to ambient atmospheres.

The concentrations of compounds detected in both interior and exterior samples were generally higher from the interior locations. For example, trichloroethene (TCE) was detected inside the tenant space at concentrations ranging from 64 ppbv to 160 ppbv in comparison to exterior samples that contained 4.0 ppbv to 19 ppbv TCE. This tendency is repeated for most of the detected compounds.

The highest concentrations of TCE and tetrachloroethene (PCE), chlorinated compounds associated with dry cleaning activities, were detected in the ambient air sample collected within the Betty Brite Cleaners. Based on these analytical results and cracks observed within the concrete slab beneath the dry cleaning equipment, it was not possible eliminate ambient air as the source of TCE and PCE in the sub-slab vapor samples.

The laboratory data was reviewed and found to be within industry standard acceptance criteria for quality assurance benchmarks. The trip blank sample results are a gauge for potential sample contamination introduced during transport. No compounds of concern were detected within the trip blank sample. Copies of analytical reports for soil vapor from Air Toxics Ltd are provided in Appendix B.

4.2 Soil Analytical Results

Soil samples were collected from four borehole locations installed using a GeoProbe apparatus on June 9, 2009. Generally, PID readings showed VOCs increasing with depth in boreholes B-1 and B-2. The highest PID readings were recorded in boring B-1 at a depth of approximately 16 feet bgs (2000+ ppm). Please refer to boring logs appended to this report for complete PID readings.

Based on PID field screening results, one sample collected in boring B-1 at a depth between 14 and 16 feet bgs was analyzed for volatiles by EPA Method 8260B and petroleum compounds using NWTPH-HCID at OnSite Environmental Laboratory of Redmond, Washington. A summary table of soil results is provided in Tables 4 and 5. Copies of analytical reports for soil from OnSite Environmental are provided in Appendix C.

Analytical results show a low concentration of PCE (0.0018 mg/kg [ppm]) in sample B-1 14-16. No other VOCs were detected in this sample above the practical quantitative limit provided by the laboratory. Petroleum compounds were not detected within B-1 14-16.

Laboratory results were reviewed by Golder to assure that proper quality control was applied to the samples submitted. All QC criteria were found to be within industry standard acceptance benchmarks.

4.3 Groundwater Analytical Results

Groundwater was collected from two temporary well locations identified as B-3 and B-4. Depth to groundwater at both locations was approximately 16 feet bgs. The groundwater data shows detections of PCE, Benzene, and Acetone in both samples. Concentrations of PCE are above the groundwater cleanup level established by MTCA Method A. However, based on field observations, this groundwater source is not of sufficient quantity or production capacity to be used as a drinking water source. Therefore, this exceedance is not reportable as specified by the MTCA.

None of the di- or mono-chlorinated degradation compounds associated with PCE was detected. The absence of these compounds suggests that significant degradation has not occurred. The PCE values are above the practical quantization limit (PQL) of 0.20 ug/L established by the laboratory. This PQL meets the groundwater cleanup limit provided by the MTCA Method A of 5 ug/L.

Samples were transported to OnSite Environmental, Inc. of Redmond, Washington, for analysis by EPA Method 8260B. Laboratory results were reviewed by Golder to assure that proper quality control was applied to the samples submitted. All QC criteria were found to be within industry standard acceptance benchmarks. Copies of analytical reports for groundwater from OnSite Environmental are provided in Appendix C.

5.0 SUMMARY

In summary, two chlorinated compounds typically associated with dry cleaning activities (Trichloroethene [TCE] and Tetrachloroethene [PCE]) were detected in all the soil vapor samples. PCE is currently used as a cleaning solvent at Betty Brite Cleaners. With the exception of TCE, none of the di- or mono-chlorinated degradation compounds associated with PCE were detected. The TCE could be either a source or a degradation compound. TCE has been used as a dry cleaning solvent; however, it is not known whether it was used historically at this location. The absence of degradation compounds indicates that significant degradation has not occurred.

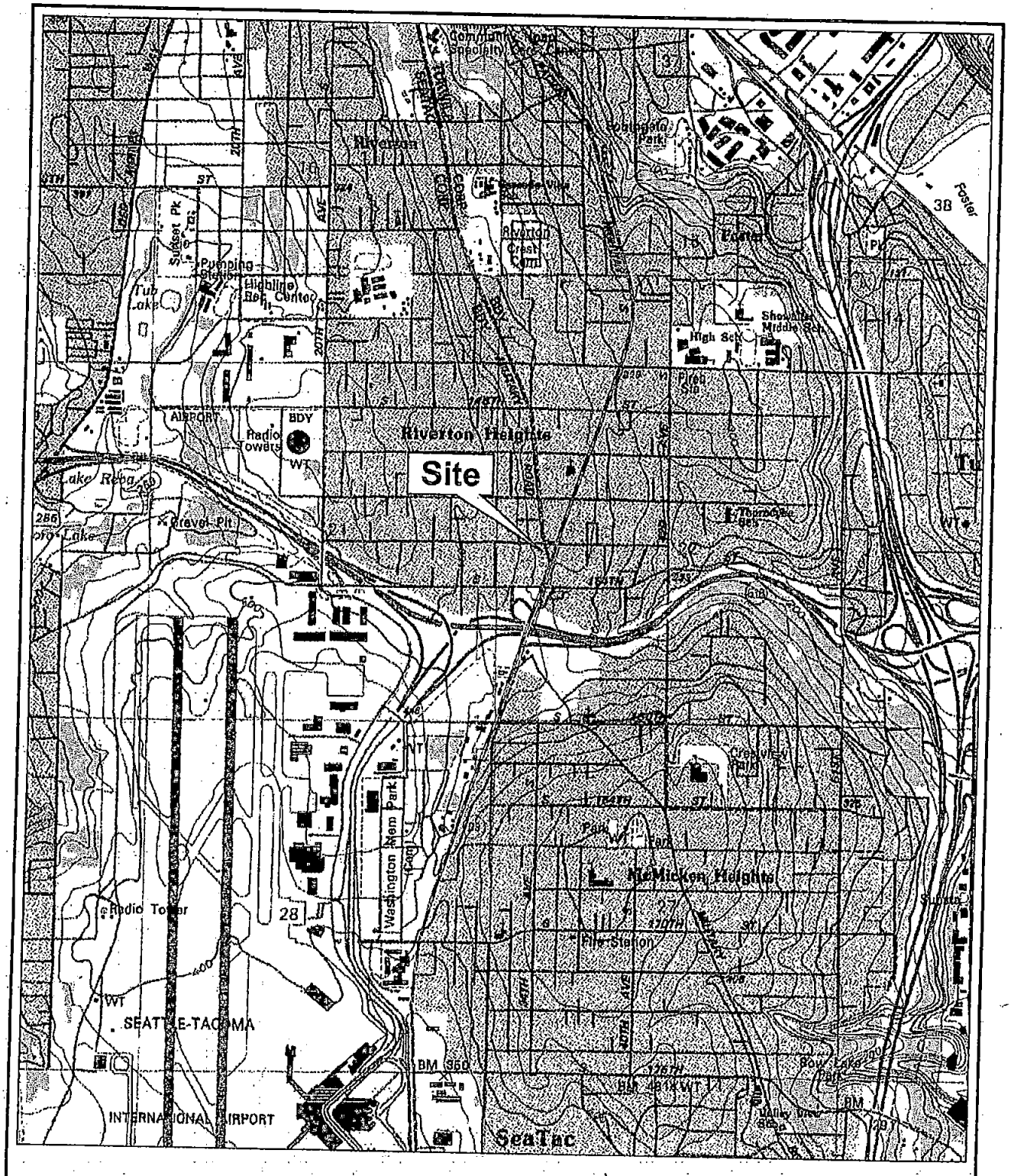
PCE was also detected in both groundwater samples collected in the parking lot adjacent to the cleaners. This groundwater is interpreted to be a perched zone within the glacial till. Groundwater well logs, available from the Washington State Department of Ecology's website, were reviewed for the area near the Subject Property. Information in these logs suggests that the regional groundwater table is located 60-80 feet bgs. Using the limited amount of site-specific data, topography, and an understanding local geology it is not possible to definitively identify the groundwater flow direction.

Analytical results show concentrations of PCE in groundwater which indicates a chemical release to the environment. A possible mode for release of PCE to underlying groundwater could include spills from chemicals stored or used at the cleaners. Even though perched groundwater was not encountered in borings B-1 and B-2, PID readings for VOCs increased with depth potentially indicating an additional areas of VOC contamination in the subsurface.

6.0 REFERENCES

Golder Associates Inc. December 2008, Phase 1 Environmental Site Assessment, Pancake Chef – 15201 Military Road South, SeaTac, Washington. Prepared for Riddell Williams P.S. , Seattle, Washington.

FIGURES



Source: USGS 7.5 Minute Topographic Quadrangle Map, Seattle South, WA, 1983

FIGURE 1
VICINITY MAP
RIDDELL WILLIAMS/PANCAKE CHEF, WA

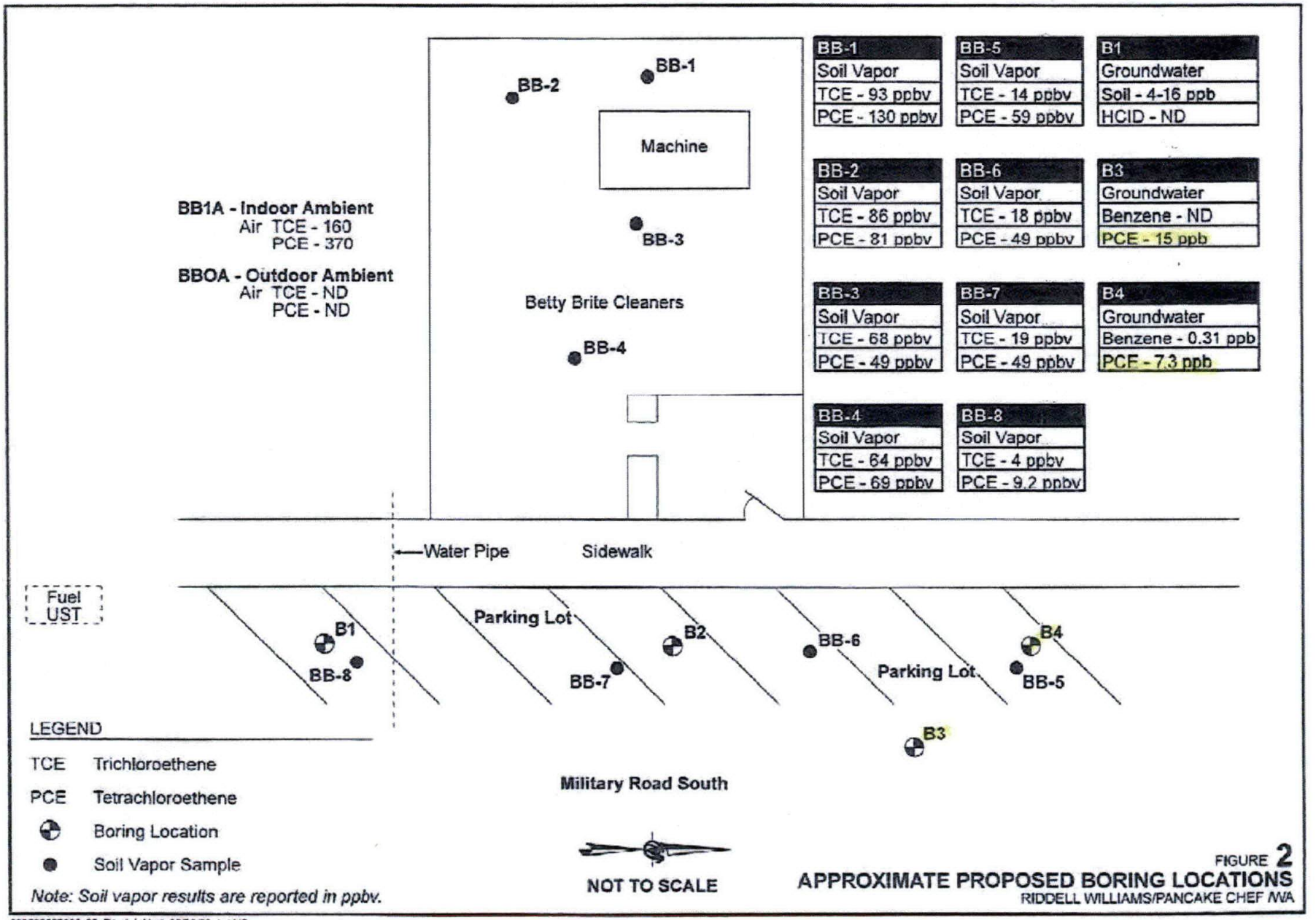


FIGURE 2
APPROXIMATE PROPOSED BORING LOCATIONS
RIDDELL WILLIAMS/PANCAKE CHEF /WA

SOIL VAPOR DETECTIONS
INTERIOR SAMPLES
(EPA Method TO-15)

	Interior Samples				
Soil Vapor Sample Location	**BB-1**	**BB-2**	**BB-3**	**BB-4**	**BB-1A**
Date Collected:	5-Mar-09	5-Mar-09	5-Mar-09	5-Mar-09	5-Mar-09
Detected Compound	**Results**	**Results**	**Results**	**Results**	**Results**
Units:	ppbv	ppbv	ppbv	ppbv	ppbv
1,3-Butadiene	ND	ND	ND	ND	ND
Ethanol	250	300	280	280	200
Acetone	22	19	16	18	11
2-Propanol	38	66	53	50	12
2-Butanone (MEK)	26	51	31	29	1.5
Tetrahydrofuran	15	20	17	15	1.6
Cyclohexane	ND	ND	ND	ND	ND
Carbon Disulfide	2.3	ND	ND	ND	ND
Hexane	6.4	11	9.2	8.8	ND
Benzene	1.7	2.2	1.9	1.9	ND
Heptane	0.81	1.3	1.0	0.95	ND
Trichloroethene	93	86	68	64	160
Toluene	7.2	11	8.1	7.1	2.1
Tetrachloroethene	130	81	49	69	370
Ethyl Benzene	2.2	3.3	2.6	2.0	ND
m,p-Xylene	7.2	10	7.7	6.2	ND
o-Xylene	1.8	2.6	1.9	1.6	ND
Styrene	ND	0.96	ND	ND	ND
4-Ethyltoluene	0.8	1.0	0.77	ND	ND
1,2,4-Trimethylbenzene	1.0	1.3	0.95	0.8	ND

ND - Non-detect at the practical quantitation

TABLE 2

SOIL VAPOR DETECTIONS
EXTERIOR SAMPLES
(EPA Method TO-15)

	Exterior Samples				
Soil Vapor Sample Location	**BB-5**	**BB-6**	**BB-7**	**BB-8**	**BB-OA**
Date Collected:	6-Mar-09	6-Mar-09	6-Mar-09	6-Mar-09	6-Mar-09
Detected Compound	**Results**	**Results**	**Results**	**Results**	**Results**
Units:	ppbv	ppbv	ppbv	ppbv	ppbv
1,3-Butadiene	ND	6.2	6.7	6.2	ND
Ethanol	ND	130	190	73	4.3
Acetone	ND	30	15	3.8	10
2-Propanol	ND	12	18	3.9	ND
2-Butanone (MEK)	4.8	6.6	6.8	1.6	1.6
Tetrahydrofuran	2.0	3.0	3.1	0.9	ND
Cyclohexane	4.0	ND	ND	ND	ND
Carbon Disulfide	ND	1.0	ND	ND	ND
Hexane	8.3	6.0	3.6	1.2	ND
Benzene	1.6	1.9	1.4	ND	0.82
Heptane	2.4	0.9	ND	ND	ND
Trichloroethene	14	18	19	4.0	ND
Toluene	3.0	3.0	3.0	1.5	1.4
Tetrachloroethene	59	49	49	9.2	ND
Ethyl Benzene	ND	ND	ND	ND	ND
m,p-Xylene	1.9	1.8	2.1	0.99	ND
o-Xylene	ND	ND	ND	ND	ND
Styrene	ND	ND	ND	ND	ND
4-Ethyltoluene	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND

ND - Non-detect at the practical quantitation

GROUNDWATER
VOLATILE ANALYSIS RESULTS (EPA Method 8260B)

Groundwater Sample Location	B-3	B-4
Date Collected:	9-Jun-09	9-Jun-09
Detected Compound	Results	Results
Units:	ug/L	ug/L
Acetone	6.4	18
Benzene	ND	0.31
Tetrachloroethene	15	7.3

ND - Non-detect at the practical quantitation limit .

