



**CONESTOGA-ROVERS  
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August 17, 2011

Reference No. 241739

Libby Goldstein  
Dept of Ecology, NW Region  
3190 160th Ave SE  
Bellevue, WA 98008-5452

Re: Remedial Investigation Report  
Former Jiffy Lube Facility  
6808 196<sup>th</sup> Street Southwest  
Lynnwood, WA  
Sap Code 171152  
Ecology F/S No. 27496218  
VCP No. NW2070

---

Dear Ms. Goldstein:

Please find the enclosed Remedial Investigation Report for the former Jiffy Lube facility located at 6808 196<sup>th</sup> Street Southwest, Lynnwood, WA. We are requesting Ecology's review and opinion on this report. If you have any questions regarding the contents of the enclosed document, please call Christina McClelland at (425) 563-6514.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Christina McClelland

CM/cd/1  
Encl.

Remedial Investigation Report

cc: Perry Pineda; Shell Oil Products US  
Strickland Holdings

Equal  
Employment  
Opportunity Employer



## REMEDIATION INVESTIGATION REPORT

FORMER JIFFY LUBE FACILITY  
6808 196<sup>TH</sup> STREET SOUTHWEST  
LYNNWOOD, WASHINGTON

SAP CODE            171152  
INCIDENT NO.      97605410  
AGENCY NO.        27496218  
VCP NO.            NW2070

**Prepared For:**

Shell Oil Products US  
20945 S. Wilmington Ave  
Carson, CA 90810

**AUGUST 17, 2011**

**REF. NO. 241739 (7)**

This report is printed on recycled paper.

**Prepared by:  
Conestoga-Rovers  
& Associates**

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U.S.A. 98036

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## REMEDIAL INVESTIGATION REPORT

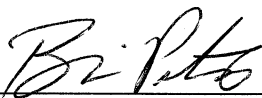
FORMER JIFFY LUBE FACILITY  
6808 196<sup>TH</sup> STREET SOUTHWEST  
LYNNWOOD, WASHINGTON

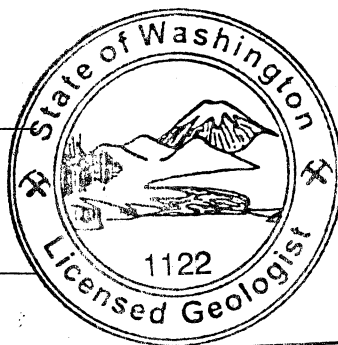
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**Prepared For:**

Shell Oil Products US  
20945 S. Wilmington Ave  
Carson, CA 90810

  
\_\_\_\_\_  
Christina McClelland

  
\_\_\_\_\_  
Brian Peters, LG



BRIAN C. PETERS

**AUGUST 17, 2011**

**REF. NO. 241739 (7)**

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## 1.0 INTRODUCTION

### 1.1 SITE INFORMATION

<i>Site Name:</i>	Former Jiffy Lube Facility
<i>Site Address:</i>	6808 196 <sup>th</sup> Street Southwest, Lynnwood, Washington
<i>Voluntary Cleanup Program Number:</i>	NW2070
<i>Project Consultant:</i>	Conestoga-Rovers & Associates
<i>Project Consultant Contact Information:</i>	Christina McClelland 20818 44 <sup>th</sup> Avenue West, Suite 190 Lynnwood, Washington 98036 Office - 425.563-6500 Direct - 425.563-6514
<i>Current Owner/Operator:</i>	Strickland Real Estate Holdings LLC

### 1.2 PURPOSE

Conestoga-Rovers & Associates (CRA) prepared this Remedial Investigation (RI) report on behalf of Equilon Enterprises LLC dba Shell Oil Products US (SOPUS) for the former Jiffy Lube Facility located at 6808 196<sup>th</sup> Street Southwest, Lynnwood, Snohomish County, Washington (Property; Figure 1).

This RI report was prepared to satisfy the items required by Washington Administrative Code (WAC) 173-340-350 and summaries remedial investigation findings for the Site. The Site background and summary of previous investigations and remediation activities presented in this report are a summary of historical Site investigations, the 2010 Site investigation completed by CRA, and documents prepared by CRA and previous consultants. A list of all documents reviewed in preparation of this report is included in Appendix A.

## 2.0 SITE IDENTIFICATION AND DESCRIPTION

### 2.1 SITE DISCOVERY AND REGULATORY STATUS

In August 1995, Nowicki and Associates (Nowicki) conducted soil compliance sampling in association with the removal of one 3,000-gallon new oil underground storage tank (UST) and the closure-in-place of one 500-gallon waste oil UST. Concentrations of total petroleum hydrocarbons (TPH) as diesel (TPHd) and TPH as heavy oil (TPHo) were



detected above the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels in soil samples collected from west sidewall. Nowicki over-excavated the locations containing petroleum hydrocarbon impacted soil. Approximately 65 tons of petroleum-hydrocarbon impacted soil was removed from the new oil UST excavation. Soil samples collected from the sidewalls and bottom of the new oil UST excavation following over-excavation were below laboratory reporting limits for TPHd and TPHo.

A petroleum release was reported to Ecology on November 20, 1995, and the Site was listed with Ecology's leaking underground storage tank (LUST) program (ID #6802). The Site was entered into Ecology's Voluntary Cleanup Program (VCP) in 2009 and issued site number NW2070. In February 2007, the listing was amended to include petroleum hydrocarbon impacted groundwater as a "media affected." The current status of the Site with Ecology is "Cleanup Started" for soil and groundwater as of February 2007. It should be noted that in February 2007, Cambria Environmental Technologies reported a secondary release at the Site relating to gasoline range hydrocarbons found during a 2006 site investigation. The release of gasoline range hydrocarbons were erroneously added to the existing release of oil range hydrocarbons associated with the lube facility operation. The two releases occurred at different times and by different responsible parties. The distinction between these two releases will be discussed as part of this report.

MTCA Method A cleanup levels for soil will be used as screening levels for purposes of discussion of investigation results. Cleanup standards are more fully developed and discussed in Section 8.

## **2.2 SITE AND PROPERTY LOCATION/DEFINITION**

The Property is a former Jiffy Lube Facility located on the southwest corner of 196<sup>th</sup> Street Southwest and 68<sup>th</sup> Avenue West in Lynnwood, Snohomish County, Washington (Property; Figure 1). The Property operated as a service station prior to converting to a lube facility in approximately 1977. All known business operators at the Property leased the Property from the Lorena Strickland Family. A legal description of the Property, including past and present owners and operators, is included in Appendix B. Currently the Aloha Café (a coffee shop) operates at the Property.

The MTCA site (Site) is defined as all affected areas from the petroleum release associated with the lube facility operation at the Property and any potentially impacted adjacent parcels. The Site boundary is presented on Figure 2. The affected areas associated with the gasoline range hydrocarbon release are not considered part of the Site described in this report.

### **2.3 NEIGHBORHOOD SETTING**

The Property is zoned as commercial. The surrounding area is a combination of commercial and residential properties. The nearest residential area is located on the adjacent property to the south. A dry cleaners and carpet store occupies the adjacent property to the west. A strip mall occupies the property to the north across 196<sup>th</sup> Street Southwest, and a parking lot occupies the property to the east across 68<sup>th</sup> Avenue West (Figure 3).

### **2.4 PHYSIOGRAPHIC SETTING/TOPOGRAPHY**

The Property is located at approximately 450 feet above mean sea level (msl) in a relatively flat area located approximately ¾ mile west of Scriber Lake.

