# INTERIM ACTION WORK PLAN

Texaco Strickland Site

Prepared for:

Strickland Real Estate Holdings, LLC and Chevron Environmental Management Company

Project No. 180357 • June 14, 2021 • PUBLIC REVIEW DRAFT





# INTERIM ACTION WORK PLAN

#### Texaco Strickland Site

Prepared for:

Strickland Real Estate Holdings, LLC and Chevron Environmental Management Company

Project No. 180357 • June 14, 2021 • PUBLIC REVIEW DRAFT

Aspect Consulting, LLC



Adam Griffin, PE Associate Engineer agriffin@aspectconsulting.com

Andrew Yonkofski, LHG
Project Hydrogeologist
ayonkofski@aspectconsulting.com

**Breeyn Greer, PE**Project Engineer
bgreer@aspectconsulting.com

# **Contents**

Ac	rony	ms and Abbreviations	iv
1	Intr	oduction	
	1.1	Work Plan Organization	2
2	Site	Description and Subsurface Conditions	3
	2.1		3
	2	.1.1 Operational History of the Property	3
	2	.1.2 Adjacent Property Descriptions	3
	2.2	Site Geology and Hydrogeology	4
	2.3	3	
		.3.1 Underground Storage Tank Removals and Closures	
		.3.2 Historical Environmental Investigations	
		.3.3 Off-Property Environmental Investigations	
	2.4	,	
	_	.4.1 Soil Analytical Results	
	_	.4.3 Soil Gas Analytical Results	
2	lota		
3	3.1	erim Action SummaryObjectives	
	3.1	Exposure Pathways	
	3.3	Basis of Interim Action	
	3.4	Remediation Levels	
	3.5	Soil Removal	
4		erim Action Elements	
	4.1	Construction and Safety Requirements	
	4.2	Mobilization and Site Preparation	
	4.3	Monitoring Well Decommissioning and Replacement	
	4.4	Building Demolition	
	4.5	UST and Hoist Removal	
	4.6	Shoring Installation	
	4.7	Soil Segregation, Handling, Management, and Monitoring	
		.7.1 Identification of Impacted and Contaminated Soils	
		.7.2 Soil Excavation, Segregation and Stockpiling	
		.7.4 Soil Profiling and Off-Site Treatment/Disposal	
	4.8	Water Management	
	4.9	Excavation Backfill	22

#### **ASPECT CONSULTING**

5	Compliance Monitoring	24		
	5.1 Protection Monitoring	24		
	5.2 Performance Monitoring and Overexcavation	24		
6	Permitting	26		
	6.1 Applicable or Relevant and Appropriate Requirements			
	6.2 Permitting and Substantive Requirements			
	6.2.1 City of Lynnwood			
	6.2.2 State Environmental Policy Act (SEPA)			
7	Reporting			
-	. •			
8	Schedule	30		
9	References	31		
10	Limitations	33		
Li	ist of Tables (in text)			
Α	UST Summary			
В	Soil Remediation Levels13			
С	Locations Lacking Vertical Delineation	14		
D	Stockpile Sampling Frequency	21		
Ε	Interim Action Schedule	30		
Li	ist of Tables (attached)			
1	Soil Analytical Data			
2	Historical Groundwater Analytical Data			
3	Remedial Investigation Groundwater Elevations			
4	Remedial Investigation Groundwater Analytical Data			
5	Remedial Investigation Soil Gas Analytical Data			
6	Basis of Remedial Excavation Extents			
7	Estimated Soil Removal Volumes			

#### **List of Figures**

- 1 Site Location Map
- 2 Site Plan
- 3 Remedial Investigation Soil Analytical Results
- 4 Cross Section A-A'
- 5 Groundwater Analytical Results 2020
- 6 Soil Gas Analytical Results 2020
- 7 Conceptual Soil Excavation Plan
- 8 Conceptual Soil Excavation Sections

#### **List of Appendices**

- A Remedial Investigation Boring and Monitoring Well Logs
- B Laboratory Analytical Reports
- C Data Validation Reports
- D Sampling Analysis Plan and Quality Assurance Project Plan
- E State Environmental Policy Act Checklist
- F Inadvertent Discovery Plan
- G Report Limitations and Guidelines for Use

# **Acronyms and Abbreviations**

AO Agreed Order

ARARs Applicable or Relevant and Appropriate Requirements

Aspect Aspect Consulting, LLC

ASTM ASTM International

bgs below ground surface

BTEX benzene, toluene, ethylbenzene, and xylenes

Cambria Environmental Technology, Inc.

CDF controlled-density fill

CEMC Chevron Environmental Management Company

CFR Code of Federal Regulations

City City of Lynnwood

COPCs contaminants of potential concern

CRA Conestoga-Rovers & Associates, Inc.

cVOCs chlorinated volatile organic compounds

DAHP Department of Archeological and Historic Preservation

EA Environmental Associates, Inc.

Ecology Washington State Department of Ecology

EDB 1,2-dibromoethane
EDC 1,2-dichloroethane

EIM Environmental Information Management database

EPA United States Environmental Protection Agency

ESA Environmental Site Assessment

FINE FINEnvironmental, Inc.

FS Feasibility Study

GeoEngineers, Inc.

GPR ground penetrating radar

HASP Health and Safety Plan

HAZWOPER Hazardous Waste Operations and Emergency Response

#### **ASPECT CONSULTING**

IAR Interim Action Report

IAWP Interim Action Work Plan

IDP Inadvertent Discovery Plan

mg/kg milligrams per kilogram

LNAPL light non-aqueous phase liquid

LUST leaking underground storage tank

MA APH Massachusetts Department of Environmental Protection

Air-Phase Petroleum Hydrocarbons

MTBE Methyl tert-butyl ether

MTCA Model Toxics Control Act

NAVD88 North American Vertical Datum of 1988

NFA No Further Action

Nowicki & Associates

OSHA Occupational Health and Safety Administration

PAHs polycyclic aromatic hydrocarbon

PCBs polychlorinated biphenyl

PCS petroleum-contaminated soil

PID photoionization detector
PIS petroleum-impacted soil

PLIA Washington State Pollution Liability Insurance Agency

PLPs Potentially Liable Parties

PTAP Petroleum Technical Assistance Program

RBM regulated building material

RCW Revised Code of Washington

RI Remedial Investigation

RIWP Remedial Investigation Work Plan

ROW right-of-way

SAP/QAPP Sampling Analysis Plan / Quality Assurance Project Plan

SEPA State Environmental Policy Act

SREH Strickland Real Estate Holdings, LLC

#### **ASPECT CONSULTING**

TESC temporary erosion and sediment control

TPHd total petroleum hydrocarbons as diesel

TPHg total petroleum hydrocarbons as gasoline

TPHo total petroleum hydrocarbons as oil

USGS U.S. Geological Survey

UST underground storage tank

VI vapor intrusion

VOC volatile organic compound

WAC Washington Administrative Code

WSDOT Washington State Department of Transportation

WISHA Washington Industrial Health and Safety Act

#### 1 Introduction

Aspect Consulting, LLC (Aspect) has prepared this Interim Action Work Plan (IAWP), on behalf of Strickland Real Estate Holdings, LLC (SREH) to describe Interim Action cleanup activities to be completed at the Texaco Strickland Cleanup Site (the Site), located at 6808 196th Street SW in Lynnwood, Washington (the Property; Figure 1). The Property is recorded by the Snohomish County Tax Assessor as tax parcel #27042000200600. Two potentially liable parties (PLPs), Strickland Real Estate Holdings, LLC (SREH) and Chevron Environmental Management Company (CEMC), entered into Agreed Order (AO) No. 14315 with the Washington State Department of Ecology (Ecology) on August 28, 2018. On December 14, 2020, Ecology named Jiffy Lube International, Inc. (Jiffy Lube) as a PLP with regard to the Site.

The planned Interim Action is based on the results of the ongoing Remedial Investigation (RI) outlined in the "RI Work Plan" (RIWP, Aspect 2019). The first Remedial Investigation (RI) activities under the AO were completed in June 2019 and documented in the RIWP Addendum dated May 28, 2020 (Aspect, 2020). The RI activities were completed in accordance with the Ecology-approved RIWP and RIWP Addendum (Aspect, 2019 and 2020) and consisted of characterizing the nature and extent of residual light non-aqueous phase liquid (LNAPL) and petroleum-contaminated soil and groundwater exceeding the Model Toxics Control Act (MTCA) Method A cleanup levels at the Site. Additional RI activities were necessary to define extent of LNAPL and petroleum-contaminated groundwater (Aspect, 2020). The investigation results will be compiled in the AO-required deliverable RI Report. The RI results form the basis of the planned Interim Action described herein.

Historical operations resulted in the release of petroleum hydrocarbons to the subsurface, impacting soil and groundwater on the Property. Contaminated groundwater has migrated off-Property. Remedial investigations have identified LNAPL in monitoring wells at the Property. The LNAPL at the Site is a hazardous substance which must be treated or removed if it cannot be reliably contained (Washington Administrative Code [WAC] 173-340-360(2)(c) (ii)(A)).

The primary purpose of the Interim Action is to remove LNAPL and contaminated soils from the Property to the maximum extent practicable (considering Site constraints) and mitigate the potential exposure pathways at the Site. A gasoline service station was operated at the Property for approximately 18 years (1959 to 1977) and a Jiffy Lube/Equilon lube facility operated at the Property for approximately 26 years (1977 to 2006). Ecology has determined that releases from the gasoline service station and the lube facility have commingled at the Site. LNAPL has accumulated at the groundwater interface and is a continuing source of contamination to groundwater and soil gas at the Site.

Concurrent with the Interim Action, the PLPs will close the remaining RI data gaps and satisfy the RI-requirements in the AO. The Interim Action will be implemented on a separate track from RI activities. The RI results, and the Interim Action performance

monitoring results will serve as the basis of the final cleanup action to be selected in the next AO-deliverable, the Feasibility Study (FS) Report.

# 1.1 Work Plan Organization

This IAWP is organized as follows:

- Section 2 Site Description and Subsurface Conditions
- Section 3 Interim Action Summary
- Section 4 Interim Action Elements
- Section 5 Compliance Monitoring
- Section 6 Permitting
- Section 7 Reporting
- Section 8 Schedule
- Section 9 References
- Section 10 Limitations

# 2 Site Description and Subsurface Conditions

## 2.1 Site History and Description

The Property is zoned as commercial and currently developed with one unoccupied building. The Property is identified by Snohomish County Parcel Number 27042000200600. The following subsections summarize the operational history of the Property and the land use of the adjacent properties.

#### 2.1.1 Operational History of the Property

Based on the construction date of the service station building, the Property was first developed in approximately 1959. A review of historical documents has established the following operational history for the Site (Conestoga-Rovers & Associates [CRA], 2011; Aspect, 2019; Aspect, 2020):

• 1959 to 1977 – Texaco-branded Service Station: The property was initially developed with a Texaco-branded service station in 1959. Based on construction drawings, the service station consisted of two 4,000-gallon leaded gasoline underground storage tanks (USTs); one 6,000-gallon leaded gasoline UST; a single pump island with three pumps; associated product conveyance piping; an in-ground vehicle hoist; a 550-gallon used oil UST; and a 1,000-gallon heating oil UST.

Historical Site features are shown on Figure 2. The three gasoline USTs were removed by 1977 (Aspect, 2020). The 550-gallon waste oil and 1,000-gallon heating oil USTs remain in place, but it is unknown if they were decommissioned.

- 1977 to 2006 Jiffy Lube/Equilon Lube Facilities: In 1977, the property was converted to a lube facility, which operated continuously until approximately 2006. During this time, two additional USTs were installed on the property. According to Ecology's UST database, a 500-gallon used oil UST and a 3,000-gallon motor oil UST were installed in June of 1982. In 1995, these two USTs were decommissioned: the 500-gallon used oil UST was closed in place, and the 3,000-gallon motor oil UST was removed (see following section).
- **2006 to 2018 Aloha Café:** In 2006, the building was renovated into a restaurant, Aloha Café, which operated until 2018.
- **2018 to Present** The property has been vacant since 2018 to allow for ongoing remedial investigations.

## 2.1.2 Adjacent Property Descriptions

The parcel to the west of the Property (tax parcel 27042000200800) is commercially occupied by a strip mall, where a dry cleaner (Slater's One Hour Cleaners) historically operated. According to city directory records, Slater's One Hour Cleaners operated from at least 1971 through at least 2013.

The parcels to the south (tax parcel 27042000201000 and 27042000200900) are occupied by a multi-family residential apartment building owned by FWAK, LLC and operated as Chri-Mar Apartments. The presence of chlorinated solvents in soil and groundwater occur on this property based on environmental characterization work performed by Environmental Associates, Inc. (EA) on behalf of that property owner (EA, 2016a and 2018; see Section 2.3.3).

A commercial strip mall is located to the north of the Property across 196th Street SW. This property (tax parcel 27041700307000) was historically occupied by a Shell-branded service station with confirmed releases of petroleum and impacts to soil and groundwater. Shell is pursuing an opinion through the Washington State Pollution Liability Insurance Agency's (PLIA's) Petroleum Technical Assistance Program (PTAP).

The parcel to the east of the Property (tax parcel 27042000103100), across 68th Ave West, is currently used as parking for Edmonds Community College. This parcel was previously occupied by an Exxon-branded service station, which had confirmed releases of petroleum hydrocarbons to soil and groundwater. A remedial excavation was conducted on the property in 2005, and a No Further Action (NFA) determination was issued by Ecology in 2007.

## 2.2 Site Geology and Hydrogeology

The geology at the Site is imported fill to depths of approximately 10 feet below ground surface (bgs). This fill soil is underlain by unconsolidated silt, sand, gravel, and clay characteristic of a weathered glacial till deposit. The till deposit increases in density from 18 feet bgs to 32.5 feet bgs, the maximum depth explored at the Site. A cross section depicting these geologic strata are shown in Figure 4.

Fill material was encountered in all 26 soil borings advanced as part of the RIWP and RIWP Addendum implementations to depths ranging between 4 and 10 feet bgs. Boring logs are included as Appendix A. Fill material at the Site is comprised of sand with gravel and sand with silt and gravel. The sand content varied from poor- to well-graded, and the sand and gravel were subangular to subrounded. The fill was generally loose, and the fines (where present) were low plasticity.

Beneath the fill, Vashon till was encountered in all borings, which is consistent with the mapped geologic unit of the area (USGS, 1983). The till encountered during subsurface explorations had a variable composition and included silt (MH); sandy silt with gravel (ML); silty sand and silty sand with gravel (SM); sand with silt and sand with silt and gravel (SW/SP-SM); and sand with gravel (SP). The density of the till was consistent across the Site, ranging from medium dense at the fill-till interface and grading to very dense within a few feet below the interface.

The majority of the subsurface explorations were completed using a hollow-stem auger drilling rig, and geotechnical information was collected for nearly all borings. Based on the observed blow counts, the weathered, medium dense top of till varied in thickness between 2.5 and 15 feet. The underlying unweathered till is differentiated based on the blow counts and inferred density during drilling (Appendix A).

Groundwater is present at the Site and encountered at depths ranging from 7 to 15 feet bgs in the Vashon till unit. The horizontal hydraulic gradient is steep (5 percent). Groundwater flow at the Site and adjacent properties is generally to the southwest, with some minor seasonal variation.

# 2.3 Summary of Previous Remedial Investigation and Cleanup Actions

#### 2.3.1 Underground Storage Tank Removals and Closures

To date, at least seven USTs have been installed on the Property. Four of the USTs have been removed; one was closed in place; and two confirmed to be present at the Property by a geophysical survey (Aspect, 2020). A description of installation date, decommissioning date and method, and tank operator is included below and summarized in Table A.

#### 2.3.1.1 1977 UST Closure

The three gasoline USTs associated with the Texaco-branded service station were decommissioned (removed) in 1977 when the Property was converted to a Jiffy Lube/Equilon lube oil facility (Aspect, 2020). Based on the building plans for the original service station, these USTs were located in the northeastern corner of the Property, and the dispenser islands were located in the north-central portion of the Property (Figure 2). Decommissioning details are not available; however, a Snohomish County tax assessor indicates the tanks were indeed removed in 1977 (Aspect, 2020).

#### 2.3.1.2 1995 UST Closure

Petroleum-impacted soil related to the former Jiffy Lube/Equilon lube oil facility was discovered in 1995 during removal of a 3,000-gallon new oil UST and closure-in-place of a 500-gallon waste oil UST (Figure 2). Nowicki & Associates (Nowicki) oversaw the removal of approximately 65 tons of soil impacted with total petroleum hydrocarbons as oil (TPHo) above the MTCA Method A cleanup level from the area of the former 3,000-gallon new oil UST (Nowicki, 1995a). Post-excavation sidewall and bottom samples collected by Nowicki concluded that soils impacted by TPHo exceeding the MTCA Method A cleanup levels had been removed.

The 500-gallon waste oil UST located beneath the building was decommissioned by cleaning and slurry filling. A soil boring was advanced approximately 4 feet south of the tank (location SB, Figure 2), and samples were analyzed for TPHo and TPH as gasoline (TPHg). Both TPHo and TPHg were detected at concentrations exceeding MTCA Method A cleanup levels at depths of 1.3 and 2 feet bgs.

The releases were reported to Ecology in 1995. The Site was subsequently listed with Ecology's leaking underground storage tank (LUST) program, as Site ID #6802.

#### 2.3.1.3 Geophysical Survey and UST Inventory Summary

Aspect subcontracted Philip Duoos to conduct electromagnetic and ground penetrating radar (GPR) geophysical surveys at the Property. The purpose of these surveys was to evaluate the potential presence of any remaining subsurface service station infrastructure,

including potential USTs and product/vent lines. The geophysical survey was completed on June 3, 2019.

The geophysical survey noted that a large excavation was present in the northeast portion of the Property where station construction drawings indicated the three gasoline USTs were located. The results of the geophysical survey confirmed that the three gasoline USTs were removed from the Property. The gasoline contents of the USTs are documented in station construction diagrams and tax assessor records.

Two probable concrete slabs were encountered in the north central portion of the Property, at the location of the former pump islands. Numerous probable pipes were encountered extending from the excavation extents to the concrete slabs, indicating that product conveyance piping still exists. The depths of these probable pipes ranged from approximately 2.5 to 4 feet bgs.

What appeared to be an unknown UST was also detected on the north side of the existing building, which was not identified in the Final RIWP. The unknown UST was located at approximately 3.2 feet bgs. Another UST was detected at the southeast corner of the existing building and is assumed to be the 500-gallon heating oil UST based on the station construction diagrams.

A summary of all USTs at the Site is included below as Table A. The geophysical survey report is included as Appendix B in the RIWP Addendum (Aspect, 2020). The results of the geophysical survey were evaluated prior to mobilizing for other RIWP activities.

		Installation	Decommissioning	
UST	Contents	Date	Date and Method	Tank Operator
4,000-gallon	Gasoline	1959	1977 – Removed	Service Station Dealer
4,000-gallon	Gasoline	1959	1977 – Removed	Service Station Dealer
6,000-gallon	Gasoline	1959	1977 – Removed	Service Station Dealer
3,000-gallon	New Oil	1982	1995 – Removed	Jiffy Lube/Equilon
500-gallon	Waste oil	1982	1995 - Closed In-Place	Jiffy Lube/Equilon
500-gallon <sup>(a)</sup>	Heating Oil	Unknown	Unknown – Unknown	Jiffy Lube/Equilon
Unknown UST(b)	Unknown	Unknown	Unknown – Unknown	Unknown

Table A. UST Summary

#### Notes:

- (a) The installation date of the 500- gallon heating oil UST cannot be confirmed but was reported to be 1989 (CRA, 2011). However, station construction diagrams show it was likely installed along with the station in the 1950s.
- (b) The unknown UST was identified on the north side of the building during the geophysical survey. Station construction diagrams indicate this was likely used as waste oil storage tank.

#### 2.3.2 Historical Environmental Investigations

Environmental investigations were completed at the Site between 1995 and 2012:

- Nowicki, 1995b Nowicki advanced two soil borings (SB1 and SB2) to the north of the existing building.
- FINEnvironmental, Inc. (FINE), 2003 FINE completed a Phase I Environmental Site Assessment (ESA) that identified the Property had operated as a Texaco-branded gasoline service station prior to 1977.
- GeoEngineers, Inc. (GeoEngineers), 2004 GeoEngineers completed a Phase I ESA which resulted in similar findings to the Phase I conducted by FINE.
- Cambria Environmental Technology (Cambria), 2006 Cambria installed five monitoring wells (MW-1 through MW-5) and advanced one soil boring (SB-1) at the Property.
- Conestoga-Rovers & Associates, Inc. (CRA), 2007 CRA installed five monitoring wells (MW-6 though MW-10) on the Property.
- CRA, 2011 CRA advanced two soil borings (SB-3 and SB-4) and summarized Site characterization data collected to date.
- CRA, 2014 CRA advanced three additional soil borings (SB-5 through SB-7).

A complete summary of historical environmental investigations completed at the Site served as the primary basis of the data gaps identified in the Final RIWP (Aspect, 2019).

#### 2.3.3 Off-Property Environmental Investigations

In February 2016, EA conducted a limited subsurface investigation and subsequent indoor air sampling at the adjacent property to the south, Chri-Mar Apartments. No TPHg, TPH as diesel (TPHd), TPHo, or benzene, toluene, ethylbenzene, and total xylenes (BTEX) compounds were detected in soil or groundwater at the five boring locations (B-01 through B-05, Figure 2). Grab soil vapor samples were collected from borings B-01 and B-03, and concentrations of benzene exceeded the MTCA Method B subslab soil gas screening level at both locations (EA, 2016a).

In March 2016, EA returned to the Chri-Mar Apartments property to conduct indoor and outdoor air sampling. Two indoor air samples were collected from the interior of the Chri-Mar complex, and one outdoor air sample was collected. Samples were collected over a 24-hour period. Benzene was detected in both indoor air samples and the outdoor air sample at concentrations exceeding the MTCA Method B indoor air cleanup levels (EA, 2016b). The benzene concentrations in the outdoor air sample indicate a background source to indoor air in this suburban area with lots of vehicle traffic.

# 2.4 Summary of 2019 and 2020 Remedial Investigation Results

SREH and CEMC entered into AO No. 14315 with Ecology on August 28, 2018, in order to select a cleanup action for the Site. The first AO-deliverable, the RIWP, was finalized by Aspect on March 6, 2019, and approved by Ecology on March 20, 2019 (Aspect, 2019). Based on the RIWP results, an RIWP Addendum was produced to address the

outstanding data gaps for completion of the RI, and was finalized on May 28, 2020 (Aspect, 2020). The results of RI activities conducted under the AO are summarized below.

#### 2.4.1 Soil Analytical Results

A total of 52 unique soil samples (not including quality control samples) were submitted to Friedman & Bruya, Inc., a state-certified laboratory, for chemical analysis of the following contaminants of potential concern (COPCs):

- TPHg by Ecology Method NWTPH-Gx
- TPHd and TPHo by Ecology Method NWTPH-Dx
- BTEX and naphthalene by United States Department of Environmental Protection Agency (EPA) Method 8260C

Additionally, select soil samples were analyzed for the following:

- 8 of the 52 samples were analyzed for 1,2-dichloroethane (EDB); 1,2-dibromoethane (EDC); and methyl tert-butyl ether (MTBE) by EPA Method 8260C.
- 4 of the 52 samples were analyzed for lead by EPA Method 6010C at locations where TPHg concentrations were elevated.
- 6 of the 52 samples were analyzed for chlorinated volatile organic compounds (cVOCs) by EPA Method 8260C from locations along the western Property boundary.

Soil analytical results are summarized in Table 1 and presented on Figure 3. Based on the analytical data, TPHg, TPHd, TPHo, benzene, ethylbenzene, total xylenes, and naphthalene were detected above their respective MTCA Method A cleanup levels, and these analytes comprise the COPCs in soil at the Site. The following locations and depths contained one or more COPCs at concentrations greater than their respective MTCA Method A cleanup level (Table 1, Figure 3):

- B-07 at a depth of 8 feet bgs
- MW-11 at depths of 1 and 6 feet bgs
- MW-15 at depths of 10.5, 13, and 17.5 feet bgs
- MW-22 at a depth of 16 feet bgs
- MW-23 at depths of 18 and 25 feet bgs

The remaining soil borings did not contain detectable concentrations of TPHg or other Site COPCs. Additionally, no cVOCs were detected in soil from borings along the western Property boundary (B-08, GP-04, MW-12, MW-13, MW-14, MW-18, and MW-19; Table 1) and closest to the former dry cleaner. Laboratory analytical reports are included as Appendix B. Data validation reports are included as Appendix C.

#### 2.4.2 Groundwater Elevation and Analytical Results

Groundwater occurs in the fill and weathered glacial till at the Site (Figure 4). Groundwater was gauged at depths ranging between approximately 8 and 16 feet bgs, corresponding to elevations of 431 to 442 feet (NAVD88¹) during the four monitoring events performed from August 2019 to November 2020 (Table 3). During each event, the groundwater flow direction was to the southwest at an average horizontal hydraulic gradient of 0.05 foot/foot (Figure 5).

During three of the four groundwater sampling events, LNAPL was present in monitoring wells MW-3, MW-4, MW-5, MW-8, and MW-15, and these monitoring wells were therefore not sampled. In August 2020, no LNAPL was measured at MW-4 or MW-8, and groundwater samples were collected. Groundwater samples were submitted to Friedman & Bruya, Inc. and analyzed for the following COPCs:

- TPHg by Ecology Method NWTPH-Gx
- TPHd and TPHo by Ecology Method NWTPH-Dx
- Naphthalene by EPA Method 8260C
- BTEX, EDB, EDC, and MTBE by EPA Method 8260C (August and November 2019 only)
- Total lead by EPA Method 6010C (August and November 2019 only)

Additionally, samples from monitoring wells closest to the former dry cleaner operation were analyzed for cVOCs by EPA Method 8260C. Laboratory analytical reports are included as Appendix B; data validation reports are included in Appendix C.

Groundwater analytical results are summarized in Table 4. Analytical results from the two 2020 events are presented on Figure 5. Based on the analytical data, TPHg, TPHd, TPHo, BTEX, and naphthalene were detected above their respective MTCA Method A cleanup levels. The following locations contained one or more COPCs at concentrations greater than the respective MTCA Method A cleanup levels (Table 4, Figure 5): MW-1, MW-2, MW-4, MW-8, MW-9, MW-10, MW-11, MW-13, MW-14, MW-17, MW-18, MW-21, MW-22, and MW-23.

Based on recent groundwater data, the groundwater plume has been delineated to the east and southeast (Figure 5). Based on the results of the two sampling events, it is apparent that results at the edges of the groundwater plume show seasonal variability (Figure 4). This may be due to groundwater contacting more residual, sorbed-phase petroleum hydrocarbon impacts present in the smear zone during certain seasons and also may be attributable to increased groundwater flow during certain conditions.

## 2.4.3 Soil Gas Analytical Results

A total of 16 unique soil gas samples (not including quality control samples) were collected in July 2019, August 2020, and November 2020 events and submitted to Friedman & Bruya, Inc. for analysis of the following:

<sup>&</sup>lt;sup>1</sup> Elevations presented in feet referenced to North American Vertical Datum of 1988 (NAVD88).

- BTEX and naphthalene by EPA Method TO-15
- Aliphatic and aromatic hydrocarbons by Massachusetts Department of Environmental Protection Air-Phase Petroleum Hydrocarbons (MA APH)

Additionally, samples collected during the July 2019 event were analyzed for EDB, EDC, and MTBE by EPA Method TO-15.

Soil gas sampling results are summarized in Table 5 and the August 2020 and November 2020 results are presented on Figure 6. The concentration for TPH was calculated as the sum of aliphatic hydrocarbons, aromatic hydrocarbons, and gas-range volatile organic compounds (VOCs) and was compared to the generic total petroleum hydrocarbon screening level.<sup>2</sup> Total petroleum hydrocarbons exceeded the MTCA Method B subslab screening level for unrestricted use at the following locations:

- GP-03 during all three events.
- GP-05 during the November 2020 sampling event (the only sampling event for this location).
- SVS-01 during the August 2020 sampling event.

Individual analytes, including carcinogenic compounds, were not detected above their respective MTCA Method B subslab screening levels (Table 5). EDB, EDC, and MTBE were not detected in soil gas. Laboratory analytical reports are included as Appendix B, and data validation reports are included in Appendix C.

\_

<sup>&</sup>lt;sup>2</sup> The generic subslab TPH screening level is based on the generic TPH indoor air cleanup level of 140 ug/m<sup>3</sup> and an attenuation factor of 0.03 in accordance with Ecology's Implementation Memo No. 18 (Ecology, 2018a).

# 3 Interim Action Summary

The purpose of the Interim Action is to remove LNAPL and contaminated soils from the Property to the maximum extent practicable (considering Site constraints) and mitigate the potential exposure pathways at the Site. Excavation of the LNAPL source and surrounding soils exceeding MTCA cleanup levels will be performed as an Interim Action under AO No. 14315.

The Interim Action will consist of a planned excavation to an average depth of 18 feet bgs with the ability to overexcavate deeper to an average maximum depth of 30 feet bgs, if warranted based on soil performance monitoring. Demolition of the building and temporary shoring on the northern and western Property extents is required to remove the LNAPL source from the Property. The remedial excavation will be backfilled to original grade.

## 3.1 Objectives

The Interim Action will be conducted to achieve the following objectives:

- Remove the LNAPL source of contamination at the Site.
- Achieve soil remediation levels at the excavation limits, to the extent practicable.
- Remove potential sources of contamination to groundwater and soil gas, including both LNAPL and petroleum hydrocarbons sorbed to soil as mentioned above, mitigating potential off-Property soil vapor intrusion risks.

#### 3.2 Exposure Pathways

The goal of an Interim Action is "to reduce a threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous substance" (WAC 173-340-430(1)(a)). The following exposure pathways are determined to be complete or potentially complete at the Site:

- LNAPL to Groundwater: The LNAPL to groundwater pathway is complete at the Site. LNAPL has accumulated at the water table and dissolves into groundwater.
- **Soil to Groundwater:** The soil to groundwater pathway is complete at the Site. Sorbed-phase contamination is present in and surrounding the LNAPL body and leaches to groundwater.
- Vapor Intrusion (VI): The vapor intrusion pathway is potentially complete at the Site.

These exposure pathways serve as a basis of the Interim Action. The exposure pathway assessment for the Site will be presented in the RI Report.

#### 3.3 Basis of Interim Action

The primary purpose of the Interim Action is to remove LNAPL and contaminated soils from the Property to mitigate the potential exposure pathways at the Site. LNAPL has

#### **ASPECT CONSULTING**

accumulated at the groundwater interface and is a continuing source of contamination to groundwater and soil gas at the Site. Based on environmental investigations conducted to date, the product released migrated vertically through the vadose zone (which consists of loose fill material) and accumulated at capillary contacts (the fill/till interface and/or groundwater table). The LNAPL migrated downgradient to the southwest through gravity and capillary forces on the surface of the water table.