TABLE 4
SOIL VOLATILE ANALYSIS RESULTS
(EPA Method 8260B)

Soil Borehole ID:	B-1 14-16	
Date Collected:	6/9/2009	
Detected Compound	Results	PQL
Units:	mg/kg	mg/kg
Tetrachloroethene	0.0018	0.0011

ND - Non-detect at the practical quantitation limit (PQL).

TABLE 5

SOIL NWTPH-HCID RESULTS

Soil Borehole ID:	B-1 14-16
Date Collected:	6/9/2009
Compound	Results
Units:	mg/kg
Gasoline	ND
Diesel Fuel	ND
Lube Oil	ND
ND - Non-detect at the practical quantitation limit (PQL).	

PRELIMINARY DRAFT NOT QUALITY ASSURED FOR USE

APPENDIX A

GEOPROBE BOREHOLE LOGS

RECORD OF BOREHOLE B1

SHEET 1 of 1

PROJECT: SeaTac\Pancake Chef
PROJECT NUMBER: 083-9356602
LOCATION: 15201 Military Rd S, SeaTac

DRILLING METHOD: GeoProbe
DRILLING DATE: 6/9/2009
DRILL RIG: GeoProbe

DATUM: Not Located
AZIMUTH: N/A
COORDINATES: not surveyed

ELEVATION: 345
INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	PENETRATION RESISTANCE BLOWS / ft ■ (10 20 30 40) WATER CONTENT (PERCENT) W_p W W_l (20 40 60 80)	NOTES WATER LEVELS
0	GeoProbe	0.0 - 0.3 Asphalt			344.7 / 0.3							
		0.3 - 1.0 Gray, compact, fine SAND, moist.			344.0 / 1.0							
		1.0 - 7.0 Brown to gray, dense, fine sandy SILT, damp.										PID = 16, NO ODOR
5												
		7.0 - 10.0 Gray, dense, fine silty SAND, damp.			338.0 / 7.0							PID = 804, NO ODOR
10		10.0 - 11.0 Gray, dense, fine SAND, little gravel, damp.			335.0 / 10.0							PID = 1600, NO ODOR
		11.0 - 14.0 Gray, dense, sandy SILT, little gravel, damp.			334.0 / 11.0							PID = 450, NO ODOR
15		14.0 - 16.0 Gray to brown, dense, fine SAND with little gravel, moist.			331.0 / 14.0							PID = 2000+, NO ODOR
		16.0 - 20.0 Gray, very dense, fine SAND with little gravel, damp.			329.0 / 16.0							
20		Boring completed at 20.0 ft.			325.0 / 20.0							Refusal at 20 feet

1 In to 3 ft
DRILLING CONTRACTOR: ESN Northwest
DRILLER: Don Homler

LOGGED: ALC
CHECKED: JMS
DATE: 6/23/2009

Golder Associates

BOREHOLE RECORD 083-9356602-BORINGS.GPJ GLDR_WA.GDT 6/23/09

RECORD OF BOREHOLE B2

SHEET 1 of 1

PROJECT: SeaTac\Pancake Chef
PROJECT NUMBER: 083-9356602
LOCATION: 15201 Military Rd S, SeaTac

DRILLING METHOD: GeoProbe
DRILLING DATE: 6/9/2009
DRILL RIG: GeoProbe

DATUM: Not Located
AZIMUTH: N/A
COORDINATES: not surveyed

ELEVATION: 345
INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	PENETRATION RESISTANCE BLOWS / ft; WATER CONTENT (PERCENT)	NOTES WATER LEVELS
0	GeoProbe	0.0 - 0.5 Asphalt.			344.5 / 0.5							
		0.5 - 1.5 Gray, compact, fine SAND with gravel.			343.5 / 1.5							
		1.5 - 7.0 Brown, compact, fine SAND with gravel, moist.										
5												PID = 218, NO ODOR
		7.0 - 12.0 Brown to gray, dense, silty SAND with gravel, moist.			338.0 / 7.0							
10												PID = 303, NO ODOR
		12.0 - 14.0 Brown to gray, fine SAND with gravel.			333.0 / 12.0							PID = 520, NO ODOR
		14.0 - 17.0 Brown, dense, fine SAND with gravel, moist.			331.0 / 14.0							
15												PID = 651, NO ODOR
		Boring completed at 17.0 ft.			328.0 / 17.0							Refusal at 17 feet. Set temporary scree at 11:55 am. At 2:00 pulled screen, no groundwater accumulation in hole. Backfilled with bentonite chips.
20												

1 in to 3 ft

DRILLING CONTRACTOR: ESN Northwest
DRILLER: Don Homler

LOGGED: ALC
CHECKED: JMS
DATE: 6/23/2009

Golder Associates

BOREHOLE RECORD 083-9356602-BORINGS.GPJ GLDR_WA.GDT 6/23/09

RECORD OF BOREHOLE B3

SHEET 1 of 1

PROJECT: SeaTac\Pancake Chef
PROJECT NUMBER: 083-9356602
LOCATION: 15201 Military Rd S, SeaTac

DRILLING METHOD: GeoProbe
DRILLING DATE: 6/9/2009
DRILL RIG: GeoProbe

DATUM: Not Located
AZIMUTH: N/A
COORDINATES: not surveyed

ELEVATION: 345
INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	PENETRATION RESISTANCE BLOWS / ft; WATER CONTENT (PERCENT)	NOTES WATER LEVELS
0	GeoProbe	0.0 - 0.3 Asphalt.			344.7 / 0.3							
		0.3 - 4.0 Brown, compact, fine grained silty SAND, slightly moist.			341.0 / 4.0							NO PID, NO ODOR
5		4.0 - 8.0 Brown, compact, fine grained SAND, slightly moist.			337.0 / 8.0							NO PID, NO ODOR
10		8.0 - 12.0 Gray, compact, fine SAND with gravel, moist.			333.0 / 12.0							PID = 10, NO ODOR
		12.0 - 15.0 Gray, compact, fine SAND with gravel, moist.			330.0 / 15.0							PID = 31, NO ODOR
15		15.0 - 18.0 Gray, fine SAND with gravel, moist to wet.			327.0 / 18.0							PID = 50, NO ODOR
		Boring completed at 18.0 ft.										Refusal at 18 feet. Set temporary well at 9:15, sample at 10:13. Backfilled with bentonite chips.
20												

PENETRATION RESISTANCE BLOWS / ft: 10 · 20 · 30 · 40
WATER CONTENT (PERCENT): W_p — W — W_l ; 20 40 60 80

1 In to 3 ft

DRILLING CONTRACTOR: ESN Northwest
DRILLER: Don Homler

LOGGED: ALC
CHECKED: JMS
DATE: 6/23/2009

Golder Associates

BOREHOLE RECORD 083-9356602-BORINGS.GPJ GLDR_WA.GDT 6/23/09

RECORD OF BOREHOLE B4

SHEET 1 of 1

PROJECT: SeaTac\Pancake Chef
PROJECT NUMBER: 083-9356602
LOCATION: 15201 Military Rd S, SeaTac

DRILLING METHOD: GeoProbe
DRILLING DATE: 6/9/2009
DRILL RIG: GeoProbe

DATUM: Not Located
AZIMUTH: N/A
COORDINATES: not surveyed

ELEVATION: 345
INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	PENETRATION RESISTANCE BLOWS / ft ■ (10 20 30 40) / WATER CONTENT (PERCENT) W_p W W_l (20 40 60 80)	NOTES WATER LEVELS
0	GeoProbe	0.0 - 0.3 Asphalt			344.7 / 0.3							
		0.3 - 1.0 Gray to brown, compact, fine SAND, moist.			344.0 / 1.0							NO PID, NO ODOR
		1.0 - 8.0 Grey, compact, SAND with gravel, moist.										
5												NO PID, NO ODOR
					337.0 / 8.0							
		8.0 - 12.0 Brown, dense, fine SAND with gravel, moist.										
10												PID = 34.5, NO ODOR
					333.0 / 12.0							
		12.0 - 18.0 Brown to gray, compact, fine SAND with silt, moist.										
15												PID = 47.4, NO ODOR
					327.0 / 18.0							
		Boring completed at 18.0 ft.										Set temporary well at 10:15 am. Sample groundwater at 10:43 am. Backfilled with bentonite chips.
20												

1 In to 3 ft
DRILLING CONTRACTOR: ESN Northwest
DRILLER: Don Homler

LOGGED: ALC
CHECKED: JMS
DATE: 6/23/2009

Golder Associates

BOREHOLE RECORD 083-9356602-BORINGS.GPJ GLDR_WA.GDT 6/23/09

PRELIMINARY DRAFT NOT QUALITY ASSURED FOR USE

APPENDIX B

AIR TOXICS LTD.
SOIL VAPOR LABORATORY DATA REPORTS

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

3/24/2009

Mr. Amanda Cote
Golder Associates, Inc.
18300 NE Union Hill Road
Suite 200
Redmond WA 98052

Project Name: Pancake Chef
Project #: 0839356601
Workorder #: 0903277

Dear Mr. Amanda Cote

The following report includes the data for the above referenced project for sample(s) received on 3/11/2009 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for you air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner
Project Manager

WORK ORDER #: 0903277

Work Order Summary

CLIENT:	Mr. Amanda Cote Golder Associates, Inc. 18300 NE Union Hill Road Suite 200 Redmond, WA 98052	**BILL TO:**	Mr. Amanda Cote Golder Associates, Inc. 18300 NE Union Hill Road Suite 200 Redmond, WA 98052
PHONE:	425-883-0777	**P.O. #**	
FAX:	425-882-5498	**PROJECT #**	0839356601 Pancake Chef
DATE RECEIVED:	03/11/2009	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	03/24/2009		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	BB1A	Modified TO-15	2.6 "Hg	5 psi
02A	BB1	Modified TO-15	3.0 "Hg	5 psi
03A	Trip Blank	Modified TO-15	27.2 "Hg	5 psi
04A	BB3	Modified TO-15	3.6 "Hg	5 psi
05A	BB4	Modified TO-15	3.8 "Hg	5 psi
06A	BB2	Modified TO-15	5.0 "Hg	5 psi
07A	BBOA	Modified TO-15	4.6 "Hg	5 psi
08A	BB5	Modified TO-15	3.6 "Hg	5 psi
09A	BB6	Modified TO-15	4.8 "Hg	5 psi
09AA	BB6 Lab Duplicate	Modified TO-15	4.8 "Hg	5 psi
10A	BB7	Modified TO-15	1.6 "Hg	5 psi
11A	BB8	Modified TO-15	3.0 "Hg	5 psi
12A	Lab Blank	Modified TO-15	NA	NA
12B	Lab Blank	Modified TO-15	NA	NA
13A	CCV	Modified TO-15	NA	NA
13B	CCV	Modified TO-15	NA	NA
14A	LCS	Modified TO-15	NA	NA

Continued on next page

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0903277

Work Order Summary

CLIENT:	Mr. Amanda Cote Golder Associates, Inc. 18300 NE Union Hill Road Suite 200 Redmond, WA 98052	**BILL TO:**	Mr. Amanda Cote Golder Associates, Inc. 18300 NE Union Hill Road Suite 200 Redmond, WA 98052
PHONE:	425-883-0777	**P.O. #**	
FAX:	425-882-5498	**PROJECT #**	0839356601 Pancake Chef
DATE RECEIVED:	03/11/2009	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	03/24/2009		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
14B	LCS	Modified TO-15	NA	NA

CERTIFIED BY: _____ DATE: 03/24/09

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/08, Expiration date: 06/30/09
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Golder Associates, Inc.
Workorder# 0903277

Eleven 6 Liter Summa Canister samples were received on March 11, 2009. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 0.2 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	*TO-15*	*ATL Modifications*
Daily CCV	</= 30% Difference	</= 30% Difference; Compounds exceeding this criterion and associated data are flagged and narrated.
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV
N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: BB1A Indoor Ambient

Lab ID#: 0903277-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.9	200	11	380
Acetone	5.9	11	14	26
2-Propanol	5.9	12	14	29
2-Butanone (Methyl Ethyl Ketone)	1.5	1.5	4.3	4.3
Tetrahydrofuran	1.5	1.6	4.3	4.8
Trichloroethene	1.5	160	7.9	890
Toluene	1.5	2.1	5.5	7.8
Tetrachloroethene	1.5	370	10	2500

Client Sample ID: BB1

Lab ID#: 0903277-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	3.0	250	5.6	470
Acetone	3.0	22	7.1	53
2-Propanol	3.0	38	7.3	92
Carbon Disulfide	0.74	2.3	2.3	7.3
Hexane	0.74	6.4	2.6	22
2-Butanone (Methyl Ethyl Ketone)	0.74	26	2.2	78
Tetrahydrofuran	0.74	15	2.2	46
Benzene	0.74	1.7	2.4	5.5
Heptane	0.74	0.81	3.0	3.3
Trichloroethene	0.74	93	4.0	500
Toluene	0.74	7.2	2.8	27
Tetrachloroethene	0.74	130	5.0	880
Ethyl Benzene	0.74	2.2	3.2	9.7
m,p-Xylene	0.74	7.2	3.2	31
o-Xylene	0.74	1.8	3.2	7.6
4-Ethyltoluene	0.74	0.80	3.7	3.9
1,2,4-Trimethylbenzene	0.74	1.0	3.7	4.9

Client Sample ID: Trip Blank

Lab ID#: 0903277-03A

No Detections Were Found.