Surface cover at the Property is primarily asphalt and concrete pavement. One catch basin is located in the southeastern corner of the Property. The area topography slopes gently from the site to the south and west, and is locally relatively level to the north and east.

## **3.0 PROPERTY DEVELOPMENT AND HISTORY**

### **3.1 PAST PROPERTY USES AND FACILITIES**

Based on the station building construction date, the Property was developed in approximately 1959. Historical documents suggest that a Texaco service station operated on the Property from 1959 to 1977, and was replaced by a lube oil facility under various ownership from 1977 to 2006. The layout of the original Texaco service station facilities are uncertain; however, the former dispenser islands are believed to have been located in the north-central portion of the Property and the former gasoline USTs were believed to be located in the northeastern corner of the Property. Three gasoline USTs were likely present at the Property. Equilon acquired the Jiffy Lube facility in 2004 and operated until the facility was taken out of service on April 30, 2006. According to Ecology's UST data summary, the lube facilities included one 3,000-gallon new oil UST, one 500-gallon waste oil UST (both installed in 1982), and one 500-gallon heating oil UST (of unknown installation date). In 1995, the new and waste USTs were replaced with above ground storage tanks (ASTs). A summary all historical USTs associated with the Property are listed below.

<i>Tank Type &amp; Volume</i>	<i>Content</i>	<i>Date Installed</i>	<i>Date Decommissioned</i>	<i>Tank Operator</i>
Unknown	Gasoline	1959	1977	Texaco
Unknown	Gasoline	1959	1977	Texaco
Unknown	Gasoline	1959	1977	Texaco
3,000-gallon UST	New Oil	1982	1995	Jiffy Lube/Equilon
500-gallon UST	Waste Oil	1982	1995	Jiffy Lube/Equilon
500-gallon UST	Heating Oil	Unknown	1989	Jiffy Lube/Equilon

### **3.2 CURRENT PROPERTY USE AND FACILITIES**

The Property currently operates as the Aloha Café. Facilities on the Property currently include the former station building (Figure 2). The Jiffy Lube facilities were decommissioned on April 30, 2006; however, no report documenting the decommissioning could be located.

### **3.3 PROPOSED OR POTENTIAL FUTURE PROPERTY USES**

Planned use for the Property is uncertain; however, due to its location and zoning, it will likely continue as commercial use.

### **3.4 ZONING**

The Property is zoned as commercial by the City of Lynnwood Zoning Map (2010), and surrounding properties are a mix of commercial and residential zoning.

### **3.5 TRANSPORTATION/ROADS**

The Property is located on the southwestern corner of 196<sup>th</sup> Street Southwest and 68<sup>th</sup> Avenue West (Figure 2). 196<sup>th</sup> Street Southwest (also known as State Route 524) is a major east-west arterial which connects the City of Edmonds to the west to the City of Lynnwood. 68<sup>th</sup> Avenue West is a minor arterial connecting commercial areas to the south with residential areas to the north.

### **3.6 UTILITIES AND WATER SUPPLY**

Utilities are present in the subsurface throughout the Property and overhead electrical lines run along the southern Property boundary. Subsurface electrical lines run from the station building to the station sign in the northeastern planter, water and natural gas lines run between the station building and the eastern Property boundary, and electrical and telecommunications lines run from the station building to the southeastern corner of the Property (Figure 2). Immediately off-property to the west, another natural gas line and overhead electric lines are present. Drinking water for the City of Lynnwood is provided by the Alderwood Water and Wastewater District, which acquires water from the City of Everett. The City of Everett sources water from Lake Spada Reservoir, Chaplain Reservoir, and the Sultan River.

### **3.7 POTENTIAL SOURCES OF CONTAMINATION FROM NEIGHBORING PROPERTIES**

Two separate Phase I Environmental Site Assessments (ESA) in 2003 and 2004 indicate that former service stations had historically occupied the northwest and southeast corners of the intersection of 196<sup>th</sup> Street Southwest and 68<sup>th</sup> Avenue West, both of which are identified in Ecology's LUST list. An Environmental Data Resources, Inc. (EDR) report attached to the 2003 Phase I ESA indicated that twelve additional LUST sites were listed within ½ mile of the Property. There is also a dry cleaners on the adjacent property to the west, and a laundromat to the northeast, however neither property has a record of spills or violations. The twelve additional properties identified in the EDR report are all cross-gradient or downgradient of the Property. Based on the cross-gradient position of the former service station to the east, it is not considered to be a source of the release at the Property. The LUST facility immediately to the north is a potential source of the contamination at the Property based on its close proximity and upgradient location.

## **4.0 ENVIRONMENTAL INVESTIGATION SUMMARY**

A total of 13 soil borings (including one hand auger boring) have been advanced on-Property, and two soil borings have been advanced off-Property. Ten of the on-Property soil borings were completed as monitoring wells. Additionally, six compliance soil samples have been collected at the Site.

A complete chronological summary of work completed at the Site during the investigations listed above is included as Appendix C. Reports summarized in Appendix C represent all available investigation reports obtained by or provided to

CRA. Figures 4A and 4B present the locations of all soil samples collected during the investigation activities at the Site. A summary of all soil sample locations submitted for analyses, including the date of the sample, depth, consultant performing sampling, and analytical methods and results are presented in Table 1. A summary of historical groundwater monitoring results are summarized in Table 2. All available historical boring logs for the previous investigations are included in Appendix D. Two soil borings were advanced via a hollow stem auger drill rig in May 2010 to a depth of 20 feet bgs on the adjacent property to the west (Figure 4A and 4B). Grab groundwater samples were collected from these borings from temporary monitoring wells. The borings were backfilled with bentonite chips upon completion. Soil boring logs from CRA's 2010 investigation are included in Appendix E. Laboratory analytical reports for soil samples collected in association with CRA's 2010 investigation are included as Appendix F.

## 5.0 NATURAL CONDITIONS

### 5.1 GEOLOGY

The Property is located in the Puget Lowland Physiographic province, which consists of mainly glacially-deposited sediments. The Puget Sound Lowland is a basin lying between the Cascade Mountain Range to the east and the Olympic Mountain Range to the west.

The Property is underlain by imported fill and native material. Fill comprises the subsurface to approximately 7.5 feet bgs, and is underlain by unconsolidated sediments (silts and sands with gravels and clay) characteristic of weathered till to approximately 18 feet bgs. The unconsolidated sediments are underlain by consolidated, dense silts and sands with gravel and clay, characteristic of unweathered till. The till extends to the maximum depth explored of 32.5 feet bgs

Cross sections describing subsurface soil conditions are included as Figures 5A, 5B, 6A and 6B.

### 5.2 GROUNDWATER

Shallow groundwater beneath the Site is present at average depths varying between approximately 6.1 to 14.9 feet bgs in Site monitoring wells. Groundwater encountered in the Site wells is likely perched water present on top of native material consisting of relatively lower permeable silts and interbedded sands, with trace amounts of gravel and clay. Groundwater flows to the southwest. Table 2 presents historical groundwater elevations and groundwater monitoring results for all Site wells. The EDR provided in a 2003 Phase I ESA for the Property indicated that no drinking water wells are present

within ½ mile of the Property. A search of the Ecology Well Log database returned 3 potential wells within a 1-mile radius of the Site. The 3 wells are located 1 mile east-southeast, 0.75 miles southeast, and 0.5 miles northwest. Based on the age of the well installation (1953-1991), these wells likely no longer exist or are not used. The regional groundwater aquifer is estimated at greater than 300 feet bgs based on data provided in the well logs.