Over the entire historical monitoring record, LNAPL thickness has varied at monitoring wells MW-3, MW-4, MW-5, MW-8 and MW-15, with the following maximum observed thicknesses:

- 0.39 feet in MW-3,
- 0.32 feet in MW-4,
- 1.12 feet in MW-5,
- 0.61 feet in MW-8, and
- 0.66 feet in MW-15.

LNAPL has not accumulated at MW-23, which bounds the downgradient LNAPL extent to the Property. The LNAPL extent is estimated as 3,100 square feet (sf) and is shown on Figure 2. A large portion of the LNAPL extent is underneath the existing building at the Property.

Seasonally, the thickness in LNAPL wells can decrease to 0 feet during high groundwater elevations. Seasonal groundwater elevation fluctuations are significant at the Site, varying between 5.02 feet at MW-08 and up to 7.25 feet at MW-09 over the 13-year monitoring record. This groundwater seasonality controls the observed LNAPL thicknesses in monitoring wells.

Based on the groundwater seasonality, the estimated LNAPL smear zone thickness is approximately 5 to 7 feet. The bottom of the smear zone was observed between 6 and 13 feet bgs in the vicinity of the release, and 10 to 18 feet bgs at the most downgradient LNAPL well, MW-15. It is possible that LNAPL accumulated at the groundwater interface at a rate greater than it could migrate downgradient, creating a slight hydraulic head which would allow LNAPL migration in the apparent upgradient direction of MW-5 and MW-8 and potentially off the Property to the north. The northern LNAPL extents have been bound by MW-17: there is a 16-inch diameter, high-pressure water main and major fiber optic corridor in the sidewalk and a high-pressure natural-gas main in the southern lane of 196th Street SW. MW-17 was placed as close to MW-8 as these utilities allowed.

The excavation and off-Site disposal of the contaminated soils associated with the LNAPL source zone at the Site is the basis of the Interim Action.

#### 3.4 Remediation Levels

COPCs at the Site were refined based on the analytical data collected during historical and current RI activities<sup>3</sup>. The following COPCs were identified for each environmental media:

• Soil: BTEX, TPHg, TPHd, TPHo, and naphthalene

• Groundwater: BTEX, TPHg, TPHd, TPHo, and naphthalene

• Soil Gas: Benzene, TPH

For the purposes of this interim soil removal action, soil remediation levels have been established. Because cleanup levels have not yet been determined for the Site, the Interim Action will target soil compliance with remediation levels defined for the Interim Action in accordance with WAC 173-340-355 and 173-340-360. The soil remediation levels for Site COPCs are the MTCA Method A cleanup levels, as shown in Table B.

Analyte	Soil Remediation Level (milligrams per kilogram [mg/kg])
TPHg	30
TPHd	2,000
TPHo	2,000
Benzene	0.03
Toluene	7
Ethylbenzene	6
Total Xylenes	9
Naphthalene	5

Table B. Soil Remediation Levels

#### 3.5 Soil Removal

The excavation and off-Site disposal of the contaminated soils associated with the LNAPL source zone at the Site is the first Interim Action objective. The second Interim Action objective is to achieve the remediation levels at the excavation extents, to the extent practicable. This section estimates to the soil excavation extents, in order to meet this objective.

Soil exceedances have been laterally delineated in all directions (Figure 3). The RI soil analytical results have vertically delineated cleanup level exceedances at depths of 16 to 25 feet bgs in areas close to the LNAPL footprint (MW-15 and MW-22) and at depths up to 8 feet bgs outside the LNAPL footprint (B-07 and MW-11).

Soil was not vertically delineated at locations MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-9, MW-10, and MW-23. At these locations, only benzene exceeded

<sup>&</sup>lt;sup>3</sup> EDB, EDC, MTBE, Lead, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) have all been eliminated as COPCs at the Site and approved by Ecology in the RIWP Addendum (Aspect, 2020).

the MTCA Method A cleanup level in each of the deepest analytical results from each boring. Table C below shows the maximum depth where analytical data was acquired for each of these locations; all soil analytical results are available in the attached Table 1.

**Table C. Locations Lacking Vertical Delineation** 

Location	Depth (feet bgs)	Benzene Soil Concentration (milligrams per kilogram [mg/kg])
MW-1	27.5	0.14
MW-2	17.5	0.33
MW-3	17.5	0.53
MW-4	17.5	0.24
MW-5	17.5	0.09
MW-6	20	0.0921
MW-8	20	0.0486
MW-9	20	0.104
MW-10	20	0.0532
MW-23	25	0.047

At MW-2 and MW-6, which are outside the source zone area, benzene was either not detected or was detected at concentrations less than the remediation level in shallower soil samples (Table 1). The exposure pathways at each location formed the basis for targeted removal during the interim action.

With respect to the exceedance at MW-6:

- At 15 feet bgs, no Site COPCs were detected in soil.
- At 20 feet bgs, only benzene exceeded the MTCA Method A cleanup level in soil; since the exceedance is 20 feet deep, there is not a direct contact exposure risk, and the exceedance is outside the vertical separation screening distance for vapor intrusion.
- Benzene has never been detected in groundwater at MW-6 since sampling began in 2007, empirically demonstrating the historical soil exceedance does not present a current soil-to-groundwater exposure risk.
- Because benzene has never been detected in groundwater at MW-6, there is no potential groundwater-to-soil-gas VI exposure risk.

With respect to the exceedance at MW-2:

- At 12.5 feet bgs, benzene was detected but did not exceed the MTCA Method A cleanup level; no other Site COPCs were detected in soil.
- At 17.5 feet bgs, only benzene exceeded the MTCA Method A cleanup level in soil; since the exceedance is 17.5 feet deep, there is not a direct contact exposure risk, and the exceedance is outside the vertical separation screening distance for vapor intrusion as established in Ecology's *Updated Process for Initially Assessing the Potential for Petroleum Vapor Intrusion* (2016a).

- Benzene is detected but does not exceed soil gas screening levels at GP-2, GP-3, and GP-5, which are 20, 25, and 24 feet away from MW-2, respectively; however, the benzene concentration in groundwater at MW-2 exceeds groundwater screening levels for potential VI risk.
- Benzene in groundwater at MW-2 exceeds groundwater cleanup levels.

The historical soil exceedance at MW-6 does not present any current exposure risk and will not be targeted for removal during the IAWP. The lack of groundwater exceedances at MW-6 empirically demonstrates soil compliance at this location.

The MW-2 soil exceedance is not protective of groundwater and will be targeted for removal during the IAWP.

At the remaining locations (MW-1, MW-3, MW-4, MW-5, MW-8, MW-9, MW-10, and MW-23), the benzene concentrations observed in the deepest soil sample fall within one order of magnitude of the remediation level. Additionally, these benzene exceedances are orders of magnitude less than the exceedances detected at shallower depths within each soil boring. These shallower, larger magnitude benzene exceedances coincide with relatively high exceedances of other Site COPCs, including TPHg. Based on observed geology, groundwater flow is not expected to be significant in the very dense, unweathered glacial till from which these samples were collected. These exceedances may be due to drag down of shallower LNAPL and/or higher-concentration soils and groundwater during drilling.

The planned remedial excavation targets higher concentration exceedances of benzene that occur with TPHg exceedances and are located within the fill and weathered till that is present in the subsurface at the Site. The planned remedial excavation is also based on the expectation that compliance with remediation levels can potentially be achieved at or near the top of the unweathered glacial till. The IAWP remedial excavation design accommodates overexcavation of soils exceeding remediation levels to a maximum depth into the unweathered glacial till, if warranted by soil performance monitoring. The basis for the depths across the remedial excavation is presented in Table 6.

- Planned Excavation Limits The planned excavation depth is based on analytical results indicative of LNAPL and the Site geology as presented in Table 6. In cases where low-level benzene exceedances were detected, the blow counts presented in the boring logs (Appendix A) were used to infer the depth to the unweathered glacial till.
  - The areal planned excavation limits will be advanced to the maximum extent practicable. The practical limitations of soil excavation are (1) the right-of-way (ROW) and utilities in the ROW at the northern excavation limits, (2) the adjacent property and building at the western excavation limits, and (3) the adjacent property and building at the southern excavation limits. The temporary shoring will be designed to allow for the maximum areal extent of soil removal based on these practical constraints.
- Maximum Overexcavation Depth The shoring has been designed so that if compliance with the remediation levels is not achieved at the bottom of the

#### **ASPECT CONSULTING**

planned excavation depth, the shoring can be extended vertically to accommodate overexcavation of soil exceeding remediation levels. The basis for the maximum overexcavation depth at each location presented in Table 6 are the low-level benzene exceedances observed in historical borings.

The planned excavation depth for the majority of the excavation is 18 to 20 feet bgs (Table 6; Figure 7). Compliance with soil remediation levels will be confirmed during performance sampling associated with the excavation (Section 5), and the shoring has been designed to allow overexcavation to depths up to 30 feet bgs along the western shoring wall (near MW-1) and depths up to 22 feet bgs along the northern shoring wall (Table 6; Figure 8). Excavation will be conducted below the groundwater table, and limited groundwater to be managed is anticipated in the glacial till soils.

Based on the historical and current RI analytical data, approximately 1,800 cubic yards of potentially clean soil (as described further in Section 4.7) exists as overburden above the contaminated soil to be removed. The estimated volume of contaminated soil to be removed for the planned excavation is approximately 5,300 cubic yards. Up to an additional 3,000 cubic yards may be removed if the maximum possible overexcavation is conducted in order to achieve soil remediation levels (Table 7).

#### **4 Interim Action Elements**

This section describes specific work elements of the Interim Action.

## 4.1 Construction and Safety Requirements

The following is a summary of construction and safety requirements to be employed at the Site when contamination is encountered during redevelopment construction:

- All persons performing Site activities where they may contact hazardous
  materials, including petroleum hydrocarbon-impacted soil or groundwater, must
  have completed Hazardous Waste Operations and Emergency Response
  (HAZWOPER) training in accordance with the Occupational Safety and Health
  Administration Part 1910.120 of Title 29 of the Code of Federal Regulations, and
  be in possession of a current HAZWOPER certification card.
- All work must be performed in accordance with the contractor's site-specific health and safety plan (HASP). The HASP will include guidelines to reduce the potential for injury, as well as incident preparedness and response procedures, emergency response and evacuation procedures, local and project emergency contact information, appropriate precautions for potential airborne contaminants, and Site hazards, and expected characteristics of generated waste. The general contractor will operate under its own HASP, as will any subcontractor performing site activities where hazardous materials may be contacted. The Aspect HASP establishes procedures and practices to protect employees of Aspect from potential hazards associated with Interim Action activities. The HASP will be updated prior to the start of construction.
- A safety meeting will be conducted prior to the start of each workday to inform workers of changing work conditions, and to reinforce key safety requirements.

All work must be conducted in a manner consistent with federal, state, and local construction and health and safety standards applicable to the Site and to the work being performed. All companies are responsible for the health and safety of their own workers.

#### 4.2 Mobilization and Site Preparation

Mobilization and construction site preparation activities include:

- Mobilize construction equipment, materials, and utilities (e.g., electrical generators).
- Install temporary construction fencing.
- Building demolition, described below.
- Construct bermed and lined soil stockpile area(s) for soil handling.
- Construct temporary erosion and sediment controls (TESCs) per the TESC Plan.

- Remove or reroute any active utilities that may be impacted by the cleanup including water, gas, electric, and communication. This includes coordination with utility owners and deactivation as necessary.
- Decommission monitoring wells that are within the footprint of the planned excavation (Figure 7), as described in Section 4.3.

## 4.3 Monitoring Well Decommissioning and Replacement

Groundwater monitoring wells located within the footprint of the Interim Action excavation will be properly decommissioned, prior to the start of excavation, in accordance with the requirements of Chapter 173-160 WAC.

Fourteen monitoring wells will be decommissioned – MW-1, MW-3, MW-4, MW-5, MW-8, MW-9, MW-10, MW-11, MW-13, MW-14, MW-15, MW-20, MW-22, and MW-23 (Figure 7). Ecology well tags and resource protection well reports were located for all monitoring wells to be decommissioned. In accordance with WAC 173-160-640, monitoring wells will be decommissioned by filling the entire length of the casing with bentonite. Monitoring well decommissioning will be performed by a licensed driller. Off-Property monitoring wells located outside of the planned excavation footprint will be protected if practicable; otherwise, they will be decommissioned.

After the completion of the excavation and backfill, four monitoring wells will be installed in accordance with the procedures outlined in the Sampling and Analysis Plan/Quality Assurance Project Plan (SAP/QAPP; Appendix D). The replacement monitoring wells will be located based on the results of a groundwater monitoring event at remaining wells after the interim action. Replacement monitoring well locations will be proposed in the Interim Action Report (IAR) for Ecology approval.

## 4.4 Building Demolition

Demolition of the existing building is required to conduct the Interim Action. Prior to demolition, the contractor will subcontract a survey of regulated building materials (RBMs), including potentially asbestos-containing materials, lead-containing paints, polychlorinated biphenyl (PCB)-containing light ballasts, and mercury-containing fluorescent light bulbs and thermostat switches. All RBMs will be abated prior to demolition in accordance with local, state, and federal regulations. Building demolition requires a City of Lynnwood (City) demolition permit, discussed in Section 6.2 below.

Following abatement, Aspect will oversee the demolition of the aboveground portion of the building, and direct segregation of building materials potentially contaminated with petroleum hydrocarbons in accordance with Section 5.7. During demolition of the floor slab, Aspect will closely observe the underlying soils for evidence of petroleum hydrocarbon source zones and unanticipated subsurface structures such as USTs.

#### 4.5 UST and Hoist Removal

The contractor will remove the remaining three USTs during the Interim Action in accordance with Ecology's UST regulations (WAC 173-360A). One of the USTs was closed-in-place, and the closure status of the remaining two USTs is unknown (Table A). During removal, their condition, including whether they were previously abandoned-in-

place, will be documented. If any additional USTs are encountered during soil excavation activities, they will be removed in accordance with Ecology's UST regulations.

The condition and presence of the in-ground hoist shown on the original building construction diagrams is unknown. While hoists are not subject to the same regulations as USTs, the hoist may still contain hydraulic oil. Therefore, the hoist will be removed at the same time as the three remaining USTs and using similar means and methods. Any UST contents discovered during decommissioning, will be removed, handled, and disposed of in accordance with all state and federal regulations. Waste characterization sampling of contents will be conducted, if required for applicable disposal requirements.

## 4.6 Shoring Installation

Temporary shoring of the northern and western property boundaries is required to conduct the Interim Action. The shoring wall alignments, shown in plan view on Figure 7 and in section on Figure 8, are conceptual. Actual shoring wall alignments will be determined during design and permitting and be constrained by the ROW and utilities on the north wall, and the building on the adjacent property on the west wall. The design will target alignments as far north and west as possible, and as close to property boundary as these constraints, setbacks, and City permitting allows. The northern and western extents of contaminated soil excavation will be to the maximum extent practicable.

It is anticipated that a temporary soldier pile wall system will consist of wide-flange steel beams set into vertically drilled shafts typically installed at 6- to 8-foot horizontal spacing. Thick timber lagging would be placed to span between the soldier piles. The space behind the timber lagging would be backfilled with sand and gravel or controlled density fill (CDF) between the wall and surrounding sidewalks or buildings. The temporary shoring design will be prepared by a Washington-licensed geotechnical engineer, based on the remedial excavation requirements in this IAWP.

The estimated total length of temporary shoring is approximately 235 feet along the northern and western walls (Figure 7). The planned excavation limits require an exposed (retained) wall height of 20 feet on the northern and western walls. The temporary shoring will be designed to accommodate removal to the maximum overexcavation depth. Shoring will be designed to allow for a maximum of 22 feet exposure (bgs) on the north wall and 30 feet exposure (bgs) on the west wall. Section views shown on Figure 8 indicate the planned and maximum excavation extents.

# 4.7 Soil Segregation, Handling, Management, and Monitoring

Soil within the remedial excavation and from the locations of the soldier piles has been delineated into management categories according to the results of past environmental sampling. Three soil management categories will be used during the Interim Action, which were established based on Ecology's guidance (2016b):

1. Petroleum-Contaminated Soil (PCS) – Soil containing Site COPCs above the MTCA Method A cleanup levels

- 2. Petroleum-Impacted Soil (PIS) Soil containing detectable concentrations of Site COPCs but at concentrations less than the MTCA Method A cleanup levels
- 3. Potentially Clean Soil

The following sections define each management category, describe handling requirements, and provide acceptable soil disposal facilities for each.

#### 4.7.1 Identification of Impacted and Contaminated Soils

An Aspect field representative will be on-Site full-time to monitor excavation activities for evidence of contamination, including potentially unanticipated sources. Criteria to be used include, but are not limited to:

- Petroleum hydrocarbon staining, sheen, or chemical color hues in soil or standing water
- The presence of separate-phase petroleum hydrocarbon product or other chemicals.
- The presence of utility pipelines with sludge or trapped liquid indicating petroleum hydrocarbon product.
- The presence of buried pipes, conduits, or tanks.
- Vapors causing eye irritation or nose tingling or burning.
- The presence of gasoline- or oil-like odors.

When evidence of PIS or PCS is encountered, an Aspect field representative will use visual and PID field screening techniques to assess the extent of contamination and instruct the contractor in segregation of PCS/PIS vs. potentially clean soils. Field screening methods include visual (staining and sheen testing), olfactory indicators, and headspace vapor screening using a photoionization detector (PID). If the PID response is greater than 10 parts per million, the soil will be segregated as PIS and/or PCS pending further characterization. Field segregation of soils will follow Ecology guidance, and soils impacted with petroleum hydrocarbons will be managed in accordance with Ecology's *Guidance for Remediation of Petroleum Contaminated Sites* (Ecology, 2016b) and as outlined below. If other soil contaminants or other conditions are encountered, an appropriate environmental response will be developed on a case-by-case basis.

#### 4.7.2 Soil Excavation, Segregation and Stockpiling

The estimated extents of excavation for the Interim Action are shown on Figure 7 and in section views on Figure 8. Excavation will be implemented to first remove the delineated LNAPL source zone and continue to the planned excavation limits, or until field screening indicates the absence of petroleum hydrocarbon impacts, whichever is shallower. This remedial excavation design is based on the current understanding of subsurface conditions and the Interim Action objectives in Section 3.1.

Throughout the excavation, an Aspect representative will field screen for evidence of contamination and direct segregation of all excavated materials. Excavated soils that are known to be contaminated based on analytical data presented herein (or field-determined) may be direct-loaded and hauled to the selected off-Site treatment/disposal facility as

PCS. It may be necessary to temporarily stockpile soils for final categorization and subsequent handling based on laboratory analytical results. Any stockpiling will include the following requirements:

- If stockpiles are staged on pavement, the stockpiles must be underlain with plastic sheeting of 10-mil minimum thickness, with adjacent sheeting sections overlapping a minimum of 3 feet.
- If stockpiles are staged on pervious surfaces (soil), all stockpiles must be separated from underlying soil if the underlying soil is not known to be PCS based on previous environmental sampling.
- The perimeter of stockpiles will be surrounded by a berm or other erosion control measure as identified in the TESC to prevent run-on and/or runoff of precipitation.
- All stockpiles will be covered with plastic sheeting of 6-mil minimum thickness when not in use, and the cover will be anchored to prevent it from being disturbed by wind.
- Analytical testing will be conducted at the frequency prescribed in Ecology's guidance (2016b).

#### 4.7.3 Soil Sampling and Analysis

Stockpiles will be sampled at the frequency prescribed in Ecology's guidance (2016b) and provided in Table D, below.

Cubic Yards of Soil	Number of Analytical Samples
0 – 100	3
101 – 500	5
501 – 1,000	7
1,001 – 2,000	10
> 2,000	10 + 1 for each additional 500 cubic yards

Table D. Stockpile Sampling Frequency

Stockpile samples will be collected and submitted for laboratory analysis of Site COPCs in accordance with the SAP/QAPP (Appendix D).

#### 4.7.4 Soil Profiling and Off-Site Treatment/Disposal

The soil removal action has been designed and permitted in compliance with Washington State Dangerous Waste Regulations (WAC 173-303).

cVOCs have not been detected in soil samples collected from the Property. Samples have been analyzed for cVOCs on the west and south portions of the Site, near the former Slater's One Hour Cleaners at locations GP-04, B-08, MW-12, MW-13, MW-14, and

MW-18 (Table 1). Similarly, cVOCs were not detected in groundwater at on-Property monitoring wells MW-13 and MW-18. Vinyl chloride was detected in groundwater at monitoring MW-14, which is in the southwest portion of the Property (Table 4). At this location, the sloping for the remedial excavation is expected to remain in the vadose zone. Therefore, a Contained-In Determination will not be required to dispose of the PCS soils.

All soil and debris removed that is designated as PIS or PCS will be loaded and transported off-Site for disposal. Based on historical and current RI analytical data, all of the contaminated soil at the Site would exceed the criteria for PIS and would be profiled as PCS. Therefore, for the purposes of this IAWP, if suspected PIS and/or PCS is direct loaded, it must be presumed to be PCS and disposed of at a permitted Subtitle D landfill. Trucks transporting contaminated materials from the Site will comply with applicable state and federal regulations and local ordinances and will be covered from the time they are loaded on-Site until they off-load at the designated off-Site disposal facility.

If suspected PCS is stockpiled, and analytical testing indicates that Site COPCs are detected at concentrations less than remediation levels, the soil may be designated as PIS in accordance with Ecology's guidance (2016b). PIS is not suitable for reuse at the Site due to the shallow depth to groundwater. However, PIS may be disposed of at alternative disposal facility, such as Cadman's permitted Class 2 landfill, provided that petroleum-impacted soil meets the selected disposal facility's permit criteria in accordance with WAC 173-340.

# 4.8 Water Management

Management of water is necessary to advance the remedial excavation to the planned excavation limits. Water generated during the cleanup action will consist of groundwater and any stormwater entering the excavation. The groundwater quantities anticipated are low, and excavation water will be managed with sumps installed in the bottom of the excavation. Limited volumes of drainable LNAPL are expected within the excavation area, whereas the majority of the LNAPL body is expected to be residually trapped within the pore spaces of the soil matrix. Any drainable LNAPL will be managed in accordance with all local and state requirements. The IAWP implementation will target dry season to minimize water quantities to be managed.

All generated water will be pumped to tanks and handled in accordance with all local and state requirements by either hauling for disposal off-Site, or by a permitted discharge to a sanitary sewer in accordance with applicable permit requirements by the City and/or Snohomish County. If a permitted discharge is required, all permit treatment, monitoring and discharge requirements will be met. CVOCs were not detected in the groundwater on the Property; however, if they did occur in water generated, they would be treated using the same treatment process for the high concentrations of petroleum hydrocarbons and discharged in accordance with permit conditions and all local and state requirements.

#### 4.9 Excavation Backfill

The backfill of the excavation will be conducted in phases during and following completion of discrete areas of remedial excavations. Assuming that the base of excavation is completely dewatered, these areas will be backfilled within 1 foot of final

grade with material meeting the requirements for Washington State Department of Transportation (WSDOT) Standard Specification for Gravel Borrow 9-03.14(1). Within 1 foot of final grade, the excavation will be backfilled with material meeting WSDOT Standard Specification for Crushed Surfacing 9-03.9(3).

The backfill material should only be placed on a relatively firm and unyielding subgrade, free from soft or disturbed material, standing water or organic material. The exposed subgrade soils will be compacted (in place) to a dense and unyielding condition prior to placement of backfill. The subgrade preparation should be observed by the geotechnical engineer prior to placement of backfill.

The backfill will be compacted to a relatively firm and unyielding condition to a minimum density of 95 percent of the maximum dry density as determined by ASTM International (ASTM) D1557 (ASTM, 2020). Backfill should be placed in lifts with a loose thickness no greater than 12 inches when using relatively large compaction equipment, such as a vibrating plate attachment to an excavator (hoe pack) or a drum roller). If small, hand-operated compaction equipment is used to compact structural fill, lifts should not exceed 6 inches in loose thickness.

Moisture content of the fill will be controlled to within 3 percent of optimum moisture during placement and will be wet of optimum moisture below the static groundwater table. Optimum moisture content shall correspond to the laboratory determined maximum modified proctor density.

# 5 Compliance Monitoring

In accordance with WAC 173-340-410, compliance monitoring includes the following elements:

- **Protection monitoring** confirms that human health and the environment are adequately protected during the Interim Action.
- **Performance monitoring** confirms that the cleanup action has attained Interim Action remediation levels and/or other performance standards, such as permit requirements.
- Confirmation monitoring confirms the long-term effectiveness of the cleanup action once cleanup levels and/or other performance standards have been attained.

For this Interim Action, protection and performance monitoring will be conducted, as outlined below. Confirmation monitoring will be conducted as part of the final cleanup action for the Site, not as part of this Interim Action.

## **5.1 Protection Monitoring**

Protection monitoring of human health will be conducted during the Interim Action by requiring that on-Site workers conducting the soil handling and management are appropriately trained and aware of environmental exposure hazards with conduct of the work. Aspect's HASP for the Interim Action will be updated prior to the initiation of any field work. The contractor will prepare and comply with their own HASP.

Protection monitoring includes real-time air monitoring within the worker breathing zone and at the downgradient property boundary. The air monitoring is discussed in Aspect's HASP. Air monitoring data will be made available to on-Site workers and Ecology. Nothing in this IAWP precludes contractors/consultants on-Site from choosing to conduct additional air monitoring. Fugitive dust emissions will be monitored and managed by the Contractor and as required by the City.

Protection monitoring of the environment will occur via implementation and regular inspection of the TESC, complying with any dewatering discharge authorization requirements, and soil profiling and disposal in accordance with Washington State Dangerous Waste Regulations (WAC 173-303).

# 5.2 Performance Monitoring and Overexcavation

Soil performance monitoring will include laboratory analysis of both excavation sidewall and excavation bottom samples. The distance between soil samples will not exceed 20 feet laterally or 5 feet vertically, and closer sample spacing may be necessary. The samples will be submitted for laboratory analysis of Site COPCs described in Section 3.4 and in accordance with the SAP/QAPP (Appendix D).

Once the planned excavation limits are reached or when field screening indicates the absence of petroleum hydrocarbon impacts, excavation confirmation soil samples will be collected for laboratory analysis to confirm compliance with the Interim Action

remediation levels (Section 3.4). The soil samples will be collected from within the excavation using the excavator bucket or by hand if safely accessible to a worker in accordance with the SAP/QAPP (Appendix D). Excavation bottom samples will be collected on a systematic grid coinciding with pile locations in the final shoring design; bottom grid spacing will not exceed 20 feet by 20 feet. The sampling grid boundary will correspond to the remedial excavation area, and bottom samples will be collected from within the base of the excavation. Sidewall samples will be collected from behind the shoring wall and from the slope cuts on the south and east sides of the excavation; sidewall grid spacing will not exceed 20 feet laterally or 5 feet vertically. Within each grid area, Aspect will field-screen the soil for evidence of contamination.

Soil samples will be obtained at the bottom elevations, as follows:

- If there are no field screening indicators of contamination within the entire grid area, a single soil sample will be collected for analysis from the approximate center of the square area (one sample per maximum 20-foot by 20-foot square) to document the remediation levels (Table B) have been met at depth.
- If field screening indicators of contamination are observed at the planned excavation limit, the area will be immediately overexcavated by approximately 2 feet deep, and field screened.<sup>4</sup>
- This overexcavation process will be repeated until there are no field indicators of contamination, or until the maximum overexcavation depth is reached, whichever occurs first. Then excavation performance bottom samples will be collected as indicated above.

The shoring limits will be designed to accommodate overexcavation of contaminated soils to the maximum overexcavation depth. If contaminated soil cannot be safely or practicably overexcavated, it will be left in place and documented in the IAR. In areas where overexcavation is practicable and performed, a new bottom soil sample will be collected and evaluated for compliance with remediation levels.

The soil sampling and chemical analysis described above will be conducted in accordance with the SAP/QAPP (Appendix D).

.

<sup>&</sup>lt;sup>4</sup> Preliminary samples will be dual purposed; to document soil quality at the base of the planned excavation and to profile the stockpile as described above.

# 6 Permitting

## 6.1 Applicable or Relevant and Appropriate Requirements

The Interim Action will be performed under the Agreed Order, and it is therefore exempt from the procedural requirements of Chapters 70.94 (Washington Clean Air Act), 70.95 (Solid Waste Management Act), 70.105 (Hazardous Waste Management Act), 90.48 (Water Pollution Control), and 90.58 (Shoreline Management Act) Revised Code of Washington (RCW), and of laws requiring or authorizing local government permits or approvals. However, the Interim Action must still comply with the substantive requirements of such permits or approvals (WAC 173-340-520). In addition, the Interim Action is not exempt from federal permits.

The starting point for Applicable or Relevant and Appropriate Requirements (ARARs) is MTCA regulations (Chapter 173-340 WAC) that address implementation of a cleanup and define cleanup standards under the MTCA statute (Chapter 173.105D RCW). Other ARARs include, but are not limited, to the following:

- 1. State Water Pollution Control Act (Chapter 90.48 RCW)
- 2. Water Resources Act (Chapter 90.54 RCW)
- **3.** Applicable surface water quality criteria published in the water quality standards for surface waters of the State of Washington (Chapter 173-201A WAC)
- **4.** Applicable surface water quality criteria published under Sections 303(c) and 304 of the Clean Water Act
- **5.** Washington State Hazardous Waste Management Act (Chapter 70.105 RCW)
- **6.** State Dangerous Waste Regulations (Chapter 173-303 WAC)
- **7.** Solid Waste Management-Reduction and Recycling (Chapter 70.95 RCW)
- **8.** Minimum Standards for Construction and Maintenance of Wells (Chapter 173-160 RCW)
- **9.** Washington Clean Air Act (Chapter 70.94 RCW)
- **10.** Puget Sound Clean Air Agency Regulations (http://www.pscleanair.org)
- **11.** Occupational Safety and Health Act (OSHA), 29 Code of Federal Regulations (CFR) Subpart 1910.120
- **12.** Washington Industrial Safety and Health Act (WISHA)
- **13**. Archaeological and Cultural Resources Act (Chapter 27.53 RCW)
- **14.** State Environmental Policy Act (SEPA; Chapter 43.21C RCW, Chapter 197-11 WAC, and Chapter WAC 173-802)

## 6.2 Permitting and Substantive Requirements

The following permits have been identified for the Interim Action.

#### 6.2.1 City of Lynnwood

The City will require permits for the building demolition, shoring installation, and remedial excavation.