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: BB3

Lab ID#: 0903277-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	3.1	280	5.8	530
Acetone	3.1	16	7.3	38
2-Propanol	3.1	53	7.5	130
Hexane	0.76	9.2	2.7	32
2-Butanone (Methyl Ethyl Ketone)	0.76	31	2.2	92
Tetrahydrofuran	0.76	17	2.2	50
Benzene	0.76	1.9	2.4	6.0
Heptane	0.76	1.0	3.1	4.3
Trichloroethene	0.76	68	4.1	370
Toluene	0.76	8.1	2.9	30
Tetrachloroethene	0.76	49	5.2	330
Ethyl Benzene	0.76	2.6	3.3	11
m,p-Xylene	0.76	7.7	3.3	33
o-Xylene	0.76	1.9	3.3	8.2
4-Ethyltoluene	0.76	0.77	3.8	3.8
1,2,4-Trimethylbenzene	0.76	0.95	3.8	4.6

Client Sample ID: BB4

Lab ID#: 0903277-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	3.1	280	5.8	520
Acetone	3.1	18	7.3	42
2-Propanol	3.1	50	7.6	120
Hexane	0.77	8.8	2.7	31
2-Butanone (Methyl Ethyl Ketone)	0.77	29	2.3	86
Tetrahydrofuran	0.77	15	2.3	44
Benzene	0.77	1.9	2.4	6.0
Heptane	0.77	0.95	3.2	3.9
Trichloroethene	0.77	64	4.1	340
Toluene	0.77	7.1	2.9	27
Tetrachloroethene	0.77	69	5.2	470
Ethyl Benzene	0.77	2.0	3.3	8.7
m,p-Xylene	0.77	6.2	3.3	27
o-Xylene	0.77	1.6	3.3	6.8
1,2,4-Trimethylbenzene	0.77	0.80	3.8	4.0

Air Toxics Ltd.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: BB2

Lab ID#: 0903277-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	3.2	300	6.1	570
Acetone	3.2	19	7.6	46
2-Propanol	3.2	66	7.9	160
Hexane	0.80	11	2.8	39
2-Butanone (Methyl Ethyl Ketone)	0.80	51	2.4	150
Tetrahydrofuran	0.80	20	2.4	59
Benzene	0.80	2.2	2.6	7.1
Heptane	0.80	1.3	3.3	5.4
Trichloroethene	0.80	86	4.3	460
Toluene	0.80	11	3.0	41
Tetrachloroethene	0.80	81	5.5	550
Ethyl Benzene	0.80	3.3	3.5	14
m,p-Xylene	0.80	10	3.5	46
o-Xylene	0.80	2.6	3.5	11
Styrene	0.80	0.96	3.4	4.1
4-Ethyltoluene	0.80	1.0	4.0	5.1
1,2,4-Trimethylbenzene	0.80	1.3	4.0	6.2

Client Sample ID: BBOA Outdoor Ambient

Lab ID#: 0903277-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	3.2	4.3	6.0	8.1
Acetone	3.2	10	7.5	24
2-Butanone (Methyl Ethyl Ketone)	0.79	1.6	2.3	4.6
Benzene	0.79	0.82	2.5	2.6
Toluene	0.79	1.4	3.0	5.5

Client Sample ID: BB5

Lab ID#: 0903277-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,3-Butadiene	0.76	7.2	1.7	16
Ethanol	3.1	56	5.8	100
Acetone	3.1	16	7.3	38
2-Propanol	3.1	10	7.5	25

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: BB5

Lab ID#: 0903277-08A

Hexane	0.76	8.3	2.7	29
2-Butanone (Methyl Ethyl Ketone)	0.76	4.8	2.2	14
Tetrahydrofuran	0.76	2.0	2.2	6.0
Cyclohexane	0.76	4.0	2.6	14
Benzene	0.76	1.6	2.4	5.0
Heptane	0.76	2.4	3.1	9.7
Trichloroethene	0.76	14	4.1	77
Toluene	0.76	3.0	2.9	11
Tetrachloroethene	0.76	59	5.2	400
m,p-Xylene	0.76	1.9	3.3	8.2

Client Sample ID: BB6

Lab ID#: 0903277-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,3-Butadiene	0.80	6.2	1.8	14
Ethanol	3.2	130	6.0	250
Acetone	3.2	30	7.6	72
2-Propanol	3.2	12	7.9	31
Carbon Disulfide	0.80	1.0	2.5	3.1
Hexane	0.80	6.0	2.8	21
2-Butanone (Methyl Ethyl Ketone)	0.80	6.6	2.4	19
Tetrahydrofuran	0.80	3.0	2.4	8.8
Benzene	0.80	1.9	2.6	6.0
Heptane	0.80	0.90	3.3	3.7
Trichloroethene	0.80	18	4.3	98
Toluene	0.80	3.0	3.0	11
Tetrachloroethene	0.80	49	5.4	330
m,p-Xylene	0.80	1.8	3.5	7.7

Client Sample ID: BB6 Lab Duplicate

Lab ID#: 0903277-09AA

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,3-Butadiene	0.80	5.8	1.8	13
Ethanol	3.2	130	6.0	250
Acetone	3.2	30	7.6	71
2-Propanol	3.2	13	7.9	31

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: BB6 Lab Duplicate

Lab ID#: 0903277-09AA

Carbon Disulfide	0.80	0.99	2.5	3.1
Hexane	0.80	6.2	2.8	22
2-Butanone (Methyl Ethyl Ketone)	0.80	7.0	2.4	21
Tetrahydrofuran	0.80	3.0	2.4	8.8
Benzene	0.80	1.8	2.6	5.8
Heptane	0.80	1.0	3.3	4.2
Trichloroethene	0.80	18	4.3	99
Toluene	0.80	3.2	3.0	12
Tetrachloroethene	0.80	48	5.4	330
m,p-Xylene	0.80	1.8	3.5	7.7

Client Sample ID: BB7

Lab ID#: 0903277-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,3-Butadiene	0.71	6.7	1.6	15
Ethanol	2.8	190	5.4	360
Acetone	2.8	15	6.7	36
2-Propanol	2.8	18	7.0	44
Hexane	0.71	3.6	2.5	13
2-Butanone (Methyl Ethyl Ketone)	0.71	6.8	2.1	20
Tetrahydrofuran	0.71	3.1	2.1	9.1
Benzene	0.71	1.4	2.3	4.6
Trichloroethene	0.71	19	3.8	100
Toluene	0.71	3.0	2.7	11
Tetrachloroethene	0.71	49	4.8	330
m,p-Xylene	0.71	2.1	3.1	9.0

Client Sample ID: BB8

Lab ID#: 0903277-11A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,3-Butadiene	0.74	6.2	1.6	14
Ethanol	3.0	73	5.6	140
Acetone	3.0	3.8	7.1	9.1
2-Propanol	3.0	3.9	7.3	9.7
Hexane	0.74	1.2	2.6	4.2
2-Butanone (Methyl Ethyl Ketone)	0.74	1.6	2.2	4.9

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: BB8

Lab ID#: 0903277-11A

Tetrahydrofuran	0.74	0.90	2.2	2.6
Trichloroethene	0.74	4.0	4.0	22
Toluene	0.74	1.5	2.8	5.5
Tetrachloroethene	0.74	9.2	5.0	63
m,p-Xylene	0.74	0.99	3.2	4.3

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Client Sample ID: BB1A

Lab ID#: 0903277-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031608	Date of Collection:	3/5/09 5:00:00 AM
Dil. Factor:	2.94	Date of Analysis:	3/16/09 12:28 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.5	Not Detected	7.3	Not Detected
Freon 114	1.5	Not Detected	10	Not Detected
Chloromethane	5.9	Not Detected	12	Not Detected
Vinyl Chloride	1.5	Not Detected	3.8	Not Detected
1,3-Butadiene	1.5	Not Detected	3.2	Not Detected
Bromomethane	1.5	Not Detected	5.7	Not Detected
Chloroethane	1.5	Not Detected	3.9	Not Detected
Freon 11	1.5	Not Detected	8.2	Not Detected
Ethanol	5.9	200	11	380
Freon 113	1.5	Not Detected	11	Not Detected
1,1-Dichloroethene	1.5	Not Detected	5.8	Not Detected
Acetone	5.9	11	14	26
2-Propanol	5.9	12	14	29
Carbon Disulfide	1.5	Not Detected	4.6	Not Detected
3-Chloropropene	5.9	Not Detected	18	Not Detected
Methylene Chloride	1.5	Not Detected	5.1	Not Detected
Methyl tert-butyl ether	1.5	Not Detected	5.3	Not Detected
trans-1,2-Dichloroethene	1.5	Not Detected	5.8	Not Detected
Hexane	1.5	Not Detected	5.2	Not Detected
1,1-Dichloroethane	1.5	Not Detected	6.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.5	1.5	4.3	4.3
cis-1,2-Dichloroethene	1.5	Not Detected	5.8	Not Detected
Tetrahydrofuran	1.5	1.6	4.3	4.8
Chloroform	1.5	Not Detected	7.2	Not Detected
1,1,1-Trichloroethane	1.5	Not Detected	8.0	Not Detected
Cyclohexane	1.5	Not Detected	5.0	Not Detected
Carbon Tetrachloride	1.5	Not Detected	9.2	Not Detected
2,2,4-Trimethylpentane	1.5	Not Detected	6.9	Not Detected
Benzene	1.5	Not Detected	4.7	Not Detected
1,2-Dichloroethane	1.5	Not Detected	5.9	Not Detected
Heptane	1.5	Not Detected	6.0	Not Detected
Trichloroethene	1.5	160	7.9	890
1,2-Dichloropropane	1.5	Not Detected	6.8	Not Detected
1,4-Dioxane	5.9	Not Detected	21	Not Detected
Bromodichloromethane	1.5	Not Detected	9.8	Not Detected
cis-1,3-Dichloropropene	1.5	Not Detected	6.7	Not Detected
4-Methyl-2-pentanone	1.5	Not Detected	6.0	Not Detected
Toluene	1.5	2.1	5.5	7.8
trans-1,3-Dichloropropene	1.5	Not Detected	6.7	Not Detected

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AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB1A

Lab ID#: 0903277-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031608	Date of Collection:	3/5/09 5:00:00 AM
Dil. Factor:	2.94	Date of Analysis:	3/16/09 12:28 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,2-Trichloroethane	1.5	Not Detected	8.0	Not Detected
Tetrachloroethene	1.5	370	10	2500
2-Hexanone	5.9	Not Detected	24	Not Detected
Dibromochloromethane	1.5	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.5	Not Detected	11	Not Detected
Chlorobenzene	1.5	Not Detected	6.8	Not Detected
Ethyl Benzene	1.5	Not Detected	6.4	Not Detected
m,p-Xylene	1.5	Not Detected	6.4	Not Detected
o-Xylene	1.5	Not Detected	6.4	Not Detected
Styrene	1.5	Not Detected	6.3	Not Detected
Bromoform	1.5	Not Detected	15	Not Detected
Cumene	1.5	Not Detected	7.2	Not Detected
1,1,2,2-Tetrachloroethane	1.5	Not Detected	10	Not Detected
Propylbenzene	1.5	Not Detected	7.2	Not Detected
4-Ethyltoluene	1.5	Not Detected	7.2	Not Detected
1,3,5-Trimethylbenzene	1.5	Not Detected	7.2	Not Detected
1,2,4-Trimethylbenzene	1.5	Not Detected	7.2	Not Detected
1,3-Dichlorobenzene	1.5	Not Detected	8.8	Not Detected
1,4-Dichlorobenzene	1.5	Not Detected	8.8	Not Detected
alpha-Chlorotoluene	1.5	Not Detected	7.6	Not Detected
1,2-Dichlorobenzene	1.5	Not Detected	8.8	Not Detected
1,2,4-Trichlorobenzene	5.9	Not Detected	44	Not Detected
Hexachlorobutadiene	5.9	Not Detected	63	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	93	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB1

Lab ID#: 0903277-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031620	Date of Collection:	3/5/09 5:00:00 AM
Dil. Factor:	1.49	Date of Analysis:	3/17/09 01:14 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.74	Not Detected	3.7	Not Detected
Freon 114	0.74	Not Detected	5.2	Not Detected
Chloromethane	3.0	Not Detected	6.2	Not Detected
Vinyl Chloride	0.74	Not Detected	1.9	Not Detected
1,3-Butadiene	0.74	Not Detected	1.6	Not Detected
Bromomethane	0.74	Not Detected	2.9	Not Detected
Chloroethane	0.74	Not Detected	2.0	Not Detected
Freon 11	0.74	Not Detected	4.2	Not Detected
Ethanol	3.0	250	5.6	470
Freon 113	0.74	Not Detected	5.7	Not Detected
1,1-Dichloroethene	0.74	Not Detected	3.0	Not Detected
Acetone	3.0	22	7.1	53
2-Propanol	3.0	38	7.3	92
Carbon Disulfide	0.74	2.3	2.3	7.3
3-Chloropropene	3.0	Not Detected	9.3	Not Detected
Methylene Chloride	0.74	Not Detected	2.6	Not Detected
Methyl tert-butyl ether	0.74	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.74	Not Detected	3.0	Not Detected
Hexane	0.74	6.4	2.6	22
1,1-Dichloroethane	0.74	Not Detected	3.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.74	26	2.2	78
cis-1,2-Dichloroethene	0.74	Not Detected	3.0	Not Detected
Tetrahydrofuran	0.74	15	2.2	46
Chloroform	0.74	Not Detected	3.6	Not Detected
1,1,1-Trichloroethane	0.74	Not Detected	4.1	Not Detected
Cyclohexane	0.74	Not Detected	2.6	Not Detected
Carbon Tetrachloride	0.74	Not Detected	4.7	Not Detected
2,2,4-Trimethylpentane	0.74	Not Detected	3.5	Not Detected
Benzene	0.74	1.7	2.4	5.5
1,2-Dichloroethane	0.74	Not Detected	3.0	Not Detected
Heptane	0.74	0.81	3.0	3.3
Trichloroethene	0.74	93	4.0	500
1,2-Dichloropropane	0.74	Not Detected	3.4	Not Detected
1,4-Dioxane	3.0	Not Detected	11	Not Detected
Bromodichloromethane	0.74	Not Detected	5.0	Not Detected
cis-1,3-Dichloropropene	0.74	Not Detected	3.4	Not Detected
4-Methyl-2-pentanone	0.74	Not Detected	3.0	Not Detected
Toluene	0.74	7.2	2.8	27
trans-1,3-Dichloropropene	0.74	Not Detected	3.4	Not Detected

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB1

Lab ID#: 0903277-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031620	Date of Collection:	3/5/09 5:00:00 AM
Dil. Factor:	1.49	Date of Analysis:	3/17/09 01:14 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,2-Trichloroethane	0.74	Not Detected	4.1	Not Detected
Tetrachloroethene	0.74	130	5.0	880
2-Hexanone	3.0	Not Detected	12	Not Detected
Dibromochloromethane	0.74	Not Detected	6.3	Not Detected
1,2-Dibromoethane (EDB)	0.74	Not Detected	5.7	Not Detected
Chlorobenzene	0.74	Not Detected	3.4	Not Detected
Ethyl Benzene	0.74	2.2	3.2	9.7
m,p-Xylene	0.74	7.2	3.2	31
o-Xylene	0.74	1.8	3.2	7.6
Styrene	0.74	Not Detected	3.2	Not Detected
Bromoform	0.74	Not Detected	7.7	Not Detected
Cumene	0.74	Not Detected	3.7	Not Detected
1,1,2,2-Tetrachloroethane	0.74	Not Detected	5.1	Not Detected
Propylbenzene	0.74	Not Detected	3.7	Not Detected
4-Ethyltoluene	0.74	0.80	3.7	3.9
1,3,5-Trimethylbenzene	0.74	Not Detected	3.7	Not Detected
1,2,4-Trimethylbenzene	0.74	1.0	3.7	4.9
1,3-Dichlorobenzene	0.74	Not Detected	4.5	Not Detected
1,4-Dichlorobenzene	0.74	Not Detected	4.5	Not Detected
alpha-Chlorotoluene	0.74	Not Detected	3.8	Not Detected
1,2-Dichlorobenzene	0.74	Not Detected	4.5	Not Detected
1,2,4-Trichlorobenzene	3.0	Not Detected	22	Not Detected
Hexachlorobutadiene	3.0	Not Detected	32	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	93	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Trip Blank

Lab ID#: 0903277-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031621	Date of Collection:	3/6/09 9:00:00 AM
Dil. Factor:	1.00	Date of Analysis:	3/17/09 01:57 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	2.0	Not Detected	4.1	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	2.0	Not Detected	4.8	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	0.50	Not Detected	1.7	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Trip Blank

Lab ID#: 0903277-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031621	Date of Collection:	3/6/09 9:00:00 AM
Dil. Factor:	1.00	Date of Analysis:	3/17/09 01:57 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	93	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB3