### **5.3 SURFACE WATER**

Surface waters near the Site include Scriber Lake located approximately ¾ mile to the east.

### **5.4 TERRESTRIAL ECOLOGICAL RECEPTORS**

The Site qualifies for a TEE exclusion because there is less than 1.5 acres of undeveloped land within a 500-foot radius of the Site. The TEE exclusion form is included in Appendix G.

## **6.0 CONTAMINANT OCCURRENCE AND MOVEMENT**

### **6.1 SOIL**

Table 1 summarizes soil analytical data for the Site. The locations of all soil samples are presented in Figures 4A and 4B. Figures 4A and 4B present the horizontal extent of petroleum hydrocarbons in soil, whereas Figures 5A, 5B, 6A, and 6B present the vertical extent of petroleum hydrocarbons in soil. Based on previous investigations, the extent of petroleum hydrocarbon-impacted soil related to Jiffy Lube facility operations has been adequately defined at the Site based on comparison to MTCA Method A screening levels and is confined to the immediate vicinity of the closed-in-place waste oil UST.

### **6.2 GROUNDWATER**

Table 2 summarizes historical groundwater analytical results for Site monitoring wells. A groundwater contour and chemical concentration map for the third quarter 2010 and a Rose diagram depicting groundwater flow directions since December 2006 are presented in Figures 7A and 7B.

Concentrations of TPHd and TPHo are below MTCA Method A cleanup levels, except in monitoring well MW-8, where the TPHd and TPHo concentrations are likely the result

of weathered gasoline eluting in the diesel and oil ranges, and/or the result of hydrocarbon migration from an off-Site source. Monitoring well MW-8 is located approximately 45 feet upgradient (north) of the lube facility release. SPH continues to periodically be reported in monitoring wells MW-3, MW-4, and MW-5, and less frequently in monitoring well MW-8 (Table 2). The concentration of TPHd in two grab samples collected in May 2010 from temporary wells in soil borings SB-3 and SB-4 above the MTCA Method A screening level is also likely weathered gasoline eluting in the diesel range.

Fuel fingerprint analysis conducted in late 2009 concluded that the SPH detected in monitoring wells MW-3, MW-4, and MW-5 (and likely the intermittently detected SPH in MW-8) consists of weathered gasoline; lube oil constituents were absent (Appendix H)<sup>1</sup>. Concentrations of TPHg and BTEX, related to the former service station operations, are persistently detected above the MTCA Method A screening levels in monitoring wells MW-1, MW-2, and MW-10 (Table 2). Benzene in grab groundwater sampled from a temporary well in soil boring SB-3 in May 2010 also was above the MTCA Method A screening level.

### **6.3            SURFACE WATER**

Based on the distance to the nearest surface water bodies, no investigation of surface water associated with this release is necessary.

### **6.4            AIR/SOIL VAPOR**

There have been no investigations of soil vapor at the Site. Based on the distribution of Site contaminants in soil and groundwater beneath the Site associated with the lube facility release, impacts to soil vapor are likely negligible. Soil vapor associated with the former gasoline service station release will require further evaluation.

### **6.5            SEDIMENT**

No sediment has been sampled as there has been no indication that the surface water has been impacted from the Property or Site.

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<sup>1</sup> The fuel fingerprint analysis included as Appendix H refers to results from well MW-6; however, the chain-of-custody included in the memo indicates that samples were taken from MW-3, MW-4, and MW-5. Because SPH has never been present in MW-6, it is clear that the results included in the analysis are in fact from MW-5.

## 7.0 CONCEPTUAL MODEL

Based on the results of environmental activities, two distinct releases have occurred at the Property; one release associated with the former lube oil facility operations before 1995 (but after UST installation in 1982); and one release associated with the former service station operations at the Property before 1977. The exact circumstances of either release is not known, but the release associated with the lube oil facility is likely sourced from the closed-in-place waste oil UST; and the release associated with the former service station operations is likely sourced from the former dispenser islands and former product conveyance system. The former fuel USTs may also be a source of the release associated with the former service station, but soil and groundwater data at monitoring well MW-7 suggest that the dispenser islands and product conveyance system were the source of the release.

Soil and groundwater data obtained during environmental activities suggests that the release associated with the lube oil facility is limited to soil in the immediate vicinity of the former waste oil UST. Monitoring well MW-10, downgradient of the closed-in-place waste oil UST, has had no detections of TPHo in groundwater above the laboratory reporting limits since installation. Concentrations of TPHd and TPHo reported in groundwater are most likely the result of weathered gasoline eluting in the diesel and heavy oil ranges. Fuel fingerprint analysis of an SPH sample taken from monitoring well MW-3 demonstrated that SPH at the Site is comprised entirely of weathered gasoline; lube oil constituents are absent.

The Property has likely been capped by asphalt and concrete since development in 1959 and therefore has not been exposed to infiltrating surface water. Subsurface soils at the Site consist of several feet of fill overlying weathered till, which is comprised of poorly sorted silts and sands with variable amounts of clay and gravel. At approximately 18 feet bgs, relatively impermeable glacial till is present to the maximum depth explored at the Site of 32.5 feet bgs. The depth to the perched water fluctuates seasonally, and is normally present at the Site from approximately 6.1 to 14.9 feet bgs. SPH is currently present routinely in monitoring wells MW-3, MW-4, and MW-5, and intermittently in monitoring well MW-8, all in the vicinity of the former dispenser islands. In 2009, SPH was periodically removed passively using absorbent socks, and in 2010, SPH was periodically removed by bailing.

## 8.0 CLEANUP STANDARDS - SOIL AND GROUNDWATER

In accordance with MTCA, development of cleanup levels includes identifying potential exposure pathways for humans and environmental impacts based on the planned land use. The Property is currently zoned for commercial use and zoning is not anticipated to



change in the near future. As previously noted, the Property is currently used as a coffee shop.

## **8.1 SOIL CLEANUP LEVELS**

MTCA Method A soil cleanup levels will be used for Jiffy Lube constituents of concern (COCs) beneath the Site. The point of compliance for soil cleanup levels based on protection of groundwater is all soil throughout the Site from the ground surface to the groundwater table. Soil cleanup levels are included in Table 1.

## **8.2 GROUNDWATER CLEANUP LEVELS**

MTCA Method A groundwater cleanup levels will be used for Jiffy Lube COCs. Based on the data collected to date, it does not appear that groundwater has been impacted by any former lube oil operations at the Site. Groundwater cleanup levels are included in Table 2.

## **9.0 INTERIM ACTION SUMMARY**

During the 1995 new oil UST removal, 65 tons of petroleum hydrocarbon impacted soil was reportedly removed and disposed of offsite. In 2009 and 2010, SPH was removed from monitoring wells MW-3, MW-4 and MW-5 using absorbent socks and bailing. No additional interim actions have been identified at the Site.

## **10.0 AREAS REQUIRING FUTURE MANAGEMENT AND CONCLUSIONS**

### **10.1 CONSTITUENTS OF CONCERN**

TPHo in soil is the only COC associated with the Site (former lube facility release).

### **10.2 SOIL - VERTICAL AND LATERAL**

The only area requiring future soil management is around the closed-in-place 500-gallon waste oil UST, beneath the existing on-Site building.

### 10.3 GROUNDWATER - VERTICAL AND LATERAL

The groundwater associated with the Site has not been impacted by COCs originating from the former lube oil facility, and therefore, future management of groundwater is not required.