Concurrent with the public comment period on the Public Review Draft IAWP, a plan submittal to the City will initiate the City permit review and issuance outlined in this Section. The following permits will be required by the City for IAWP implementation:

- **Right-of-Way Use** Limited closure of lanes surrounding the Property may be necessary for equipment mobilizations, trucking and removal of soils, and equipment staging. The Contractor will apply for an ROW Use permit at a future date, as the need is identified.
- Tree Removal Class II Based on the number of trees to be removed, a class II tree removal permit will be required. The tree removal permit will be submitted with the Public Works Permit application. Replanting of trees will be required as part of post-construction site restoration.
- **Building Demolition** The building demolition permit will be required to remove the former service station building.
- **Grading** The grading permit will cover earthworks and shoring requirements for the project. The grading permit will be submitted with the Public Works Permit application.
- Industrial Waste, Limited Discharge The industrial waste permit (if necessary) for the excavation dewatering discharge to the public sewer system. The industrial waste permit will be submitted with the Public Works Permit application.
- **Sewer Capping** Once dewatering for the remedial excavation is complete, the sewer will need to be capped in accordance with the local, applicable code. The sewer capping permit will be submitted under the umbrella of a Public Works Permit application.

The permitting timeline is anticipated to be completed on a parallel schedule with the Ecology public comment process for the IAWP.

## 6.2.2 State Environmental Policy Act (SEPA)

The Interim Action activities comply with SEPA, Chapter 43.21C RCW by conducting a review in accordance with applicable regulatory requirements, including WAC 197-11-268, and Ecology Policy 130A (Ecology, 2004). A SEPA checklist for the Interim Action was submitted to Ecology with the Agency Review Draft and is included as Appendix E. Ecology determined that this IAWP will not have a probable significant adverse impact on the environment and issued a preliminary Determination of Nonsignificance for public review. The public review of the determination coincides with the comment period on

this Public Review Draft IAWP. The final SEPA determination will be issued by Ecology and included in the Ecology-approved Final IAWP.

#### 6.2.3 Archaeological Resources

An Inadvertent Discovery Plan (IDP) was submitted to Ecology with the Agency Review Draft IAWP and is included as Appendix F. In accordance with the IDP, if potential archaeological materials are observed in the excavation, work will be stopped, and a professional archaeologist will be mobilized to the excavation location to observe and assess the materials encountered and determine the appropriate path forward in accordance with applicable laws and regulations. The Washington State Archaeologist will be notified in accordance with requirements of the Department of Archaeology and Historic Preservation (DAHP). The IDP will be included in the Ecology-approved Final IAWP.

## 7 Reporting

Within 90 days of completing the Interim Action construction activities and receipt of all construction reporting and laboratory analytical data, the PLPs will submit to Ecology the Draft IAR required by the Agreed Order. Information provided in the Draft IAR will include a description of the lateral and vertical limits of excavations, the volume of contaminated material removed/landfilled, how the contaminated media was managed, volume of water managed during excavation, and the performance monitoring data. Certificates of Disposal for the waste disposition will also be included. Ecology's comments will be addressed in a Final IAR. The Final IAR will complete satisfaction of the Agreed Order requirements for the interim action.

The analytical data collected during the Interim Action will also be uploaded to Ecology's Environmental Information Management (EIM) database within 60 days after it being validated in accordance with WAC 173-340-840(5) and Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements).

## 8 Schedule

The anticipated schedule of the IAWP implementation follows the schedule set forth in the AO, Exhibit C, Table 2, as outlined below:

**Table E. Interim Action Schedule** 

Deliverable	Due Date
Public Review Draft IAWP and Ecology SEPA Determination	Due June 16, 2021
Public Comment Period	July 7 to August 3, 2021
Final Interim Action Work Plan	Due no later than 30 days after public notice and comment period closes - September 2, 2021
Ecology Review Draft IAR	Due no later than 90 days after IAWP completion
Final IAR	30 days after Ecology's approval of the Agency Review Draft IAR

The Final IAWP cannot be implemented until the City has issued permits required to satisfy local substantive requirements as identified in Section 6.2. Upon Ecology approval of the Public Review Draft IAWP, the design and permitting of the project will be initiated and with the goal of completing project permitting and contractor selection at the same time as the Final IAWP. Once permits have been issued by the City, Ecology will be notified of the Final IAWP implementation schedule. The IAWP implementation schedule will target the dry season to minimize water management during implementation.

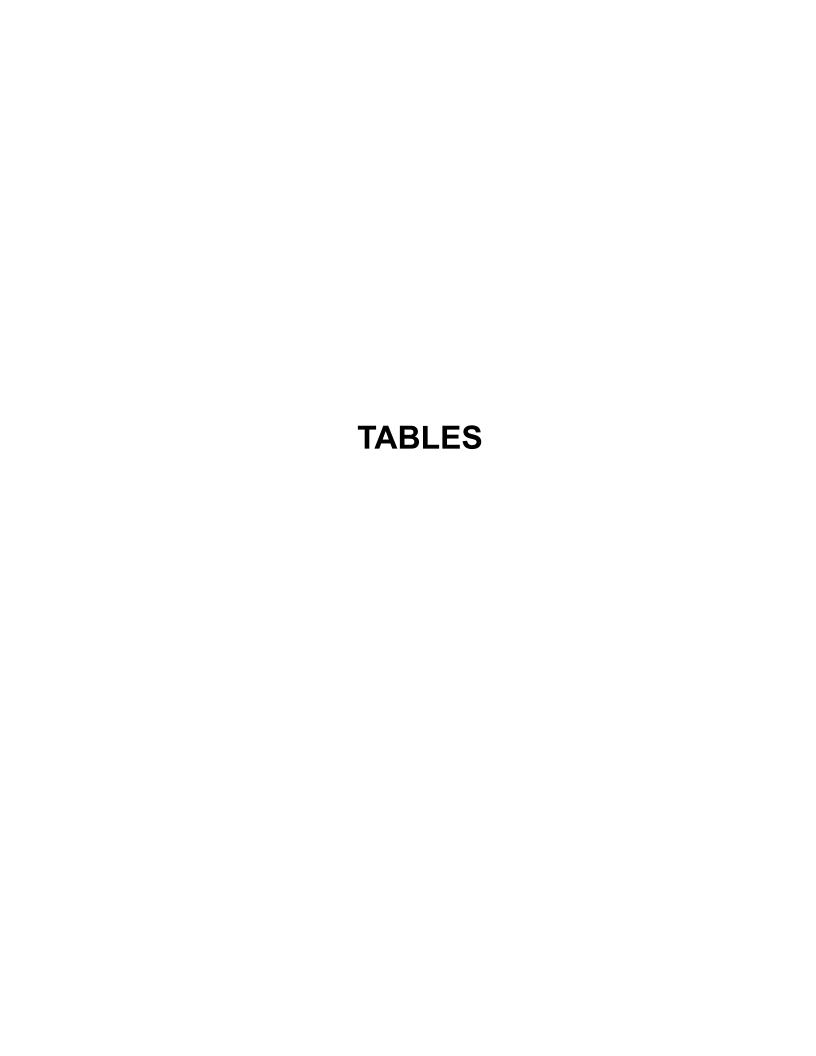
The completion of the IAWP will be reported in the IAR satisfying the interim action requirements of the Agreed Order.

## 9 References

- American Petroleum Institute (API), 2016, API LNAPL Transmissivity Workbook: A Tool for Baildown Test Analysis User Guide, Publication 4762, dated April 2016.
- Aspect Consulting, LLC (Aspect), 2019, Remedial Investigation Work Plan, Texaco Strickland Cleanup Site, 6808 196th Street Southwest, Lynnwood, Washington. March 6, 2019.
- Aspect Consulting, LLC (Aspect), 2020, Remedial Investigation Work Plan Addendum, Texaco Strickland Cleanup Site, 6808 196th Street Southwest, Lynnwood, Washington. Dated May 28, 2020.
- ASTM International (ASTM), 2018, 2018 Annual Book of ASTM Standards, West Conshohocken, Pennsylvania.
- Conestoga-Rovers & Associates (CRA), 2011, Remedial Investigation Report, Former Jiffy Lube Facility, 6808 196th Street Southwest, Lynnwood, Washington. August 17, 2011.
- Conestoga-Rovers & Associates (CRA), 2014, Subsurface Investigation Report, Former Jiffy Lube Facility, 6808 196th Street Southwest, Lynnwood, Washington. October 2014.
- Environmental Associates, Inc. (EA), 2016a, Limited Subsurface Sampling & Testing, Chri-Mar Apartments, 19618-19628 68th Avenue West, Lynnwood, Washington. February 19, 2016.
- Environmental Associates, Inc. (EA), 2016b, Limited Air Sampling and Testing, Chri-Mar Apartments, 19618-19628 68th Avenue West, Lynnwood, Washington. March 22, 2016.
- Environmental Associates, Inc. (EA), 2018, Well Installation and Soil Boring Report, Chri-Mar Apartments, 19618-19628 68<sup>th</sup> Ave West, Lynnwood, Washington. October 24, 2018.
- FINEnvironmental (FINE), 2003, Phase I Environmental Site Assessment Limited Compliance Audit, January 28, 2003.
- GeoEngineers, Inc., 2004, Limited Phase I Environmental Site Assessment, February 11, 2004.
- Nowicki & Associates (Nowicki), 1995a, UST Closure Site Characterization, Lynnwood Quaker State Lube, 6808 196th Street Southwest, Lynnwood, Washington. September 27, 1995.
- Nowicki & Associates (Nowicki), 1995b, Waste Oil UST Characterization Soil Boring, Lynnwood Q Lube, 6808 196th Street Southwest, Lynnwood, Washington. November 20, 1995.

#### **ASPECT CONSULTING**

- United States Geologic Survey (USGS), 1983, Geologic Map of the Edmonds East and Part of the Edmonds West Quadrangles, Washington.
- Washington State Department of Ecology (Ecology), 2016a, Updated Process for Initially Assessing the Potential for Petroleum Vapor Intrusion, Implementation Memorandum No. 14, Publication No. 16-09-046, dated March 31, 2016.
- Washington State Department of Ecology (Ecology), 2016b, Guidance for Remediation of Petroleum Contaminated Sites, Publication 10-09-057, Revised June 2016.
- Washington State Department of Ecology (Ecology), 2018a, Petroleum Vapor Intrusion (PVI): Updated Screening Levels, Cleanup Levels, and Assessing PVI Threats to Future Buildings, Implementation Memorandum No. 18, Publication No. 17-09-043, dated January 10, 2018.
- Washington State Department of Ecology (Ecology) 2018b, Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, Publication No. 09-09-047, dated DRAFT, October 2009 and revised February 2016 and April 2018.



		Location		SB	l e	B1	SD1	-CAM
		Date	08/24/1995	08/24/1995	11/06/1995	11/06/1995	11/16/2006	11/16/2006
		Sample Name	SB-16"	SB-24"	SB1-12.5'	SB1-16'	SB1-CAM-7.5	SB1-CAM-12.5
	Dent	Sample Name h Below Ground Surface	1.33 ft	2 ft	12.5 ft	16 ft	7.5 ft	12.5 ft
	1	1	1.55 10	211	12.5 10	1010	7.510	12.510
Amelida	11	MTCA Method A Cleanup Level						
Analyte	Unit	Cleanup Level						
Total Petroleum Hydrocarbons (TPHs)		20			4400	45 H	4.54	40.0
Gasoline-Range Organics	mg/kg	30			4100	< 5 U	4.51	12.3
Diesel-Range Organics	mg/kg	2000	1400	630	< 50 U		< 10.8 U	< 11.4 U
Motor Oil-Range Organics	mg/kg	2000	5200	2000	< 100 U		< 27.1 U	< 28.6 U
Diesel and Oil Extended-Range Organics	mg/kg	2000						
ВТЕХ								
Benzene	mg/kg	0.03			18	< 0.1 U	0.14	0.73
Toluene	mg/kg	7			150	< 0.1 U	0.42	1.7
Ethylbenzene	mg/kg	6			57	< 0.1 U	< 0.08 U	0.18
Total Xylenes	mg/kg	9			280	< 0.3 U	< 0.24 U	0.9
Metals								
Lead	mg/kg	250					1.71	2.06
Pollycyclic Aromatic Hydrocarbons (PAHs	)							
Naphthalene	mg/kg	5					0.1138	0.0152
Total cPAHs TEQ	mg/kg	0.1					< 0.0195 U	< 0.0208 U
Polychlorinated Biphenyls (PCBs)								
Total PCBs (Sum of Aroclors)	mg/kg	1					< 0.0108 U	< 0.0115 U
Volatile Organic Compounds (VOCs)	· · · · · ·			•				
1,1,1-Trichloroethane	mg/kg	2						
1,1,2,2-Tetrachloroethane	mg/kg							
1,1,2-Trichloroethane	mg/kg							
1,1-Dichloroethane	mg/kg							
1.1-Dichloroethene	mg/kg		 					
1,1-Dichloropethene	mg/kg		<u></u>					
1,2,3-Trichlorobenzene	mg/kg		 					
1,2,3-Trichloropenzene					<del>-</del>			
1,2,3-1 richioropropane 1,2,4-Trichlorobenzene	mg/kg							
	mg/kg							
1,2,4-Trimethylbenzene	mg/kg							
1,2-Dibromo-3-chloropropane	mg/kg							
1,2-Dibromoethane (EDB)	mg/kg	0.005					< 0.04 U	< 0.04 U
1,2-Dichlorobenzene	mg/kg							
1,2-Dichloroethane (EDC)	mg/kg						< 0.04 U	< 0.04 U
1,2-Dichloropropane	mg/kg							
1,3,5-Trimethylbenzene	mg/kg							
1,3-Dichlorobenzene	mg/kg							
1,3-Dichloropropane	mg/kg							
1,4-Dichlorobenzene	mg/kg							
2,2-Dichloropropane	mg/kg							
2-Butanone	mg/kg							
2-Chlorotoluene	mg/kg							
2-Hexanone	mg/kg							
4-Chlorotoluene	mg/kg		==					
4-Methyl-2-pentanone	mg/kg							
Acetone	mg/kg							
Bromobenzene	mg/kg		 					
Bromodichloromethane	mg/kg							
Bromoform	mg/kg		<del></del>					
Bromomethane					<b>.</b>			
	mg/kg							
Carbon Tetrachloride	mg/kg							
Chlorobenzene	mg/kg							
Chloroethane	mg/kg							
Chloroform	mg/kg							
Chloromethane	mg/kg							
cis-1,2-Dichloroethene (cDCE)	mg/kg							
cis-1,3-Dichloropropene	mg/kg							
Dibromochloromethane	mg/kg							
Dibromomethane	mg/kg							
Dichlorodifluoromethane	mg/kg							
Isopropylbenzene	mg/kg							
Methyl tert-butyl ether (MTBE)	mg/kg	0.1					< 0.41 U	< 0.39 U
Methylene Chloride	mg/kg	0.02						
n-Hexane	mg/kg							
n-Propylbenzene	1		<del></del>			 		
p-Isopropyltoluene	maiva							
sec-Butylbenzene	mg/kg					. <del></del>		
Jacu-Dulyinelizelle	mg/kg							
Styrono	mg/kg mg/kg							
Styrene	mg/kg mg/kg mg/kg							
tert-Butylbenzene	mg/kg mg/kg mg/kg mg/kg		  		  			
tert-Butylbenzene Tetrachloroethene (PCE)	mg/kg mg/kg mg/kg mg/kg mg/kg	0.05	  	  	  			
tert-Butylbenzene Tetrachloroethene (PCE) trans-1,2-Dichloroethene	mg/kg mg/kg mg/kg mg/kg mg/kg	0.05	   	   	   	  	  	
tert-Butylbenzene Tetrachloroethene (PCE) trans-1,2-Dichloroethene trans-1,3-Dichloropropene	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg		  	  	  			
tert-Butylbenzene Tetrachloroethene (PCE) trans-1,2-Dichloroethene trans-1,3-Dichloropropene Trichloroethene (TCE)	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.05	   	   	   	  	  	
tert-Butylbenzene Tetrachloroethene (PCE) trans-1,2-Dichloroethene trans-1,3-Dichloropropene	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg		   			  	   	   

mg/kg - milligrams per kilogram, ft = feet

Bold - Analyte detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- J Result value estimated
- $\ensuremath{\mathsf{UJ}}$  Analyte not detected and the Reporting Limit (RL) is an estimate
- X Chromatographic pattern does not match fuel standard used for quantitation

		Location	SB2	sw	ww	WW2	WW4	ВОТ
		Date	11/06/1995	08/22/1995	08/22/1995	08/22/1995	08/24/1995	08/24/1995
		Sample Name	SB2-15'	SW	ww	WW2	WW4	ВОТ
	Dept	h Below Ground Surface	15 ft	6 ft	6 ft	-	10 ft	9 ft
		MTCA Method A						
Analyte	Unit	Cleanup Level						
Total Petroleum Hydrocarbons (TPHs) Gasoline-Range Organics	mg/kg	30	640					
Diesel-Range Organics	mg/kg	2000		 < 25 U	5100		 < 25 U	27
Motor Oil-Range Organics	mg/kg	2000	<del></del>	< 50 U	13000		< 50 U	66
Diesel and Oil Extended-Range Organics	mg/kg	2000						
BTEX								
Benzene	mg/kg	0.03	2.4			< 0.1 U		
Toluene	mg/kg	7	15			< 0.1 U		
Ethylbenzene	mg/kg	6	7			< 0.1 U		
Total Xylenes Metals	mg/kg	9	33			< 0.3 U		
Lead	mg/kg	250						
Pollycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	mg/kg	5						
Total cPAHs TEQ	mg/kg	0.1						
Polychlorinated Biphenyls (PCBs)								
Total PCBs (Sum of Aroclors)	mg/kg	1						
Volatile Organic Compounds (VOCs)		2						
1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane	mg/kg mg/kg	2						
1,1,2,2-retractiloroethane	mg/kg							
1,1-Dichloroethane	mg/kg		<del></del>	<del></del>	<del></del>			
1,1-Dichloroethene	mg/kg							
1,1-Dichloropropene	mg/kg							
1,2,3-Trichlorobenzene	mg/kg							
1,2,3-Trichloropropane	mg/kg							
1,2,4-Trichlorobenzene	mg/kg							
1,2,4-Trimethylbenzene	mg/kg							
1,2-Dibromo-3-chloropropane 1,2-Dibromoethane (EDB)	mg/kg mg/kg	0.005						
1,2-Dichlorobenzene	mg/kg	0.000						
1,2-Dichloroethane (EDC)	mg/kg					< 0.1 U		
1,2-Dichloropropane	mg/kg							
1,3,5-Trimethylbenzene	mg/kg							
1,3-Dichlorobenzene	mg/kg		-					
1,3-Dichloropropane	mg/kg							
1,4-Dichlorobenzene	mg/kg							
2,2-Dichloropropane 2-Butanone	mg/kg mg/kg							
2-Chlorotoluene	mg/kg							
2-Hexanone	mg/kg							
4-Chlorotoluene	mg/kg							
4-Methyl-2-pentanone	mg/kg							
Acetone	mg/kg							
Bromobenzene	mg/kg							
Bromodichloromethane	mg/kg							
Bromoform Bromomethane	mg/kg mg/kg							
Carbon Tetrachloride	mg/kg mg/kg							
Chlorobenzene	mg/kg							
Chloroethane	mg/kg							
Chloroform	mg/kg							
Chloromethane	mg/kg							
cis-1,2-Dichloroethene (cDCE)	mg/kg							
cis-1,3-Dichloropropene	mg/kg							
Dibromochloromethane Dibromomethane	mg/kg							
Dichlorodifluoromethane	mg/kg mg/kg							
Isopropylbenzene	mg/kg							
Methyl tert-butyl ether (MTBE)	mg/kg	0.1						
Methylene Chloride	mg/kg	0.02						
n-Hexane	mg/kg							
n-Propylbenzene	mg/kg							
p-Isopropyltoluene	mg/kg							
sec-Butylbenzene	mg/kg							
Styrene tart-Butylbenzene	mg/kg							
tert-Butylbenzene Tetrachloroethene (PCE)	mg/kg mg/kg	0.05						
trans-1,2-Dichloroethene	mg/kg	0.03						
trans-1,3-Dichloropropene	mg/kg							
Trichloroethene (TCE)	mg/kg	0.03						
Trichlorofluoromethane	mg/kg							
THE INCIDITUOI OF THE CHARLES								

mg/kg - milligrams per kilogram, ft = feet

**Bold - Analyte detected** 

Blue Shaded - Detected result exceeded screening level U - Analyte not detected at or above Reporting Limit (RL) shown

J - Result value estimated

 $\ensuremath{\mathsf{UJ}}$  - Analyte not detected and the Reporting Limit (RL) is an estimate

		1 4:	DOT2	I MAN	N 4	MAX	V-2
		Location Date	BOT2 08/24/1995	11/16/2006	V-1 11/16/2006	11/17/2006	V-2 11/17/2006
		Sample Name	BOT2	GW1-17.5	GW1-27.5	GW2-12.5	GW2-17.5
	Dep	th Below Ground Surface	12.5 ft	17.5 ft	27.5 ft	12.5 ft	17.5 ft
		MTCA Method A					
Analyte	Unit	Cleanup Level					
Total Petroleum Hydrocarbons (TPHs)							
Gasoline-Range Organics Diesel-Range Organics	mg/kg	30 2000	 - 25 II	< 3.54 U < 10.9 U	<b>4.54</b> < 10.6 U	< 3.68 U	<b>9.49</b> < 11.2 U
Motor Oil-Range Organics	mg/kg mg/kg	2000	< 25 U < 50 U	< 10.9 U	< 10.6 U	< 27.4 U	< 11.2 U < 28.1 U
Diesel and Oil Extended-Range Organics	mg/kg	2000					
BTEX	99						
Benzene	mg/kg	0.03		0.16	0.14	0.02	0.33
Toluene	mg/kg	7		0.34	0.38	< 0.07 U	1
Ethylbenzene	mg/kg	6		< 0.07 U	< 0.07 U	< 0.07 U	0.87
Total Xylenes Metals	mg/kg	9		< 0.21 U	< 0.21 U	< 0.22 U	0.34
Lead	mg/kg	250		1.48	0.962	1.6	1.4
Pollycyclic Aromatic Hydrocarbons (PAHs)	99				0.002	1.0	
Naphthalene	mg/kg	5		< 0.0108 U	< 0.0106 U	< 0.0111 U	< 0.0113 U
Total cPAHs TEQ	mg/kg	0.1		< 0.0195 U	< 0.0192 U	< 0.0201 U	< 0.0205 U
Polychlorinated Biphenyls (PCBs)							
Total PCBs (Sum of Aroclors)	mg/kg	1		< 0.0108 U	< 0.0106 U	< 0.0111 U	< 0.0113 U
Volatile Organic Compounds (VOCs) 1,1,1-Trichloroethane	malka	2					
1,1,1-1 richioroethane 1,1,2,2-Tetrachloroethane	mg/kg mg/kg		 				
1,1,2-Trichloroethane	mg/kg						
1,1-Dichloroethane	mg/kg						
1,1-Dichloroethene	mg/kg						
1,1-Dichloropropene	mg/kg						
1,2,3-Trichlorobenzene	mg/kg						
1,2,3-Trichloropropane	mg/kg						
1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene	mg/kg mg/kg		<u></u>				
1,2-Dibromo-3-chloropropane	mg/kg						
1,2-Dibromoethane (EDB)	mg/kg	0.005		< 0.04 U	< 0.04 U	< 0.04 U	< 0.04 U
1,2-Dichlorobenzene	mg/kg						
1,2-Dichloroethane (EDC)	mg/kg			< 0.04 U	< 0.04 U	< 0.04 U	< 0.04 U
1,2-Dichloropropane	mg/kg						
1,3,5-Trimethylbenzene	mg/kg						
1,3-Dichlorobenzene	mg/kg						
1,3-Dichloropropane 1,4-Dichlorobenzene	mg/kg mg/kg		<u></u>				
2,2-Dichloropropane	mg/kg						
2-Butanone	mg/kg						
2-Chlorotoluene	mg/kg						
2-Hexanone	mg/kg						
4-Chlorotoluene	mg/kg						
4-Methyl-2-pentanone	mg/kg						
Acetone Bromobenzene	mg/kg mg/kg						
Bromodichloromethane	mg/kg				 		
Bromoform	mg/kg						
Bromomethane	mg/kg						
Carbon Tetrachloride	mg/kg						
Chlorobenzene	mg/kg						
Chloroform	mg/kg						
Chloroform Chloromethane	mg/kg mg/kg						
cis-1,2-Dichloroethene (cDCE)	mg/kg mg/kg						
cis-1,3-Dichloropropene	mg/kg		<del></del>				
Dibromochloromethane	mg/kg						
Dibromomethane	mg/kg						
Dichlorodifluoromethane	mg/kg						
Isopropylbenzene	mg/kg						
Methyl tert-butyl ether (MTBE) Methylene Chloride	mg/kg	0.1 0.02		< 0.35 U	< 0.36 U	< 0.37 U	< 0.43 U
n-Hexane	mg/kg mg/kg	0.02	<u></u>		 		
n-Propylbenzene	mg/kg						
p-Isopropyltoluene	mg/kg						
sec-Butylbenzene	mg/kg						
Styrene	mg/kg						
tert-Butylbenzene	mg/kg						
Tetrachloroethene (PCE)	mg/kg	0.05					
trans-1,2-Dichloroethene	mg/kg						
trans-1,3-Dichloropropene	mg/kg						
Trichloroethene (TCF)	ma/ka	0.03	_				
Trichloroethene (TCE) Trichlorofluoromethane	mg/kg mg/kg	0.03					

mg/kg - milligrams per kilogram, ft = feet

Bold - Analyte detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- J Result value estimated
- UJ Analyte not detected and the Reporting Limit (RL) is an estimate
- X Chromatographic pattern does not match fuel standard used for quantitation

							1	
		Location	MV 11/16/2006	V-3 11/16/2006	MV 11/17/2006	V-4 11/17/2006	MV 11/17/2006	V-5 11/17/2006
		Date Sample Name	GW3-7.5	GW3-17.5	GW4-7.5	GW4-17.5	GW5-7.5	GW5-17.5
	Dept	h Below Ground Surface	7.5 ft	17.5 ft	7.5 ft	17.5 ft	7.5 ft	17.5 ft
	- 1	MTCA Method A	7.0.1.	· · · · · ·	7.0 1.	111010	7.0.1	111010
Analyte	Unit	Cleanup Level						
Total Petroleum Hydrocarbons (TPHs)	<u> </u>	·						
Gasoline-Range Organics	mg/kg	30	1820	8.39	1060	8.57	1550	23.9
Diesel-Range Organics	mg/kg	2000	63.3	< 11.1 U	30.9	< 11 U	62.4	< 11 U
Motor Oil-Range Organics	mg/kg	2000	< 27.9 U	< 27.8 U	< 26.8 U	< 27.5 U	< 26.9 U	< 27.5 U
Diesel and Oil Extended-Range Organics	mg/kg	2000						
BTEX								
Benzene	mg/kg	0.03	8.6 99	0.53	0.48 12	0.24	0.97	0.09
Toluene Ethylbenzene	mg/kg mg/kg	7 6	25	0.85 0.12	8.2	<b>0.44</b> < 0.08 U	24 14	0.52 0.19
Total Xylenes	mg/kg	9	160	0.12	54	0.31	90	0.19
Metals	mg/kg	J .	100	0.55	34	0.51	30	0.5
Lead	mg/kg	250	6.69	1.55	2.35	1.58	4.64	1.33
Pollycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	mg/kg	5	5.86	< 0.0111 U	4.1	< 0.011 U	6.34	0.0127
Total cPAHs TEQ	mg/kg	0.1	< 0.0201 U	< 0.0201 U	< 0.0194 U	< 0.01991 U	< 0.0195 U	< 0.0201 U
Polychlorinated Biphenyls (PCBs)			10011111	0.455	100107::	10011	100100::	100111::
Total PCBs (Sum of Aroclors)	mg/kg	1	< 0.0111 U	0.109	< 0.0107 U	< 0.011 U	< 0.0108 U	< 0.0111 U
Volatile Organic Compounds (VOCs) 1,1,1-Trichloroethane	mg/kg	2		<del></del>		<del></del>		
1,1,2,2-Tetrachloroethane	mg/kg mg/kg	۷						
1,1,2-Trichloroethane	mg/kg		 					
1,1-Dichloroethane	mg/kg							
1,1-Dichloroethene	mg/kg							
1,1-Dichloropropene	mg/kg							
1,2,3-Trichlorobenzene	mg/kg							
1,2,3-Trichloropropane	mg/kg							
1,2,4-Trichlorobenzene	mg/kg							
1,2,4-Trimethylbenzene 1,2-Dibromo-3-chloropropane	mg/kg							
1,2-Dibromo-3-Chioropropane 1,2-Dibromoethane (EDB)	mg/kg mg/kg	0.005	< 0.04 U	 < 0.04 U	 < 0.04 U	 < 0.04 U	 < 0.04 U	 < 0.04 U
1,2-Dichlorobenzene	mg/kg	0.000						
1,2-Dichloroethane (EDC)	mg/kg		< 0.04 U	< 0.04 U	< 0.04 U	< 0.04 U	< 0.04 U	< 0.04 U
1,2-Dichloropropane	mg/kg							
1,3,5-Trimethylbenzene	mg/kg							
1,3-Dichlorobenzene	mg/kg							-
1,3-Dichloropropane	mg/kg							
1,4-Dichlorobenzene	mg/kg							
2,2-Dichloropropane 2-Butanone	mg/kg mg/kg							
2-Chlorotoluene	mg/kg		<u></u>					
2-Hexanone	mg/kg							<del></del>
4-Chlorotoluene	mg/kg							
4-Methyl-2-pentanone	mg/kg							
Acetone	mg/kg							
Bromobenzene	mg/kg							==
Bromodichloromethane	mg/kg							
Bromoform Bromomethana	mg/kg							
Bromomethane Carbon Tetrachloride	mg/kg mg/kg							
Chlorobenzene	mg/kg mg/kg							
Chloroethane	mg/kg							
Chloroform	mg/kg							
Chloromethane	mg/kg							
cis-1,2-Dichloroethene (cDCE)	mg/kg							
cis-1,3-Dichloropropene	mg/kg							
Dibromochloromethane	mg/kg							
Dibromomethane Dichlorodifluoromethane	mg/kg mg/kg							
Isopropylbenzene	mg/kg mg/kg							
Methyl tert-butyl ether (MTBE)	mg/kg	0.1	< 0.4 U	< 0.39 U	< 0.38 U	< 0.38 U	< 0.39 U	< 0.37 U
Methylene Chloride	mg/kg	0.02						
n-Hexane	mg/kg							
n-Propylbenzene	mg/kg							
p-Isopropyltoluene	mg/kg							
sec-Butylbenzene	mg/kg							
Styrene	mg/kg							
tert-Butylbenzene	mg/kg	0.05						
Tetrachloroethene (PCE) trans-1,2-Dichloroethene	mg/kg mg/kg	0.05						
trans-1,2-Dichloroethene	mg/kg mg/kg							
Trichloroethene (TCE)	mg/kg	0.03						
Trichlorofluoromethane	mg/kg							
Vinyl Chloride	mg/kg							

mg/kg - milligrams per kilogram, ft = feet

Bold - Analyte detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- J Result value estimated
- $\ensuremath{\mathsf{UJ}}$  Analyte not detected and the Reporting Limit (RL) is an estimate
- X Chromatographic pattern does not match fuel standard used for quantitation