Lab ID#: 0903277-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031622	Date of Collection:	3/5/09 5:25:00 AM
Dil. Factor:	1.53	Date of Analysis:	3/17/09 02:39 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.76	Not Detected	3.8	Not Detected
Freon 114	0.76	Not Detected	5.3	Not Detected
Chloromethane	3.1	Not Detected	6.3	Not Detected
Vinyl Chloride	0.76	Not Detected	2.0	Not Detected
1,3-Butadiene	0.76	Not Detected	1.7	Not Detected
Bromomethane	0.76	Not Detected	3.0	Not Detected
Chloroethane	0.76	Not Detected	2.0	Not Detected
Freon 11	0.76	Not Detected	4.3	Not Detected
Ethanol	3.1	280	5.8	530
Freon 113	0.76	Not Detected	5.9	Not Detected
1,1-Dichloroethene	0.76	Not Detected	3.0	Not Detected
Acetone	3.1	16	7.3	38
2-Propanol	3.1	53	7.5	130
Carbon Disulfide	0.76	Not Detected	2.4	Not Detected
3-Chloropropene	3.1	Not Detected	9.6	Not Detected
Methylene Chloride	0.76	Not Detected	2.6	Not Detected
Methyl tert-butyl ether	0.76	Not Detected	2.8	Not Detected
trans-1,2-Dichloroethene	0.76	Not Detected	3.0	Not Detected
Hexane	0.76	9.2	2.7	32
1,1-Dichloroethane	0.76	Not Detected	3.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.76	31	2.2	92
cis-1,2-Dichloroethene	0.76	Not Detected	3.0	Not Detected
Tetrahydrofuran	0.76	17	2.2	50
Chloroform	0.76	Not Detected	3.7	Not Detected
1,1,1-Trichloroethane	0.76	Not Detected	4.2	Not Detected
Cyclohexane	0.76	Not Detected	2.6	Not Detected
Carbon Tetrachloride	0.76	Not Detected	4.8	Not Detected
2,2,4-Trimethylpentane	0.76	Not Detected	3.6	Not Detected
Benzene	0.76	1.9	2.4	6.0
1,2-Dichloroethane	0.76	Not Detected	3.1	Not Detected
Heptane	0.76	1.0	3.1	4.3
Trichloroethene	0.76	68	4.1	370
1,2-Dichloropropane	0.76	Not Detected	3.5	Not Detected
1,4-Dioxane	3.1	Not Detected	11	Not Detected
Bromodichloromethane	0.76	Not Detected	5.1	Not Detected
cis-1,3-Dichloropropene	0.76	Not Detected	3.5	Not Detected
4-Methyl-2-pentanone	0.76	Not Detected	3.1	Not Detected
Toluene	0.76	8.1	2.9	30
trans-1,3-Dichloropropene	0.76	Not Detected	3.5	Not Detected

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB3

Lab ID#: 0903277-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031622	Date of Collection:	3/5/09 5:25:00 AM
Dil. Factor:	1.53	Date of Analysis:	3/17/09 02:39 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,2-Trichloroethane	0.76	Not Detected	4.2	Not Detected
Tetrachloroethene	0.76	49	5.2	330
2-Hexanone	3.1	Not Detected	12	Not Detected
Dibromochloromethane	0.76	Not Detected	6.5	Not Detected
1,2-Dibromoethane (EDB)	0.76	Not Detected	5.9	Not Detected
Chlorobenzene	0.76	Not Detected	3.5	Not Detected
Ethyl Benzene	0.76	2.6	3.3	11
m,p-Xylene	0.76	7.7	3.3	33
o-Xylene	0.76	1.9	3.3	8.2
Styrene	0.76	Not Detected	3.2	Not Detected
Bromoform	0.76	Not Detected	7.9	Not Detected
Cumene	0.76	Not Detected	3.8	Not Detected
1,1,2,2-Tetrachloroethane	0.76	Not Detected	5.2	Not Detected
Propylbenzene	0.76	Not Detected	3.8	Not Detected
4-Ethyltoluene	0.76	0.77	3.8	3.8
1,3,5-Trimethylbenzene	0.76	Not Detected	3.8	Not Detected
1,2,4-Trimethylbenzene	0.76	0.95	3.8	4.6
1,3-Dichlorobenzene	0.76	Not Detected	4.6	Not Detected
1,4-Dichlorobenzene	0.76	Not Detected	4.6	Not Detected
alpha-Chlorotoluene	0.76	Not Detected	4.0	Not Detected
1,2-Dichlorobenzene	0.76	Not Detected	4.6	Not Detected
1,2,4-Trichlorobenzene	3.1	Not Detected	23	Not Detected
Hexachlorobutadiene	3.1	Not Detected	33	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	99	70-130

Air TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB4

Lab ID#: 0903277-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031623	Date of Collection:	3/5/09 5:40:00 AM
Dil. Factor:	1.54	Date of Analysis:	3/17/09 04:36 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.77	Not Detected	3.8	Not Detected
Freon 114	0.77	Not Detected	5.4	Not Detected
Chloromethane	3.1	Not Detected	6.4	Not Detected
Vinyl Chloride	0.77	Not Detected	2.0	Not Detected
1,3-Butadiene	0.77	Not Detected	1.7	Not Detected
Bromomethane	0.77	Not Detected	3.0	Not Detected
Chloroethane	0.77	Not Detected	2.0	Not Detected
Freon 11	0.77	Not Detected	4.3	Not Detected
Ethanol	3.1	280	5.8	520
Freon 113	0.77	Not Detected	5.9	Not Detected
1,1-Dichloroethene	0.77	Not Detected	3.0	Not Detected
Acetone	3.1	18	7.3	42
2-Propanol	3.1	50	7.6	120
Carbon Disulfide	0.77	Not Detected	2.4	Not Detected
3-Chloropropene	3.1	Not Detected	9.6	Not Detected
Methylene Chloride	0.77	Not Detected	2.7	Not Detected
Methyl tert-butyl ether	0.77	Not Detected	2.8	Not Detected
trans-1,2-Dichloroethene	0.77	Not Detected	3.0	Not Detected
Hexane	0.77	8.8	2.7	31
1,1-Dichloroethane	0.77	Not Detected	3.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.77	29	2.3	86
cis-1,2-Dichloroethene	0.77	Not Detected	3.0	Not Detected
Tetrahydrofuran	0.77	15	2.3	44
Chloroform	0.77	Not Detected	3.8	Not Detected
1,1,1-Trichloroethane	0.77	Not Detected	4.2	Not Detected
Cyclohexane	0.77	Not Detected	2.6	Not Detected
Carbon Tetrachloride	0.77	Not Detected	4.8	Not Detected
2,2,4-Trimethylpentane	0.77	Not Detected	3.6	Not Detected
Benzene	0.77	1.9	2.4	6.0
1,2-Dichloroethane	0.77	Not Detected	3.1	Not Detected
Heptane	0.77	0.95	3.2	3.9
Trichloroethene	0.77	64	4.1	340
1,2-Dichloropropane	0.77	Not Detected	3.6	Not Detected
1,4-Dioxane	3.1	Not Detected	11	Not Detected
Bromodichloromethane	0.77	Not Detected	5.2	Not Detected
cis-1,3-Dichloropropene	0.77	Not Detected	3.5	Not Detected
4-Methyl-2-pentanone	0.77	Not Detected	3.2	Not Detected
Toluene	0.77	7.1	2.9	27
trans-1,3-Dichloropropene	0.77	Not Detected	3.5	Not Detected

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB4

Lab ID#: 0903277-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031623	Date of Collection:	3/5/09 5:40:00 AM
Dil. Factor:	1.54	Date of Analysis:	3/17/09 04:36 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,2-Trichloroethane	0.77	Not Detected	4.2	Not Detected
Tetrachloroethene	0.77	69	5.2	470
2-Hexanone	3.1	Not Detected	13	Not Detected
Dibromochloromethane	0.77	Not Detected	6.6	Not Detected
1,2-Dibromoethane (EDB)	0.77	Not Detected	5.9	Not Detected
Chlorobenzene	0.77	Not Detected	3.5	Not Detected
Ethyl Benzene	0.77	2.0	3.3	8.7
m,p-Xylene	0.77	6.2	3.3	27
o-Xylene	0.77	1.6	3.3	6.8
Styrene	0.77	Not Detected	3.3	Not Detected
Bromoform	0.77	Not Detected	8.0	Not Detected
Cumene	0.77	Not Detected	3.8	Not Detected
1,1,2,2-Tetrachloroethane	0.77	Not Detected	5.3	Not Detected
Propylbenzene	0.77	Not Detected	3.8	Not Detected
4-Ethyltoluene	0.77	Not Detected	3.8	Not Detected
1,3,5-Trimethylbenzene	0.77	Not Detected	3.8	Not Detected
1,2,4-Trimethylbenzene	0.77	0.80	3.8	4.0
1,3-Dichlorobenzene	0.77	Not Detected	4.6	Not Detected
1,4-Dichlorobenzene	0.77	Not Detected	4.6	Not Detected
alpha-Chlorotoluene	0.77	Not Detected	4.0	Not Detected
1,2-Dichlorobenzene	0.77	Not Detected	4.6	Not Detected
1,2,4-Trichlorobenzene	3.1	Not Detected	23	Not Detected
Hexachlorobutadiene	3.1	Not Detected	33	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	95	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB2

Lab ID#: 0903277-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031624	Date of Collection:	3/5/09 5:15:00 AM
Dil. Factor:	1.61	Date of Analysis:	3/17/09 05:18 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.80	Not Detected	4.0	Not Detected
Freon 114	0.80	Not Detected	5.6	Not Detected
Chloromethane	3.2	Not Detected	6.6	Not Detected
Vinyl Chloride	0.80	Not Detected	2.0	Not Detected
1,3-Butadiene	0.80	Not Detected	1.8	Not Detected
Bromomethane	0.80	Not Detected	3.1	Not Detected
Chloroethane	0.80	Not Detected	2.1	Not Detected
Freon 11	0.80	Not Detected	4.5	Not Detected
Ethanol	3.2	300	6.1	570
Freon 113	0.80	Not Detected	6.2	Not Detected
1,1-Dichloroethene	0.80	Not Detected	3.2	Not Detected
Acetone	3.2	19	7.6	46
2-Propanol	3.2	66	7.9	160
Carbon Disulfide	0.80	Not Detected	2.5	Not Detected
3-Chloropropene	3.2	Not Detected	10	Not Detected
Methylene Chloride	0.80	Not Detected	2.8	Not Detected
Methyl tert-butyl ether	0.80	Not Detected	2.9	Not Detected
trans-1,2-Dichloroethene	0.80	Not Detected	3.2	Not Detected
Hexane	0.80	11	2.8	39
1,1-Dichloroethane	0.80	Not Detected	3.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.80	51	2.4	150
cis-1,2-Dichloroethene	0.80	Not Detected	3.2	Not Detected
Tetrahydrofuran	0.80	20	2.4	59
Chloroform	0.80	Not Detected	3.9	Not Detected
1,1,1-Trichloroethane	0.80	Not Detected	4.4	Not Detected
Cyclohexane	0.80	Not Detected	2.8	Not Detected
Carbon Tetrachloride	0.80	Not Detected	5.1	Not Detected
2,2,4-Trimethylpentane	0.80	Not Detected	3.8	Not Detected
Benzene	0.80	2.2	2.6	7.1
1,2-Dichloroethane	0.80	Not Detected	3.2	Not Detected
Heptane	0.80	1.3	3.3	5.4
Trichloroethene	0.80	86	4.3	460
1,2-Dichloropropane	0.80	Not Detected	3.7	Not Detected
1,4-Dioxane	3.2	Not Detected	12	Not Detected
Bromodichloromethane	0.80	Not Detected	5.4	Not Detected
cis-1,3-Dichloropropene	0.80	Not Detected	3.6	Not Detected
4-Methyl-2-pentanone	0.80	Not Detected	3.3	Not Detected
Toluene	0.80	11	3.0	41
trans-1,3-Dichloropropene	0.80	Not Detected	3.6	Not Detected

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB2

Lab ID#: 0903277-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031624	Date of Collection:	3/5/09 5:15:00 AM
Dil. Factor:	1.61	Date of Analysis:	3/17/09 05:18 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,2-Trichloroethane	0.80	Not Detected	4.4	Not Detected
Tetrachloroethene	0.80	81	5.5	550
2-Hexanone	3.2	Not Detected	13	Not Detected
Dibromochloromethane	0.80	Not Detected	6.8	Not Detected
1,2-Dibromoethane (EDB)	0.80	Not Detected	6.2	Not Detected
Chlorobenzene	0.80	Not Detected	3.7	Not Detected
Ethyl Benzene	0.80	3.3	3.5	14
m,p-Xylene	0.80	10	3.5	46
o-Xylene	0.80	2.6	3.5	11
Styrene	0.80	0.96	3.4	4.1
Bromoform	0.80	Not Detected	8.3	Not Detected
Cumene	0.80	Not Detected	4.0	Not Detected
1,1,2,2-Tetrachloroethane	0.80	Not Detected	5.5	Not Detected
Propylbenzene	0.80	Not Detected	4.0	Not Detected
4-Ethyltoluene	0.80	1.0	4.0	5.1
1,3,5-Trimethylbenzene	0.80	Not Detected	4.0	Not Detected
1,2,4-Trimethylbenzene	0.80	1.3	4.0	6.2
1,3-Dichlorobenzene	0.80	Not Detected	4.8	Not Detected
1,4-Dichlorobenzene	0.80	Not Detected	4.8	Not Detected
alpha-Chlorotoluene	0.80	Not Detected	4.2	Not Detected
1,2-Dichlorobenzene	0.80	Not Detected	4.8	Not Detected
1,2,4-Trichlorobenzene	3.2	Not Detected	24	Not Detected
Hexachlorobutadiene	3.2	Not Detected	34	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	94	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BBOA

Lab ID#: 0903277-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031625	Date of Collection:	3/6/09 8:30:00 AM
Dil. Factor:	1.58	Date of Analysis:	3/17/09 06:00 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.79	Not Detected	3.9	Not Detected
Freon 114	0.79	Not Detected	5.5	Not Detected
Chloromethane	3.2	Not Detected	6.5	Not Detected
Vinyl Chloride	0.79	Not Detected	2.0	Not Detected
1,3-Butadiene	0.79	Not Detected	1.7	Not Detected
Bromomethane	0.79	Not Detected	3.1	Not Detected
Chloroethane	0.79	Not Detected	2.1	Not Detected
Freon 11	0.79	Not Detected	4.4	Not Detected
Ethanol	3.2	4.3	6.0	8.1
Freon 113	0.79	Not Detected	6.0	Not Detected
1,1-Dichloroethene	0.79	Not Detected	3.1	Not Detected
Acetone	3.2	10	7.5	24
2-Propanol	3.2	Not Detected	7.8	Not Detected
Carbon Disulfide	0.79	Not Detected	2.5	Not Detected
3-Chloropropene	3.2	Not Detected	9.9	Not Detected
Methylene Chloride	0.79	Not Detected	2.7	Not Detected
Methyl tert-butyl ether	0.79	Not Detected	2.8	Not Detected
trans-1,2-Dichloroethene	0.79	Not Detected	3.1	Not Detected
Hexane	0.79	Not Detected	2.8	Not Detected
1,1-Dichloroethane	0.79	Not Detected	3.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.79	1.6	2.3	4.6
cis-1,2-Dichloroethene	0.79	Not Detected	3.1	Not Detected
Tetrahydrofuran	0.79	Not Detected	2.3	Not Detected
Chloroform	0.79	Not Detected	3.8	Not Detected
1,1,1-Trichloroethane	0.79	Not Detected	4.3	Not Detected
Cyclohexane	0.79	Not Detected	2.7	Not Detected
Carbon Tetrachloride	0.79	Not Detected	5.0	Not Detected
2,2,4-Trimethylpentane	0.79	Not Detected	3.7	Not Detected
Benzene	0.79	0.82	2.5	2.6
1,2-Dichloroethane	0.79	Not Detected	3.2	Not Detected
Heptane	0.79	Not Detected	3.2	Not Detected
Trichloroethene	0.79	Not Detected	4.2	Not Detected
1,2-Dichloropropane	0.79	Not Detected	3.6	Not Detected
1,4-Dioxane	3.2	Not Detected	11	Not Detected
Bromodichloromethane	0.79	Not Detected	5.3	Not Detected
cis-1,3-Dichloropropene	0.79	Not Detected	3.6	Not Detected
4-Methyl-2-pentanone	0.79	Not Detected	3.2	Not Detected
Toluene	0.79	1.4	3.0	5.5
trans-1,3-Dichloropropene	0.79	Not Detected	3.6	Not Detected