### 11.0 CONCLUSIONS AND RECOMMENDATIONS

Based on all of the data collected to date, residual impacts related to the release originating from the former lube oil operations on the Property is limited to a very small area beneath the existing building. The former lube oil release has not adversely impacted groundwater and is not likely to impact groundwater in the future. The former gasoline service station operations resulted in a much larger release encompassing the majority of the Property and possibly extending off-Property, impacting both soil and groundwater. The small area of remaining soil impacts beneath the building are not accessible for removal or remediation without significant disturbance to the existing business, and much more significant impacts to soil and groundwater associated with the former gasoline service station would still remain beneath the Property. Therefore, CRA recommends the evaluation and execution of an environmental covenant associated with the lube oil facility release for the residual soil impacts beneath the existing building. CRA also recommends that a separate environmental release is opened with Ecology and the appropriate responsible party is identified.

### 12.0 REFERENCES

City of Lynnwood, *Current Zoning Map*, April 20, 2010.

Environmental Data Resources, Inc., *EDR-Radius Map with GeoCheck*, December 9, 2002.

FINEnvironmental, Inc., *Phase I Environmental Site Assessment Limited Compliance Audit*, January 28, 2003.

GeoEngineers, Inc., *Limited Phase I Environmental Site Assessment*, February 11, 2004.

Nowicki and Associates, *Lynnwood Quaker State Lube UST Closure Site Characterization*, September 27, 1995.

Nowicki and Associates, *Waste Oil UST - Characterization Soil Boring*, November 20, 1995.

## FIGURES

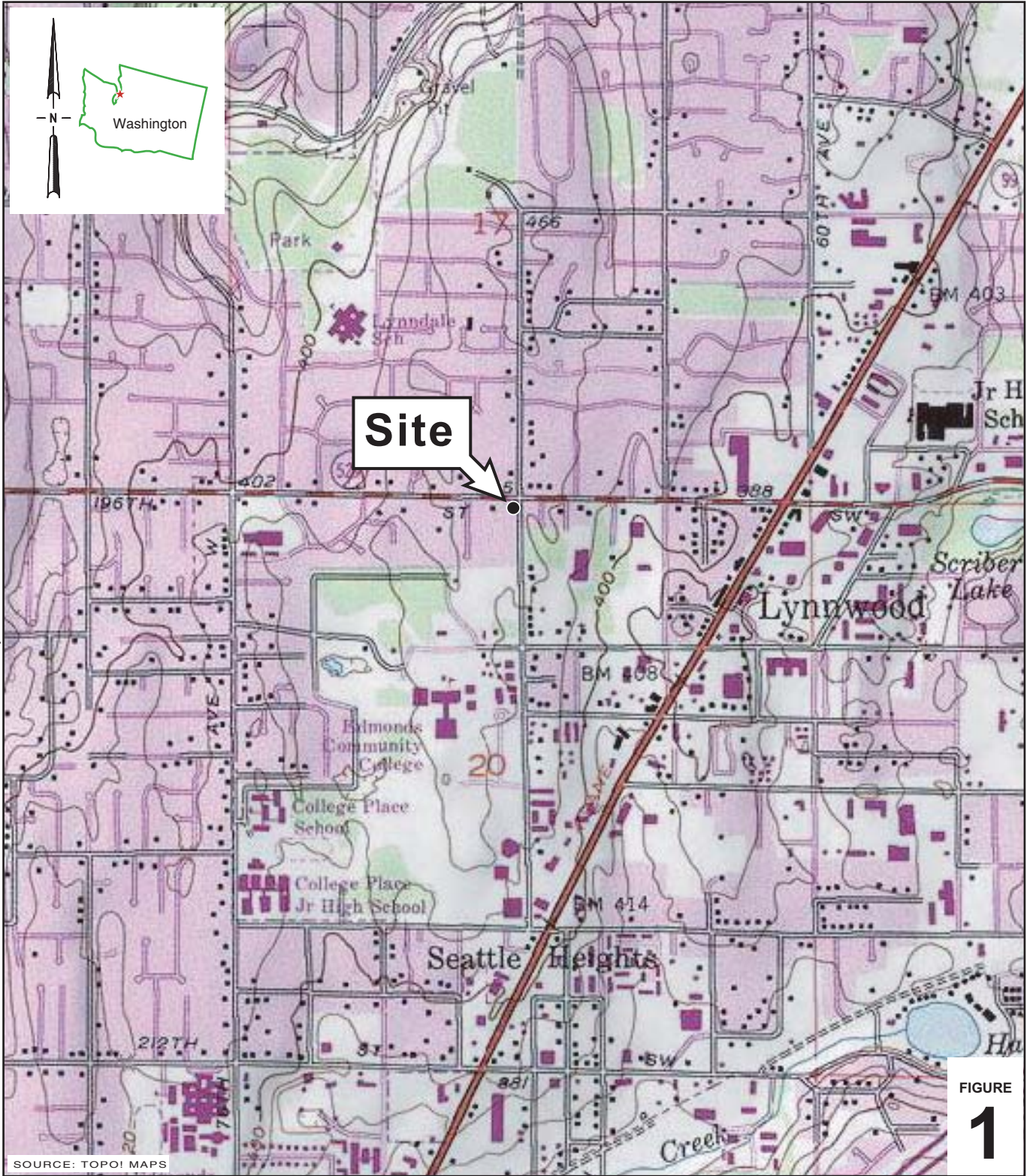


FIGURE  
**1**

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**Former Jiffy Lube Facility**  
6808 196th Street Southwest  
Lynnwood, Washington