<u> </u>					I BANA	IW-7 MW-8			
		Location Date	07/05/2007	V-6 07/05/2007	07/05/2007	v-7 07/05/2007	07/05/2007	v-8 07/05/2007	
		Sample Name	MW6@15'	MW6@20'	MW7@5'	MW7@20'	MW8@15'	MW8@20'	
	Dept	h Below Ground Surface	15 ft	20 ft	5 ft	20 ft	15 ft	20 ft	
		MTCA Method A							
Analyte	Unit	Cleanup Level							
Total Petroleum Hydrocarbons (TPHs)									
Gasoline-Range Organics	mg/kg	30	< 3.95 U	< 3.54 U	< 4.11 U	< 4.36 U	834	< 4.19 U	
Diesel-Range Organics	mg/kg	2000							
Motor Oil-Range Organics	mg/kg	2000							
Diesel and Oil Extended-Range Organics	mg/kg	2000							
BTEX	T	1							
Benzene	mg/kg	0.03	< 0.0158 U	0.0921	< 0.0164 U	< 0.0177 U	2.91	0.0486	
Toluene Ethylbenzene	mg/kg	7 6	< 0.079 U < 0.079 U	< 0.0708 U < 0.0708 U	<b>0.214</b> < 0.0822 U	< 0.0886 U < 0.0886 U	30.9 7.76	<b>0.161</b> < 0.0838 U	
Total Xylenes	mg/kg mg/kg	9	< 0.079 U	< 0.212 U	< 0.0822 U < 0.247 U	< 0.266 U	49.7	< 0.252 U	
Metals	IIIg/Kg	<b>J</b>	10.237 0	10.2120	10.247 0	10.2000	49.7	10.232 0	
Lead	mg/kg	250	1.49	1.93	2.34	1.85	3.29	1.46	
Pollycyclic Aromatic Hydrocarbons (PAHs)									
Naphthalene	mg/kg	5							
Total cPAHs TEQ	mg/kg	0.1				-			
Polychlorinated Biphenyls (PCBs)									
Total PCBs (Sum of Aroclors)	mg/kg	1							
Volatile Organic Compounds (VOCs)									
1,1,1-Trichloroethane	mg/kg	2							
1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane	mg/kg								
1,1,2-1 richioroethane	mg/kg mg/kg								
1,1-Dichloroethane	mg/kg								
1,1-Dichloropropene	mg/kg		 			 			
1,2,3-Trichlorobenzene	mg/kg								
1,2,3-Trichloropropane	mg/kg								
1,2,4-Trichlorobenzene	mg/kg								
1,2,4-Trimethylbenzene	mg/kg					-			
1,2-Dibromo-3-chloropropane	mg/kg					-			
1,2-Dibromoethane (EDB)	mg/kg	0.005	< 0.079 U	< 0.0708 U	< 0.0822 U	< 0.0886 U	< 0.0789 U	< 0.0838 U	
1,2-Dichlorobenzene	mg/kg								
1,2-Dichloroethane (EDC)	mg/kg		< 0.079 U	< 0.0708 U	< 0.0822 U	< 0.0886 U	< 0.0789 U	< 0.0838 U	
1,2-Dichloropropane	mg/kg								
1,3,5-Trimethylbenzene 1,3-Dichlorobenzene	mg/kg								
1,3-Dichloropenzene	mg/kg mg/kg								
1,4-Dichlorobenzene	mg/kg								
2,2-Dichloropropane	mg/kg								
2-Butanone	mg/kg								
2-Chlorotoluene	mg/kg								
2-Hexanone	mg/kg					1			
4-Chlorotoluene	mg/kg					-			
4-Methyl-2-pentanone	mg/kg								
Acetone	mg/kg								
Bromodichloromethane	mg/kg								
Bromodichloromethane Bromoform	mg/kg mg/kg		 						
Bromomethane	mg/kg mg/kg		<u></u>			<u></u>			
Carbon Tetrachloride	mg/kg		 			<del></del>	 	 	
Chlorobenzene	mg/kg								
Chloroethane	mg/kg								
Chloroform	mg/kg								
Chloromethane	mg/kg					-			
cis-1,2-Dichloroethene (cDCE)	mg/kg								
cis-1,3-Dichloropropene	mg/kg		-			1			
Dibromochloromethane	mg/kg								
Dibromomethane Dichlorodifluoromethane	mg/kg								
Isopropylbenzene	mg/kg								
Methyl tert-butyl ether (MTBE)	mg/kg mg/kg	0.1	< 0.39 U	 < 0.35 U	 < 0.41 U	< 0.44 U	< 0.39 U	 < 0.42 U	
Methylene Chloride	mg/kg	0.02							
n-Hexane	mg/kg	V.V2							
n-Propylbenzene	mg/kg								
p-Isopropyltoluene	mg/kg								
sec-Butylbenzene	mg/kg								
Styrene	mg/kg								
tert-Butylbenzene	mg/kg								
Tetrachloroethene (PCE)	mg/kg	0.05	1			1			
trans-1,2-Dichloroethene	mg/kg								
trans-1,3-Dichloropropene	mg/kg	0.00							
Trichloroethene (TCE) Trichlorofluoromethane	mg/kg	0.03							
Vinyl Chloride	mg/kg mg/kg								
ji emenae	9/12			1	<u></u>		-		

mg/kg - milligrams per kilogram, ft = feet

**Bold - Analyte detected** 

- U Analyte not detected at or above Reporting Limit (RL) shown
- J Result value estimated
- $\ensuremath{\mathsf{UJ}}$  Analyte not detected and the Reporting Limit (RL) is an estimate
- X Chromatographic pattern does not match fuel standard used for quantitation

Project No. 160357, Lynnwood, Washington					I 8414	1.40	T up op o
		Location Date	07/06/2007	N-9 07/06/2007	07/06/2007	/-10 07/06/2007	HB-SB-3 05/10/2010
		Sample Name	MW9@10'	MW9@20'	MW10@5'	MW10@20'	SO-241739-051010-HB-SB-3-5.0
	Dept	h Below Ground Surface	10 ft	20 ft	5 ft	20 ft	5 ft
Analyte	Unit	MTCA Method A Cleanup Level					
Total Petroleum Hydrocarbons (TPHs)							
Gasoline-Range Organics	mg/kg	30	< 0.0364 U	< 3.72 U	8.16	3.99	< 0.2 U
Diesel-Range Organics Motor Oil-Range Organics	mg/kg mg/kg	2000 2000					< 5 U < 5 U
Diesel and Oil Extended-Range Organics	mg/kg	2000					
BTEX	gg			ļ			
Benzene	mg/kg	0.03	0.248	0.104	0.119	0.0532	< 0.00083 U
Toluene	mg/kg	7	< 0.0854 U	< 0.0744 U	0.359	0.102	< 0.00083 U
Ethylbenzene	mg/kg	6	0.0854	< 0.0744 U	< 0.0756 U	0.131	< 0.00083 U
Total Xylenes Metals	mg/kg	9	< 0.256 U	0.327	< 0.227 U	< 0.228 U	< 0.0017 U
Lead	mg/kg	250	1.96	1.29	5.91	1.54	
Pollycyclic Aromatic Hydrocarbons (PAHs)				11-2		1141	
Naphthalene	mg/kg	5					
Total cPAHs TEQ	mg/kg	0.1					-
Polychlorinated Biphenyls (PCBs)		4					
Total PCBs (Sum of Aroclors)  Volatile Organic Compounds (VOCs)	mg/kg	1					
1,1,1-Trichloroethane	mg/kg	2					
1,1,2,2-Tetrachloroethane	mg/kg						
1,1,2-Trichloroethane	mg/kg						
1,1-Dichloroethane	mg/kg						
1,1-Dichloroptopo	mg/kg						
1,1-Dichloropropene 1,2,3-Trichlorobenzene	mg/kg mg/kg				<del></del>		
1,2,3-Trichloropenzene	mg/kg						
1,2,4-Trichlorobenzene	mg/kg						
1,2,4-Trimethylbenzene	mg/kg						
1,2-Dibromo-3-chloropropane	mg/kg						
1,2-Dibromoethane (EDB)	mg/kg	0.005	< 0.0854 U	< 0.0744 U	< 0.0756 U	< 0.0795 U	
1,2-Dichlorobenzene 1,2-Dichloroethane (EDC)	mg/kg mg/kg		 < 0.0854 U	 < 0.0744 U	 < 0.0756 U	 < 0.0794 U	 
1,2-Dichloropropane	mg/kg						
1,3,5-Trimethylbenzene	mg/kg						
1,3-Dichlorobenzene	mg/kg						
1,3-Dichloropropane	mg/kg						
1,4-Dichlorobenzene	mg/kg						
2,2-Dichloropropane 2-Butanone	mg/kg mg/kg						
2-Chlorotoluene	mg/kg						
2-Hexanone	mg/kg						
4-Chlorotoluene	mg/kg						
4-Methyl-2-pentanone	mg/kg						
Acetone Bromobenzene	mg/kg						
Bromodichloromethane	mg/kg mg/kg		 				
Bromoform	mg/kg						
Bromomethane	mg/kg						
Carbon Tetrachloride	mg/kg						
Chlorosthana	mg/kg						
Chloroethane Chloroform	mg/kg						
Chloromethane	mg/kg mg/kg						
cis-1,2-Dichloroethene (cDCE)	mg/kg						
cis-1,3-Dichloropropene	mg/kg		-				
Dibromochloromethane	mg/kg						
Dibromomethane Dichlorodifluoromethane	mg/kg						-
Isopropylbenzene	mg/kg mg/kg						
Methyl tert-butyl ether (MTBE)	mg/kg	0.1	< 0.43 U	< 0.37 U	< 0.38 U	< 0.4 U	
Methylene Chloride	mg/kg	0.02					-
n-Hexane	mg/kg						
n-Propylbenzene	mg/kg						
p-Isopropyltoluene sec-Butylbenzene	mg/kg						
Styrene	mg/kg mg/kg						
tert-Butylbenzene	mg/kg						
Tetrachloroethene (PCE)	mg/kg	0.05					
trans-1,2-Dichloroethene	mg/kg						
trans-1,3-Dichloropropene	mg/kg						,
Trichloroethene (TCE)	mg/kg	0.03					
Trichlorofluoromethane Vinyl Chloride	mg/kg mg/kg						
,	9/119			<u> </u>	<u> </u>		<u></u>

mg/kg - milligrams per kilogram, ft = feet

Bold - Analyte detected

Blue Shaded - Detected result exceeded screening level

U - Analyte not detected at or above Reporting Limit (RL) shown

J - Result value estimated

 $\ensuremath{\mathsf{UJ}}$  - Analyte not detected and the Reporting Limit (RL) is an estimate

		Location	HB-SB-4	D 05	D 06	l b	-07
		Location Date		B-05 06/10/2019	B-06 06/11/2019	06/12/2019	06/12/2019
		Sample Name	SO-241739-051010-HB-SB-4-5.0	B-05-16	B-06-13	B-07-8	B-07-12.5
	Dept	h Below Ground Surface	5 ft	16 ft	13 ft	8 ft	12.5 ft
		MTCA Method A	<u> </u>	1011	10 11	O II	12.0 10
Analyte	Unit	Cleanup Level					
Total Petroleum Hydrocarbons (TPHs)	<u> </u>						<u> </u>
Gasoline-Range Organics	mg/kg	30	< 0.24 U	< 5 U	< 5 U	87 J	< 5 U
Diesel-Range Organics	mg/kg	2000	6.1	< 50 U	< 50 U	< 50 U	< 50 U
Motor Oil-Range Organics	mg/kg	2000	47	< 250 U	< 250 U	< 250 U	< 250 U
Diesel and Oil Extended-Range Organics	mg/kg	2000		< 250 U	< 250 U	< 250 U	< 250 U
BTEX							
Benzene	mg/kg	0.03	< 0.001 U	< 0.02 U	< 0.02 U		
Toluene	mg/kg	7	0.0018	< 0.02 U	< 0.02 U		
Ethylbenzene	mg/kg	6	< 0.001 U	< 0.02 U	< 0.02 U		
Total Xylenes	mg/kg	9	0.002	< 0.06 U	< 0.06 U		
Metals Lead	mg/kg	250				1.44	I
Pollycyclic Aromatic Hydrocarbons (PAHs)		230				1.44	
Naphthalene	mg/kg	5		<del></del>		< 0.005 UJ	< 0.005 UJ
Total cPAHs TEQ	mg/kg	0.1					
Polychlorinated Biphenyls (PCBs)							
Total PCBs (Sum of Aroclors)	mg/kg	1					
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	mg/kg	2					
1,1,2,2-Tetrachloroethane	mg/kg						
1,1,2-Trichloroethane	mg/kg						
1,1-Dichloroethane	mg/kg						
1,1-Dichloroethene	mg/kg		<del></del>				
1,1-Dichloropropene	mg/kg						
1,2,3-Trichloropenano	mg/kg						
1,2,3-Trichloropropane 1,2,4-Trichlorobenzene	mg/kg						
1,2,4-Trichlorobenzene	mg/kg mg/kg		<del></del>			 	
1,2-Dibromo-3-chloropropane	mg/kg						
1,2-Dibromoethane (EDB)	mg/kg	0.005				< 0.005 U	< 0.005 U
1,2-Dichlorobenzene	mg/kg	0.000					
1,2-Dichloroethane (EDC)	mg/kg					< 0.005 U	< 0.005 U
1,2-Dichloropropane	mg/kg						
1,3,5-Trimethylbenzene	mg/kg						
1,3-Dichlorobenzene	mg/kg						
1,3-Dichloropropane	mg/kg						
1,4-Dichlorobenzene	mg/kg						
2,2-Dichloropropane	mg/kg						
2-Butanone	mg/kg						
2-Chlorotoluene	mg/kg						
2-Hexanone 4-Chlorotoluene	mg/kg						
4-Chlorotoluene 4-Methyl-2-pentanone	mg/kg mg/kg						
Acetone	mg/kg					 	
Bromobenzene	mg/kg						
Bromodichloromethane	mg/kg						
Bromoform	mg/kg		<del></del>				
Bromomethane	mg/kg						
Carbon Tetrachloride	mg/kg						
Chlorobenzene	mg/kg	_		=			
Chloroethane	mg/kg						
Chloroform	mg/kg						
Chloromethane	mg/kg						
cis-1,2-Dichloroethene (cDCE)	mg/kg						
cis-1,3-Dichloropropene	mg/kg						
Dibromochloromethane Dibromomethane	mg/kg						
Dichlorodifluoromethane	mg/kg mg/kg						
Isopropylbenzene	mg/kg						
Methyl tert-butyl ether (MTBE)	mg/kg	0.1				< 0.005 U	< 0.005 U
Methylene Chloride	mg/kg	0.02	<del></del>				
n-Hexane	mg/kg						
n-Propylbenzene	mg/kg						
p-Isopropyltoluene	mg/kg						
sec-Butylbenzene	mg/kg						
Styrene	mg/kg						
tert-Butylbenzene	mg/kg						
Tetrachloroethene (PCE)	mg/kg	0.05					
trans-1,2-Dichloroethene	mg/kg						
trans-1,3-Dichloropropene	mg/kg						
Trichloroethene (TCE)	mg/kg	0.03					
Trichlorofluoromethane Vinyl Chloride	mg/kg						
Villyi Ollioliue	mg/kg						

mg/kg - milligrams per kilogram, ft = feet

Bold - Analyte detected

Blue Shaded - Detected result exceeded screening level

U - Analyte not detected at or above Reporting Limit (RL) shown J - Result value estimated

 $\ensuremath{\mathsf{UJ}}$  - Analyte not detected and the Reporting Limit (RL) is an estimate

			D 00	В	00	D 40	l n	44
		Location Date	B-08 07/16/2019	08/05/2020	-09 08/05/2020	B-10 07/30/2020	07/28/2020	-11 07/28/2020
		Sample Name	B-08-13.5	B-09-2.5	B-09-6	B-10-12.5	B-11-5.5	B-11-10.5
	Dept	h Below Ground Surface	13.5 ft	2.5 ft	6 ft	12.5 ft	5.5 ft	10.5 ft
Analyte	Unit	MTCA Method A Cleanup Level						
Total Petroleum Hydrocarbons (TPHs)								
Gasoline-Range Organics	mg/kg	30	< 5 U	< 5 U	< 5 U	< 5 U	12	< 5 U
Diesel-Range Organics	mg/kg	2000	< 50 U					
Motor Oil-Range Organics Diesel and Oil Extended-Range Organics	mg/kg	2000 2000	< 250 U	< 250 U < 250 U	< 250 U < 250 U	< 250 U < 250 U	< 250 U < 250 U	< 250 U < 250 U
BTEX	mg/kg	2000	< 250 U	< 250 0	< 250 0	< 250 0	< 250 0	< 250 0
Benzene	mg/kg	0.03	< 0.02 U	< 0.03 U				
Toluene	mg/kg	7	< 0.02 U	< 0.05 U				
Ethylbenzene	mg/kg	6	< 0.02 U	< 0.05 U				
Total Xylenes	mg/kg	9	< 0.06 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Metals Lead		250		<del></del>	T			
Pollycyclic Aromatic Hydrocarbons (PAHs)	mg/kg	250						
Naphthalene	mg/kg	5		< 0.05 U	< 0.05 U	< 0.05 U	0.082	< 0.05 U
Total cPAHs TEQ	mg/kg	0.1						
Polychlorinated Biphenyls (PCBs)								
Total PCBs (Sum of Aroclors)	mg/kg	1						
Volatile Organic Compounds (VOCs)			.0.0711		ı			
1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane	mg/kg	2	< 0.05 U					
1,1,2,2-1 etrachioroethane 1,1,2-Trichloroethane	mg/kg mg/kg							
1,1-Dichloroethane	mg/kg		< 0.05 U					
1,1-Dichloroethene	mg/kg		< 0.05 U					
1,1-Dichloropropene	mg/kg							
1,2,3-Trichlorobenzene	mg/kg		-					
1,2,3-Trichloropropane	mg/kg							
1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene	mg/kg							
1,2-Dibromo-3-chloropropane	mg/kg mg/kg							
1,2-Dibromoethane (EDB)	mg/kg	0.005						
1,2-Dichlorobenzene	mg/kg							
1,2-Dichloroethane (EDC)	mg/kg		< 0.05 U					
1,2-Dichloropropane	mg/kg							
1,3,5-Trimethylbenzene	mg/kg							
1,3-Dichlorobenzene 1,3-Dichloropropane	mg/kg							
1,4-Dichlorobenzene	mg/kg mg/kg							 
2,2-Dichloropropane	mg/kg							
2-Butanone	mg/kg							
2-Chlorotoluene	mg/kg							
2-Hexanone	mg/kg							
4-Chlorotoluene	mg/kg							
4-Methyl-2-pentanone Acetone	mg/kg mg/kg							
Bromobenzene	mg/kg							
Bromodichloromethane	mg/kg							
Bromoform	mg/kg							
Bromomethane	mg/kg							
Carbon Tetrachloride	mg/kg		-					
Chlorobenzene Chloroethane	mg/kg		 < 0.5 U					
Chloroform	mg/kg mg/kg		< 0.5 U					
Chloromethane	mg/kg							
cis-1,2-Dichloroethene (cDCE)	mg/kg		< 0.05 U					
cis-1,3-Dichloropropene	mg/kg							
Dibromochloromethane	mg/kg							
Dibromomethane	mg/kg							
Dichlorodifluoromethane Isopropylbenzene	mg/kg mg/kg							
Methyl tert-butyl ether (MTBE)	mg/kg	0.1						
Methylene Chloride	mg/kg	0.02	< 0.5 U					
n-Hexane	mg/kg							
n-Propylbenzene	mg/kg							
p-Isopropyltoluene	mg/kg							
sec-Butylbenzene	mg/kg							
Styrene tert-Butylbenzene	mg/kg mg/kg							
Tetrachloroethene (PCE)	mg/kg mg/kg	0.05	< 0.025 U					
trans-1,2-Dichloroethene	mg/kg	0.00	< 0.023 U					
trans-1,3-Dichloropropene	mg/kg							
Trichloroethene (TCE)	mg/kg	0.03	< 0.02 U					
Trichlorofluoromethane	mg/kg							
Vinyl Chloride	mg/kg		< 0.05 U					

mg/kg - milligrams per kilogram, ft = feet

Bold - Analyte detected

Blue Shaded - Detected result exceeded screening level U - Analyte not detected at or above Reporting Limit (RL) shown

J - Result value estimated

 $\ensuremath{\mathsf{UJ}}$  - Analyte not detected and the Reporting Limit (RL) is an estimate

Project No. 180357, Lynnwood, Washington

	Dept	Location Date Sample Name	B-11 07/28/2020 B-11-15	GP-04 06/05/2019 GP-04-2	11/10/2020 GP-05-1.25	-05 11/10/2020	GP-06 11/10/2020	MW-11 06/10/2019
	Dept	Sample Name	B-11-15	GP-04-2	CD 05 4 05			
	Dept			GF-04-2	GP-05-1.25	GP-05-6	GP-06-2.5	MW-11-1
	•	h Below Ground Surface	15 ft	2 ft	1.25 ft	6 ft	2.5 ft	1 ft
Analyte	Unit	MTCA Method A Cleanup Level						
Total Petroleum Hydrocarbons (TPHs)								
Gasoline-Range Organics	mg/kg	30	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	280
Diesel-Range Organics Motor Oil-Range Organics	mg/kg	2000 2000	< 50 U < 250 U	< 50 U < 250 U	< 50 U < 250 U	< 50 U < 250 U	< 50 U < 250 U	
Diesel and Oil Extended-Range Organics	mg/kg mg/kg	2000	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	
BTEX	mg/kg	2000	1200 0	1200 0	1 200 0	1200 0	12000	
Benzene	mg/kg	0.03	< 0.03 U	< 0.03 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.2 U
Toluene	mg/kg	7	< 0.05 U	< 0.05 U	< 0.02 U	< 0.02 U	< 0.02 U	0.99
Ethylbenzene	mg/kg	6	< 0.05 U	< 0.05 U	< 0.02 U	< 0.02 U	< 0.02 U	2
Total Xylenes	mg/kg	9	< 0.1 U	< 0.1 U	< 0.06 U	< 0.06 U	< 0.06 U	11
Metals Lead	mg/kg	250					<del></del>	
Pollycyclic Aromatic Hydrocarbons (PAHs	<u> </u>	250	<del></del>			<del></del>		<del></del>
Naphthalene	mg/kg	5	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	1.5
Total cPAHs TEQ	mg/kg	0.1						
Polychlorinated Biphenyls (PCBs)								
Total PCBs (Sum of Aroclors)	mg/kg	1						
Volatile Organic Compounds (VOCs)	ma ar Hr			< 0.05 H				
1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane	mg/kg mg/kg	2		< 0.05 U < 0.05 U				
1,1,2,2-retrachioroethane	mg/kg		<del></del>	< 0.05 U				 
1,1-Dichloroethane	mg/kg			< 0.05 U				
1,1-Dichloroethene	mg/kg			< 0.05 U				
1,1-Dichloropropene	mg/kg			< 0.05 U	-	+		
1,2,3-Trichlorobenzene	mg/kg			< 0.25 U				
1,2,3-Trichloropropane	mg/kg			< 0.05 U				
1,2,4-Trichlorobenzene	mg/kg			< 0.25 U				
1,2,4-Trimethylbenzene 1,2-Dibromo-3-chloropropane	mg/kg mg/kg			< 0.05 U < 0.5 U				
1,2-Dibromoethane (EDB)	mg/kg	0.005		< 0.05 U				< 0.005 U
1,2-Dichlorobenzene	mg/kg			< 0.05 U				
1,2-Dichloroethane (EDC)	mg/kg			< 0.05 U				< 0.005 U
1,2-Dichloropropane	mg/kg			< 0.05 U				
1,3,5-Trimethylbenzene	mg/kg			< 0.05 U				
1,3-Dichlorobenzene 1,3-Dichloropropane	mg/kg			< 0.05 U < 0.05 U				
1,4-Dichlorobenzene	mg/kg mg/kg		<u></u>	< 0.05 U		 		
2,2-Dichloropropane	mg/kg			< 0.05 U				
2-Butanone	mg/kg			< 0.5 U				
2-Chlorotoluene	mg/kg			< 0.05 U				
2-Hexanone	mg/kg			< 0.5 U				
4-Chlorotoluene	mg/kg			< 0.05 U				
4-Methyl-2-pentanone	mg/kg			< 0.5 U < 0.5 U				
Acetone Bromobenzene	mg/kg mg/kg			< 0.5 U				
Bromodichloromethane	mg/kg		<del></del>	< 0.05 U				
Bromoform	mg/kg			< 0.05 U				
Bromomethane	mg/kg			< 0.5 U				
Carbon Tetrachloride	mg/kg			< 0.05 U				
Chlorobenzene	mg/kg			< 0.05 U				
Chloroform	mg/kg			< 0.5 U				<del></del>
Chloroform Chloromethane	mg/kg mg/kg			< 0.05 U < 0.5 U				
cis-1,2-Dichloroethene (cDCE)	mg/kg			< 0.05 U				
cis-1,3-Dichloropropene	mg/kg			< 0.05 U				
Dibromochloromethane	mg/kg			< 0.05 U				
Dibromomethane	mg/kg			< 0.05 U				
Dichlorodifluoromethane	mg/kg			< 0.5 U				
Isopropylbenzene Methyl tort hutyl other (MTRE)	mg/kg	0.1		< 0.05 U				 < 0.005 II
Methyl tert-butyl ether (MTBE) Methylene Chloride	mg/kg mg/kg	0.1		< 0.05 U < 0.5 U				< 0.005 U
n-Hexane	mg/kg	0.02	<u></u>	< 0.5 U				
n-Propylbenzene	mg/kg			< 0.05 U				
p-Isopropyltoluene	mg/kg			< 0.05 U				
sec-Butylbenzene	mg/kg			< 0.05 U				
Styrene	mg/kg		-	< 0.05 U				
tert-Butylbenzene	mg/kg	0.05		< 0.05 U				
Tetrachloroethene (PCE) trans-1,2-Dichloroethene	mg/kg	0.05		< 0.025 U				<del></del>
uans-1,∠-Dichloroethene	mg/kg		<u></u>	< 0.05 U < 0.05 U				
,	maira							ı
trans-1,3-Dichloropropene	mg/kg mg/ka	0.03						
,	mg/kg mg/kg mg/kg	0.03		< 0.02 U < 0.5 U				

## Notes:

mg/kg - milligrams per kilogram, ft = feet

Bold - Analyte detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- J Result value estimated
- $\ensuremath{\mathsf{UJ}}$  Analyte not detected and the Reporting Limit (RL) is an estimate
- X Chromatographic pattern does not match fuel standard used for quantitation

		Location	MW	<i>I</i> _11	MW-12	MW-13	MW-14
		Location Date	06/10/2019	06/10/2019	06/10/2019	06/11/2019	06/11/2019
		Sample Name	MW-11-6	MW-11-13	MW-12-15	MW-13-12.5	MW-14-12.5
	Dept	h Below Ground Surface	6 ft	13 ft	15 ft	12.5 ft	12.5 ft
Analyte	Unit	MTCA Method A Cleanup Level					
Total Petroleum Hydrocarbons (TPHs)	Oilit						
Gasoline-Range Organics	mg/kg	30	2600	< 5 U	< 5 U	< 5 U	< 5 U
Diesel-Range Organics	mg/kg	2000	240 X		< 50 U	< 50 U	< 50 U
Motor Oil-Range Organics	mg/kg	2000	< 250 U		< 250 U	< 250 U	< 250 U
Diesel and Oil Extended-Range Organics	mg/kg	2000	240 X		< 250 U	< 250 U	< 250 U
BTEX Benzene	mg/kg	0.03	0.63	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U
Toluene	mg/kg	7	4.1	0.031	< 0.02 U	< 0.02 U	< 0.02 U
Ethylbenzene	mg/kg	6	38	0.025	< 0.02 U	< 0.02 U	< 0.02 U
Total Xylenes	mg/kg	9	140	0.12	< 0.06 U	< 0.06 U	< 0.06 U
Metals							
Lead	mg/kg	250	8.76				
Pollycyclic Aromatic Hydrocarbons (PAHs) Naphthalene	mg/kg	5	7.4			<del></del>	
Total cPAHs TEQ	mg/kg	0.1					
Polychlorinated Biphenyls (PCBs)	99	<b>.</b>					
Total PCBs (Sum of Aroclors)	mg/kg	1					
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	mg/kg	2			< 0.05 U	< 0.05 U	< 0.05 U
1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane	mg/kg mg/kg		<del></del>				
1,1-Dichloroethane	mg/kg mg/kg				< 0.05 U	 < 0.05 U	 < 0.05 U
1,1-Dichloroethane	mg/kg		<del></del>		< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloropropene	mg/kg						
1,2,3-Trichlorobenzene	mg/kg						
1,2,3-Trichloropropane	mg/kg						
1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene	mg/kg						
1,2-Dibromo-3-chloropropane	mg/kg mg/kg						
1,2-Dibromoethane (EDB)	mg/kg	0.005	< 0.005 U			<u></u>	
1,2-Dichlorobenzene	mg/kg						
1,2-Dichloroethane (EDC)	mg/kg		< 0.005 U		< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichloropropane	mg/kg						
1,3,5-Trimethylbenzene 1.3-Dichlorobenzene	mg/kg						
1,3-Dichloropenzene	mg/kg mg/kg						
1,4-Dichlorobenzene	mg/kg						
2,2-Dichloropropane	mg/kg						
2-Butanone	mg/kg						
2-Chlorotoluene	mg/kg						
2-Hexanone	mg/kg						
4-Chlorotoluene 4-Methyl-2-pentanone	mg/kg mg/kg						
Acetone	mg/kg						
Bromobenzene	mg/kg						
Bromodichloromethane	mg/kg						
Bromoform	mg/kg						
Bromomethane Carbon Tetrachloride	mg/kg mg/kg		<del></del>				
Chlorobenzene	mg/kg						
Chloroethane	mg/kg				< 0.5 U	< 0.5 U	< 0.5 U
Chloroform	mg/kg						
Chloromethane	mg/kg						
cis-1,2-Dichloroethene (cDCE) cis-1,3-Dichloropropene	mg/kg mg/kg		 		< 0.05 U	< 0.05 U	< 0.05 U
Dibromochloromethane	mg/kg		 				
Dibromomethane	mg/kg						
Dichlorodifluoromethane	mg/kg						
Isopropylbenzene	mg/kg						
Methyl tert-butyl ether (MTBE) Methylene Chloride	mg/kg mg/kg	0.1 0.02	< 0.005 U		 < 0.5 U	 < 0.5 U	 < 0.5 U
n-Hexane	mg/kg mg/kg	0.02	 		< 0.5 0	< 0.5 0	< 0.5 U 
n-Propylbenzene	mg/kg		<del></del>				
p-Isopropyltoluene	mg/kg						
sec-Butylbenzene	mg/kg						
Styrene	mg/kg						
tert-Butylbenzene Tetrachloroethene (PCE)	mg/kg	0.05			 < 0.025 ! !	 < 0.025 U	 < 0.025 U
trans-1,2-Dichloroethene	mg/kg mg/kg	0.05			< 0.025 U < 0.05 U	< 0.025 U	< 0.025 U
trans-1,3-Dichloropropene	mg/kg						
Trichloroethene (TCE)	mg/kg	0.03			< 0.02 U	< 0.02 U	< 0.02 U
Trichlorofluoromethane	mg/kg						
Vinyl Chloride	mg/kg				< 0.05 U	< 0.05 U	< 0.05 U

mg/kg - milligrams per kilogram, ft = feet

Bold - Analyte detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- J Result value estimated
- UJ Analyte not detected and the Reporting Limit (RL) is an estimate
- X Chromatographic pattern does not match fuel standard used for quantitation