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BBOA

Lab ID#: 0903277-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031625	Date of Collection:	3/6/09 8:30:00 AM
Dil. Factor:	1.58	Date of Analysis:	3/17/09 06:00 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,2-Trichloroethane	0.79	Not Detected	4.3	Not Detected
Tetrachloroethene	0.79	Not Detected	5.4	Not Detected
2-Hexanone	3.2	Not Detected	13	Not Detected
Dibromochloromethane	0.79	Not Detected	6.7	Not Detected
1,2-Dibromoethane (EDB)	0.79	Not Detected	6.1	Not Detected
Chlorobenzene	0.79	Not Detected	3.6	Not Detected
Ethyl Benzene	0.79	Not Detected	3.4	Not Detected
m,p-Xylene	0.79	Not Detected	3.4	Not Detected
o-Xylene	0.79	Not Detected	3.4	Not Detected
Styrene	0.79	Not Detected	3.4	Not Detected
Bromoform	0.79	Not Detected	8.2	Not Detected
Cumene	0.79	Not Detected	3.9	Not Detected
1,1,2,2-Tetrachloroethane	0.79	Not Detected	5.4	Not Detected
Propylbenzene	0.79	Not Detected	3.9	Not Detected
4-Ethyltoluene	0.79	Not Detected	3.9	Not Detected
1,3,5-Trimethylbenzene	0.79	Not Detected	3.9	Not Detected
1,2,4-Trimethylbenzene	0.79	Not Detected	3.9	Not Detected
1,3-Dichlorobenzene	0.79	Not Detected	4.8	Not Detected
1,4-Dichlorobenzene	0.79	Not Detected	4.8	Not Detected
alpha-Chlorotoluene	0.79	Not Detected	4.1	Not Detected
1,2-Dichlorobenzene	0.79	Not Detected	4.7	Not Detected
1,2,4-Trichlorobenzene	3.2	Not Detected	23	Not Detected
Hexachlorobutadiene	3.2	Not Detected	34	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	96	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB5

Lab ID#: 0903277-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031626	Date of Collection:	3/6/09 8:40:00 AM
Dil. Factor:	1.53	Date of Analysis:	3/17/09 06:49 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.76	Not Detected	3.8	Not Detected
Freon 114	0.76	Not Detected	5.3	Not Detected
Chloromethane	3.1	Not Detected	6.3	Not Detected
Vinyl Chloride	0.76	Not Detected	2.0	Not Detected
1,3-Butadiene	0.76	7.2	1.7	16
Bromomethane	0.76	Not Detected	3.0	Not Detected
Chloroethane	0.76	Not Detected	2.0	Not Detected
Freon 11	0.76	Not Detected	4.3	Not Detected
Ethanol	3.1	56	5.8	100
Freon 113	0.76	Not Detected	5.9	Not Detected
1,1-Dichloroethene	0.76	Not Detected	3.0	Not Detected
Acetone	3.1	16	7.3	38
2-Propanol	3.1	10	7.5	25
Carbon Disulfide	0.76	Not Detected	2.4	Not Detected
3-Chloropropene	3.1	Not Detected	9.6	Not Detected
Methylene Chloride	0.76	Not Detected	2.6	Not Detected
Methyl tert-butyl ether	0.76	Not Detected	2.8	Not Detected
trans-1,2-Dichloroethene	0.76	Not Detected	3.0	Not Detected
Hexane	0.76	8.3	2.7	29
1,1-Dichloroethane	0.76	Not Detected	3.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.76	4.8	2.2	14
cis-1,2-Dichloroethene	0.76	Not Detected	3.0	Not Detected
Tetrahydrofuran	0.76	2.0	2.2	6.0
Chloroform	0.76	Not Detected	3.7	Not Detected
1,1,1-Trichloroethane	0.76	Not Detected	4.2	Not Detected
Cyclohexane	0.76	4.0	2.6	14
Carbon Tetrachloride	0.76	Not Detected	4.8	Not Detected
2,2,4-Trimethylpentane	0.76	Not Detected	3.6	Not Detected
Benzene	0.76	1.6	2.4	5.0
1,2-Dichloroethane	0.76	Not Detected	3.1	Not Detected
Heptane	0.76	2.4	3.1	9.7
Trichloroethene	0.76	14	4.1	77
1,2-Dichloropropane	0.76	Not Detected	3.5	Not Detected
1,4-Dioxane	3.1	Not Detected	11	Not Detected
Bromodichloromethane	0.76	Not Detected	5.1	Not Detected
cis-1,3-Dichloropropene	0.76	Not Detected	3.5	Not Detected
4-Methyl-2-pentanone	0.76	Not Detected	3.1	Not Detected
Toluene	0.76	3.0	2.9	11
trans-1,3-Dichloropropene	0.76	Not Detected	3.5	Not Detected

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB5

Lab ID#: 0903277-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031626	Date of Collection:	3/6/09 8:40:00 AM
Dil. Factor:	1.53	Date of Analysis:	3/17/09 06:49 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,2-Trichloroethane	0.76	Not Detected	4.2	Not Detected
Tetrachloroethene	0.76	59	5.2	400
2-Hexanone	3.1	Not Detected	12	Not Detected
Dibromochloromethane	0.76	Not Detected	6.5	Not Detected
1,2-Dibromoethane (EDB)	0.76	Not Detected	5.9	Not Detected
Chlorobenzene	0.76	Not Detected	3.5	Not Detected
Ethyl Benzene	0.76	Not Detected	3.3	Not Detected
m,p-Xylene	0.76	1.9	3.3	8.2
o-Xylene	0.76	Not Detected	3.3	Not Detected
Styrene	0.76	Not Detected	3.2	Not Detected
Bromoform	0.76	Not Detected	7.9	Not Detected
Cumene	0.76	Not Detected	3.8	Not Detected
1,1,2,2-Tetrachloroethane	0.76	Not Detected	5.2	Not Detected
Propylbenzene	0.76	Not Detected	3.8	Not Detected
4-Ethyltoluene	0.76	Not Detected	3.8	Not Detected
1,3,5-Trimethylbenzene	0.76	Not Detected	3.8	Not Detected
1,2,4-Trimethylbenzene	0.76	Not Detected	3.8	Not Detected
1,3-Dichlorobenzene	0.76	Not Detected	4.6	Not Detected
1,4-Dichlorobenzene	0.76	Not Detected	4.6	Not Detected
alpha-Chlorotoluene	0.76	Not Detected	4.0	Not Detected
1,2-Dichlorobenzene	0.76	Not Detected	4.6	Not Detected
1,2,4-Trichlorobenzene	3.1	Not Detected	23	Not Detected
Hexachlorobutadiene	3.1	Not Detected	33	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	94	70-130

Air TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB6

Lab ID#: 0903277-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031706	Date of Collection:	3/6/09 9:00:00 AM
Dil. Factor:	1.60	Date of Analysis:	3/17/09 11:32 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.80	Not Detected	4.0	Not Detected
Freon 114	0.80	Not Detected	5.6	Not Detected
Chloromethane	3.2	Not Detected	6.6	Not Detected
Vinyl Chloride	0.80	Not Detected	2.0	Not Detected
1,3-Butadiene	0.80	6.2	1.8	14
Bromomethane	0.80	Not Detected	3.1	Not Detected
Chloroethane	0.80	Not Detected	2.1	Not Detected
Freon 11	0.80	Not Detected	4.5	Not Detected
Ethanol	3.2	130	6.0	250
Freon 113	0.80	Not Detected	6.1	Not Detected
1,1-Dichloroethene	0.80	Not Detected	3.2	Not Detected
Acetone	3.2	30	7.6	72
2-Propanol	3.2	12	7.9	31
Carbon Disulfide	0.80	1.0	2.5	3.1
3-Chloropropene	3.2	Not Detected	10	Not Detected
Methylene Chloride	0.80	Not Detected	2.8	Not Detected
Methyl tert-butyl ether	0.80	Not Detected	2.9	Not Detected
trans-1,2-Dichloroethene	0.80	Not Detected	3.2	Not Detected
Hexane	0.80	6.0	2.8	21
1,1-Dichloroethane	0.80	Not Detected	3.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.80	6.6	2.4	19
cis-1,2-Dichloroethene	0.80	Not Detected	3.2	Not Detected
Tetrahydrofuran	0.80	3.0	2.4	8.8
Chloroform	0.80	Not Detected	3.9	Not Detected
1,1,1-Trichloroethane	0.80	Not Detected	4.4	Not Detected
Cyclohexane	0.80	Not Detected	2.8	Not Detected
Carbon Tetrachloride	0.80	Not Detected	5.0	Not Detected
2,2,4-Trimethylpentane	0.80	Not Detected	3.7	Not Detected
Benzene	0.80	1.9	2.6	6.0
1,2-Dichloroethane	0.80	Not Detected	3.2	Not Detected
Heptane	0.80	0.90	3.3	3.7
Trichloroethene	0.80	18	4.3	98
1,2-Dichloropropane	0.80	Not Detected	3.7	Not Detected
1,4-Dioxane	3.2	Not Detected	12	Not Detected
Bromodichloromethane	0.80	Not Detected	5.4	Not Detected
cis-1,3-Dichloropropene	0.80	Not Detected	3.6	Not Detected
4-Methyl-2-pentanone	0.80	Not Detected	3.3	Not Detected
Toluene	0.80	3.0	3.0	11
trans-1,3-Dichloropropene	0.80	Not Detected	3.6	Not Detected

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB6

Lab ID#: 0903277-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031706	Date of Collection:	3/6/09 9:00:00 AM
Dil. Factor:	1.60	Date of Analysis:	3/17/09 11:32 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,2-Trichloroethane	0.80	Not Detected	4.4	Not Detected
Tetrachloroethene	0.80	49	5.4	330
2-Hexanone	3.2	Not Detected	13	Not Detected
Dibromochloromethane	0.80	Not Detected	6.8	Not Detected
1,2-Dibromoethane (EDB)	0.80	Not Detected	6.1	Not Detected
Chlorobenzene	0.80	Not Detected	3.7	Not Detected
Ethyl Benzene	0.80	Not Detected	3.5	Not Detected
m,p-Xylene	0.80	1.8	3.5	7.7
o-Xylene	0.80	Not Detected	3.5	Not Detected
Styrene	0.80	Not Detected	3.4	Not Detected
Bromoform	0.80	Not Detected	8.3	Not Detected
Cumene	0.80	Not Detected	3.9	Not Detected
1,1,2,2-Tetrachloroethane	0.80	Not Detected	5.5	Not Detected
Propylbenzene	0.80	Not Detected	3.9	Not Detected
4-Ethyltoluene	0.80	Not Detected	3.9	Not Detected
1,3,5-Trimethylbenzene	0.80	Not Detected	3.9	Not Detected
1,2,4-Trimethylbenzene	0.80	Not Detected	3.9	Not Detected
1,3-Dichlorobenzene	0.80	Not Detected	4.8	Not Detected
1,4-Dichlorobenzene	0.80	Not Detected	4.8	Not Detected
alpha-Chlorotoluene	0.80	Not Detected	4.1	Not Detected
1,2-Dichlorobenzene	0.80	Not Detected	4.8	Not Detected
1,2,4-Trichlorobenzene	3.2	Not Detected	24	Not Detected
Hexachlorobutadiene	3.2	Not Detected	34	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	96	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB6 Lab Duplicate

Lab ID#: 0903277-09AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031707	Date of Collection:	3/6/09 9:00:00 AM
Dil. Factor:	1.60	Date of Analysis:	3/17/09 12:18 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.80	Not Detected	4.0	Not Detected
Freon 114	0.80	Not Detected	5.6	Not Detected
Chloromethane	3.2	Not Detected	6.6	Not Detected
Vinyl Chloride	0.80	Not Detected	2.0	Not Detected
1,3-Butadiene	0.80	5.8	1.8	13
Bromomethane	0.80	Not Detected	3.1	Not Detected
Chloroethane	0.80	Not Detected	2.1	Not Detected
Freon 11	0.80	Not Detected	4.5	Not Detected
Ethanol	3.2	130	6.0	250
Freon 113	0.80	Not Detected	6.1	Not Detected
1,1-Dichloroethene	0.80	Not Detected	3.2	Not Detected
Acetone	3.2	30	7.6	71
2-Propanol	3.2	13	7.9	31
Carbon Disulfide	0.80	0.99	2.5	3.1
3-Chloropropene	3.2	Not Detected	10	Not Detected
Methylene Chloride	0.80	Not Detected	2.8	Not Detected
Methyl tert-butyl ether	0.80	Not Detected	2.9	Not Detected
trans-1,2-Dichloroethene	0.80	Not Detected	3.2	Not Detected
Hexane	0.80	6.2	2.8	22
1,1-Dichloroethane	0.80	Not Detected	3.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.80	7.0	2.4	21
cis-1,2-Dichloroethene	0.80	Not Detected	3.2	Not Detected
Tetrahydrofuran	0.80	3.0	2.4	8.8
Chloroform	0.80	Not Detected	3.9	Not Detected
1,1,1-Trichloroethane	0.80	Not Detected	4.4	Not Detected
Cyclohexane	0.80	Not Detected	2.8	Not Detected
Carbon Tetrachloride	0.80	Not Detected	5.0	Not Detected
2,2,4-Trimethylpentane	0.80	Not Detected	3.7	Not Detected
Benzene	0.80	1.8	2.6	5.8
1,2-Dichloroethane	0.80	Not Detected	3.2	Not Detected
Heptane	0.80	1.0	3.3	4.2
Trichloroethene	0.80	18	4.3	99
1,2-Dichloropropane	0.80	Not Detected	3.7	Not Detected
1,4-Dioxane	3.2	Not Detected	12	Not Detected
Bromodichloromethane	0.80	Not Detected	5.4	Not Detected
cis-1,3-Dichloropropene	0.80	Not Detected	3.6	Not Detected
4-Methyl-2-pentanone	0.80	Not Detected	3.3	Not Detected
Toluene	0.80	3.2	3.0	12
trans-1,3-Dichloropropene	0.80	Not Detected	3.6	Not Detected

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB6 Lab Duplicate

Lab ID#: 0903277-09AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031707	Date of Collection:	3/6/09 9:00:00 AM
Dil. Factor:	1.60	Date of Analysis:	3/17/09 12:18 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,2-Trichloroethane	0.80	Not Detected	4.4	Not Detected
Tetrachloroethene	0.80	48	5.4	330
2-Hexanone	3.2	Not Detected	13	Not Detected
Dibromochloromethane	0.80	Not Detected	6.8	Not Detected
1,2-Dibromoethane (EDB)	0.80	Not Detected	6.1	Not Detected
Chlorobenzene	0.80	Not Detected	3.7	Not Detected
Ethyl Benzene	0.80	Not Detected	3.5	Not Detected
m,p-Xylene	0.80	1.8	3.5	7.7
o-Xylene	0.80	Not Detected	3.5	Not Detected
Styrene	0.80	Not Detected	3.4	Not Detected
Bromoform	0.80	Not Detected	8.3	Not Detected
Cumene	0.80	Not Detected	3.9	Not Detected
1,1,2,2-Tetrachloroethane	0.80	Not Detected	5.5	Not Detected
Propylbenzene	0.80	Not Detected	3.9	Not Detected
4-Ethyltoluene	0.80	Not Detected	3.9	Not Detected
1,3,5-Trimethylbenzene	0.80	Not Detected	3.9	Not Detected
1,2,4-Trimethylbenzene	0.80	Not Detected	3.9	Not Detected
1,3-Dichlorobenzene	0.80	Not Detected	4.8	Not Detected
1,4-Dichlorobenzene	0.80	Not Detected	4.8	Not Detected
alpha-Chlorotoluene	0.80	Not Detected	4.1	Not Detected
1,2-Dichlorobenzene	0.80	Not Detected	4.8	Not Detected
1,2,4-Trichlorobenzene	3.2	Not Detected	24	Not Detected
Hexachlorobutadiene	3.2	Not Detected	34	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	94	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB7