**CONESTOGA-ROVERS  
& ASSOCIATES**

**Vicinity Map**

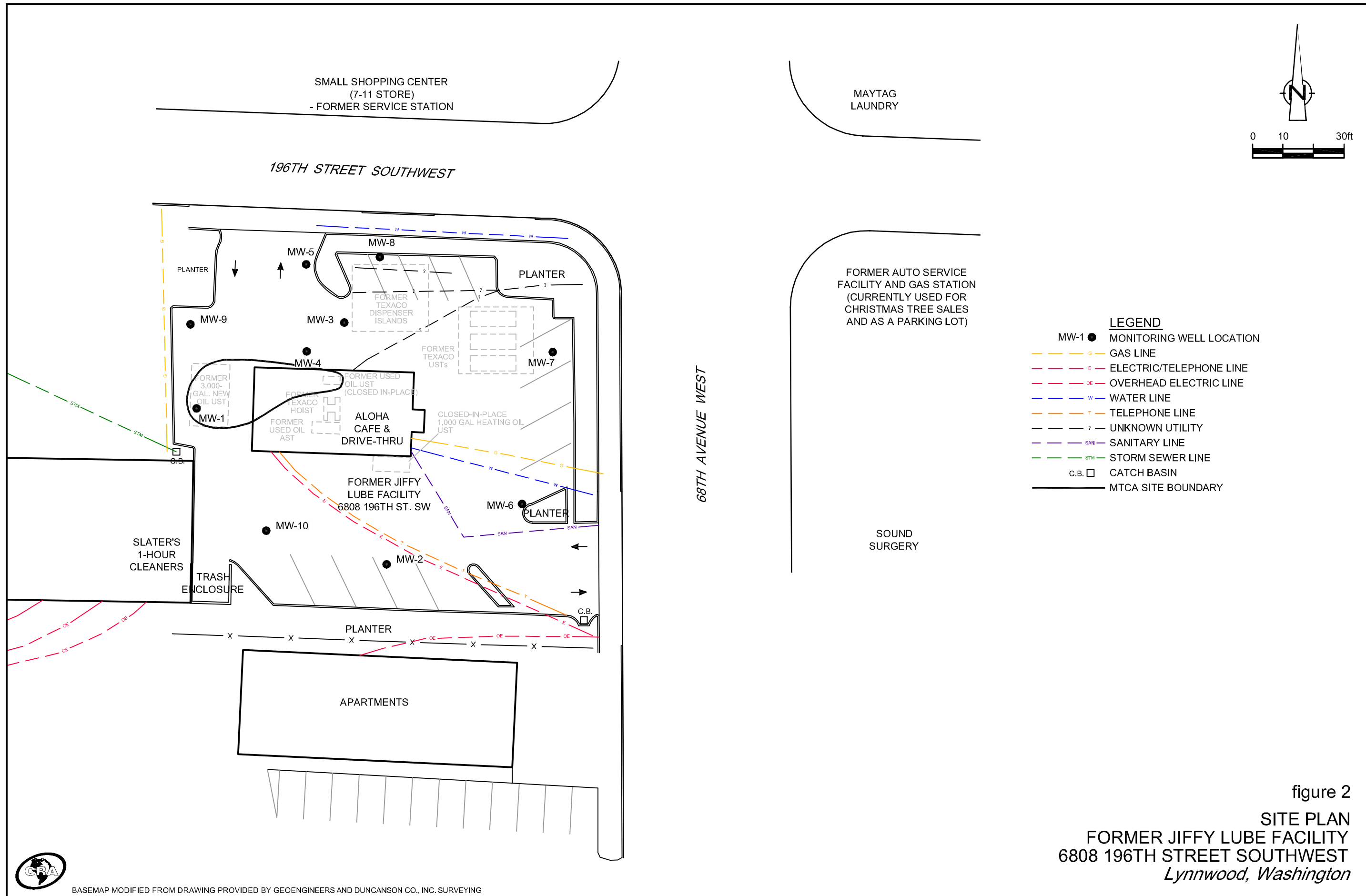


figure 2  
 SITE PLAN  
 FORMER JIFFY LUBE FACILITY  
 6808 196TH STREET SOUTHWEST  
 Lynnwood, Washington



BASEMAP MODIFIED FROM DRAWING PROVIDED BY GEOENGINEERS AND DUNCANSON CO., INC. SURVEYING

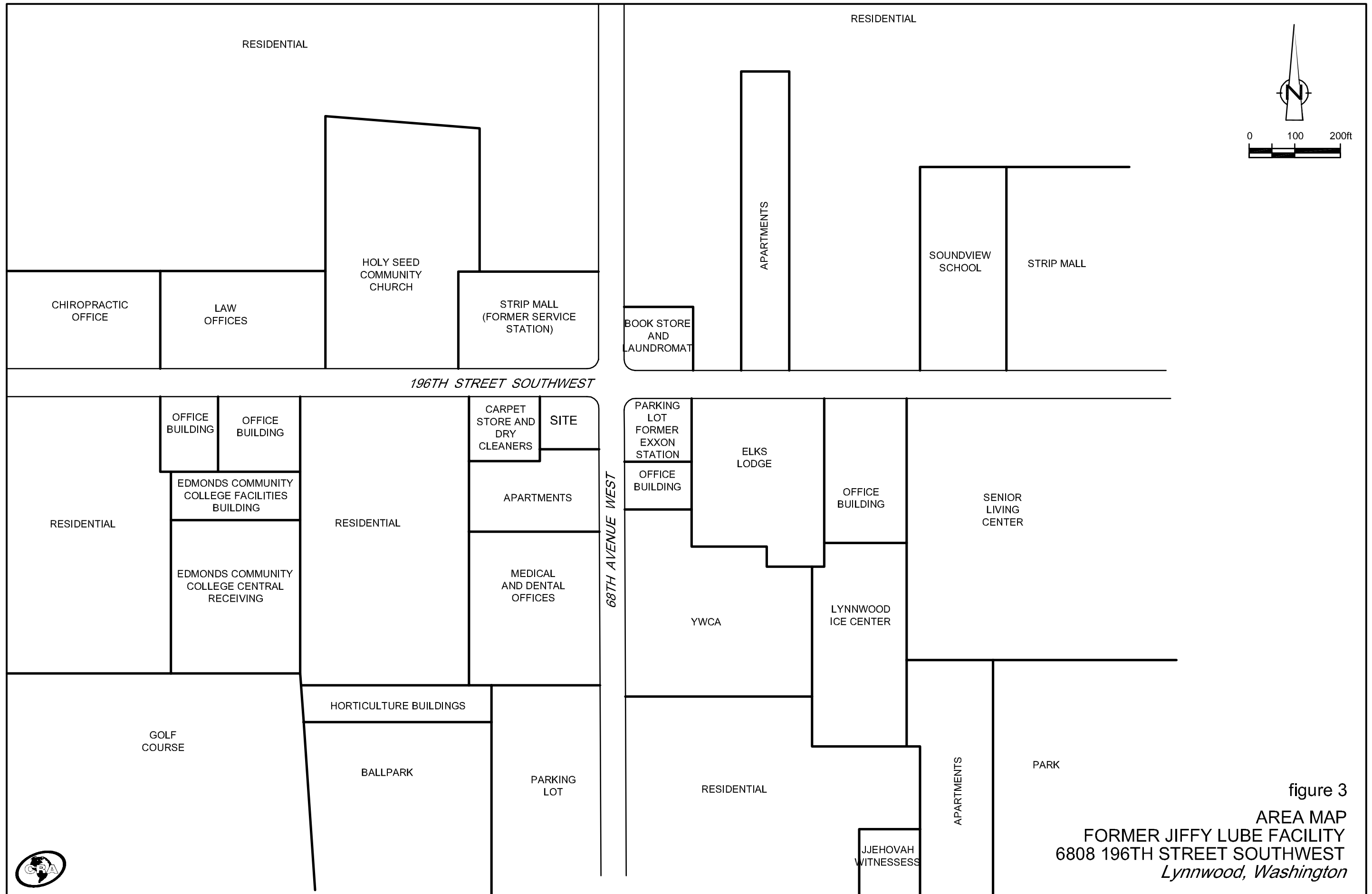
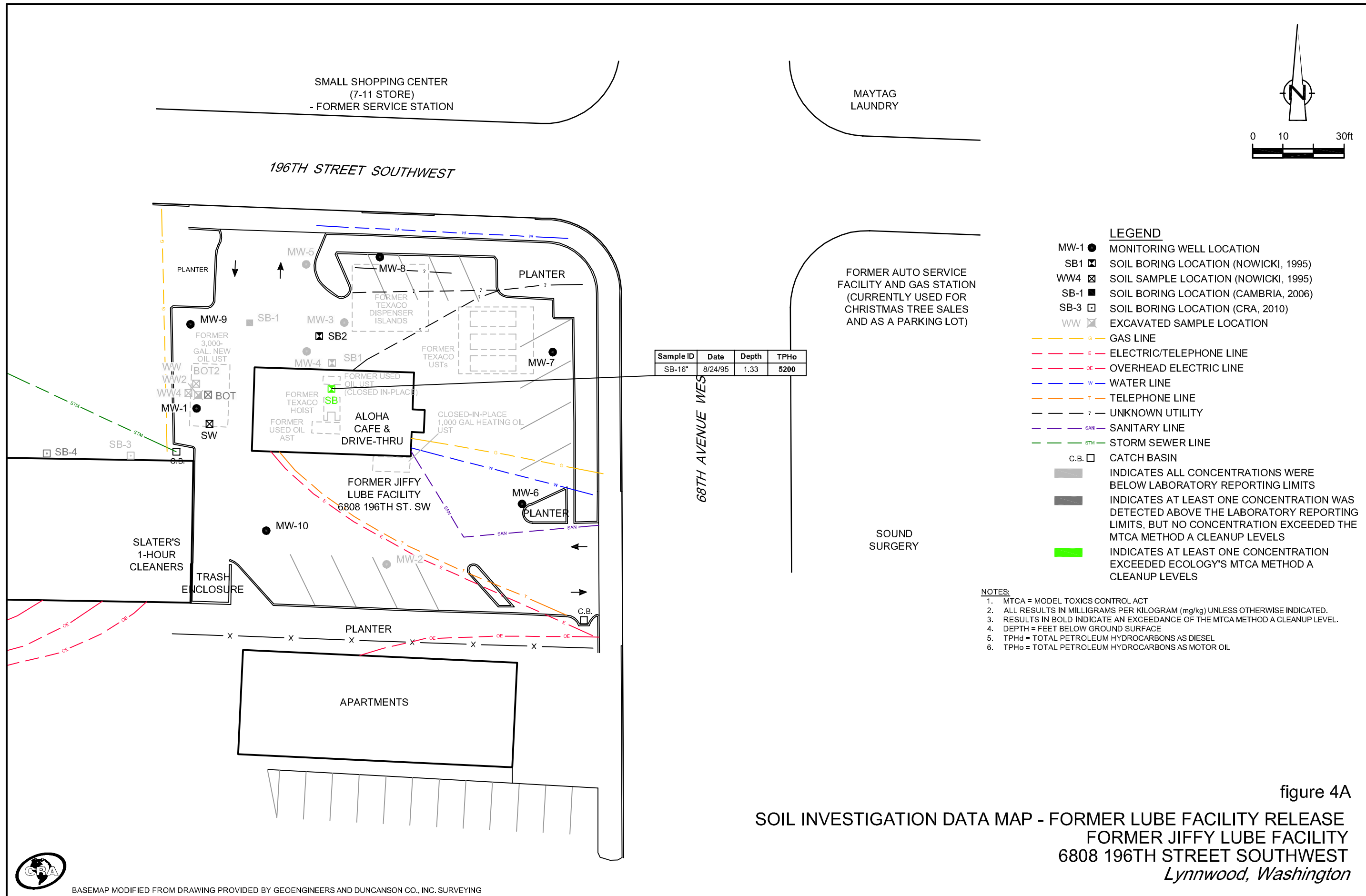