Project No. 180357, Lynnwood, Washington

		Location			MW-15			
		Date	06/12/2019	06/12/2019	06/12/2019	06/12/2019	06/12/2019	MW-16 06/14/2019
•		Sample Name	MW-15-7.5	MW-15-10.5	MW-15-13	MW-15-17.5	MW-15-25	MW-16-7.5
	Dept	h Below Ground Surface	7.5 ft	10.5 ft	13 ft	17.5 ft	25 ft	7.5 ft
Analyte	Unit	MTCA Method A Cleanup Level						
Total Petroleum Hydrocarbons (TPHs)								
Gasoline-Range Organics	mg/kg	30	< 5 U	6500 J	3400	200	< 5 U	< 5 U
Diesel-Range Organics	mg/kg	2000	< 50 U	1500 X	990 X	< 50 U	< 50 U	< 50 U
Motor Oil-Range Organics Diesel and Oil Extended-Range Organics	mg/kg mg/kg	2000 2000	< 250 U < 250 U	590 2090 X	370 1360 X	< 250 U < 250 U	< 250 U < 250 U	< 250 U < 250 U
BTEX	ilig/kg	2000	< 230 U	2090 X	1360 X	\ 250 U	< 230 U	< 230 U
Benzene	mg/kg	0.03			0.7 J	0.22	0.026	
Toluene	mg/kg	7	-		4.7 J	0.096	< 0.005 U	
Ethylbenzene	mg/kg	6			10 J	0.19	< 0.005 UJ	
Total Xylenes	mg/kg	9			64 J	1.19	< 0.01 U	
Metals Lead	ma/ka	250		4 00	4.02	I		
Pollycyclic Aromatic Hydrocarbons (PAHs)	mg/kg	250		1.88	1.93			
Naphthalene	mg/kg	5	< 0.005 UJ	6.3 J	4.9			
Total cPAHs TEQ	mg/kg	0.1						
Polychlorinated Biphenyls (PCBs)								
Total PCBs (Sum of Aroclors)	mg/kg	1						
Volatile Organic Compounds (VOCs)								
1,1,1-Trichloroethane	mg/kg	2						
1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane	mg/kg mg/kg							
1,1-Dichloroethane	mg/kg							
1,1-Dichloroethene	mg/kg							
1,1-Dichloropropene	mg/kg							
1,2,3-Trichlorobenzene	mg/kg							
1,2,3-Trichloropropane	mg/kg							
1,2,4-Trichlorobenzene	mg/kg							
1,2,4-Trimethylbenzene 1,2-Dibromo-3-chloropropane	mg/kg mg/kg							
1,2-Dibromoethane (EDB)	mg/kg	0.005	< 0.005 U	< 0.005 U	< 0.005 U			
1,2-Dichlorobenzene	mg/kg	0.000						
1,2-Dichloroethane (EDC)	mg/kg		< 0.005 U	< 0.005 U	< 0.005 U			
1,2-Dichloropropane	mg/kg		-					
1,3,5-Trimethylbenzene	mg/kg							
1,3-Dichlorobenzene	mg/kg							
1,3-Dichloropropane 1,4-Dichlorobenzene	mg/kg							
2,2-Dichloropropane	mg/kg mg/kg							
2-Butanone	mg/kg							
2-Chlorotoluene	mg/kg							
2-Hexanone	mg/kg							
4-Chlorotoluene	mg/kg							
4-Methyl-2-pentanone	mg/kg							
Acetone Bromobenzene	mg/kg mg/kg							
Bromodichloromethane	mg/kg							
Bromoform	mg/kg							
Bromomethane	mg/kg							
Carbon Tetrachloride	mg/kg							
Chlorobenzene	mg/kg							
Chloroform	mg/kg				==			
Chloroform Chloromethane	mg/kg mg/kg							
cis-1,2-Dichloroethene (cDCE)	mg/kg							
cis-1,3-Dichloropropene	mg/kg							
Dibromochloromethane	mg/kg							
Dibromomethane	mg/kg							
Dichlorodifluoromethane	mg/kg							
Isopropylbenzene Methyl tert-butyl ether (MTBE)	mg/kg	0.1	 < 0.005 U	 < 0.005 U	 < 0.005 U			
Methylene Chloride	mg/kg mg/kg	0.02	< 0.005 0	< 0.005 0	< 0.005 0			
n-Hexane	mg/kg	0.02						
n-Propylbenzene	mg/kg							
p-lsopropyltoluene	mg/kg							
sec-Butylbenzene	mg/kg							
Styrene	mg/kg							
tert-Butylbenzene	mg/kg	0.05						
Tetrachloroethene (PCE) trans-1,2-Dichloroethene	mg/kg	U.U5						
trans-1,2-Dichloropernene	mg/kg mg/kg							
Trichloroethene (TCE)	mg/kg	0.03						
Trichlorofluoromethane	mg/kg							
Vinyl Chloride	mg/kg							

## Notes:

mg/kg - milligrams per kilogram, ft = feet

Bold - Analyte detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- J Result value estimated
- $\ensuremath{\mathsf{UJ}}$  Analyte not detected and the Reporting Limit (RL) is an estimate
- X Chromatographic pattern does not match fuel standard used for quantitation

		Lagation	MW-17	MW-18	MW-19	1	MW-20	
		Location Date	06/14/2019	07/15/2019	07/16/2019	07/30/2020	07/30/2020	07/30/2020
		Sample Name	MW-17-8.5	MW-18-10	MW-19-8.5	MW-20-5'	MW-20-8'	MW-20-13'
	Dept	th Below Ground Surface	8.5 ft	10 ft	8.5 ft	5 ft	8 ft	13 ft
Analyte	Unit	MTCA Method A Cleanup Level						
Total Petroleum Hydrocarbons (TPHs)								
Gasoline-Range Organics	mg/kg	30	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Diesel-Range Organics	mg/kg	2000	< 50 U					
Motor Oil-Range Organics	mg/kg	2000	< 250 U < 250 U					
Diesel and Oil Extended-Range Organics BTEX	mg/kg	2000	< 250 0	< 250 0	< 250 0	< 250 0	< 250 0	< 250 0
Benzene	mg/kg	0.03		< 0.02 U	< 0.02 U	< 0.03 U	< 0.03 U	< 0.03 U
Toluene	mg/kg	7		< 0.02 U	< 0.02 U	< 0.05 U	< 0.05 U	< 0.05 U
Ethylbenzene	mg/kg	6		< 0.02 U	< 0.02 U	< 0.05 U	< 0.05 U	< 0.05 U
Total Xylenes	mg/kg	9		< 0.06 U	< 0.06 U	< 0.1 U	< 0.1 U	< 0.1 U
Metals Lead	mg/kg	250	<del></del>					
Pollycyclic Aromatic Hydrocarbons (PAHs)		250						
Naphthalene	mg/kg	5				< 0.05 U	0.065	< 0.05 U
Total cPAHs TEQ	mg/kg	0.1						
Polychlorinated Biphenyls (PCBs)								
Total PCBs (Sum of Aroclors)	mg/kg	1						
Volatile Organic Compounds (VOCs)				×0.0511	< 0.05 LL			
1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane	mg/kg mg/kg	2		< 0.05 U	< 0.05 U			
1,1,2,1-1 etrachioroethane	mg/kg mg/kg					<del></del>		
1,1-Dichloroethane	mg/kg			< 0.05 U	< 0.05 U			
1,1-Dichloroethene	mg/kg			< 0.05 U	< 0.05 U			
1,1-Dichloropropene	mg/kg							
1,2,3-Trichlorobenzene	mg/kg							
1,2,3-Trichloropropane	mg/kg							
1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene	mg/kg mg/kg							
1,2-Dibromo-3-chloropropane	mg/kg					 		
1,2-Dibromoethane (EDB)	mg/kg	0.005						
1,2-Dichlorobenzene	mg/kg							
1,2-Dichloroethane (EDC)	mg/kg			< 0.05 U	< 0.05 U			
1,2-Dichloropropane	mg/kg							
1,3,5-Trimethylbenzene	mg/kg							
1,3-Dichlorobenzene 1,3-Dichloropropane	mg/kg mg/kg							
1,4-Dichlorobenzene	mg/kg		 			 		
2,2-Dichloropropane	mg/kg							
2-Butanone	mg/kg							
2-Chlorotoluene	mg/kg							
2-Hexanone	mg/kg							
4-Chlorotoluene 4-Methyl-2-pentanone	mg/kg							
Acetone	mg/kg mg/kg							 
Bromobenzene	mg/kg							
Bromodichloromethane	mg/kg							
Bromoform	mg/kg							
Bromomethane	mg/kg							
Carbon Tetrachloride	mg/kg							
Chlorobenzene Chloroethane	mg/kg mg/kg			 < 0.5 U	 < 0.5 U			
Chloroform	mg/kg							
Chloromethane	mg/kg							
cis-1,2-Dichloroethene (cDCE)	mg/kg			< 0.05 U	< 0.05 U			
cis-1,3-Dichloropropene	mg/kg							
Dibromochloromethane	mg/kg							
Dibromomethane Dichlorodifluoromethane	mg/kg							
Isopropylbenzene	mg/kg mg/kg							
Methyl tert-butyl ether (MTBE)	mg/kg	0.1						
Methylene Chloride	mg/kg	0.02		< 0.5 U	< 0.5 U			
n-Hexane	mg/kg							
n-Propylbenzene	mg/kg							
p-Isopropyltoluene	mg/kg							
sec-Butylbenzene Styrene	mg/kg							
tert-Butylbenzene	mg/kg mg/kg							
Tetrachloroethene (PCE)	mg/kg	0.05		< 0.025 U	< 0.025 U			
trans-1,2-Dichloroethene	mg/kg			< 0.05 U	< 0.05 U			
trans-1,3-Dichloropropene	mg/kg							
Trichloroethene (TCE)	mg/kg	0.03		< 0.02 U	< 0.02 U			
Trichlorofluoromethane	mg/kg							
Vinyl Chloride	mg/kg			< 0.05 U	< 0.05 U	==		

mg/kg - milligrams per kilogram, ft = feet

Bold - Analyte detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- J Result value estimated
- $\ensuremath{\mathsf{UJ}}$  Analyte not detected and the Reporting Limit (RL) is an estimate
- X Chromatographic pattern does not match fuel standard used for quantitation

		Laastian		MIN	V-21		I MA	1-22
		Location Date	07/30/2020	07/28/2020	07/28/2020	07/28/2020	07/30/2020	07/30/2020
		Sample Name	MW-21A-2.5	MW-21-5	MW-21-10	MW-21-17.5	MW-22A-2.5	MW-22B-5'
	Dept	h Below Ground Surface	2.5 ft	5 ft	10 ft	17.5 ft	2.5 ft	5 ft
		MTCA Method A						
Analyte	Unit	Cleanup Level						
Total Petroleum Hydrocarbons (TPHs)	-							
Gasoline-Range Organics	mg/kg	30 2000	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Diesel-Range Organics Motor Oil-Range Organics	mg/kg mg/kg	2000	90 X 360	< 50 U < 250 U	< 50 U <b>680</b>			
Diesel and Oil Extended-Range Organics	mg/kg	2000	450 X	< 250 U	< 250 U	< 250 U	< 250 U	680
BTEX			100 //			200 0	233 5	
Benzene	mg/kg	0.03	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U
Toluene	mg/kg	7	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Ethylbenzene	mg/kg	6	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Total Xylenes	mg/kg	9	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Metals Lead	mg/kg	250		<del></del>	<del></del>			
Pollycyclic Aromatic Hydrocarbons (PAHs)		230	<del></del>	<del></del>	<del></del>		<del>-</del>	
Naphthalene	mg/kg	5	< 0.05 U	< 0.05 U	0.097	< 0.05 U	< 0.05 U	< 0.05 U
Total cPAHs TEQ	mg/kg	0.1						
Polychlorinated Biphenyls (PCBs)								
Total PCBs (Sum of Aroclors)	mg/kg	1						
Volatile Organic Compounds (VOCs)	man II car			1				
1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane	mg/kg mg/kg	2	<u></u>					
1,1,2-Trichloroethane	mg/kg							
1,1-Dichloroethane	mg/kg							
1,1-Dichloroethene	mg/kg							
1,1-Dichloropropene	mg/kg							
1,2,3-Trichlorobenzene	mg/kg							
1,2,3-Trichloropropane	mg/kg							
1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene	mg/kg mg/kg							
1,2-Dibromo-3-chloropropane	mg/kg			<del></del>				
1,2-Dibromoethane (EDB)	mg/kg	0.005						
1,2-Dichlorobenzene	mg/kg							
1,2-Dichloroethane (EDC)	mg/kg							
1,2-Dichloropropane	mg/kg							
1,3,5-Trimethylbenzene	mg/kg						<del></del>	
1,3-Dichlorobenzene 1,3-Dichloropropane	mg/kg mg/kg		<u></u>					
1,4-Dichlorobenzene	mg/kg			<del></del>				
2,2-Dichloropropane	mg/kg							
2-Butanone	mg/kg							
2-Chlorotoluene	mg/kg							
2-Hexanone	mg/kg							
4-Chlorotoluene	mg/kg							
4-Methyl-2-pentanone Acetone	mg/kg mg/kg		<u></u>					
Bromobenzene	mg/kg							
Bromodichloromethane	mg/kg							
Bromoform	mg/kg							
Bromomethane	mg/kg							
Carbon Tetrachloride	mg/kg							
Chlorobenzene Chloroethane	mg/kg							
Chloroform	mg/kg mg/kg							
Chloromethane	mg/kg							
cis-1,2-Dichloroethene (cDCE)	mg/kg							
cis-1,3-Dichloropropene	mg/kg							
Dibromochloromethane	mg/kg							
Dibromomethane	mg/kg							
Dichlorodifluoromethane Isopropylbenzene	mg/kg mg/kg							
Methyl tert-butyl ether (MTBE)	mg/kg	0.1	<del></del>					
Methylene Chloride	mg/kg	0.02	<del></del>					
n-Hexane	mg/kg							
n-Propylbenzene	mg/kg							
p-Isopropyltoluene	mg/kg							
sec-Butylbenzene	mg/kg							
Styrene tert-Butylbenzene	mg/kg mg/kg						 	
Tetrachloroethene (PCE)	mg/kg	0.05	<del></del>					
trans-1,2-Dichloroethene	mg/kg							
trans-1,3-Dichloropropene	mg/kg							
Trichloroethene (TCE)	mg/kg	0.03						
Trichlorofluoromethane	mg/kg							
Vinyl Chloride	mg/kg							

mg/kg - milligrams per kilogram, ft = feet

Bold - Analyte detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- J Result value estimated
- $\ensuremath{\mathsf{UJ}}$  Analyte not detected and the Reporting Limit (RL) is an estimate
- X Chromatographic pattern does not match fuel standard used for quantitation

Project No. 180357, Lynnwood, Washington

		1 41		BASA.	V-22		T NASA	V-23
		Location Date	07/28/2020	07/28/2020	07/28/2020	07/28/2020	07/28/2020	v-23 07/28/2020
		Sample Name	MW-22-10	MW-22-12.5	MW-22-16	MW-22-25	MW-23-8	MW-23-12.5
	Dept	h Below Ground Surface	10 ft	12.5 ft	16 ft	25 ft	8 ft	12.5 ft
		MTCA Method A						
Analyte	Unit	Cleanup Level						
Total Petroleum Hydrocarbons (TPHs)								
Gasoline-Range Organics	mg/kg	30	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Diesel-Range Organics	mg/kg	2000	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Motor Oil-Range Organics	mg/kg	2000	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U
Diesel and Oil Extended-Range Organics BTEX	mg/kg	2000	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U
Benzene	mg/kg	0.03	< 0.03 U	< 0.03 U	0.069	< 0.03 U	< 0.03 U	< 0.03 U
Toluene	mg/kg	7	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Ethylbenzene	mg/kg	6	< 0.05 U	0.068	0.12	< 0.05 U	< 0.05 U	< 0.05 U
Total Xylenes	mg/kg	9	< 0.1 U	0.11	0.63	< 0.1 U	< 0.1 U	< 0.1 U
Metals								
Lead	mg/kg	250						
Pollycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	mg/kg	5	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Total cPAHs TEQ	mg/kg	0.1						
Polychlorinated Biphenyls (PCBs)  Total PCBs (Sum of Aroclors)	mg/kg	1	<del></del>		<del></del>			
Volatile Organic Compounds (VOCs)	iiiy/ky							<u></u>
1,1,1-Trichloroethane	mg/kg	2	<u></u>					
1,1,2,2-Tetrachloroethane	mg/kg							
1,1,2-Trichloroethane	mg/kg							
1,1-Dichloroethane	mg/kg							
1,1-Dichloroethene	mg/kg							
1,1-Dichloropropene	mg/kg							
1,2,3-Trichlorobenzene	mg/kg							
1,2,3-Trichloropropane 1,2,4-Trichlorobenzene	mg/kg							
1,2,4-Trichlorobenzene	mg/kg mg/kg		<del></del>					
1,2-Dibromo-3-chloropropane	mg/kg							
1,2-Dibromoethane (EDB)	mg/kg	0.005						
1,2-Dichlorobenzene	mg/kg							
1,2-Dichloroethane (EDC)	mg/kg							
1,2-Dichloropropane	mg/kg							
1,3,5-Trimethylbenzene	mg/kg							
1,3-Dichlorobenzene	mg/kg							
1,3-Dichloropropane 1,4-Dichlorobenzene	mg/kg							
2,2-Dichloropropane	mg/kg mg/kg							
2-Butanone	mg/kg		<del></del>					 
2-Chlorotoluene	mg/kg		<del></del>					
2-Hexanone	mg/kg							
4-Chlorotoluene	mg/kg							
4-Methyl-2-pentanone	mg/kg							
Acetone	mg/kg							
Bromobenzene	mg/kg							
Bromodichloromethane	mg/kg							
Bromoform Bromomethane	mg/kg							
Carbon Tetrachloride	mg/kg mg/kg							
Chlorobenzene	mg/kg		<del></del>					
Chloroethane	mg/kg							
Chloroform	mg/kg							
Chloromethane	mg/kg		==					
cis-1,2-Dichloroethene (cDCE)	mg/kg							
cis-1,3-Dichloropropene	mg/kg							
Dibromochloromethane	mg/kg							
Dibromomethane  Dichlorodifluoromethane	mg/kg							
Isopropylbenzene	mg/kg mg/kg		<del></del>					
Methyl tert-butyl ether (MTBE)	mg/kg mg/kg	0.1						
Methylene Chloride	mg/kg	0.02	<del></del>					
n-Hexane	mg/kg							
n-Propylbenzene	mg/kg							
p-Isopropyltoluene	mg/kg							
sec-Butylbenzene	mg/kg							
Styrene	mg/kg							
tert-Butylbenzene	mg/kg							
Tetrachloroethene (PCE)	mg/kg	0.05						
trans-1,2-Dichloroethene trans-1,3-Dichloropropene	mg/kg		<del></del>					
Trichloroethene (TCE)	mg/kg mg/kg	0.03						
Trichlorofluoromethane	mg/kg	0.03	 					
Vinyl Chloride	mg/kg		<del></del>					
		1		I.	1	l .	ı	1

## Notes:

mg/kg - milligrams per kilogram, ft = feet

**Bold - Analyte detected** 

- U Analyte not detected at or above Reporting Limit (RL) shown
- J Result value estimated
- UJ Analyte not detected and the Reporting Limit (RL) is an estimate
- X Chromatographic pattern does not match fuel standard used for quantitation

		Lagation	NA)A	V-23	MW-24	MW-25	MW-26	MW-27
		Location Date	07/28/2020	07/28/2020	07/29/2020	07/30/2020	07/29/2020	07/29/2020
		Sample Name	MW-23-18	MW-23-25	MW-24-10.5	MW-25-8'	MW-26-12.5	MW-27-10.5
	Dept	h Below Ground Surface	18 ft	25 ft	10.5 ft	8 ft	12.5 ft	10.5 ft
		MTCA Method A						
Analyte	Unit	Cleanup Level						
Total Petroleum Hydrocarbons (TPHs)								
Gasoline-Range Organics	mg/kg	30	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Diesel-Range Organics	mg/kg	2000	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Motor Oil-Range Organics	mg/kg	2000	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U
Diesel and Oil Extended-Range Organics	mg/kg	2000	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U
BTEX		1						
Benzene	mg/kg	0.03	0.44	0.047	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U
Toluene Ethylbenzene	mg/kg	7 6	< 0.05 U	< 0.05 U < 0.05 U	< 0.05 U < 0.05 U	< 0.05 U < 0.05 U	< 0.05 U < 0.05 U	< 0.05 U < 0.05 U
Total Xylenes	mg/kg mg/kg	9	< 0.03 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.1 U
Metals	ilig/kg	<b>J</b>	10.10	10.10	10.10	10.10	10.10	10.10
Lead	mg/kg	250						
Pollycyclic Aromatic Hydrocarbons (PAHs)	<u> </u>							
Naphthalene	mg/kg	5	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Total cPAHs TEQ	mg/kg	0.1						
Polychlorinated Biphenyls (PCBs)								
Total PCBs (Sum of Aroclors)	mg/kg	1						
Volatile Organic Compounds (VOCs)								
1,1,1-Trichloroethane	mg/kg	2						
1,1,2,2-Tetrachloroethane	mg/kg							
1,1,2-Trichloroethane	mg/kg							
1,1-Dichloroethane 1,1-Dichloroethene	mg/kg							
1,1-Dichloroethene 1,1-Dichloropropene	mg/kg		<del></del>					
1,2,3-Trichlorobenzene	mg/kg mg/kg							
1,2,3-Trichloropropane	mg/kg		<del></del>					
1,2,4-Trichlorobenzene	mg/kg							
1,2,4-Trimethylbenzene	mg/kg							
1,2-Dibromo-3-chloropropane	mg/kg							
1,2-Dibromoethane (EDB)	mg/kg	0.005						
1,2-Dichlorobenzene	mg/kg							
1,2-Dichloroethane (EDC)	mg/kg							
1,2-Dichloropropane	mg/kg							
1,3,5-Trimethylbenzene	mg/kg							
1,3-Dichlorobenzene	mg/kg							
1,3-Dichloropropane	mg/kg							
1,4-Dichlorobenzene 2,2-Dichloropropane	mg/kg mg/kg							
2-Butanone	mg/kg							
2-Chlorotoluene	mg/kg							
2-Hexanone	mg/kg							
4-Chlorotoluene	mg/kg							
4-Methyl-2-pentanone	mg/kg							
Acetone	mg/kg							
Bromobenzene	mg/kg							
Bromodichloromethane	mg/kg							
Bromoform	mg/kg							
Bromomethane	mg/kg							
Carbon Tetrachloride	mg/kg							
Chlorobenzene Chloroethane	mg/kg mg/kg		<del></del>					
Chloroform	mg/kg mg/kg							
Chloromethane	mg/kg							
cis-1,2-Dichloroethene (cDCE)	mg/kg							
cis-1,3-Dichloropropene	mg/kg							
Dibromochloromethane	mg/kg		<del></del>					
Dibromomethane	mg/kg							
Dichlorodifluoromethane	mg/kg							
Isopropylbenzene	mg/kg							
Methyl tert-butyl ether (MTBE)	mg/kg	0.1						
Methylene Chloride	mg/kg	0.02						
n-Hexane	mg/kg							
n-Propylbenzene	mg/kg							
p-Isopropyltoluene sec-Butylbenzene	mg/kg		<u></u>					
Styrene	mg/kg mg/kg		<del></del>					
tert-Butylbenzene	mg/kg mg/kg		<del></del>					
Tetrachloroethene (PCE)	mg/kg	0.05		 				
trans-1,2-Dichloroethene	mg/kg	0.00						
trans-1,3-Dichloropropene	mg/kg							
Trichloroethene (TCE)	mg/kg	0.03						
Trichlorofluoromethane	mg/kg							
Vinyl Chloride	mg/kg							

mg/kg - milligrams per kilogram, ft = feet

Bold - Analyte detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- J Result value estimated
- $\ensuremath{\mathsf{UJ}}$  Analyte not detected and the Reporting Limit (RL) is an estimate
- X Chromatographic pattern does not match fuel standard used for quantitation

Project No. 180357, Lynnwood, Washington

		Location						MW-1					
		Sample	MW-1-39080	MW-1-39128	MW-1-39178	MW-1-39291	MW-1-39356	MW-1-39457	MW-1-39639	MW-1-39819	MW-1-40007	MW-1-40388	MW-1-40563
		Date	12/29/2006	02/15/2007	04/06/2007	07/28/2007	10/01/2007	01/10/2008	07/10/2008	01/06/2009	07/13/2009	07/29/2010	01/20/2011
Analyte	Unit	MTCA Method A Cleanup Level											
TPHs													
Gasoline-Range Organics	ug/L	800	42100	41200	30200	5850	23900	73000	800	< 100 U	7500		
Diesel-Range Organics	ug/L	500	< 255 U	< 269 U	< 258 U	< 258 U	1540 X	< 243 U	1400	190	2800 X	320 X	2550
Motor Oil-Range Organics	ug/L	500	< 510 U	< 538 U	< 515 U	< 515 U	< 105 U	< 485 U	< 300 U	< 380 U	< 100 U	110	725
BTEX													
Benzene	ug/L	5	9190	9230	7450	2400	6270	16500	280	1	1200	32	13400
Toluene	ug/L	1000	2140	1840	732	32.4	196	4010	13	< 1 U	60	2.9	3950
Ethylbenzene	ug/L	700	1090	938	718	131	653	1610	2	< 1 U	220	17	1700
Total Xylenes	ug/L	1000	4100	3710	2310	190	1340	6790	33	< 1 U	470	48	7240
Metals													
Lead	ug/L	15									3.33		
VOCs													
1,2-Dibromoethane (EDB)	ug/L	0.01									< 0.01 U		
1,2-Dichloroethane (EDC)	ug/L	5									< 0.29 U		
Diisopropyl ether (DIPE)	ug/L			< 1 U						< 2 U			< 1 U
Ethyl t-butyl ether (ETBE)	ug/L			< 1 U						< 2 U			< 1 U
Methyl tert-butyl ether (MTBE)	ug/L	20		< 5 U						< 1 U			< 1 U
t-Amyl methyl ether (TAME)	ug/L			< 1 U	-		-		-	< 2 U		-	< 1 U
t-Butyl alcohol (TBA)	ug/L			54.6						< 10 U			132

#### Notes

ug/L = micrograms per liter

Bold = detected

Blue = exceeded U = nondetect

J = esitmated

UJ = nondetect, estimated

X = chromatographic pattern did not match fuel standard.

Project No. 180357, Lynnwood, Washington

		Location		MW-1					M	W-2			
		Sample	MW-1-41220	MW-1-41394	MW-1-41571	MW-2-39080	MW-2-39128	MW-2-39178	MW-2-39291	MW-2-39356	MW-2-39457	MW-2-39639	MW-2-39819
		Date	11/07/2012	04/30/2013	10/24/2013	12/29/2006	02/15/2007	04/06/2007	07/28/2007	10/01/2007	01/10/2008	07/10/2008	01/06/2009
Analyte	Unit	MTCA Method A Cleanup Level											
TPHs													
Gasoline-Range Organics	ug/L	800	16700	7300	445	2640	249	180	3200	3980	5000	540	9200
Diesel-Range Organics	ug/L	500	1460	1600	898	< 253 U	< 278 U	< 258 U	< 255 U	1080 X	< 243 U	< 500 U	< 100 U
Motor Oil-Range Organics	ug/L	500	163	818	172	< 505 U	< 556 U	< 515 U	< 510 U	< 105 U	< 485 U	< 200 U	< 100 U
ВТЕХ													
Benzene	ug/L	5	4880	1590	28.8	21.7	2.06	1.83	66.1	175	214	4.9	390
Toluene	ug/L	1000	361	100	< 1 U	6.75	< 0.5 U	0.518	7.86	13.7	9.85	< 1 U	16
Ethylbenzene	ug/L	700	525	374	7.91	55.1	4.36	2.61	137	331	502	9.4	840
Total Xylenes	ug/L	1000	1530	445	7.82	9.91	< 1 U	< 1 U	20.4	47.4	71.0	< 1 U	62.0
Metals													
Lead	ug/L	15											
VOCs													
1,2-Dibromoethane (EDB)	ug/L	0.01											
1,2-Dichloroethane (EDC)	ug/L	5											
Diisopropyl ether (DIPE)	ug/L						< 1 U						< 20 U
Ethyl t-butyl ether (ETBE)	ug/L						< 1 U						< 20 U
Methyl tert-butyl ether (MTBE)	ug/L	20					< 5 U						< 10 U
t-Amyl methyl ether (TAME)	ug/L						< 1 U						< 20 U
t-Butyl alcohol (TBA)	ug/L						< 50 U						< 100 U

#### Notes

ug/L = micrograms per liter

Bold = detected

Blue = exceeded

U = nondetect J = esitmated

UJ = nondetect, estimated

X = chromatographic pattern did not match fuel standard.

Project No. 180357, Lynnwood, Washington

		Location			MW	1-2					MW-3		
		Sample	MW-2-40007	MW-2-40388	MW-2-40563	MW-2-41220	MW-2-41394	MW-2-41571	MW-3-39080	MW-3-39128	MW-3-39178	MW-3-39291	MW-3-39356
		Date	07/13/2009	07/29/2010	01/20/2011	11/07/2012	04/30/2013	10/24/2013	12/29/2006	02/15/2007	04/06/2007	07/28/2007	10/01/2007
Analyte	Unit	MTCA Method A Cleanup Level											
TPHs													
Gasoline-Range Organics	ug/L	800	320			4070	< 100 U	2350	171000	263000	214000	248000	252000
Diesel-Range Organics	ug/L	500	210 X	200 X	689	757	261	527	608	2580 X	867 X	8340	185000 X
Motor Oil-Range Organics	ug/L	500	< 100 U	< 100 U	402	< 94.3 U	198	181	< 510 U	< 2750 U	< 495 U	< 5.05 U	< 10500 U
ВТЕХ													
Benzene	ug/L	5	3.8	2.1	25.1	228	< 1 U	61.3	28500	29200	26600	28600	29300
Toluene	ug/L	1000	< 1 U	< 1 U	< 1 U	4.99	< 1 U	1.03	29200	37400	37500	37400	35200
Ethylbenzene	ug/L	700	3.3	< 1 U	54.4	125	< 1 U	6.49	2950	3140	2850	2810	3260
Total Xylenes	ug/L	1000	< 1 U	< 1 U	5.42	40.3	< 3 U	3.52	15900	18600	16800	12800	19300
Metals													
Lead	ug/L	15	< 1 U										
VOCs													
1,2-Dibromoethane (EDB)	ug/L	0.01	< 0.01 U										
1,2-Dichloroethane (EDC)	ug/L	5	< 0.5 U										
Diisopropyl ether (DIPE)	ug/L				< 1 U					< 100 U			
Ethyl t-butyl ether (ETBE)	ug/L				< 1 U					< 100 U			
Methyl tert-butyl ether (MTBE)	ug/L	20			< 1 U					< 500 U			
t-Amyl methyl ether (TAME)	ug/L		-		< 1 U					< 100 U			
t-Butyl alcohol (TBA)	ug/L		-		< 20 U		-			< 5000 U			

#### Notes

ug/L = micrograms per liter

Bold = detected

Blue = exceeded

U = nondetect J = esitmated

UJ = nondetect, estimated

X = chromatographic pattern did not match fuel standard.