Lab ID#: 0903277-10A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031708	Date of Collection:	3/6/09 9:15:00 AM
Dil. Factor:	1.42	Date of Analysis:	3/17/09 12:55 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.71	Not Detected	3.5	Not Detected
Freon 114	0.71	Not Detected	5.0	Not Detected
Chloromethane	2.8	Not Detected	5.9	Not Detected
Vinyl Chloride	0.71	Not Detected	1.8	Not Detected
1,3-Butadiene	0.71	6.7	1.6	15
Bromomethane	0.71	Not Detected	2.8	Not Detected
Chloroethane	0.71	Not Detected	1.9	Not Detected
Freon 11	0.71	Not Detected	4.0	Not Detected
Ethanol	2.8	190	5.4	360
Freon 113	0.71	Not Detected	5.4	Not Detected
1,1-Dichloroethene	0.71	Not Detected	2.8	Not Detected
Acetone	2.8	15	6.7	36
2-Propanol	2.8	18	7.0	44
Carbon Disulfide	0.71	Not Detected	2.2	Not Detected
3-Chloropropene	2.8	Not Detected	8.9	Not Detected
Methylene Chloride	0.71	Not Detected	2.5	Not Detected
Methyl tert-butyl ether	0.71	Not Detected	2.6	Not Detected
trans-1,2-Dichloroethene	0.71	Not Detected	2.8	Not Detected
Hexane	0.71	3.6	2.5	13
1,1-Dichloroethane	0.71	Not Detected	2.9	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.71	6.8	2.1	20
cis-1,2-Dichloroethene	0.71	Not Detected	2.8	Not Detected
Tetrahydrofuran	0.71	3.1	2.1	9.1
Chloroform	0.71	Not Detected	3.5	Not Detected
1,1,1-Trichloroethane	0.71	Not Detected	3.9	Not Detected
Cyclohexane	0.71	Not Detected	2.4	Not Detected
Carbon Tetrachloride	0.71	Not Detected	4.5	Not Detected
2,2,4-Trimethylpentane	0.71	Not Detected	3.3	Not Detected
Benzene	0.71	1.4	2.3	4.6
1,2-Dichloroethane	0.71	Not Detected	2.9	Not Detected
Heptane	0.71	Not Detected	2.9	Not Detected
Trichloroethene	0.71	19	3.8	100
1,2-Dichloropropane	0.71	Not Detected	3.3	Not Detected
1,4-Dioxane	2.8	Not Detected	10	Not Detected
Bromodichloromethane	0.71	Not Detected	4.8	Not Detected
cis-1,3-Dichloropropene	0.71	Not Detected	3.2	Not Detected
4-Methyl-2-pentanone	0.71	Not Detected	2.9	Not Detected
Toluene	0.71	3.0	2.7	11
trans-1,3-Dichloropropene	0.71	Not Detected	3.2	Not Detected

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB7

Lab ID#: 0903277-10A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031708	Date of Collection:	3/6/09 9:15:00 AM
Dil. Factor:	1.42	Date of Analysis:	3/17/09 12:55 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,2-Trichloroethane	0.71	Not Detected	3.9	Not Detected
Tetrachloroethene	0.71	49	4.8	330
2-Hexanone	2.8	Not Detected	12	Not Detected
Dibromochloromethane	0.71	Not Detected	6.0	Not Detected
1,2-Dibromoethane (EDB)	0.71	Not Detected	5.4	Not Detected
Chlorobenzene	0.71	Not Detected	3.3	Not Detected
Ethyl Benzene	0.71	Not Detected	3.1	Not Detected
m,p-Xylene	0.71	2.1	3.1	9.0
o-Xylene	0.71	Not Detected	3.1	Not Detected
Styrene	0.71	Not Detected	3.0	Not Detected
Bromoform	0.71	Not Detected	7.3	Not Detected
Cumene	0.71	Not Detected	3.5	Not Detected
1,1,2,2-Tetrachloroethane	0.71	Not Detected	4.9	Not Detected
Propylbenzene	0.71	Not Detected	3.5	Not Detected
4-Ethyltoluene	0.71	Not Detected	3.5	Not Detected
1,3,5-Trimethylbenzene	0.71	Not Detected	3.5	Not Detected
1,2,4-Trimethylbenzene	0.71	Not Detected	3.5	Not Detected
1,3-Dichlorobenzene	0.71	Not Detected	4.3	Not Detected
1,4-Dichlorobenzene	0.71	Not Detected	4.3	Not Detected
alpha-Chlorotoluene	0.71	Not Detected	3.7	Not Detected
1,2-Dichlorobenzene	0.71	Not Detected	4.3	Not Detected
1,2,4-Trichlorobenzene	2.8	Not Detected	21	Not Detected
Hexachlorobutadiene	2.8	Not Detected	30	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	105	70-130
4-Bromofluorobenzene	96	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB8

Lab ID#: 0903277-11A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031709	Date of Collection:	3/6/09 9:25:00 AM
Dil. Factor:	1.49	Date of Analysis:	3/17/09 01:40 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.74	Not Detected	3.7	Not Detected
Freon 114	0.74	Not Detected	5.2	Not Detected
Chloromethane	3.0	Not Detected	6.2	Not Detected
Vinyl Chloride	0.74	Not Detected	1.9	Not Detected
1,3-Butadiene	0.74	6.2	1.6	14
Bromomethane	0.74	Not Detected	2.9	Not Detected
Chloroethane	0.74	Not Detected	2.0	Not Detected
Freon 11	0.74	Not Detected	4.2	Not Detected
Ethanol	3.0	73	5.6	140
Freon 113	0.74	Not Detected	5.7	Not Detected
1,1-Dichloroethene	0.74	Not Detected	3.0	Not Detected
Acetone	3.0	3.8	7.1	9.1
2-Propanol	3.0	3.9	7.3	9.7
Carbon Disulfide	0.74	Not Detected	2.3	Not Detected
3-Chloropropene	3.0	Not Detected	9.3	Not Detected
Methylene Chloride	0.74	Not Detected	2.6	Not Detected
Methyl tert-butyl ether	0.74	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.74	Not Detected	3.0	Not Detected
Hexane	0.74	1.2	2.6	4.2
1,1-Dichloroethane	0.74	Not Detected	3.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.74	1.6	2.2	4.9
cis-1,2-Dichloroethene	0.74	Not Detected	3.0	Not Detected
Tetrahydrofuran	0.74	0.90	2.2	2.6
Chloroform	0.74	Not Detected	3.6	Not Detected
1,1,1-Trichloroethane	0.74	Not Detected	4.1	Not Detected
Cyclohexane	0.74	Not Detected	2.6	Not Detected
Carbon Tetrachloride	0.74	Not Detected	4.7	Not Detected
2,2,4-Trimethylpentane	0.74	Not Detected	3.5	Not Detected
Benzene	0.74	Not Detected	2.4	Not Detected
1,2-Dichloroethane	0.74	Not Detected	3.0	Not Detected
Heptane	0.74	Not Detected	3.0	Not Detected
Trichloroethene	0.74	4.0	4.0	22
1,2-Dichloropropane	0.74	Not Detected	3.4	Not Detected
1,4-Dioxane	3.0	Not Detected	11	Not Detected
Bromodichloromethane	0.74	Not Detected	5.0	Not Detected
cis-1,3-Dichloropropene	0.74	Not Detected	3.4	Not Detected
4-Methyl-2-pentanone	0.74	Not Detected	3.0	Not Detected
Toluene	0.74	1.5	2.8	5.5
trans-1,3-Dichloropropene	0.74	Not Detected	3.4	Not Detected

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BB8

Lab ID#: 0903277-11A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031709	Date of Collection:	3/6/09 9:25:00 AM
Dil. Factor:	1.49	Date of Analysis:	3/17/09 01:40 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,2-Trichloroethane	0.74	Not Detected	4.1	Not Detected
Tetrachloroethene	0.74	9.2	5.0	63
2-Hexanone	3.0	Not Detected	12	Not Detected
Dibromochloromethane	0.74	Not Detected	6.3	Not Detected
1,2-Dibromoethane (EDB)	0.74	Not Detected	5.7	Not Detected
Chlorobenzene	0.74	Not Detected	3.4	Not Detected
Ethyl Benzene	0.74	Not Detected	3.2	Not Detected
m,p-Xylene	0.74	0.99	3.2	4.3
o-Xylene	0.74	Not Detected	3.2	Not Detected
Styrene	0.74	Not Detected	3.2	Not Detected
Bromoform	0.74	Not Detected	7.7	Not Detected
Cumene	0.74	Not Detected	3.7	Not Detected
1,1,2,2-Tetrachloroethane	0.74	Not Detected	5.1	Not Detected
Propylbenzene	0.74	Not Detected	3.7	Not Detected
4-Ethyltoluene	0.74	Not Detected	3.7	Not Detected
1,3,5-Trimethylbenzene	0.74	Not Detected	3.7	Not Detected
1,2,4-Trimethylbenzene	0.74	Not Detected	3.7	Not Detected
1,3-Dichlorobenzene	0.74	Not Detected	4.5	Not Detected
1,4-Dichlorobenzene	0.74	Not Detected	4.5	Not Detected
alpha-Chlorotoluene	0.74	Not Detected	3.8	Not Detected
1,2-Dichlorobenzene	0.74	Not Detected	4.5	Not Detected
1,2,4-Trichlorobenzene	3.0	Not Detected	22	Not Detected
Hexachlorobutadiene	3.0	Not Detected	32	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	96	70-130

Air TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0903277-12A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031607	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 3/16/09 11:43 AM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	2.0	Not Detected	4.1	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	2.0	Not Detected	4.8	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	0.50	Not Detected	1.7	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0903277-12A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031607	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 3/16/09 11:43 AM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	96	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0903277-12B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031705	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 3/17/09 10:24 AM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	2.0	Not Detected	4.1	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	2.0	Not Detected	4.8	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	0.50	Not Detected	1.7	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0903277-12B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031705	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 3/17/09 10:24 AM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	105	70-130
4-Bromofluorobenzene	96	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0903277-13A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031602	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 3/16/09 07:50 AM	

Compound	%Recovery
Freon 12	95
Freon 114	95
Chloromethane	105
Vinyl Chloride	92
1,3-Butadiene	100
Bromomethane	90
Chloroethane	88
Freon 11	97
Ethanol	104
Freon 113	93
1,1-Dichloroethene	95
Acetone	97
2-Propanol	102
Carbon Disulfide	90
3-Chloropropene	92
Methylene Chloride	105
Methyl tert-butyl ether	92
trans-1,2-Dichloroethene	93
Hexane	94
1,1-Dichloroethane	92
2-Butanone (Methyl Ethyl Ketone)	89
cis-1,2-Dichloroethene	95
Tetrahydrofuran	100
Chloroform	98
1,1,1-Trichloroethane	95
Cyclohexane	89
Carbon Tetrachloride	97
2,2,4-Trimethylpentane	96
Benzene	96
1,2-Dichloroethane	100
Heptane	95
Trichloroethene	93
1,2-Dichloropropane	93
1,4-Dioxane	90
Bromodichloromethane	96
cis-1,3-Dichloropropene	95
4-Methyl-2-pentanone	90
Toluene	94
trans-1,3-Dichloropropene	96

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0903277-13A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031602	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 3/16/09 07:50 AM	

Compound	%Recovery
1,1,2-Trichloroethane	94
Tetrachloroethene	96
2-Hexanone	93
Dibromochloromethane	98
1,2-Dibromoethane (EDB)	98
Chlorobenzene	93
Ethyl Benzene	93
m,p-Xylene	92
o-Xylene	91
Styrene	93
Bromoform	101
Cumene	96
1,1,2,2-Tetrachloroethane	92
Propylbenzene	93
4-Ethyltoluene	96
1,3,5-Trimethylbenzene	93
1,2,4-Trimethylbenzene	92
1,3-Dichlorobenzene	87
1,4-Dichlorobenzene	88
alpha-Chlorotoluene	93
1,2-Dichlorobenzene	84
1,2,4-Trichlorobenzene	80
Hexachlorobutadiene	81

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	98	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0903277-13B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031702	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 3/17/09 08:19 AM	

Compound	%Recovery
Freon 12	101
Freon 114	99
Chloromethane	114
Vinyl Chloride	103
1,3-Butadiene	114
Bromomethane	89
Chloroethane	91
Freon 11	103
Ethanol	109
Freon 113	92
1,1-Dichloroethene	96
Acetone	96
2-Propanol	103
Carbon Disulfide	90
3-Chloropropene	87
Methylene Chloride	109
Methyl tert-butyl ether	92
trans-1,2-Dichloroethene	93
Hexane	94
1,1-Dichloroethane	94
2-Butanone (Methyl Ethyl Ketone)	90
cis-1,2-Dichloroethene	96
Tetrahydrofuran	108
Chloroform	101
1,1,1-Trichloroethane	98
Cyclohexane	91
Carbon Tetrachloride	100
2,2,4-Trimethylpentane	98
Benzene	98
1,2-Dichloroethane	105
Heptane	94
Trichloroethene	96
1,2-Dichloropropane	95
1,4-Dioxane	93
Bromodichloromethane	100
cis-1,3-Dichloropropene	94
4-Methyl-2-pentanone	92
Toluene	96
trans-1,3-Dichloropropene	96

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0903277-13B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031702	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 3/17/09 08:19 AM	

Compound	%Recovery
1,1,2-Trichloroethane	96
Tetrachloroethene	95
2-Hexanone	93
Dibromochloromethane	98
1,2-Dibromoethane (EDB)	99
Chlorobenzene	95
Ethyl Benzene	96
m,p-Xylene	95
o-Xylene	92
Styrene	95
Bromoform	101
Cumene	98
1,1,2,2-Tetrachloroethane	95
Propylbenzene	97
4-Ethyltoluene	98
1,3,5-Trimethylbenzene	95
1,2,4-Trimethylbenzene	96
1,3-Dichlorobenzene	90
1,4-Dichlorobenzene	90
alpha-Chlorotoluene	95
1,2-Dichlorobenzene	86
1,2,4-Trichlorobenzene	81
Hexachlorobutadiene	82

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	98	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0903277-14A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031603	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 3/16/09 08:23 AM	

Compound	%Recovery
Freon 12	94
Freon 114	92
Chloromethane	103
Vinyl Chloride	92
1,3-Butadiene	95
Bromomethane	86
Chloroethane	85
Freon 11	96
Ethanol	79
Freon 113	105
1,1-Dichloroethene	105
Acetone	99
2-Propanol	106
Carbon Disulfide	91
3-Chloropropene	92
Methylene Chloride	111
Methyl tert-butyl ether	94
trans-1,2-Dichloroethene	94
Hexane	96
1,1-Dichloroethane	97
2-Butanone (Methyl Ethyl Ketone)	92
cis-1,2-Dichloroethene	101
Tetrahydrofuran	103
Chloroform	101
1,1,1-Trichloroethane	98
Cyclohexane	92
Carbon Tetrachloride	100
2,2,4-Trimethylpentane	97
Benzene	97
1,2-Dichloroethane	102
Heptane	95
Trichloroethene	96
1,2-Dichloropropane	93
1,4-Dioxane	90
Bromodichloromethane	98
cis-1,3-Dichloropropene	94
4-Methyl-2-pentanone	92
Toluene	98
trans-1,3-Dichloropropene	96