figure 3  
 AREA MAP  
 FORMER JIFFY LUBE FACILITY  
 6808 196TH STREET SOUTHWEST  
 Lynnwood, Washington





**LEGEND**

- MW-1 ● MONITORING WELL LOCATION
- SB1 ☒ SOIL BORING LOCATION (NOWICKI, 1995)
- WW4 ☒ SOIL SAMPLE LOCATION (NOWICKI, 1995)
- SB-1 ■ SOIL BORING LOCATION (CAMBRIA, 2006)
- SB-3 ☐ SOIL BORING LOCATION (CRA, 2010)
- WW ☒ EXCAVATED SAMPLE LOCATION
- G GAS LINE
- E ELECTRIC/TELEPHONE LINE
- OE OVERHEAD ELECTRIC LINE
- W WATER LINE
- T TELEPHONE LINE
- ? UNKNOWN UTILITY
- SAN SANITARY LINE
- STM STORM SEWER LINE
- C.B. ☐ CATCH BASIN
- INDICATES ALL CONCENTRATIONS WERE BELOW LABORATORY REPORTING LIMITS
- INDICATES AT LEAST ONE CONCENTRATION WAS DETECTED ABOVE THE LABORATORY REPORTING LIMITS, BUT NO CONCENTRATION EXCEEDED THE MTCA METHOD A CLEANUP LEVELS
- INDICATES AT LEAST ONE CONCENTRATION EXCEEDED ECOLOGY'S MTCA METHOD A CLEANUP LEVELS

**NOTES:**

1. MTCA = MODEL TOXICS CONTROL ACT
2. ALL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg) UNLESS OTHERWISE INDICATED.
3. RESULTS IN BOLD INDICATE AN EXCEEDANCE OF THE MTCA METHOD A CLEANUP LEVEL.
4. DEPTH = FEET BELOW GROUND SURFACE
5. TPHd = TOTAL PETROLEUM HYDROCARBONS AS DIESEL
6. TPHo = TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL

figure 4A  
 SOIL INVESTIGATION DATA MAP - FORMER LUBE FACILITY RELEASE  
 FORMER JIFFY LUBE FACILITY  
 6808 196TH STREET SOUTHWEST  
 Lynnwood, Washington