Project No. 180357, Lynnwood, Washington

		Location	MW-3		MW-4			MW-5			M\	N-6	
		Sample	MW-3-40563	MW-4-39080	MW-4-39128	MW-4-40563	MW-5-39080	MW-5-39128	MW-5-40563	MW-6-39291	MW-6-39356	MW-6-39457	MW-6-39639
		Date	01/20/2011	12/29/2006	02/15/2007	01/20/2011	12/29/2006	02/15/2007	01/20/2011	07/28/2007	10/01/2007	01/10/2008	07/10/2008
Analyte	Unit	MTCA Method A Cleanup Level											
TPHs													
Gasoline-Range Organics	ug/L	800	87800	207000	253000	313000	122000	771000	327000	52.4	< 250 U	< 50 U	< 50 U
Diesel-Range Organics	ug/L	500	-	1810	72100 X		603	49200 X		< 253 U	< 105 U	< 250 U	< 500 U
Motor Oil-Range Organics	ug/L	500	7690	< 510 U	< 50000 U	< 9520 U	< 515 U	< 5000 U	109005	< 505 U	< 105 U	< 500 U	< 200 U
втех													
Benzene	ug/L	5	12100	32400	31500	12800	7220	12800	3710	< 0.5 U	< 1 U	< 0.5 U	< 1 U
Toluene	ug/L	1000	23200	39700	40500	28700	24400	43600	16200	1.25	< 1 U	< 0.5 U	< 1 U
Ethylbenzene	ug/L	700	3020	3200	2990	3180	2280	6000	2690	< 0.5 U	< 1 U	< 0.5 U	< 1 U
Total Xylenes	ug/L	1000	19700	18800	18100	21200	13200	40700	15800	< 1 U	< 3 U	< 3 U	< 1 U
Metals													
Lead	ug/L	15											
VOCs													
1,2-Dibromoethane (EDB)	ug/L	0.01	< 1 U			< 1 U			< 1 U				
1,2-Dichloroethane (EDC)	ug/L	5											
Diisopropyl ether (DIPE)	ug/L		1.24		< 100 U	< 1.00 U		< 100 U	< 1 U				
Ethyl t-butyl ether (ETBE)	ug/L		< 1 U		< 100 U	< 1 U		< 100 U	< 1 U				
Methyl tert-butyl ether (MTBE)	ug/L	20			< 500 U			< 500 U					
t-Amyl methyl ether (TAME)	ug/L		< 1 U		< 100 U	< 1 U		< 100 U	< 1 U				-
t-Butyl alcohol (TBA)	ug/L		101		< 5000 U	61.8		< 5000 U	45.4				

#### Notes

ug/L = micrograms per liter

Bold = detected

Blue = exceeded

U = nondetect

J = esitmated
UJ = nondetect, estimated

X = chromatographic pattern did not match fuel standard.

Project No. 180357, Lynnwood, Washington

		Location				MW-6					MV	V-7	
		Sample	MW-6-39819	MW-6-40007	MW-6-40388	MW-6-40563	MW-6-41220	MW-6-41394	MW-6-41571	MW-7-39291	MW-7-39356	MW-7-39457	MW-7-39639
		Date	01/06/2009	07/13/2009	07/29/2010	01/20/2011	11/07/2012	04/30/2013	10/24/2013	07/28/2007	10/01/2007	01/10/2008	07/10/2008
Analyte	Unit	MTCA Method A Cleanup Level											
TPHs													
Gasoline-Range Organics	ug/L	800	< 100 U			201	< 100 U	< 100 U	< 100 U	< 50 U	< 250 U	51.2	< 50 U
Diesel-Range Organics	ug/L	500	< 100 U		< 100 U	-	< 94.3 U	97.8	124	< 253 U	< 111 U	< 250 U	< 500 U
Motor Oil-Range Organics	ug/L	500	< 100 U		190	472	< 94.3 U	< 93.5 U	123	< 495 U	< 111 U	< 500 U	< 200 U
BTEX													
Benzene	ug/L	5	< 0.5 U		< 0.5 U	< 1 U	< 1 U	< 1 U	< 1 U	< 0.5 U	1.78	68.4	< 1 U
Toluene	ug/L	1000	< 1 U		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 0.5 U	< 1 U	1.26	< 1 U
Ethylbenzene	ug/L	700	< 1 U		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 0.5 U	< 1 U	79.7	< 1 U
Total Xylenes	ug/L	1000	< 1 U		< 1 U	< 3 U	< 3 U	< 3 U	< 2 U	< 1 U	< 3 U	110	< 1 U
Metals													
Lead	ug/L	15	-	< 1 U									
VOCs													
1,2-Dibromoethane (EDB)	ug/L	0.01				< 1 U							
1,2-Dichloroethane (EDC)	ug/L	5											
Diisopropyl ether (DIPE)	ug/L		< 2 U			< 1 U							
Ethyl t-butyl ether (ETBE)	ug/L		< 2 U			< 1 U							
Methyl tert-butyl ether (MTBE)	ug/L	20	< 1 U										
t-Amyl methyl ether (TAME)	ug/L		< 2 U			< 1 U							
t-Butyl alcohol (TBA)	ug/L		< 10 U			< 20 U							

#### Notes

ug/L = micrograms per liter

Bold = detected

Blue = exceeded

U = nondetect J = esitmated

UJ = nondetect, estimated

X = chromatographic pattern did not match fuel standard.

Project No. 180357, Lynnwood, Washington

		Location				MW-7					MW	<i>I</i> -8	
		Sample	MW-7-39819	MW-7-40007	MW-7-40388	MW-7-40563	MW-7-41220	MW-7-41394	MW-7-41571	MW-8-39291	MW-8-39356	MW-8-39457	MW-8-39819
		Date	01/06/2009	07/13/2009	07/29/2010	01/20/2011	11/07/2012	04/30/2013	10/24/2013	07/28/2007	10/01/2007	01/10/2008	01/06/2009
Analyte	Unit	MTCA Method A Cleanup Level											
TPHs													
Gasoline-Range Organics	ug/L	800	< 100 U		-	119	< 100 U	< 100 U	< 100 U	266000	181000	202000	22000
Diesel-Range Organics	ug/L	500	< 100 U		< 100 U		94.3	115	< 93.5 U	8580	6540 X	9190 X	6900
Motor Oil-Range Organics	ug/L	500	< 100 U		< 100 U	174	< 94.3 U	< 93.5 U	106	< 5210 U	< 1110 U	< 4850 U	440
BTEX													
Benzene	ug/L	5	< 0.5 U	2.7	< 0.5 U	< 1 U	< 1 U	< 1 U	< 1 U	20500	18000	13400	2700
Toluene	ug/L	1000	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	43600	32000	29600	6300
Ethylbenzene	ug/L	700	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	3550	2250	2200	390
Total Xylenes	ug/L	1000	< 1 U	< 1 U	< 1 U	< 3 U	< 3 U	< 3 U	< 2 U	23000	14900	14000	4300
Metals													
Lead	ug/L	15		< 1 U									
VOCs													
1,2-Dibromoethane (EDB)	ug/L	0.01				< 1 U							
1,2-Dichloroethane (EDC)	ug/L	5											
Diisopropyl ether (DIPE)	ug/L		< 2 U			< 1 U							< 40 U
Ethyl t-butyl ether (ETBE)	ug/L		< 2 U			< 1 U							< 40 U
Methyl tert-butyl ether (MTBE)	ug/L	20	< 1 U										< 20 U
t-Amyl methyl ether (TAME)	ug/L		< 2 U			< 1 U							< 40 U
t-Butyl alcohol (TBA)	ug/L		< 10 U			< 20 U							< 200 U

#### Notes

ug/L = micrograms per liter

Bold = detected

Blue = exceeded

U = nondetect J = esitmated

UJ = nondetect, estimated

X = chromatographic pattern did not match fuel standard.

Project No. 180357, Lynnwood, Washington

		Location		MV	V-8					MW-9			
		Sample	MW-8-40388	MW-8-40563	MW-8-41220	MW-8-41394	MW-9-39291	MW-9-39356	MW-9-39457	MW-9-39639	MW-9-39819	MW-9-40007	MW-9-40388
		Date	07/29/2010	01/20/2011	11/07/2012	04/30/2013	07/28/2007	10/01/2007	01/10/2008	07/10/2008	01/06/2009	07/13/2009	07/29/2010
Analyte	Unit	MTCA Method A Cleanup Level											
TPHs													
Gasoline-Range Organics	ug/L	800	-		75300	103000	< 50 U	299	< 50 U	< 50 U	< 100 U	-	
Diesel-Range Organics	ug/L	500	5300 X	6570	3160	3820	< 248 U	174 X	< 238 U	< 500 U	< 100 U		< 100 U
Motor Oil-Range Organics	ug/L	500	2000 X	1550	< 94.3 U	309	< 495 U	< 111 U	< 476 U	< 1000 U	< 100 U		< 100 U
BTEX													
Benzene	ug/L	5	18000	13800	7630	8830	< 0.5 U	5.52	< 0.5 U	< 1 U	< 0.5 U	< 0.5 U	< 0.5 U
Toluene	ug/L	1000	40000	31500	15200	29400	< 0.5 U	< 1 U	< 0.5 U	< 1 U	< 1 U	< 1 U	< 1 U
Ethylbenzene	ug/L	700	17000	3290	1140	1950	< 0.5 U	< 1 U	< 0.5 U	< 1 U	< 1 U	< 1 U	< 1 U
Total Xylenes	ug/L	1000	110000	21900	6120	11200	< 1 U	< 3 U	< 3 U	< 1 U	< 1 U	< 1 U	< 1 U
Metals													
Lead	ug/L	15										< 1 U	
VOCs													
1,2-Dibromoethane (EDB)	ug/L	0.01		< 1 U									
1,2-Dichloroethane (EDC)	ug/L	5											
Diisopropyl ether (DIPE)	ug/L			< 1 U							< 2 U		
Ethyl t-butyl ether (ETBE)	ug/L			< 1 U							< 2 U		
Methyl tert-butyl ether (MTBE)	ug/L	20									< 1 U		
t-Amyl methyl ether (TAME)	ug/L			< 1 U							< 2 U		
t-Butyl alcohol (TBA)	ug/L			128							< 10 U		

#### Notes

ug/L = micrograms per liter

Bold = detected

Blue = exceeded

U = nondetect J = esitmated

UJ = nondetect, estimated

X = chromatographic pattern did not match fuel standard.

Project No. 180357, Lynnwood, Washington

		Location		MV	V-9					MW-10			
		Sample	MW-9-40563	MW-9-41220	MW-9-41394	MW-9-41571	MW-10-39291	MW-10-39356	MW-10-39457	MW-10-39639	MW-10-39819	MW-10-40007	MW-10-40388
		Date	01/20/2011	11/07/2012	04/30/2013	10/24/2013	07/28/2007	10/01/2007	01/10/2008	07/10/2008	01/06/2009	07/13/2009	07/29/2010
Analyte	Unit	MTCA Method A Cleanup Level											
TPHs													
Gasoline-Range Organics	ug/L	800		< 100 U	< 100 U	< 100 U	6570	27100	11400	1400	29000	4800	
Diesel-Range Organics	ug/L	500	141	< 94.3 U	< 93.5 U	< 94.3 U	307 X	1820 X	< 248 U	< 500 U	120	< 100 U	< 100 U
Motor Oil-Range Organics	ug/L	500	463	< 94.3 U	< 93.5 U	< 94.3 U	< 505 U	< 556 U	< 495 U	< 1000 U	< 100 U	< 100 U	< 100 U
втех													
Benzene	ug/L	5	< 1 U	< 1 U	< 1.00 U	< 1.00 U	299	1510	316	1400	4800	1600	240
Toluene	ug/L	1000	< 1 U	< 1 U	< 1 U	< 1 U	179	1220	237	1200	1400	260	9.9
Ethylbenzene	ug/L	700	< 1 U	< 1 U	< 1 U	< 1 U	237	1210	842	710	1800	190	45
Total Xylenes	ug/L	1000	< 3 U	< 3 U	< 3 U	< 2 U	615	2650	604	2310	5100	1000	89
Metals													
Lead	ug/L	15										1.02	
VOCs													
1,2-Dibromoethane (EDB)	ug/L	0.01										< 0.01 U	
1,2-Dichloroethane (EDC)	ug/L	5										< 1.5 U	
Diisopropyl ether (DIPE)	ug/L		< 1 U								< 20 U		
Ethyl t-butyl ether (ETBE)	ug/L		< 1 U								< 20 U		
Methyl tert-butyl ether (MTBE)	ug/L	20	< 1 U								< 10 U		
t-Amyl methyl ether (TAME)	ug/L		< 1 U								< 20 U		
t-Butyl alcohol (TBA)	ug/L		< 20 U								< 100 U		

#### Notes

ug/L = micrograms per liter

Bold = detected

Blue = exceeded

U = nondetect J = esitmated

UJ = nondetect, estimated

X = chromatographic pattern did not match fuel standard.

Project No. 180357, Lynnwood, Washington

<u> </u>		Location		MV	/-10		SB-3	SB-4
			MW-10-40563			MW-10-41571	SB-3-40308	SB-4-40308
		Date		11/07/2012	04/30/2013	10/24/2013	05/10/2010	05/10/2010
Analyte	Unit	MTCA Method A Cleanup Level						
TPHs								
Gasoline-Range Organics	ug/L	800		17300	590	6890	360	180
Diesel-Range Organics	ug/L	500	707	2710	346	2080	1600 X	2400 X
Motor Oil-Range Organics	ug/L	500	394	< 94.3 U	148	109	< 100 U	< 100 U
ВТЕХ								
Benzene	ug/L	5	938	5920	48.1	5630	170	< 0.5 U
Toluene	ug/L	1000	16.6	78.3	1.22	188	< 1 U	< 1 U
Ethylbenzene	ug/L	700	108	594	15.1	582	< 1 U	< 1 U
Total Xylenes	ug/L	1000	115	1060	21.4	1230	< 1 U	< 1 U
Metals								
Lead	ug/L	15						
VOCs								
1,2-Dibromoethane (EDB)	ug/L	0.01						
1,2-Dichloroethane (EDC)	ug/L	5						
Diisopropyl ether (DIPE)	ug/L		< 1 U					
Ethyl t-butyl ether (ETBE)	ug/L		< 1 U					
Methyl tert-butyl ether (MTBE)	ug/L	20	< 1 U					
t-Amyl methyl ether (TAME)	ug/L		< 1 U					
t-Butyl alcohol (TBA)	ug/L		< 20 U					

#### Notes

ug/L = micrograms per liter

UJ = nondetect, estimated

Bold = detected

Blue = exceeded

U = nondetect

J = esitmated

X = chromatographic pattern did not match fuel standard.

### **Table 3. Remedial Investigation Groundwater Elevations**

Project No. 180357, Lynnwood, Washington

Monitoring Well	TOC Elevation	Date	DTNAPL	DTW	LNAPL Thickness (feet)	Water Table (ft BTOC) <sup>1</sup>	Groundwater Elevation
		7/31/2019		12.86		12.86	438.88
MW-1	451.74	11/19/2019		13.81		13.81	437.93
10100-1	431.74	8/17/2020		11.82		11.82	439.92
		11/16/2020		12.85		12.85	438.89
		7/31/2019		11.51		11.51	439.08
MW-2	450.59	11/19/2019		11.76		11.76	438.83
IVI V V - Z	450.59	8/17/2020		10.77		10.77	439.82
		11/16/2020		11.3		11.30	439.29
		7/31/2019	10.45	10.75	0.3	10.52	441.17
NAVA / O	454.00	11/19/2019	11.62	12.00	0.38	11.71	439.98
MW-3	451.69	8/17/2020	9.69	9.94	0.25	9.75	441.94
		11/16/2020	10.93	11.09	0.16	10.97	440.72
		7/31/2019	11.22	11.33	0.11	11.25	440.76
	450.04	11/19/2019	12.36	12.67	0.31	12.43	439.58
MW-4	452.01	8/17/2020		10.41		10.41	441.60
		11/16/2020	11.69	11.71	0.02	11.69	440.32
		7/31/2019	9.87	10.69	0.82	10.07	441.31
100	454.00	11/19/2019	11.37	11.73	0.36	11.46	439.92
MW-5	451.38	8/17/2020	9.23	9.33	0.1	9.25	442.13
		11/16/2020	10.56	10.71	0.15	10.60	440.78
		7/31/2019		9.01		9.01	440.39
		11/19/2019		9.10		9.10	440.30
MW-6	449.4	8/17/2020		8.44		8.44	440.96
		11/16/2020		8.62		8.62	440.78
		7/31/2019		8.29		8.29	441.85
		11/19/2019		9.12		9.12	441.02
MW-7	450.14	8/17/2020		7.79		7.79	442.35
		11/16/2020		8.4		8.40	441.74
		7/31/2019	9.41	9.92	0.51	9.53	441.78
		11/19/2019	10.66	11.07	0.41	10.76	440.55
MW-8	451.31	8/17/2020		8.84		8.84	442.47
		11/16/2020	9.89	10.02	0.13	9.92	441.39
		7/31/2019		11.9		11.90	439.85
		11/19/2019		13.25		13.25	438.50
MW-9	451.75	8/17/2020		10.87		10.87	440.88
		11/16/2020		12.37		12.37	439.38
		7/31/2019		13.53		13.53	437.81
		11/20/2019		13.99		13.99	437.35
MW-10	451.34	8/17/2020		12.59		12.59	438.75
		11/16/2020		13.35		13.35	437.99
		7/31/2019		9.81		9.81	441.00
		11/19/2019		10.83		10.83	439.98
MW-11	450.81	8/17/2020		9.19		9.19	441.62
		11/16/2020		10.02		10.02	440.79
		7/31/2019		10.93		10.93	438.49
		11/19/2019		10.93		10.87	438.55
MW-12	449.42	8/17/2020		10.87		10.26	439.16
		11/16/2020		10.20		10.52	438.90

### **Table 3. Remedial Investigation Groundwater Elevations**

Project No. 180357, Lynnwood, Washington

Monitoring Well	TOC Elevation	Date	DTNAPL	DTW	LNAPL Thickness (feet)	Water Table (ft BTOC) <sup>1</sup>	Groundwater Elevation
		7/31/2019		13.67		13.67	436.90
MW-13	450.57	11/19/2019		13.83		13.83	436.74
10100-13	430.37	8/17/2020		12.76		12.76	437.81
		11/16/2020		13.28		13.28	437.29
		7/31/2019		14.64		14.64	436.21
MW-14	450.85	11/19/2019		14.73		14.73	436.12
10100-14	430.03	8/17/2020		13.65		13.65	437.20
		11/16/2020		14.14		14.14	436.71
		7/31/2019	12.40	12.42	0.02	12.40	438.76
MW-15	451.16	11/19/2019	13.97	14.15	0.18	14.01	437.15
10100-15	451.10	8/17/2020	12.27	12.96	0.69	12.44	438.72
		11/16/2020	13.22	13.88	0.66	13.38	437.78
		7/31/2019		9.15		9.15	441.45
NAVA 40	450.0	11/19/2019		10.58		10.58	440.02
MW-16	450.6	8/17/2020		8.40		8.40	442.20
		11/16/2020		9.69		9.69	440.91
		7/31/2019		8.47		8.47	441.71
	450.40	11/19/2019		9.70		9.70	440.48
MW-17	450.18	8/17/2020		7.90		7.90	442.28
		11/16/2020		8.83		8.83	441.35
		7/31/2019		12.08		12.08	437.20
		11/19/2019		12.96		12.96	436.32
MW-18	449.28	8/17/2020		11.04		11.04	438.24
		11/16/2020		12.07		12.07	437.21
		7/31/2019		11.54		11.54	434.48
		11/19/2019		10.31		10.31	435.71
MW-19	446.02	8/17/2020		9.76		9.76	436.26
		11/16/2020		9.67		9.67	436.35
		8/17/2020		8.54		8.54	442.05
MW-20	450.59	11/16/2020		9.32		9.32	441.27
		8/17/2020		11.41		11.41	439.19
MW-21	450.603	11/16/2020		10.16		10.16	440.44
		8/17/2020		11.38		11.38	439.87
MW-22	451.254	11/16/2020		12.31		12.31	438.94
		8/17/2020		13.16	+	13.16	437.92
MW-23	451.079	11/16/2020		13.10		13.90	437.18
		8/17/2020		12.31		12.31	436.78
MW-24	449.094	11/16/2020		12.02		12.02	437.07
		8/17/2020			+	9.87	439.83
MW-25	449.701	11/16/2020	<b></b>	9.87 11.43		11.43	439.83
MW-26	449.13	8/17/2020		14.92		14.92	434.21
		11/16/2020		15.73		15.73	433.40
MW-27	447.27	8/17/2020		DRY		45.04	424.22
		11/16/2020 8/17/2020		15.94		15.94	431.33
1				DRY			

#### Notes

TOC = Top of Casing elevation in ft above mean sea level (NAVD88); NAPL = Non-aqueous phase liquid DTNAPL = Depth to NAPL below TOC (ft); DTW = Depth to water below TOC (ft); btoc = below TOC

 $<sup>^{1}</sup>$  - In wells where NAPL is present, the depth to water table was calculated as Water Table = DTW + 0.76\*(DTNAPL-DTW)

Project No. 180357, Lynnwood, Washington

rioject No. 100557, Lymwood, Washington		Location	CMW-1	CMW-4		MV	V-1			MV	V-2		MW-4	MV	V-6
		Date	11/17/2020	11/17/2020	08/01/2019	11/20/2019	08/18/2020	11/18/2020	08/01/2019	11/20/2019	08/17/2020	11/17/2020	08/18/2020	07/31/2019	11/20/2019
		Sample	111720	111720	080119	112019	081820	111820	080119	112019	081720	111720	081820	073119	112019
		MTCA Method A													
Analyte	Unit	Cleanup Level													
Total Petroleum Hydrocarbons (TPHs)															
Gasoline Range Organics	ug/L	800	< 100 U	< 100 U	24000	44000	14000	31000	1600	4600	770	4100	170000	< 100 U	< 100 U
Diesel Range Organics	ug/L	500	< 50 U	< 50 U	2100 X	3200 X	2100 X	1800 X	790 X	2200 X	660 X	1300 X	4500 X	68 X	< 50 U
Motor Oil Range Organics	ug/L	500	< 250 U	< 250 U	1000 X	570 X	1100 X	810 X	< 250 U	260 X	310 X	< 250 U	1000 X	< 250 U	< 250 U
Diesel and Oil Extended Range Organics	ug/L	500	< 250 U	< 250 U	3100 X	3770 X	3200 X	2610 X	790 X	2460 X	970 X	1300 X	5500 X	68 X	< 250 U
BTEX															
Benzene	ug/L	5	< 0.35 U	< 0.35 U	4200	6700	2200	5600	13	30	4.5	29	6000	< 0.35 U	< 0.35 U
Toluene	ug/L	1000	<1U	< 1 U	410	1500	180	740	2.2	6.5	< 1 U	7.8	21000	< 1 U	<1U
Ethylbenzene	ug/L	700	<1U	< 1 U	520	860	300	720	6.5	28	2.8	49	2300	< 1 U	<1U
Total Xylenes	ug/L	1000	< 2 U	< 2 U	1650	3680	750	2780	7.4	23.9	2.1	24.4	14100	< 2 U	< 2 U
Metals															
Lead	ug/L	15			< 1 UJ	< 1 U			< 1 UJ	< 1 U				< 1 UJ	<1U
Polycyclic Aromatic Hydrocarbons (PAHs)															
Naphthalene	ug/L	160	< 1 U	< 1 U	130	210	84	200	33	150	15	150	500	< 1 U	<1U
Volatile Organic Compounds (VOCs)															
1,1,1-Trichloroethane	ug/L	200									-				
1,1-Dichloroethane	ug/L														
1,1-Dichloroethene	ug/L														
1,2-Dibromoethane (EDB)	ug/L	0.01			< 1 U	< 100 U			< 1 U	< 1 U				< 1 U	< 1 U
1,2-Dichloroethane (EDC)	ug/L	5			< 1 U	< 100 U			< 1 U	< 1 U				< 1 U	< 1 U
Chloroethane	ug/L														
cis-1,2-Dichloroethene (cDCE)	ug/L														
m,p-Xylenes	ug/L		< 2 U	< 2 U	1300	2800	580	2200	5.6	19	2.1	20	10000	< 2 U	< 2 U
Methyl tert-butyl ether (MTBE)	ug/L	20			< 1 U	< 100 U			< 1 U	< 1 U				< 1 U	< 1 U
Methylene Chloride	ug/L	5													
o-Xylene	ug/L		< 1 U	< 1 U	350	880	170	580	1.8	4.9	< 1 U	4.4	4100	< 1 U	< 1 U
Tetrachloroethene (PCE)	ug/L	5													
trans-1,2-Dichloroethene	ug/L														
Trichloroethene (TCE)	ug/L	5													
Vinyl Chloride	ug/L	0.2													

### Notes

Bold = detected

Blue = exceeded

U = nondetect

J = esitmated

UJ = nondetect, estimated

X = chromatographic pattern did not match fuel standard.

ug/L = micrograms per liter

### **Aspect Consulting**

Project No. 180357, Lynnwood, Washington

		Location	MV	V-6		M\	N-7		MW-8		MV	V-9		MW	<i>I</i> -10
		Date	08/17/2020	11/16/2020	07/31/2019	11/19/2019	08/17/2020	11/17/2020	08/18/2020	08/01/2019	11/20/2019	08/18/2020	11/16/2020	08/01/2019	11/20/2019
		Sample	081720	111620	073119	111920	081720	111720	081820	080119	112019	081820	111620	080119	112019
		MTCA Method A													
Analyte	Unit	Cleanup Level													
Total Petroleum Hydrocarbons (TPHs)	1		. 400 11	. 400 11	. 400 11	. 400 11	1 . 400 ! !	. 400 11	400000	. 400 11		. 400 11	. 400 11	10000	0.4000
Gasoline Range Organics	ug/L	800	< 100 U	< 100 U	130000	< 100 U	560	< 100 U	< 100 U	19000	21000				
Diesel Range Organics	ug/L	500	170 X	< 50 U	83 X	< 50 U	110 X	< 50 U	3200 X	88 X	290 X	80 X	< 54 U	1900 X	3900 X
Motor Oil Range Organics	ug/L	500	< 250 U	< 250 U	< 250 U	< 250 U	< 260 U	< 250 U	550 X	< 250 U	< 250 U	< 250 U	< 250 U	260 X	340 X
Diesel and Oil Extended Range Organics	ug/L	500	170 X	< 250 U	83 X	< 250 U	110 X	< 250 U	3750 X	88 X	290 X	80 X	< 250 U	2160 X	4240 X
BTEX			0.05.11	0.05.11	0.05.11	0.05.11		0.05.11	1000	0.05.11		0.05.11	0.05.11		
Benzene	ug/L	5	< 0.35 U	< 0.35 U	4800	< 0.35 U	6.4	< 0.35 U	< 0.35 U	2400	2800				
Toluene	ug/L	1000	< 1 U	< 1 U	< 1 U	2.7	< 1 U	< 1 U	18000	< 1 U	< 1 U	< 1 U	< 1 U	44	< 100 U
Ethylbenzene	ug/L	700	< 1 U	< 1 U	< 1 U	1.6	< 1 U	< 1 U	1600	< 1 U	6.6	< 1 U	< 1 U	670	1000
Total Xylenes	ug/L	1000	< 2 U	< 2 U	< 2 U	8.8	< 2 U	< 2 U	10300	< 2 U	3.3	< 2 U	< 2 U	1102.7	1500
Metals	1														
Lead	ug/L	15			< 1 UJ	< 1 U				< 1 UJ	< 1 U			< 1 UJ	< 1 U
Polycyclic Aromatic Hydrocarbons (PAHs)															
Naphthalene	ug/L	160	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	400	< 1 U	< 1 U	< 1 U	< 1 U	160	270
Volatile Organic Compounds (VOCs)															
1,1,1-Trichloroethane	ug/L	200													
1,1-Dichloroethane	ug/L		-	-				-		-		-	-		
1,1-Dichloroethene	ug/L			-				-					-		
1,2-Dibromoethane (EDB)	ug/L	0.01			< 1 U	< 1 U				< 1 U	< 1 U			< 1 U	< 100 U
1,2-Dichloroethane (EDC)	ug/L	5			< 1 U	< 1 U				< 1 U	< 1 U			< 1 U	< 100 U
Chloroethane	ug/L														
cis-1,2-Dichloroethene (cDCE)	ug/L														
m,p-Xylenes	ug/L		< 2 U	< 2 U	< 2 U	7.1	< 2 U	< 2 U	7500	< 2 U	< 2 U	< 2 U	< 2 U	1100	1500
Methyl tert-butyl ether (MTBE)	ug/L	20			< 1 U	< 1 U				< 1 U	< 1 U		-	< 1 U	< 100 U
Methylene Chloride	ug/L	5													
o-Xylene	ug/L		< 1 U	< 1 U	< 1 U	1.7	< 1 U	< 1 U	2800	< 1 U	3.3	< 1 U	< 1 U	2.7	< 100 U
Tetrachloroethene (PCE)	ug/L	5													
trans-1,2-Dichloroethene	ug/L														
Trichloroethene (TCE)	ug/L	5													
Vinyl Chloride	ug/L	0.2													

### Notes

Bold = detected

Blue = exceeded

U = nondetect

J = esitmated

UJ = nondetect, estimated

X = chromatographic pattern did not match fuel standard.