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0903277-14A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031603	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 3/16/09 08:23 AM	

Compound	%Recovery
1,1,2-Trichloroethane	95
Tetrachloroethene	97
2-Hexanone	93
Dibromochloromethane	98
1,2-Dibromoethane (EDB)	95
Chlorobenzene	93
Ethyl Benzene	94
m,p-Xylene	93
o-Xylene	92
Styrene	96
Bromoform	101
Cumene	98
1,1,2,2-Tetrachloroethane	90
Propylbenzene	96
4-Ethyltoluene	96
1,3,5-Trimethylbenzene	92
1,2,4-Trimethylbenzene	91
1,3-Dichlorobenzene	87
1,4-Dichlorobenzene	86
alpha-Chlorotoluene	97
1,2-Dichlorobenzene	82
1,2,4-Trichlorobenzene	77
Hexachlorobutadiene	77

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	99	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0903277-14B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031703	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 3/17/09 08:52 AM	

Compound	%Recovery
Freon 12	98
Freon 114	94
Chloromethane	110
Vinyl Chloride	96
1,3-Butadiene	100
Bromomethane	89
Chloroethane	88
Freon 11	101
Ethanol	82
Freon 113	104
1,1-Dichloroethene	109
Acetone	99
2-Propanol	109
Carbon Disulfide	92
3-Chloropropene	93
Methylene Chloride	118
Methyl tert-butyl ether	95
trans-1,2-Dichloroethene	95
Hexane	98
1,1-Dichloroethane	99
2-Butanone (Methyl Ethyl Ketone)	93
cis-1,2-Dichloroethene	104
Tetrahydrofuran	108
Chloroform	104
1,1,1-Trichloroethane	102
Cyclohexane	94
Carbon Tetrachloride	103
2,2,4-Trimethylpentane	100
Benzene	101
1,2-Dichloroethane	108
Heptane	99
Trichloroethene	99
1,2-Dichloropropane	96
1,4-Dioxane	93
Bromodichloromethane	102
cis-1,3-Dichloropropene	96
4-Methyl-2-pentanone	96
Toluene	103
trans-1,3-Dichloropropene	98

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0903277-14B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	r031703	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 3/17/09 08:52 AM	

Compound	%Recovery
1,1,2-Trichloroethane	99
Tetrachloroethene	100
2-Hexanone	97
Dibromochloromethane	102
1,2-Dibromoethane (EDB)	98
Chlorobenzene	97
Ethyl Benzene	96
m,p-Xylene	95
o-Xylene	95
Styrene	98
Bromoform	103
Cumene	102
1,1,2,2-Tetrachloroethane	94
Propylbenzene	99
4-Ethyltoluene	100
1,3,5-Trimethylbenzene	96
1,2,4-Trimethylbenzene	94
1,3-Dichlorobenzene	89
1,4-Dichlorobenzene	88
alpha-Chlorotoluene	98
1,2-Dichlorobenzene	84
1,2,4-Trichlorobenzene	79
Hexachlorobutadiene	80

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	107	70-130
4-Bromofluorobenzene	97	70-130

PRELIMINARY DRAFT NOT QUALITY ASSURED FOR USE

APPENDIX C

ONSITE ENVIRONMENTAL INC.
LABORATORY DATA REPORTS

OnSite
Environmental Inc.
Analytical Testing and Mobile Laboratory Services

June 17, 2009

Amanda Cote
Golder Associates Inc.
18300 NE Union Hill Road
Suite 200
Redmond, WA 98052-3333

Re: Analytical Data for Project 083-9356602
Laboratory Reference No. 0906-062

Dear Amanda:

Enclosed are the analytical results and associated quality control data for samples submitted on June 9, 2009.

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: June 17, 2009
Samples Submitted: June 9, 2009
Laboratory Reference: 0906-062
Project: 083-9356602

Case Narrative

Samples were collected on June 9, 2009, and received by the laboratory on June 9, 2009. They were maintained at the laboratory at a temperature of 2°C to 6°C except as noted below.

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: June 17, 2009
Samples Submitted: June 9, 2009
Laboratory Reference: 0906-062
Project: 083-9356602

VOLATILES by EPA 8260B
Page 1 of 2

Date Extracted:	6-10-09
Date Analyzed:	6-10-09
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	06-062-01
Client ID:	**B-4**

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.20
Chloromethane	ND		1.0
Vinyl Chloride	ND		0.20
Bromomethane	ND		0.20
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		0.20
1,1-Dichloroethene	ND		0.20
Acetone	18		5.0
Iodomethane	ND		1.0
Carbon Disulfide	ND		0.20
Methylene Chloride	ND		1.0
(trans) 1,2-dichloroethene	ND		0.20
Methyl t-Butyl Ether	ND		0.20
1,1-Dichloroethane	ND		0.20
Vinyl Acetate	ND		2.0
2,2-Dichloropropane	ND		0.20
(cis) 1,2-Dichloroethene	ND		0.20
2-Butanone	ND		5.0
Bromochloromethane	ND		0.20
Chloroform	ND		0.20
1,1,1-Trichloroethane	ND		0.20
Carbon Tetrachloride	ND		0.20
1,1-Dichloropropene	ND		0.20
Benzene	0.31		0.20
1,2-Dichloroethane	ND		0.20
Trichloroethene	ND		0.20
1,2-Dichloropropane	ND		0.20
Dibromomethane	ND		0.20
Bromodichloromethane	ND		0.20
2-Chloroethyl Vinyl Ether	ND		1.0
(cis) 1,3-Dichloropropene	ND		0.20
Methyl Isobutyl Ketone	ND		2.0
Toluene	ND		1.0
(trans) 1,3-Dichloropropene	ND		0.20

Date of Report: June 17, 2009
Samples Submitted: June 9, 2009
Laboratory Reference: 0906-062
Project: 083-9356602

VOLATILES by EPA 8260B
Page 2 of 2

Lab ID: 06-062-01
Client ID: B-4

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.20
Tetrachloroethene	7.3		0.20
1,3-Dichloropropane	ND		0.20
2-Hexanone	ND		2.0
Dibromochloromethane	ND		0.20
1,2-Dibromoethane	ND		0.20
Chlorobenzene	ND		0.20
1,1,1,2-Tetrachloroethane	ND		0.20
Ethylbenzene	ND		0.20
m,p-Xylene	ND		0.40
o-Xylene	ND		0.20
Styrene	ND		0.20
Bromoform	ND		1.0
Isopropylbenzene	ND		0.20
Bromobenzene	ND		0.20
1,1,2,2-Tetrachloroethane	ND		0.20
1,2,3-Trichloropropane	ND		0.20
n-Propylbenzene	ND		0.20
2-Chlorotoluene	ND		0.20
4-Chlorotoluene	ND		0.20
1,3,5-Trimethylbenzene	ND		0.20
tert-Butylbenzene	ND		0.20
1,2,4-Trimethylbenzene	ND		0.20
sec-Butylbenzene	ND		0.20
1,3-Dichlorobenzene	ND		0.20
p-Isopropyltoluene	ND		0.20
1,4-Dichlorobenzene	ND		0.20
1,2-Dichlorobenzene	ND		0.20
n-Butylbenzene	ND		0.20
1,2-Dibromo-3-chloropropane	ND		1.0
1,2,4-Trichlorobenzene	ND		0.20
Hexachlorobutadiene	ND		0.20
Naphthalene	ND		1.0
1,2,3-Trichlorobenzene	ND		0.20

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	77	71-126
Toluene-d8	88	76-116
4-Bromofluorobenzene	88	70-123

Date of Report: June 17, 2009
Samples Submitted: June 9, 2009
Laboratory Reference: 0906-062
Project: 083-9356602

VOLATILES by EPA 8260B
Page 1 of 2

Date Extracted:	6-10-09
Date Analyzed:	6-10-09
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	06-062-02
Client ID:	**B3**

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.20
Chloromethane	ND		1.0
Vinyl Chloride	ND		0.20
Bromomethane	ND		0.20
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		0.20
1,1-Dichloroethene	ND		0.20
Acetone	6.4		5.0
Iodomethane	ND		1.0
Carbon Disulfide	ND		0.20
Methylene Chloride	ND		1.0
(trans) 1,2-dichloroethene	ND		0.20
Methyl t-Butyl Ether	ND		0.20
1,1-Dichloroethane	ND		0.20
Vinyl Acetate	ND		2.0
2,2-Dichloropropane	ND		0.20
(cis) 1,2-Dichloroethene	ND		0.20
2-Butanone	ND		5.0
Bromochloromethane	ND		0.20
Chloroform	ND		0.20
1,1,1-Trichloroethane	ND		0.20
Carbon Tetrachloride	ND		0.20
1,1-Dichloropropene	ND		0.20
Benzene	ND		0.20
1,2-Dichloroethane	ND		0.20
Trichloroethene	ND		0.20
1,2-Dichloropropane	ND		0.20
Dibromomethane	ND		0.20
Bromodichloromethane	ND		0.20
2-Chloroethyl Vinyl Ether	ND		1.0
(cis) 1,3-Dichloropropene	ND		0.20
Methyl Isobutyl Ketone	ND		2.0
Toluene	ND		1.0
(trans) 1,3-Dichloropropene	ND		0.20

Date of Report: June 17, 2009
Samples Submitted: June 9, 2009
Laboratory Reference: 0906-062
Project: 083-9356602

VOLATILES by EPA 8260B
Page 2 of 2

Lab ID: 06-062-02
Client ID: B3

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.20
Tetrachloroethene	15		0.20
1,3-Dichloropropane	ND		0.20
2-Hexanone	ND		2.0
Dibromochloromethane	ND		0.20
1,2-Dibromoethane	ND		0.20
Chlorobenzene	ND		0.20
1,1,1,2-Tetrachloroethane	ND		0.20
Ethylbenzene	ND		0.20
m,p-Xylene	ND		0.40
o-Xylene	ND		0.20
Styrene	ND		0.20
Bromoform	ND		1.0
Isopropylbenzene	ND		0.20
Bromobenzene	ND		0.20
1,1,2,2-Tetrachloroethane	ND		0.20
1,2,3-Trichloropropane	ND		0.20
n-Propylbenzene	ND		0.20
2-Chlorotoluene	ND		0.20
4-Chlorotoluene	ND		0.20
1,3,5-Trimethylbenzene	ND		0.20
tert-Butylbenzene	ND		0.20
1,2,4-Trimethylbenzene	ND		0.20
sec-Butylbenzene	ND		0.20
1,3-Dichlorobenzene	ND		0.20
p-Isopropyltoluene	ND		0.20
1,4-Dichlorobenzene	ND		0.20
1,2-Dichlorobenzene	ND		0.20
n-Butylbenzene	ND		0.20
1,2-Dibromo-3-chloropropane	ND		1.0
1,2,4-Trichlorobenzene	ND		0.20
Hexachlorobutadiene	ND		0.20
Naphthalene	ND		1.0
1,2,3-Trichlorobenzene	ND		0.20

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	83	71-126
Toluene-d8	90	76-116
4-Bromofluorobenzene	95	70-123

Date of Report: June 17, 2009
Samples Submitted: June 9, 2009
Laboratory Reference: 0906-062
Project: 083-9356602

VOLATILES by EPA 8260B
Page 1 of 2

Date Extracted:	6-10-09
Date Analyzed:	6-10-09
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	06-062-03
Client ID:	**Trip Blank**

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.20
Chloromethane	ND		1.0
Vinyl Chloride	ND		0.20
Bromomethane	ND		0.20
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		0.20
1,1-Dichloroethene	ND		0.20
Acetone	ND		5.0
Iodomethane	ND		1.0
Carbon Disulfide	ND		0.20
Methylene Chloride	ND		1.0
(trans) 1,2-dichloroethene	ND		0.20
Methyl t-Butyl Ether	ND		0.20
1,1-Dichloroethane	ND		0.20
Vinyl Acetate	ND		2.0
2,2-Dichloropropane	ND		0.20
(cis) 1,2-Dichloroethene	ND		0.20
2-Butanone	ND		5.0
Bromochloromethane	ND		0.20
Chloroform	ND		0.20
1,1,1-Trichloroethane	ND		0.20
Carbon Tetrachloride	ND		0.20
1,1-Dichloropropene	ND		0.20
Benzene	ND		0.20
1,2-Dichloroethane	ND		0.20
Trichloroethene	ND		0.20
1,2-Dichloropropane	ND		0.20
Dibromomethane	ND		0.20
Bromodichloromethane	ND		0.20
2-Chloroethyl Vinyl Ether	ND		1.0
(cis) 1,3-Dichloropropene	ND		0.20
Methyl Isobutyl Ketone	ND		2.0
Toluene	ND		1.0
(trans) 1,3-Dichloropropene	ND		0.20

Date of Report: June 17, 2009
Samples Submitted: June 9, 2009
Laboratory Reference: 0906-062
Project: 083-9356602

VOLATILES by EPA 8260B
Page 2 of 2

Lab ID: 06-062-03
Client ID: Trip Blank

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.20
Tetrachloroethene	ND		0.20
1,3-Dichloropropane	ND		0.20
2-Hexanone	ND		2.0
Dibromochloromethane	ND		0.20
1,2-Dibromoethane	ND		0.20
Chlorobenzene	ND		0.20
1,1,1,2-Tetrachloroethane	ND		0.20
Ethylbenzene	ND		0.20
m,p-Xylene	ND		0.40
o-Xylene	ND		0.20
Styrene	ND		0.20
Bromoform	ND		1.0
Isopropylbenzene	ND		0.20
Bromobenzene	ND		0.20
1,1,2,2-Tetrachloroethane	ND		0.20
1,2,3-Trichloropropane	ND		0.20
n-Propylbenzene	ND		0.20
2-Chlorotoluene	ND		0.20
4-Chlorotoluene	ND		0.20
1,3,5-Trimethylbenzene	ND		0.20
tert-Butylbenzene	ND		0.20
1,2,4-Trimethylbenzene	ND		0.20
sec-Butylbenzene	ND		0.20
1,3-Dichlorobenzene	ND		0.20
p-Isopropyltoluene	ND		0.20
1,4-Dichlorobenzene	ND		0.20
1,2-Dichlorobenzene	ND		0.20
n-Butylbenzene	ND		0.20
1,2-Dibromo-3-chloropropane	ND		1.0
1,2,4-Trichlorobenzene	ND		0.20
Hexachlorobutadiene	ND		0.20
Naphthalene	ND		1.0
1,2,3-Trichlorobenzene	ND		0.20

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	84	71-126
Toluene-d8	89	76-116
4-Bromofluorobenzene	90	70-123

Date of Report: June 17, 2009
Samples Submitted: June 9, 2009
Laboratory Reference: 0906-062
Project: 083-9356602