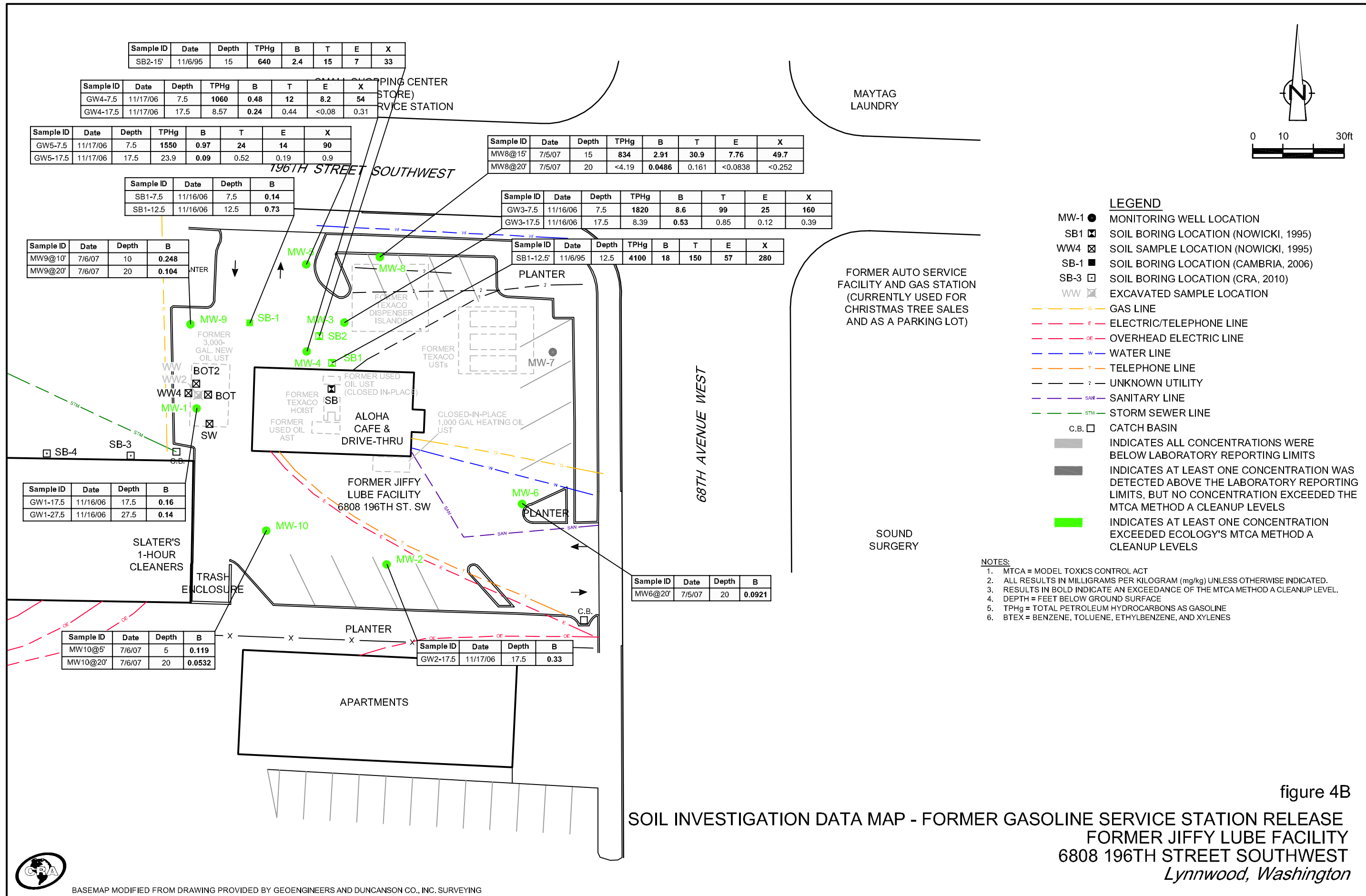
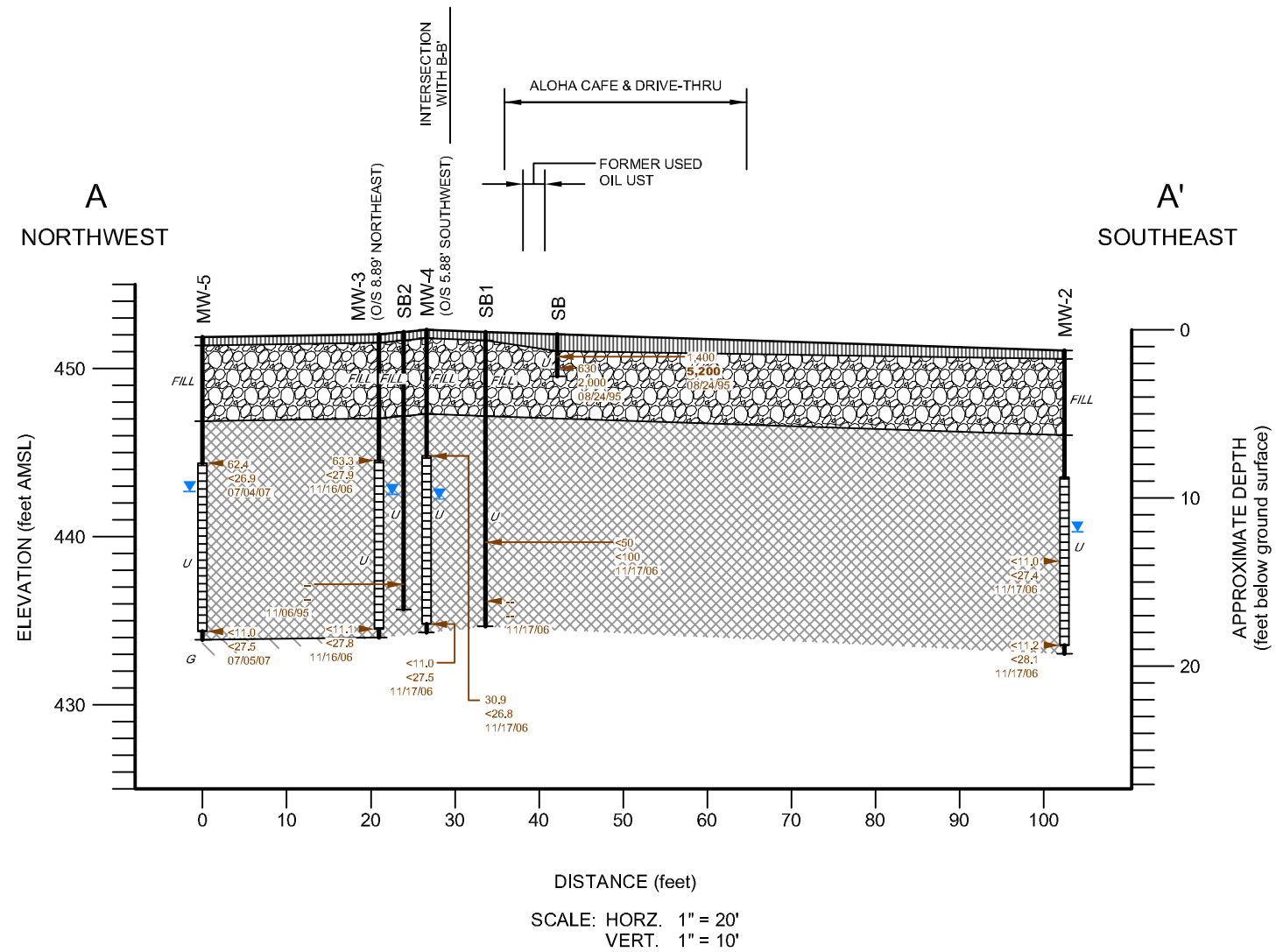


figure 4B  
 SOIL INVESTIGATION DATA MAP - FORMER GASOLINE SERVICE STATION RELEASE  
 FORMER JIFFY LUBE FACILITY  
 6808 196TH STREET SOUTHWEST  
 Lynnwood, Washington



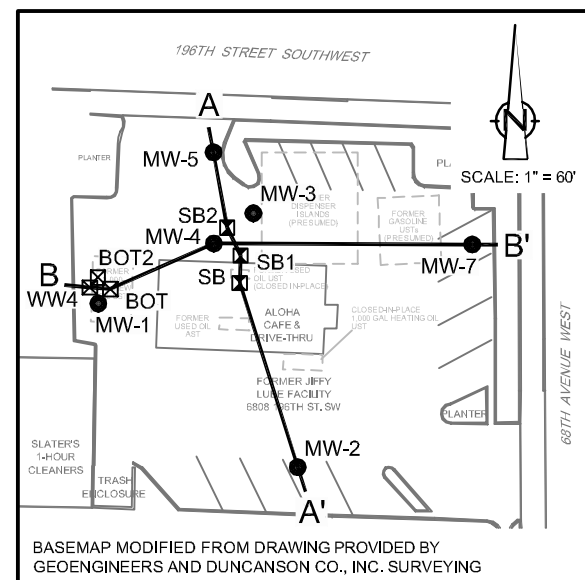
BASEMAP MODIFIED FROM DRAWING PROVIDED BY GEOENGINEERS AND DUNCANSON CO., INC. SURVEYING