ug/L = micrograms per liter

### **Aspect Consulting**

Project No. 180357, Lynnwood, Washington

riojectivo. 100557, Lynnwood, washington		Location	MW	<i>I</i> -10	I	MV	<i>I</i> -11			MW	<b>/</b> -12		MW-13		
			08/18/2020		07/31/2019			11/17/2020	08/01/2019	11/20/2019		11/16/2020	07/31/2019		08/17/2020
		Sample	081820	111720	073119	111919	081720	111720	080119	112019	081720	111620	073119	112019	081720
		MTCA Method A													
Analyte	Unit	Cleanup Level													
Total Petroleum Hydrocarbons (TPHs)															
Gasoline Range Organics	ug/L	800	5100	12000	13000	20000	27000	5400	240	540	230	410	1400	1800	420
Diesel Range Organics	ug/L	500	1100 X	1400 X	1100 X	2400 X	1600 X	720 X	310 X	370 X	240 X	230 X	530 X	780 X	320 X
Motor Oil Range Organics	ug/L	500	360 X	< 250 U	< 250 U	310 X	260 X	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U
Diesel and Oil Extended Range Organics	ug/L	500	1460 X	1400 X	1100 X	2710 X	1860 X	720 X	310 X	370 X	240 X	230 X	530 X	780 X	320 X
ВТЕХ															
Benzene	ug/L	5	490	1800	320	270	330	160	0.59	1.1	< 0.35 U	0.65	7.5	4	0.75
Toluene	ug/L	1000	< 10 U	31	1800	1500	2200	290	< 1 U	<1U	<1U	< 1 U	< 1 U	< 1 U	<1U
Ethylbenzene	ug/L	700	200	630	410	690	790	220	< 1 U	<1U	<1U	< 1 U	< 1 U	< 1 U	<1U
Total Xylenes	ug/L	1000	240	620	1400	2580	3400	400	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Metals															
Lead	ug/L	15			3.49 J	1.85	-		< 1 UJ	<1U			< 1 UJ	< 1 U	
Polycyclic Aromatic Hydrocarbons (PAHs)															
Naphthalene	ug/L	160	60	220	42	130	140	110	< 1 U	<1U	<1U	< 1 U	< 1 U	< 1 U	<1U
Volatile Organic Compounds (VOCs)															
1,1,1-Trichloroethane	ug/L	200	1	-		-	-	-				-	< 1 U	< 1 U	
1,1-Dichloroethane	ug/L		-	-		ł	-	-				-	< 1 U	< 1 U	-
1,1-Dichloroethene	ug/L		-	-		-	-	-				-	< 1 U	< 1 U	
1,2-Dibromoethane (EDB)	ug/L	0.01	-	-	< 1 U	< 100 U	-	-	< 1 U	< 1 U		-	< 1 U	< 1 U	
1,2-Dichloroethane (EDC)	ug/L	5	-	-	< 1 U	< 100 U	-	-	< 1 U	< 1 U		-	< 1 U	< 1 U	
Chloroethane	ug/L		-	-		1	-	-				-	< 1 U	< 1 U	-
cis-1,2-Dichloroethene (cDCE)	ug/L		-	-		-		-				-	< 1 U	< 1 U	
m,p-Xylenes	ug/L		240	620	1000	2100	2700	280	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Methyl tert-butyl ether (MTBE)	ug/L	20			< 1 U	< 100 U			< 1 U	< 1 U			< 1 U	< 1 U	
Methylene Chloride	ug/L	5				-							< 5 U	< 5 U	
o-Xylene	ug/L		< 10 U	< 10 U	400	480	700	120	< 1 U	< 1 U	<1U	< 1 U	< 1 U	< 1 U	<1U
Tetrachloroethene (PCE)	ug/L	5				-							< 1 U	< 1 U	
trans-1,2-Dichloroethene	ug/L					-							< 1 U	< 1 U	
Trichloroethene (TCE)	ug/L	5											< 1 U	< 1 U	
Vinyl Chloride	ug/L	0.2											< 0.2 U	< 0.2 U	

### Notes

Bold = detected

Blue = exceeded

U = nondetect J = esitmated

UJ = nondetect, estimated

X = chromatographic pattern did not match fuel standard.

ug/L = micrograms per liter

### **Aspect Consulting**

Project No. 180357, Lynnwood, Washington

riojectivo. 100337, Eyiiiwood, wasiiiigtoii		Location	MW-13		MW	<i>I</i> -14			MW	<i>I</i> -16			MV	<i>I</i> -17	
		Date	11/17/2020	07/31/2019	11/20/2019	08/18/2020	11/18/2020	07/31/2019	11/19/2019	08/17/2020	11/16/2020	07/31/2019	11/19/2019	08/17/2020	11/17/2020
		Sample	111720	073119	112019	081820	111820	073119	111919	081720	111620	073119	111919	081720	111720
		MTCA Method A													
Analyte	Unit	Cleanup Level													1
Total Petroleum Hydrocarbons (TPHs)															
Gasoline Range Organics	ug/L	800	1200	7500	11000	5000	6400	< 100 U	< 100 U	< 100 U	< 100 U	1800	1100	550	1200
Diesel Range Organics	ug/L	500	490 X	1200 X	1600 X	570 X	780 X	84 X	< 50 U	130 X	< 50 U	320 X	560 X	270 X	550 X
Motor Oil Range Organics	ug/L	500	260 X	330 X	300 X	< 250 U	290 X	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U
Diesel and Oil Extended Range Organics	ug/L	500	750 X	1530 X	1900 X	570 X	1070 X	84 X	< 250 U	130 X	< 250 U	320 X	560 X	270 X	550 X
BTEX															
Benzene	ug/L	5	1.5	2400	2700	1200	2000	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U	4.2	1.1	5.7
Toluene	ug/L	1000	<1U	32	< 100 U	9.8	19	< 1 U	<1U	<1U	<1U	< 1 U	2.8	<1U	6.9
Ethylbenzene	ug/L	700	<1U	130	< 100 U	32	31	< 1 U	<1U	<1U	<1U	< 1 U	< 1 U	<1U	< 1 U
Total Xylenes	ug/L	1000	< 2 U	90	< 200 U	22.9	< 20 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	6.3	< 2 U	16
Metals															
Lead	ug/L	15		< 1 UJ	< 1 U	-		< 1 UJ	1.02			< 1 UJ	< 1 U		
Polycyclic Aromatic Hydrocarbons (PAHs)															
Naphthalene	ug/L	160	< 1 U	50	< 100 U	31	46	< 1 U	<1U	<1U	<1U	< 1 U	1.6	<1U	1.9
Volatile Organic Compounds (VOCs)															
1,1,1-Trichloroethane	ug/L	200		<1U	< 100 U	-	-		-		-		-		
1,1-Dichloroethane	ug/L			<1U	< 100 U	-	-		-		-		-		
1,1-Dichloroethene	ug/L			<1U	< 100 U	-									
1,2-Dibromoethane (EDB)	ug/L	0.01		<1U	< 100 U	-	-	< 1 U	<1U		-	< 1 U	< 1 U		
1,2-Dichloroethane (EDC)	ug/L	5		<1U	< 100 U	-		< 1 U	<1U			< 1 U	< 1 U		
Chloroethane	ug/L			<1U	< 100 U	-							-		
cis-1,2-Dichloroethene (cDCE)	ug/L			<1U	< 100 U	-									
m,p-Xylenes	ug/L		< 2 U	72	< 200 U	19	< 20 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	4.2	< 2 U	16
Methyl tert-butyl ether (MTBE)	ug/L	20		<1U	< 100 U	-		< 1 U	<1U			< 1 U	< 1 U		
Methylene Chloride	ug/L	5		< 5 U	< 500 U	-							-		
o-Xylene	ug/L		< 1 U	18	< 100 U	3.9	< 10 U	< 1 U	< 1 U	<1U	< 1 U	< 1 U	2.1	< 1 U	< 1 U
Tetrachloroethene (PCE)	ug/L	5		< 1 U	< 100 U										
trans-1,2-Dichloroethene	ug/L			<1U	< 100 U										
Trichloroethene (TCE)	ug/L	5		< 1 U	< 100 U										
Vinyl Chloride	ug/L	0.2		2.7	< 20 U										

### Notes

Bold = detected

Blue = exceeded

U = nondetect

J = esitmated

UJ = nondetect, estimated

X = chromatographic pattern did not match fuel standard.

ug/L = micrograms per liter

### **Aspect Consulting**

Project No. 180357, Lynnwood, Washington

1 Toject No. 100557, Lyffilwood, Washington		Location		MW	<i>I</i> -18			MW	<i>I</i> -19		MW	<b>1-20</b>	MV	<i>I</i> -21	MW-22
			07/31/2019			11/16/2020	07/31/2019			11/17/2020	08/17/2020			11/17/2020	08/17/2020
		Sample	073119	111919	081820	111620	073119	112019	081820	111720	081720	111720	081720	111720	081720
		MTCA Method A													
Analyte	Unit	Cleanup Level													
Total Petroleum Hydrocarbons (TPHs)															
Gasoline Range Organics	ug/L	800	< 100 U	1300	< 100 U	340	< 100 U	< 100 U	< 100 U	< 100 U	120	< 100 U	7400	6600	14000
Diesel Range Organics	ug/L	500	55 X	260 X	< 50 U	59 X	< 50 U	< 50 U	< 50 U	< 50 U	180 X	< 50 U	3200 X	2800 X	2500 X
Motor Oil Range Organics	ug/L	500	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	260 X	360 X	< 250 U
Diesel and Oil Extended Range Organics	ug/L	500	55 X	260 X	< 250 U	59 X	< 250 U	< 250 U	< 250 U	< 250 U	180 X	< 250 U	3460 X	3160 X	2500 X
BTEX															
Benzene	ug/L	5	1	240	1.2	61	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U	21	25	540
Toluene	ug/L	1000	<1U	8.2	< 1 U	< 1 U	< 1 U	<1U	< 1 U	<1U	<1U	<1U	< 10 U	12	56
Ethylbenzene	ug/L	700	<1U	14	< 1 U	2.1	< 1 U	<1U	< 1 U	<1U	<1U	<1U	400	620	630
Total Xylenes	ug/L	1000	< 2 U	65	< 2 U	11.9	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	48	43	1350
Metals															
Lead	ug/L	15	< 1 UJ	< 1 U	-		< 1 UJ	<1U			-		-		
Polycyclic Aromatic Hydrocarbons (PAHs)															
Naphthalene	ug/L	160	< 1 U	5.2	< 1 U	2.4	< 1 U	<1U	< 1 U	< 1 U	< 1 U	< 1 U	470	440	220
Volatile Organic Compounds (VOCs)															
1,1,1-Trichloroethane	ug/L	200	< 1 U	< 1 U			< 1 U	< 1 U							
1,1-Dichloroethane	ug/L		< 1 U	< 1 U			< 1 U	< 1 U							
1,1-Dichloroethene	ug/L		< 1 U	< 1 U	-		< 1 U	< 1 U			-	-			
1,2-Dibromoethane (EDB)	ug/L	0.01	< 1 U	< 1 U			< 1 U	< 1 U							
1,2-Dichloroethane (EDC)	ug/L	5	< 1 U	< 1 U			< 1 U	< 1 U							
Chloroethane	ug/L		< 1 U	< 1 U			< 1 U	< 1 U							
cis-1,2-Dichloroethene (cDCE)	ug/L		< 1 U	< 1 U			< 1 U	< 1 U							
m,p-Xylenes	ug/L		< 2 U	48	< 2 U	9.8	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	48	43	1200
Methyl tert-butyl ether (MTBE)	ug/L	20	< 1 U	< 1 U			< 1 U	< 1 U							
Methylene Chloride	ug/L	5	< 5 U	< 5 U			< 5 U	< 5 U							
o-Xylene	ug/L		<1U	17	< 1 U	2.1	< 1 U	< 1 U	< 1 U	<1U	< 1 U	<1U	< 10 U	< 10 U	150
Tetrachloroethene (PCE)	ug/L	5	< 1 U	< 1 U			17	12							
trans-1,2-Dichloroethene	ug/L		< 1 U	< 1 U			< 1 U	< 1 U							
Trichloroethene (TCE)	ug/L	5	<1U	< 1 U			1	< 1 U							
Vinyl Chloride	ug/L	0.2	< 0.2 U	< 0.2 U	-		< 0.2 U	< 0.2 U			-		-		

### Notes

Bold = detected

Blue = exceeded

U = nondetect

J = esitmated

UJ = nondetect, estimated

X = chromatographic pattern did not match fuel standard.

ug/L = micrograms per liter

### **Aspect Consulting**

# **Table 4. Remedial Investigation Groundwater Analytical Data**

Project No. 180357, Lynnwood, Washington

Location			MW-22	MW	<b>I-23</b>	MW-24		MW-25		MW-26		MW-27
	11/16/2020	08/18/2020	11/18/2020	08/18/2020	11/17/2020	08/18/2020	11/16/2020	08/18/2020	11/16/2020	11/20/2020		
	111620	081820	111820	081820	111720	081820	111620	081820	111620	112020		
		MTCA Method A										
Analyte	Unit	Cleanup Level										
Total Petroleum Hydrocarbons (TPHs)												
Gasoline Range Organics	ug/L	800	24000	21000	27000	< 100 U	< 100 U	< 100 U				
Diesel Range Organics	ug/L	500	3000 X	1900 X	2600 X	76 X	< 50 U	55 X	< 50 U	< 50 U	< 50 U	< 50 U
Motor Oil Range Organics	ug/L	500	410 X	< 250 U	390 X	< 250 U	< 250 U	< 250 U				
Diesel and Oil Extended Range Organics	ug/L	500	3410 X	1900 X	2990 X	76 X	< 250 U	55 X	< 250 U	< 250 U	< 250 U	< 250 U
ВТЕХ												
Benzene	ug/L	5	1000	3100	5300	< 0.35 U	< 0.35 U	< 0.35 U	0.53	< 0.35 U	< 0.35 U	< 0.35 U
Toluene	ug/L	1000	240	210	120	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Ethylbenzene	ug/L	700	1300	400	640	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Total Xylenes	ug/L	1000	3880	900	930	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Metals												
Lead	ug/L	15	-									
Polycyclic Aromatic Hydrocarbons (PAHs)												
Naphthalene	ug/L	160	390	110	170	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Volatile Organic Compounds (VOCs)												
1,1,1-Trichloroethane	ug/L	200	-		-				-		-	
1,1-Dichloroethane	ug/L		-		-				-		-	
1,1-Dichloroethene	ug/L											
1,2-Dibromoethane (EDB)	ug/L	0.01	-									
1,2-Dichloroethane (EDC)	ug/L	5	-		-				-		-	
Chloroethane	ug/L		-		-				-		-	
cis-1,2-Dichloroethene (cDCE)	ug/L		-									
m,p-Xylenes	ug/L		3500	790	930	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Methyl tert-butyl ether (MTBE)	ug/L	20	-		-				-		-	
Methylene Chloride	ug/L	5	-		-				-		-	
o-Xylene	ug/L		380	110	< 50 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethene (PCE)	ug/L	5							-		-	
trans-1,2-Dichloroethene	ug/L								-		-	
Trichloroethene (TCE)	ug/L	5										
Vinyl Chloride	ug/L	0.2	-									

### Notes

Bold = detected

Blue = exceeded

U = nondetect J = esitmated

UJ = nondetect, estimated

X = chromatographic pattern did not match fuel standard.

ug/L = micrograms per liter

## **Aspect Consulting**

Table 4

## **Table 5. Remedial Investigation Soil Gas Analytical Data**

Project No. 180357, Lynnwood, Washington

Location					GF	P-01		GP-02		GP-03		
				Date	07/25/2019	08/20/2020	07/25/2019	08/20/2020	11/20/2020	07/25/2019	08/20/2020	11/20/2020
				Sample Name	GP-01-072519	GP-01-082020	GP-02-072519	GP-02-082020	GP-02-112020	GP-03-072519	GP-03-082020	GP-03-112020
			MTCA Method B	MTCA Method B								
		Risk	Subslab Screening	Subslab Screening								
Analyte	Unit	Driver	Level (Unrestricted) <sup>1</sup>	Level (Commercial) <sup>2</sup>								
BTEX												
Benzene	ug/m3	С	11	37	3.8	< 1.1 U	1.5	< 1.1 U	< 1.1 U	3.4	6.4	< 2.7 U
Toluene	ug/m3	NC	76000	560,000	28	< 64 U	12	< 62 U	< 64 U	15	< 170 U	< 160 U
Ethylbenzene	ug/m3	NC	15000	110,000	6	< 1.5 U	3.4	3.1	2.2	3.9	60	< 3.6 U
Total Xylenes	ug/m3	NC	1500	11,000	32.9	< 3 U	18.3	16.7	12	21.5	293	10
PAHs												
Naphthalene	ug/m3	С	2.5	8.4	< 0.84 U	< 0.89 U	< 0.81 U	1.2	< 0.89 U	< 2 U	< 2.3 U	< 2.2 U
VOCs												
1,2-Dibromoethane (EDB)	ug/m3	NC	0.14	0.47	< 0.25 U		< 0.24 U			< 0.6 U		
1,2-Dichloroethane (EDC)	ug/m3	NC	3.2	10.7	< 0.13 U		< 0.13 U			< 0.32 U		
Methyl tert-butyl ether (MTBE)	ug/m3	NC	320	1070	< 5.8 U		< 5.6 U			< 14 U		
APH												
C5 - C8 Aliphatic Hydrocarbons	ug/m3				410	580	350	630	210	9,100	15,000	3,700
C9 - C12 Aliphatic Hydrocarbons	ug/m3				2,200	680	2,600	890	480	11,000	2,300	1,100
C9 - C10 Aromatic Hydrocarbons	ug/m3				< 80 U	< 85 U	< 77 U	< 82 U	< 85 U	< 190 U	< 220 U	< 210 U
Total Petroleum Hydrocarbons (ND = 1/2 RL)	ug/m3	NC	4,700	35,000	2,721	1,338	3,024	1,614	780	20,240	17,856	5,001

#### Notes

- (1) Model Toxic Control Act (MTCA) Method B Subslab Soil Gas Screening Levels (SLs).
- (2) Commercial screening levels calculated by adjusting exposure frequency for both noncarcinogens and carcinogens to 0.30, and average body weight and breathing rate for noncarcinogens to 70 kg and 20 m<sup>3</sup>/day, respectively. These adjustments are in accordance with MTCA Equations 750-1 and 750-2 and Ecology's Implementation Memorandum No. 21 (FAQs Regarding VI and Ecology's 2009 Draft VI Guidance).
- (3) Total petroleum hydrocarbon concentration is the sum total of VOCs and APHs, one-half of the laboratory detection limit was used for non-detects.
- (4) Generic sub-slab TPH screening level based on generic TPH indoor air cleanup level of 140 ug/m3 and an attenuation factor of 0.03 (Ecology Implementation Memo #18.)

### **Bold - Analyte Detected**

### Blue Shaded - Detected result exceeded unrestricted use MTCA Method B Subslab Screening Level

BTEX = benzene, toleuene, ethylbenzene, and total xylenes

PAHs = polycyclic aromatic hydrocarbons

VOCs = volatile organic compounds

APH = air petroleum hydrocarbon

µg/m₂ = micrograms per cubic meter

-- = Not Analyzed

U = Analyte was not detected at or above the Reporting Limit shown.

C = Carcinogenic; NC = Non carcinogenic

**Aspect Consulting** 

Project No. 180357, Lynnwood, Washington

				Location	GP	-04	GP-05	GP-06	SVS	S-01	SVS	S-02
				Date	07/25/2019	08/20/2020	11/20/2020	11/20/2020	07/25/2019	08/20/2020	07/25/2019	08/20/2020
				Sample Name	GP-04-072519	GP-04-082020	GP-05-112020	GP-06-112020	SVS-01-072519	SVS-01-082020	SVS-02-072519	SVS-02-082020
			MTCA Method B	MTCA Method B								
		Risk	Subslab Screening	Subslab Screening								
Analyte	Unit	Driver	Level (Unrestricted) <sup>1</sup>	Level (Commercial) <sup>2</sup>								
BTEX												
Benzene	ug/m3	С	11	37	1.2	1.7	< 14 U	2.7	2.2	17	3.3	1.8
Toluene	ug/m3	NC	76000	560,000	11	< 68 U	< 810 U	< 64 U	9.3	< 160 U	13	< 64 U
Ethylbenzene	ug/m3	NC	15000	110,000	3.4	5.1	< 19 U	5	2.6	7	2.9	5.8
Total Xylenes	ug/m3	NC	1500	11,000	18.7	28.3	< 37 U	25.8	14.4	57	14.2	31.3
PAHs												
Naphthalene	ug/m3	С	2.5	8.4	< 0.84 U	< 0.94 U	< 11 U	< 0.89 U	< 0.81 U	< 2.2 U	< 0.81 U	< 0.89 U
VOCs												
1,2-Dibromoethane (EDB)	ug/m3	NC	0.14	0.47	< 0.25 U				< 0.24 U		< 0.24 U	
1,2-Dichloroethane (EDC)	ug/m3	NC	3.2	10.7	< 0.13 U				< 0.13 U		< 0.13 U	
Methyl tert-butyl ether (MTBE)	ug/m3	NC	320	1070	< 5.8 U				< 5.6 U		< 5.6 U	
АРН												
C5 - C8 Aliphatic Hydrocarbons	ug/m3				510	650	22,000	160	1,000	4,100	1,700	750
C9 - C12 Aliphatic Hydrocarbons	ug/m3		-		1,800	470	5,000	390	1,300	6,700	1,100	670
C9 - C10 Aromatic Hydrocarbons	ug/m3				100	< 90 U	< 1100 U	< 85 U	78	< 210 U	100	< 85 U
Total Petroleum Hydrocarbons (ND = 1/2 RL)	ug/m3	NC	4,700	35,000	2,445	1,235	28,005	658	2,407	11,067	2,934	1,534

#### Notes

- (1) Model Toxic Control Act (MTCA) Method B Subslab Soil Gas Screening Levels (SLs).
- (2) Commercial screening levels calculated by adjusting exposure frequency for both noncarcinogens and carcinogens to 0.30, and average body weight and breathing rate for noncarcinogens to 70 kg and 20 m<sup>3</sup>/day, respectively. These adjustments are in accordance with MTCA Equations 750-1 and 750-2 and Ecology's Implementation Memorandum No. 21 (FAQs Regarding VI and Ecology's 2009 Draft VI Guidance).
- (3) Total petroleum hydrocarbon concentration is the sum total of VOCs and APHs, one-half of the laboratory detection limit was used for non-detects.
- (4) Generic sub-slab TPH screening level based on generic TPH indoor air cleanup level of 140 ug/m3 and an attenuation factor of 0.03 (Ecology Implementation Memo #18.)

### **Bold - Analyte Detected**

### Blue Shaded - Detected result exceeded unrestricted use MTCA Method B Subslab Screening Level

BTEX = benzene, toleuene, ethylbenzene, and total xylenes

PAHs = polycyclic aromatic hydrocarbons

VOCs = volatile organic compounds

APH = air petroleum hydrocarbon

µg/m₂ = micrograms per cubic meter

- -- = Not Analyzed
- U = Analyte was not detected at or above the Reporting Limit shown.
- C = Carcinogenic; NC = Non carcinogenic

**Aspect Consulting** 

**Table 6. Basis of Remedial Excavation Extents**Project No. 180357, Lynnwood, Washington DRAFT

Area of Site	Location		Depth to Unweathered Till (feet bgs)	Depth of Deepest Soil CUL Exceedance (feet bgs)	Depth of Soil Compliance (feet bgs)	Depth of Planned Excavation (feet bgs)	Depth of Maximum Possible Overexcavation (feet bgs)	
	MW-3	0	17	17.5	Not Delineated	18	> 25	The soil CUL exceedance at 17.5 feet was for benzene only, and may have been caused by dragdown of LNAPL during drilling. Due to the distance from the shoring wall, the maximum possible overexcavation depth is greater than 25 feet bgs. Depth of first impacted soil based on PID readings.
	MW-4	0	17	17.5	Not Delineated	18	> 25	The soil CUL exceedance at 17.5 feet was for benzene only, and may have been caused by dragdown of LNAPL during drilling. Due to the distance from the shoring wall, the maximum possible overexcavation depth is greater than 25 feet bgs. Depth of first impacted soil based on PID readings.
Source Area	MW-5	0	17.5	17.5	Not Delineated	18	22	The soil CUL exceedance at 17.5 feet was for benzene only, and may have been caused by dragdown of LNAPL during drilling. Due to the distance from the shoring wall, the maximum possible overexcavation depth at this location is 22 feet bgs. Depth of first impacted soil based on PID readings.
Godise / Ned	MW-8	0	20	20	Not Delineated	20	22	The soil CUL exceedance at 17.5 feet was for benzene only, and may have been caused by dragdown of LNAPL during drilling. Due to the distance from the shoring wall, the maximum possible overexcavation depth at this location is 22 feet bgs. Depth of first impacted soil based on PID readings.
	SB1	10	17.5	12.5	16	16	> 25	Overexcavation is not anticipated at this location. However, due to the layout of the shoring and slope cuts, overexcavation in this area is possible to the depth indicated. Depth of first impacted soil based on PID readings.
	SB2	0	15	15	Not Delineated	16	> 25	Due to the distance from the shoring wall, the maximum possible overexcavation depth is greater than 25 feet bgs. Depth of first impacted soil based on PID readings.
	SB			2	Not Delineated			Too shallow to be used for the purpose of defining excavation extents.
	B-7	7	16	8	12.5	10	18	Due to its position near MW-5, and the slope requirements from the NW corner of the two shoring walls, the maximum possible overexcavation in this area is expected to be 18 feet bgs. Depth of first impacted soil based on PID readings.
Northwest	B-10	> 12.5	15	No Exceedances	Ground Surface	As needed for sloping	10	Due to its position near the corner of the two shoring walls, some excavation of clean soil may be necessary to meet sloping requirements within the interior of the excavation.
Corner	MW-9	0	10	20	Not Delineated	18	25	The soil CUL exceedance at both 10 and 20 feet was for benzene only, and may have been caused by dragdown during drilling. The planned excavation depth is based on nearby locations and the relative order of magnitude of CUL exceedances at 10 feet bgs versus 20 feet bgs. Due to the proximity of this location to both MW-1 and the NW corner where the two shoring walls meet, the maximum possible overexcavation at this location will be 25 feet bgs.

Table 6

**Table 6. Basis of Remedial Excavation Extents**Project No. 180357, Lynnwood, Washington DRAFT

Area of Site	Location	Depth of First Impacted Soil (feet bgs)	Depth to Unweathered Till (feet bgs)	Depth of Deepest Soil CUL Exceedance (feet bgs)	Depth of Soil Compliance (feet bgs)	Depth of Planned Excavation (feet bgs)	Depth of Maximum Possible Overexcavation (feet bgs)	Notes
	MW-1	0	17.5	27.5	Not Delineated	18	30	The soil CUL exceedance at 27.5 feet was for benzene only, and may have been caused by dragdown of LNAPL during drilling. The planned excavation depth is to the top of unweathered till at this location. However, the shoring wall has been designed to extend 2.5 feet below the deepest historical soil CUL exceedance.
Southwest Area	MW-10	0	20	20	Not Delineated	20	> 25	The soil CUL exceedance at 20 feet was for benzene only, and may have been caused by dragdown during drilling. The depth to unweathered till forms the basis of the remedial excavation depth. Due to the distance from the shoring wall, the maximum possible overexcavation depth is greater than 25 feet bgs.
	MW-15	10.5	13	17.5	25	18	> 25	Based on its distance from the shoring wall, the maximum possible overexcavation depth at this location is greater than 25 feet bgs.
	MW-23	18	12.5	25	Not Delineated	20	30	The soil CUL exceedance at 25 feet was for benzene only, and may have been caused by dragdown during drilling. The planned excavation depth is based on the order of magnitude of the soil exceedance at 18 feet as compared to the soil exceedance at 25 feet bgs. However, based on the proximity of this location to MW-1, the maximum possible overexcavation depth at this location will be 30 feet bgs.
	B-11	> 15	18	No Exceedances	Ground Surface	As needed for sloping	As needed for sloping	This location establishes the eastern edge of soil compliance. Excavation in this area will only be performed as necessary to meet sloping requirements for larger excavation area.
	MW-2	17.5	17.5	17.5	Not Delineated	18	20	The soil CUL exceedance at 17.5 feet was for benzene only, and may have been caused by dragdown during drilling. Due to the distance from the property line, the maximum possible overexcavation depth is 20 feet bgs.
Eastern Extents	MW-11	0	18	6	13	8	13	This location will be part of the slope cut. Based on the boring logs, an excavation depth of 8 feet is expected, though the shoring has been designed to reach depths of up to 13 feet bgs in this area.
Eastern Externs	MW-20	> 13	18	No Exceedances	Ground Surface	As needed for sloping	As needed for sloping	This location establishes the eastern edge of soil compliance. Excavation in this area will only be performed as necessary to meet sloping requirements for larger excavation area.
	MW-21	> 17.5	17.5	No Exceedances	Ground Surface	As needed for sloping	As needed for sloping	This location establishes the eastern edge of soil compliance. Excavation in this area will only be performed as necessary to meet sloping requirements for larger excavation area.
	MW-22	16	17.5	16	25	17.5	> 25	The soil CUL exceedance at 16 feet was for benzene only. Based on its distance from the shoring wall, the maximum possible overexcavation depth at this location is greater than 25 feet bgs.