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
Page 1 of 2

Date Extracted: 6-10-09
Date Analyzed: 6-10-09

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0610W1

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.20
Chloromethane	ND		1.0
Vinyl Chloride	ND		0.20
Bromomethane	ND		0.20
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		0.20
1,1-Dichloroethene	ND		0.20
Acetone	ND		5.0
Iodomethane	ND		1.0
Carbon Disulfide	ND		0.20
Methylene Chloride	ND		1.0
(trans) 1,2-dichloroethene	ND		0.20
Methyl t-Butyl Ether	ND		0.20
1,1-Dichloroethane	ND		0.20
Vinyl Acetate	ND		2.0
2,2-Dichloropropane	ND		0.20
(cis) 1,2-Dichloroethene	ND		0.20
2-Butanone	ND		5.0
Bromochloromethane	ND		0.20
Chloroform	ND		0.20
1,1,1-Trichloroethane	ND		0.20
Carbon Tetrachloride	ND		0.20
1,1-Dichloropropene	ND		0.20
Benzene	ND		0.20
1,2-Dichloroethane	ND		0.20
Trichloroethene	ND		0.20
1,2-Dichloropropane	ND		0.20
Dibromomethane	ND		0.20
Bromodichloromethane	ND		0.20
2-Chloroethyl Vinyl Ether	ND		1.0
(cis) 1,3-Dichloropropene	ND		0.20
Methyl Isobutyl Ketone	ND		2.0
Toluene	ND		1.0
(trans) 1,3-Dichloropropene	ND		0.20

Date of Report: June 17, 2009
Samples Submitted: June 9, 2009
Laboratory Reference: 0906-062
Project: 083-9356602

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
Page 2 of 2

Lab ID: MB0610W1

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.20
Tetrachloroethene	ND		0.20
1,3-Dichloropropane	ND		0.20
2-Hexanone	ND		2.0
Dibromochloromethane	ND		0.20
1,2-Dibromoethane	ND		0.20
Chlorobenzene	ND		0.20
1,1,1,2-Tetrachloroethane	ND		0.20
Ethylbenzene	ND		0.20
m,p-Xylene	ND		0.40
o-Xylene	ND		0.20
Styrene	ND		0.20
Bromoform	ND		1.0
Isopropylbenzene	ND		0.20
Bromobenzene	ND		0.20
1,1,2,2-Tetrachloroethane	ND		0.20
1,2,3-Trichloropropane	ND		0.20
n-Propylbenzene	ND		0.20
2-Chlorotoluene	ND		0.20
4-Chlorotoluene	ND		0.20
1,3,5-Trimethylbenzene	ND		0.20
tert-Butylbenzene	ND		0.20
1,2,4-Trimethylbenzene	ND		0.20
sec-Butylbenzene	ND		0.20
1,3-Dichlorobenzene	ND		0.20
p-Isopropyltoluene	ND		0.20
1,4-Dichlorobenzene	ND		0.20
1,2-Dichlorobenzene	ND		0.20
n-Butylbenzene	ND		0.20
1,2-Dibromo-3-chloropropane	ND		1.0
1,2,4-Trichlorobenzene	ND		0.20
Hexachlorobutadiene	ND		0.20
Naphthalene	ND		1.0
1,2,3-Trichlorobenzene	ND		0.20

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	87	71-126
Toluene-d8	93	76-116
4-Bromofluorobenzene	90	70-123

Date of Report: June 17, 2009
Samples Submitted: June 9, 2009
Laboratory Reference: 0906-062
Project: 083-9356602

VOLATILES by EPA 8260B
SB/SBD QUALITY CONTROL

Date Extracted: 6-10-09
Date Analyzed: 6-10-09

Matrix: Water
Units: ug/L (ppb)

Lab ID: SB0610W1

Compound	Spike Amount	SB	Percent Recovery	SBD	Percent Recovery	Recovery Limits	Flags
1,1-Dichloroethene	10.0	10.9	109	10.4	104	70-130	
Benzene	10.0	10.7	107	10.7	107	70-130	
Trichloroethene	10.0	10.8	108	10.2	102	70-123	
Toluene	10.0	10.6	106	10.2	102	77-120	
Chlorobenzene	10.0	10.6	106	10.5	105	73-115	

	RPD	RPD Limit	Flags
1,1-Dichloroethene	4	21	
Benzene	1	18	
Trichloroethene	5	18	
Toluene	3	17	
Chlorobenzene	1	18	

OnSite Environmental Inc.

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-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

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 - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Page ____ of ____

OnSite Environmental Inc.

Phone: (425) 883-3881 • Fax: (425) 885-4603

Company:

Project Number:

Project Name:

Project Manager:

Sampled by:

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ Standard (7 working days) (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 06-062

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	% Moisture
1	B-4	6-9-9	*	H_2O	4	X			X										
2	B-3	↓	10:13	H_2O	3	X			X										
3	Trip Blank			H_2O	2	X			X										

	Signature	Company	Date	Time
Relinquished by		GAI	6-9-9	3:45
Received by			6/9/05	1545
Relinquished by				
Received by				
Relinquished by				
Received by				

Comments/Special Instructions

*B-4 sapled 10:18, 10:43, 11:10 and 12:00 Analyse 11:10 last, if necessary

Reviewed by/Date

Reviewed by/Date

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

June 17, 2009

Amanda Cote
Golder Associates Inc.
18300 NE Union Hill Road
Suite 200
Redmond, WA 98052-3333

Re: Analytical Data for Project 083-9356602
Laboratory Reference No. 0906-076

Dear Amanda:

Enclosed are the analytical results and associated quality control data for samples submitted on June 10, 2009.

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: June 17, 2009
Samples Submitted: June 10, 2009
Laboratory Reference: 0906-076
Project: 083-9356602

Case Narrative

Samples were collected on June 9, 2009, and received by the laboratory on June 10, 2009. They were maintained at the laboratory at a temperature of 2°C to 6°C except as noted below.

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.

Volatiles EPA 8260B Analysis

Method 5035 VOA vials were not provided for sample B1 14-16. The sample was therefore extracted from a 4-ounce jar.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: June 17, 2009
Samples Submitted: June 10, 2009
Laboratory Reference: 0906-076
Project: 083-9356602

NWTPH-HCID

Date Extracted:	6-10-09
Date Analyzed:	6-10-09
Matrix:	Soil
Units:	mg/kg (ppm)
Client ID:	**B1 14-16**
Lab ID:	06-076-01
Gasoline:	**ND**
PQL:	21
Diesel Fuel:	**ND**
PQL:	53
Lube Oil:	**ND**
PQL:	110
Surrogate Recovery:	
o-Terphenyl	90%
Flags:	Y

Date of Report: June 17, 2009
Samples Submitted: June 10, 2009
Laboratory Reference: 0906-076
Project: 083-9356602

NWTPH-HCID
METHOD BLANK QUALITY CONTROL

Date Extracted:	6-10-09
Date Analyzed:	6-10-09
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0610S1
Gasoline:	**ND**
PQL:	20
Diesel Fuel:	**ND**
PQL:	50
Lube Oil:	**ND**
PQL:	100
Surrogate Recovery:	
o-Terphenyl	96%
Flags	Y

Date of Report: June 17, 2009
Samples Submitted: June 10, 2009
Laboratory Reference: 0906-076
Project: 083-9356602

VOLATILES by EPA 8260B
Page 1 of 2

Date Extracted:	6-15-09
Date Analyzed:	6-15-09
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	06-076-01
Client ID:	**B1 14-16**

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0011
Chloromethane	ND		0.0053
Vinyl Chloride	ND		0.0011
Bromomethane	ND		0.0011
Chloroethane	ND		0.0053
Trichlorofluoromethane	ND		0.0011
1,1-Dichloroethene	ND		0.0011
Acetone	ND		0.011
Iodomethane	ND		0.0053
Carbon Disulfide	ND		0.0011
Methylene Chloride	ND		0.0053
(trans) 1,2-Dichloroethene	ND		0.0011
Methyl t-Butyl Ether	ND		0.0011
1,1-Dichloroethane	ND		0.0011
Vinyl Acetate	ND		0.0053
2,2-Dichloropropane	ND		0.0011
(cis) 1,2-Dichloroethene	ND		0.0011
2-Butanone	ND		0.0053
Bromochloromethane	ND		0.0011
Chloroform	ND		0.0011
1,1,1-Trichloroethane	ND		0.0011
Carbon Tetrachloride	ND		0.0011
1,1-Dichloropropene	ND		0.0011
Benzene	ND		0.0011
1,2-Dichloroethane	ND		0.0011
Trichloroethene	ND		0.0011
1,2-Dichloropropane	ND		0.0011
Dibromomethane	ND		0.0011
Bromodichloromethane	ND		0.0011
2-Chloroethyl Vinyl Ether	ND		0.0053
(cis) 1,3-Dichloropropene	ND		0.0011
Methyl Isobutyl Ketone	ND		0.0053
Toluene	ND		0.0053
(trans) 1,3-Dichloropropene	ND		0.0011

Date of Report: June 17, 2009
Samples Submitted: June 10, 2009
Laboratory Reference: 0906-076
Project: 083-9356602

VOLATILES by EPA 8260B
Page 2 of 2

Lab ID: 06-076-01
Client ID: B1 14-16

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0011
Tetrachloroethene	0.0018		0.0011
1,3-Dichloropropane	ND		0.0011
2-Hexanone	ND		0.0053
Dibromochloromethane	ND		0.0011
1,2-Dibromoethane	ND		0.0011
Chlorobenzene	ND		0.0011
1,1,1,2-Tetrachloroethane	ND		0.0011
Ethylbenzene	ND		0.0011
m,p-Xylene	ND		0.0021
o-Xylene	ND		0.0011
Styrene	ND		0.0011
Bromoform	ND		0.0011
Isopropylbenzene	ND		0.0011
Bromobenzene	ND		0.0011
1,1,2,2-Tetrachloroethane	ND		0.0011
1,2,3-Trichloropropane	ND		0.0011
n-Propylbenzene	ND		0.0011
2-Chlorotoluene	ND		0.0011
4-Chlorotoluene	ND		0.0011
1,3,5-Trimethylbenzene	ND		0.0011
tert-Butylbenzene	ND		0.0011
1,2,4-Trimethylbenzene	ND		0.0011
sec-Butylbenzene	ND		0.0011
1,3-Dichlorobenzene	ND		0.0011
p-Isopropyltoluene	ND		0.0011
1,4-Dichlorobenzene	ND		0.0011
1,2-Dichlorobenzene	ND		0.0011
n-Butylbenzene	ND		0.0011
1,2-Dibromo-3-chloropropane	ND		0.0053
1,2,4-Trichlorobenzene	ND		0.0011
Hexachlorobutadiene	ND		0.0053
Naphthalene	ND		0.0011
1,2,3-Trichlorobenzene	ND		0.0011

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	112	55-125
Toluene-d8	98	56-127
4-Bromofluorobenzene	116	54-130

Date of Report: June 17, 2009
Samples Submitted: June 10, 2009
Laboratory Reference: 0906-076
Project: 083-9356602

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
Page 1 of 2

Date Extracted: 6-15-09
Date Analyzed: 6-15-09

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0615S1

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0010
Chloromethane	ND		0.0050
Vinyl Chloride	ND		0.0010
Bromomethane	ND		0.0010
Chloroethane	ND		0.0050
Trichlorofluoromethane	ND		0.0010
1,1-Dichloroethene	ND		0.0010
Acetone	ND		0.010
Iodomethane	ND		0.0050
Carbon Disulfide	ND		0.0010
Methylene Chloride	ND		0.0050
(trans) 1,2-Dichloroethene	ND		0.0010
Methyl t-Butyl Ether	ND		0.0010
1,1-Dichloroethane	ND		0.0010
Vinyl Acetate	ND		0.0050
2,2-Dichloropropane	ND		0.0010
(cis) 1,2-Dichloroethene	ND		0.0010
2-Butanone	ND		0.0050
Bromochloromethane	ND		0.0010
Chloroform	ND		0.0010
1,1,1-Trichloroethane	ND		0.0010
Carbon Tetrachloride	ND		0.0010
1,1-Dichloropropene	ND		0.0010
Benzene	ND		0.0010
1,2-Dichloroethane	ND		0.0010
Trichloroethene	ND		0.0010
1,2-Dichloropropane	ND		0.0010
Dibromomethane	ND		0.0010
Bromodichloromethane	ND		0.0010
2-Chloroethyl Vinyl Ether	ND		0.0050
(cis) 1,3-Dichloropropene	ND		0.0010
Methyl Isobutyl Ketone	ND		0.0050
Toluene	ND		0.0050
(trans) 1,3-Dichloropropene	ND		0.0010

Date of Report: June 17, 2009
Samples Submitted: June 10, 2009
Laboratory Reference: 0906-076
Project: 083-9356602

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
Page 2 of 2

Lab ID: MB0615S1

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0010
Tetrachloroethene	ND		0.0010
1,3-Dichloropropane	ND		0.0010
2-Hexanone	ND		0.0050
Dibromochloromethane	ND		0.0010
1,2-Dibromoethane	ND		0.0010
Chlorobenzene	ND		0.0010
1,1,1,2-Tetrachloroethane	ND		0.0010
Ethylbenzene	ND		0.0010
m,p-Xylene	ND		0.0020
o-Xylene	ND		0.0010
Styrene	ND		0.0010
Bromoform	ND		0.0010
Isopropylbenzene	ND		0.0010
Bromobenzene	ND		0.0010
1,1,2,2-Tetrachloroethane	ND		0.0010
1,2,3-Trichloropropane	ND		0.0010
n-Propylbenzene	ND		0.0010
2-Chlorotoluene	ND		0.0010
4-Chlorotoluene	ND		0.0010
1,3,5-Trimethylbenzene	ND		0.0010
tert-Butylbenzene	ND		0.0010
1,2,4-Trimethylbenzene	ND		0.0010
sec-Butylbenzene	ND		0.0010
1,3-Dichlorobenzene	ND		0.0010
p-Isopropyltoluene	ND		0.0010
1,4-Dichlorobenzene	ND		0.0010
1,2-Dichlorobenzene	ND		0.0010
n-Butylbenzene	ND		0.0010
1,2-Dibromo-3-chloropropane	ND		0.0050
1,2,4-Trichlorobenzene	ND		0.0010
Hexachlorobutadiene	ND		0.0050
Naphthalene	ND		0.0010
1,2,3-Trichlorobenzene	ND		0.0010

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	112	55-125
Toluene-d8	105	56-127
4-Bromofluorobenzene	127	54-130

Date of Report: June 17, 2009
Samples Submitted: June 10, 2009
Laboratory Reference: 0906-076
Project: 083-9356602

VOLATILES by EPA 8260B
MS/MSD QUALITY CONTROL

Date Extracted: 6-15-09
Date Analyzed: 6-15-09

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 06-076-01

Compound	Sample Amount	Spike Amount	MS	Percent Recovery	MSD	Percent Recovery	Recovery Limits	Flags
1,1-Dichloroethene	ND	0.0500	0.0480	96	0.0502	100	70-130	
Benzene	ND	0.0500	0.0468	94	0.0491	98	70-130	
Trichloroethene	ND	0.0500	0.0483	97	0.0494	99	70-124	
Toluene	ND	0.0500	0.0483	97	0.0476	95	70-130	
Chlorobenzene	ND	0.0500	0.0459	92	0.0465	93	72-127	

	RPD	RPD Limit	Flags
1,1-Dichloroethene	5	14	
Benzene	5	17	
Trichloroethene	2	11	
Toluene	2	16	
Chlorobenzene	1	15	

Date of Report: June 17, 2009
Samples Submitted: June 10, 2009
Lab Traveler: 0906-076
Project: 083-9356602

% MOISTURE

Date Analyzed: 6-10-09

Client ID	Lab ID	% Moisture
B1 14-16	06-076-01	6

OnSite Environmental Inc.

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-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

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 - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Phone: (425) 883-3881 • Fax: (425) 885-4603

Company: GAI
Project Number: 083-9356602
Project Name: Sea-Tac
Project Manager: A Cole
Sampled by: A Cole

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ Standard (7 working days) (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 06-076

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	% Moisture
1	B1 14-16	6-9-9	1:10	Soil	1	X			X										X

	Signature	Company	Date	Time
Relinquished by		GAI	6/10/9	2:45
Received by		OSE	6/10/09	2:45 pm
Relinquished by				
Received by				
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions

Chromatograms with final report ☐

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