### Notes:

bgs = below ground surface

CUL = MTCA Method A Cleanup Levels

## **Aspect Consulting**

Table 6

## **Table 7. Estimated Soil Removal Volumes**

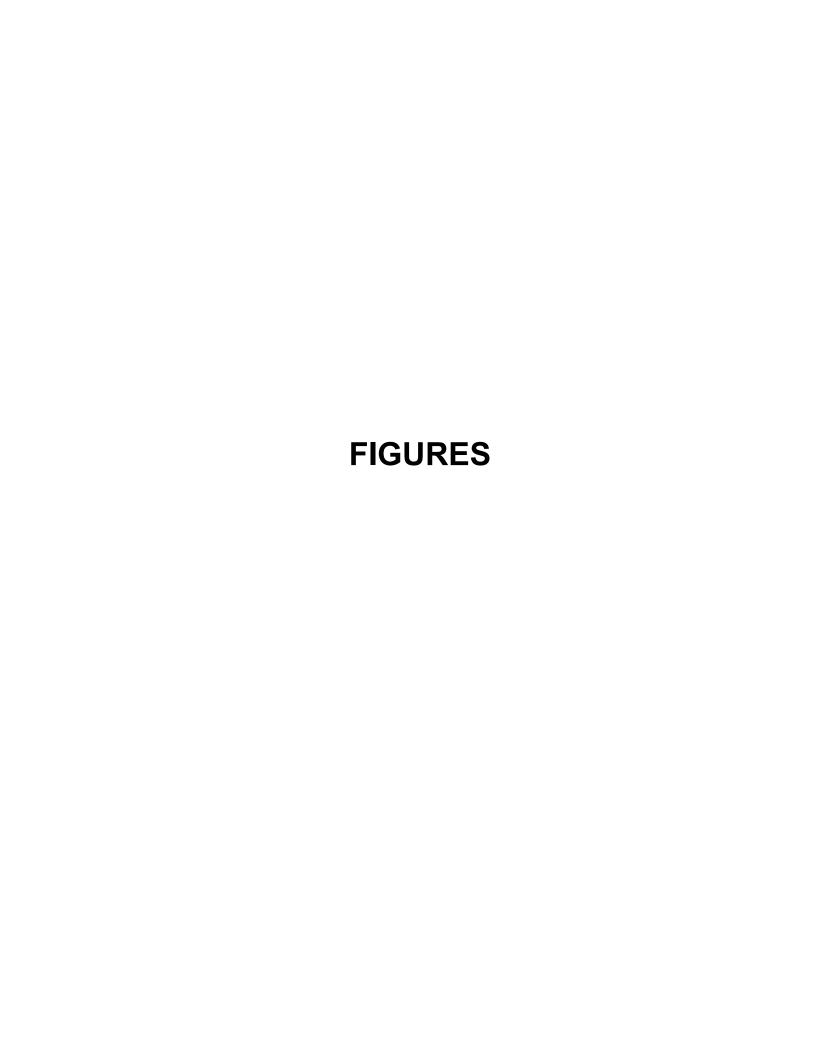
Project No. 180357, Lynnwood, Washington

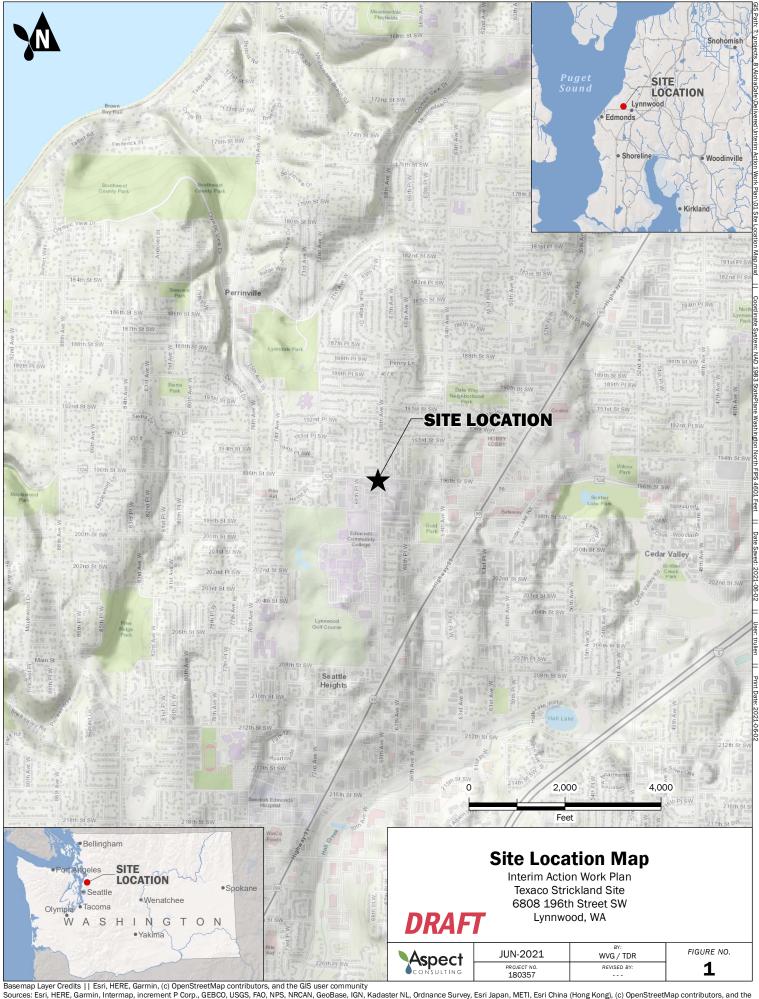
	Elevation	Area	Volume	
Feature	(feet <sup>1</sup> )	(square feet)	(cubic yards)	Notes
Planned Excavation Top	451	13,100	N/A	Area at ground surface
Planned Excavation Bottom	431-433	6,500	N/A	Area at planned bottom
Overexcavation Bottom	421	5,560	N/A	Area at practical limit bottom
Planned Soil Removal	431-433	N/A	7,100	Assumed 1.5:1 side slopes <sup>2</sup>
	Pote	ntially Clean Soil	1,800	Based depth to first impacted soil
Petroleum Contaminated Soil			5,300	Planned Soil Removal less Potentially Clean
Additional Overexcavation	421	N/A	3,000	Assumed 1.5:1 side slopes <sup>2</sup>

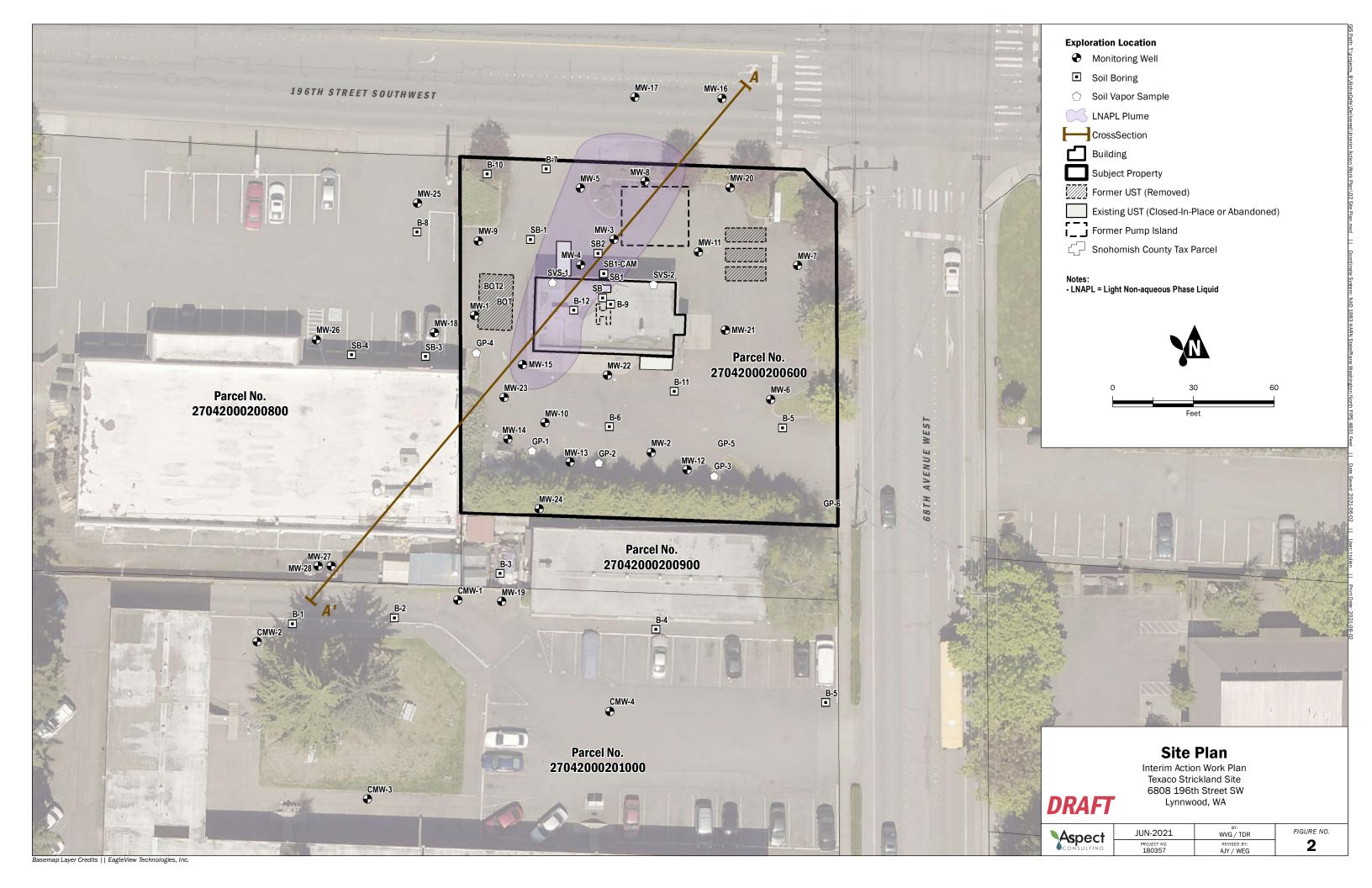
#### Notes:

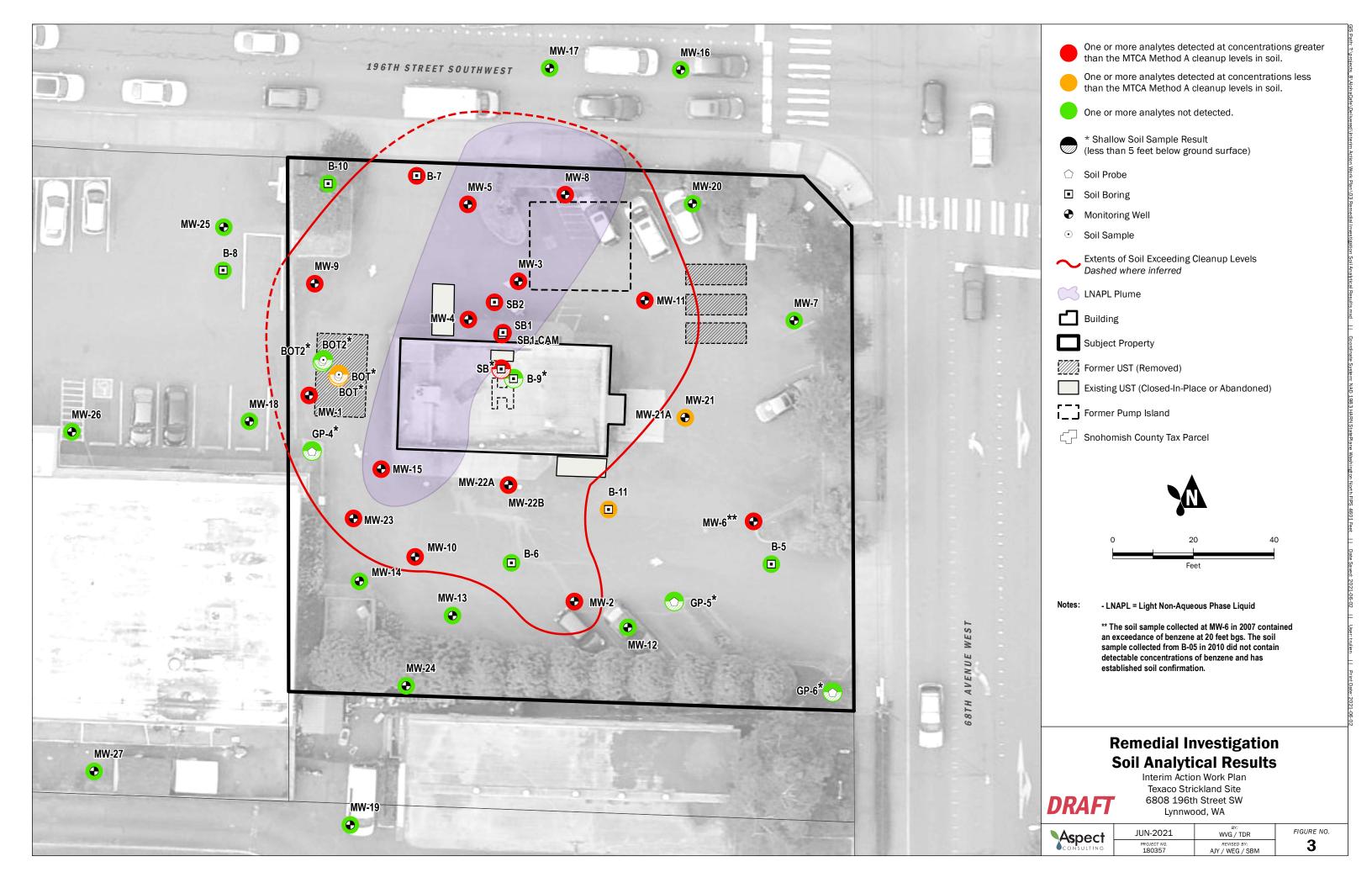
- 1) Elevation feet in NAVD88
- 2) Except for southern cut slope near MW-2 which may be closer to 1:1

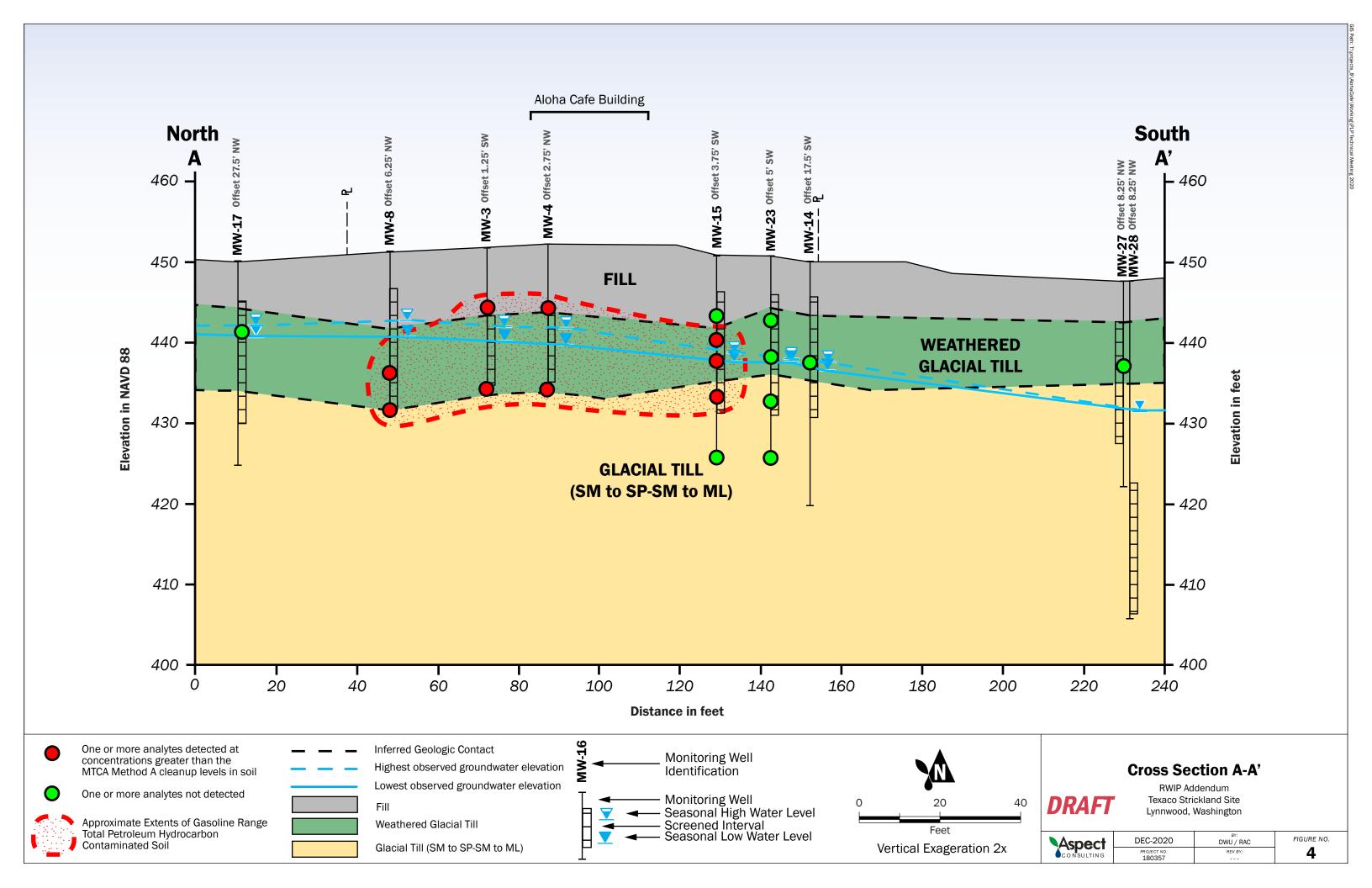
Table areas and volumes assume a 1-foot offset from the property line and 3-foot offset from utilities to the shoring wall.

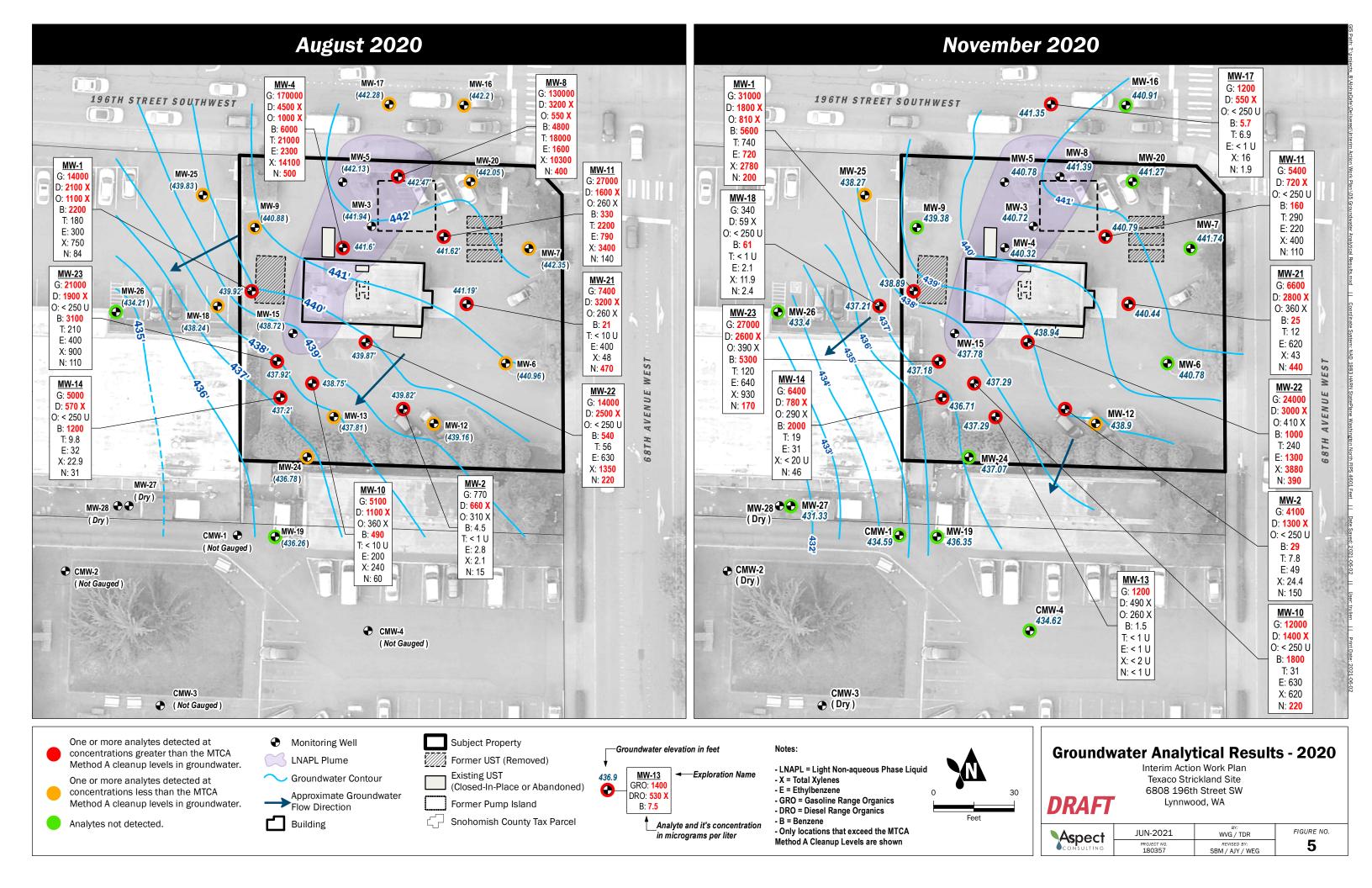


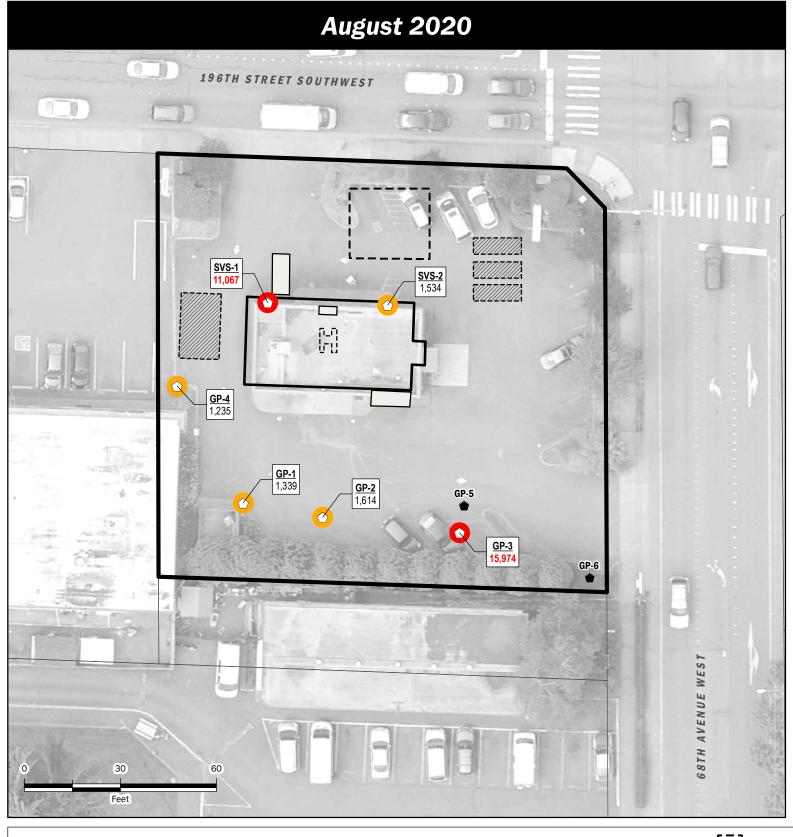


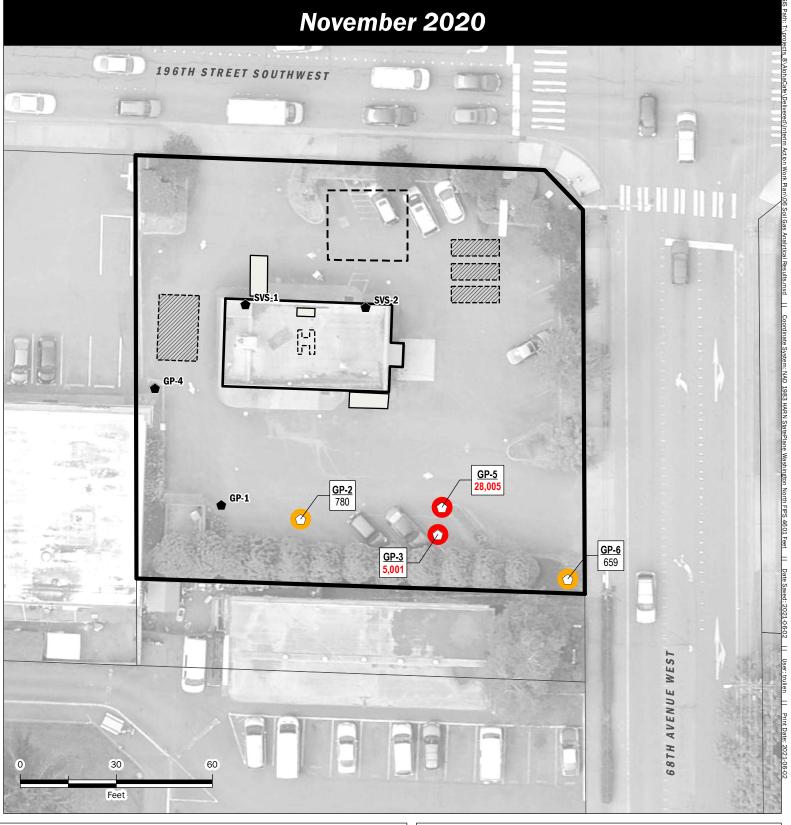


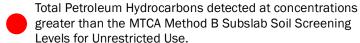












Total Petroleum Hydrocarbons detected at concentrations less than the MTCA Method B Subslab Soil Screening Levels for Unrestricted Use.

Total Petroleum Hydrocarbons not detected.

Soil Vapor Sample (Not Sampled During Event)

**B**uilding

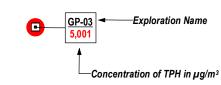
Subject Property

Former UST (Removed)

Existing UST (Closed-In-Place or Abandoned)



Snohomish County Tax Parcel





#### Notes:

- TPH = Total Petroleum Hydrocarbons
- μg/m³ = Micrograms per cubic meter
   Total petroleum hydrocarbon
- Total petroleum hydrocarbon concentration is the sum total of VOCs and APHs; one-half of the laboratory detection limit was used for non-detects.

## **Soil Gas Analytical Results - 2020**

Interim Action Work Plan Texaco Strickland Site 6808 196th Street SW Lynnwood, WA

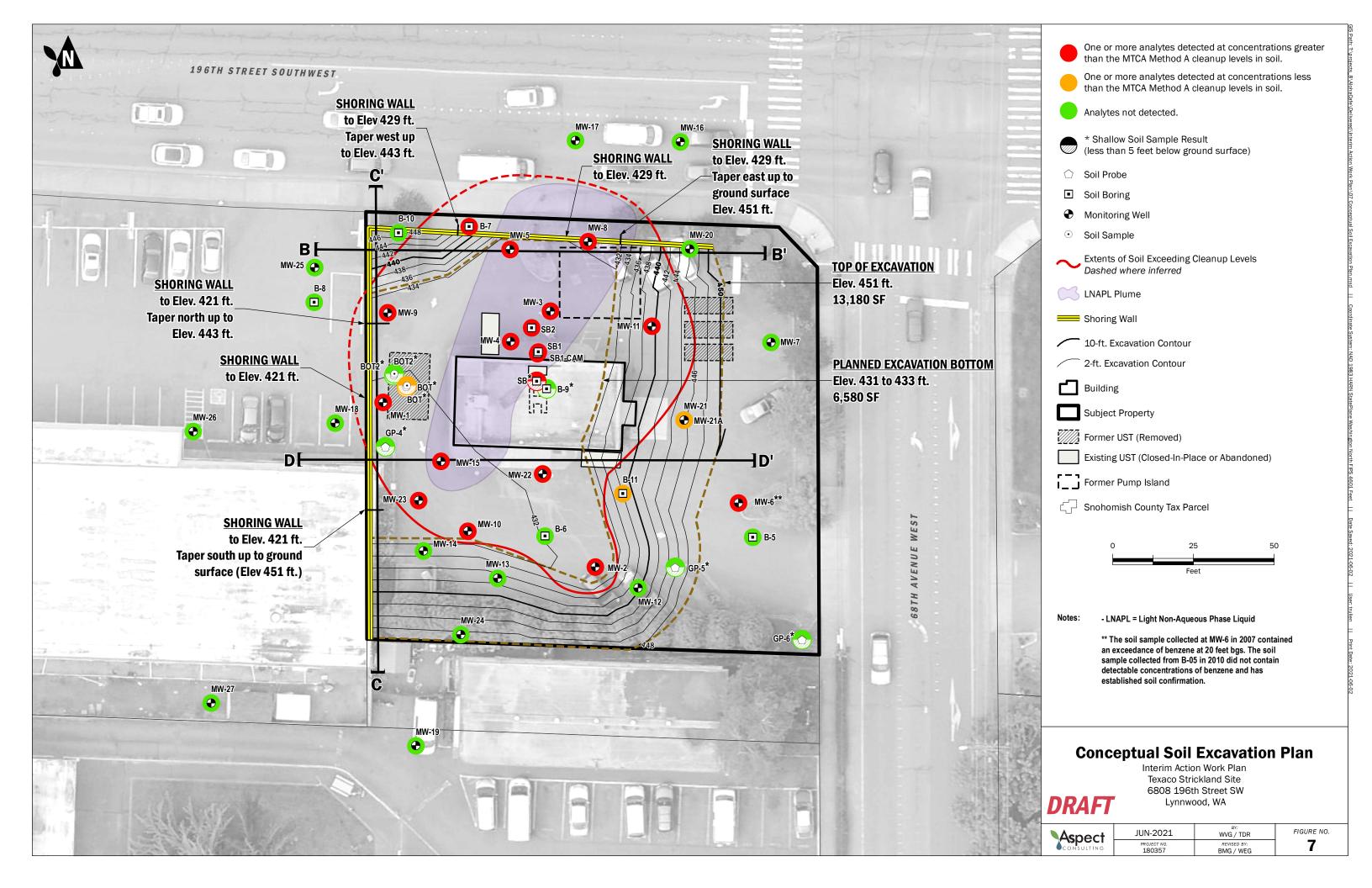


Aspect

JUN-2021 WG / TDR FIGURE NO.

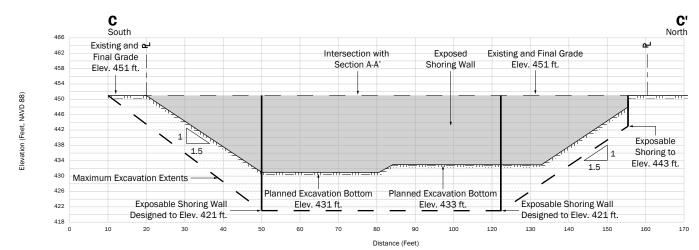
PROJECT NO. REVISED BY:
180357 SBM / AJY / WEG

6

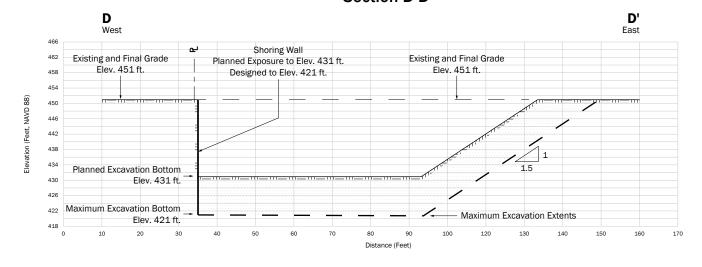


#### Section B-B' В B' 462 Existing and Final Grade Existing and Final Grade Elev. 451 ft. Elev. 451 ft. Exposed Shoring Wall Exposable Shoring Wall Designed 442 to Elev. 443 ft. 1.5 1.5 Maximum Excavation Extents -----434 Exposable Shoring Wall Exposable Shoring Wall Designed to Elev. 429 ft. Planned Excavation Bottom Designed to Elev. 429 ft. Elev. 433 ft. 422 Planned Excavation Bottom Elev. 431 ft. Distance (Feet)

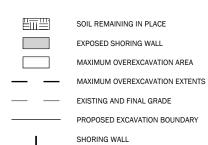
## Section C-C'



### Section D-D'



## LEGEND:



### **Cross Section Scale**



# **Conceptual Soil Excavation Sections**



Interim Action Work Plan Texaco Strickland Site 6808 196th Street SW Lynnwood, WA

Aspect	
CONSULTING	

FEB-2021	BMG / RAC	FIGURE NO.		
PROJECT NO. 180357	REV BY:	8		