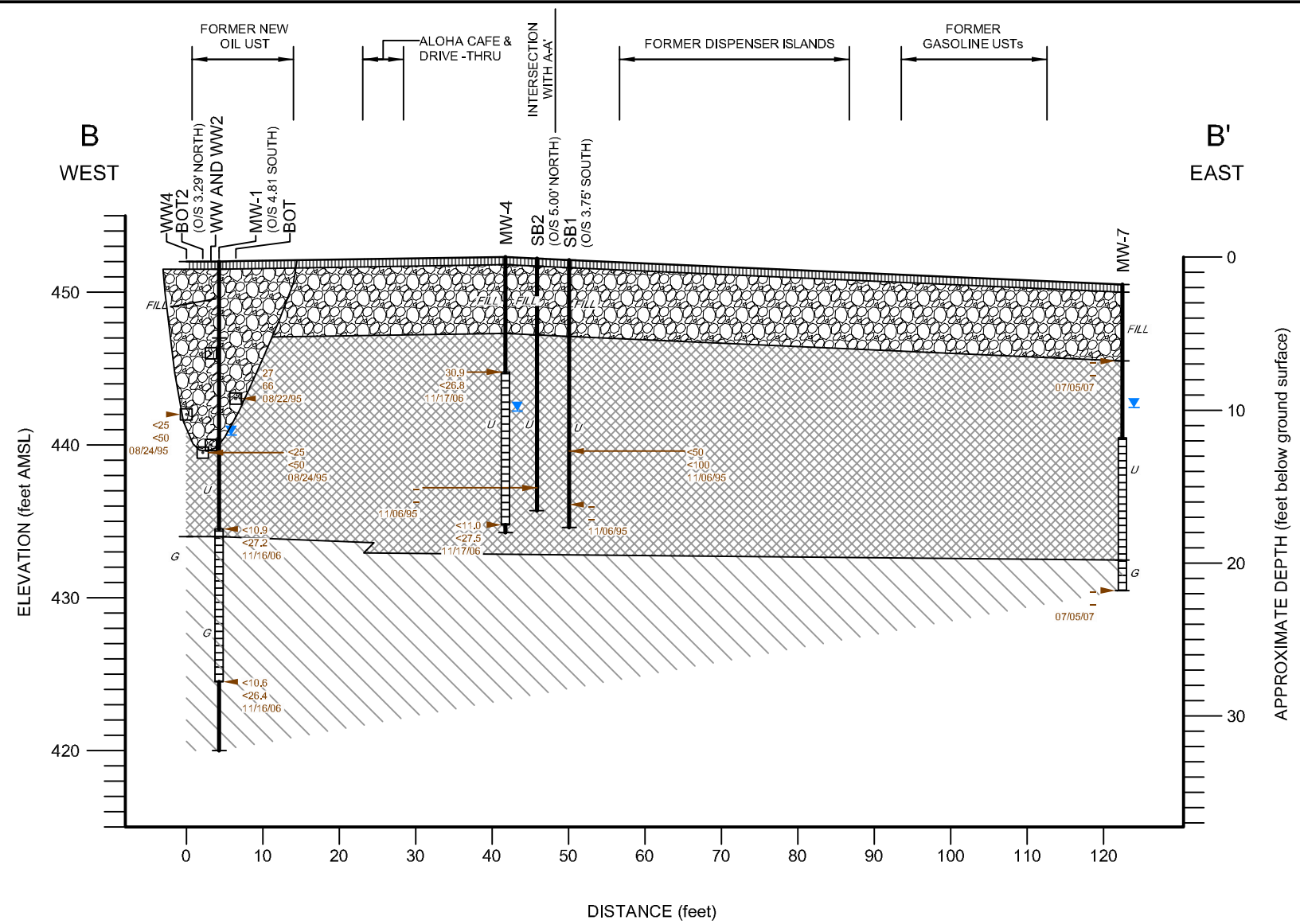


**LEGEND**

- MW-5 — WELL DESIGNATION
- GROUND SURFACE
- OBSERVATION WELL INSTALLATION
- STRATIGRAPHIC BOUNDARY
- FILL — TYPICAL SOIL CLASSIFICATION
- SCREENED INTERVAL
- BOTTOM OF BORING
- ▲ APPROXIMATE SOIL SAMPLE LOCATION
- ▲ TPH<sub>id</sub>
- ▲ TPH<sub>lo</sub>
- ▲ DATE
- GLACIAL TILL - GLACIALLY REWORKED, DENSE MIXTURE OF CLAY, SILT, SAND, AND GRAVEL
- UNCONSOLIDATED SEDIMENTS/WEATHERED TILL - LOOSELY ARRANGED OR UNSTRATIFIED SEDIMENTS
- ASPHALT/CONCRETE
- FILL
- NOT ANALYZED
- < ANALYTE CONCENTRATION NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMIT
- O/S OFFSET
- BOLDED VALUE = CONCENTRATION EXCEEDS THE WASHINGTON STATE DEPARTMENT OF ECOLOGY'S MODEL TOXICS CONTROL ACT (MTCA) METHOD A CLEANUP LEVEL**
- J THE SAMPLE CHROMATOGRAPHIC PATTERN FOR TPH DOES NOT MATCH THE CHROMATOGRAPHIC PATTERN OF THE SPECIFIED STANDARD



**figure 5A**  
**GEOLOGIC CROSS SECTION A-A' - FORMER LUBE FACILITY RELEASE**  
**FORMER JIFFY LUBE FACILITY**  
**6808 196TH STREET SOUTHWEST**  
**Lynnwood, Washington**



SCALE: HORZ. 1" = 20'  
 VERT. 1" = 10'

**LEGEND**

- WELL DESIGNATION
- GROUND SURFACE
- OBSERVATION WELL INSTALLATION
- STRATIGRAPHIC BOUNDARY
- TYPICAL SOIL CLASSIFICATION
- SCREENED INTERVAL
- BOTTOM OF BORING
- ▲ APPROXIMATE SOIL SAMPLE LOCATION
- ▲ HYDROCARBON CONCENTRATIONS IN SOIL (mg/kg)
- ▼ GROUNDWATER DEPTH (7/29/10)
- COMPLIANCE SOIL SAMPLE LOCATION
- ▨ ASPHALT/CONCRETE
- ▨ FILL
- ▨ U - UNCONSOLIDATED SEDIMENTS/WEATHERED TILL - LOOSELY ARRANGED OR UNSTRATIFIED SEDIMENTS
- ▨ G - GLACIAL TILL - GLACIALLY REWORKED, DENSE MIXTURE OF CLAY, SILT, SAND, AND GRAVEL
- NOT ANALYZED
- < ANALYTE CONCENTRATION NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMIT
- O/S OFFSET
- BOLDED VALUE = CONCENTRATION EXCEEDS THE WASHINGTON STATE DEPARTMENT OF ECOLOGY'S MODEL TOXICS CONTROL ACT (MTCA) METHOD A CLEANUP LEVEL**

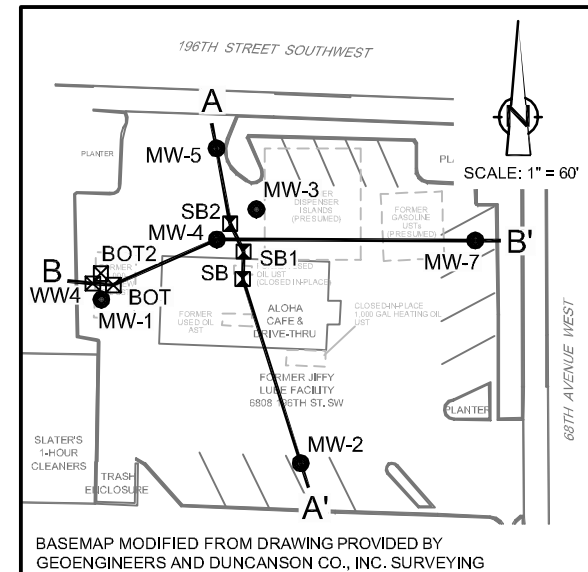
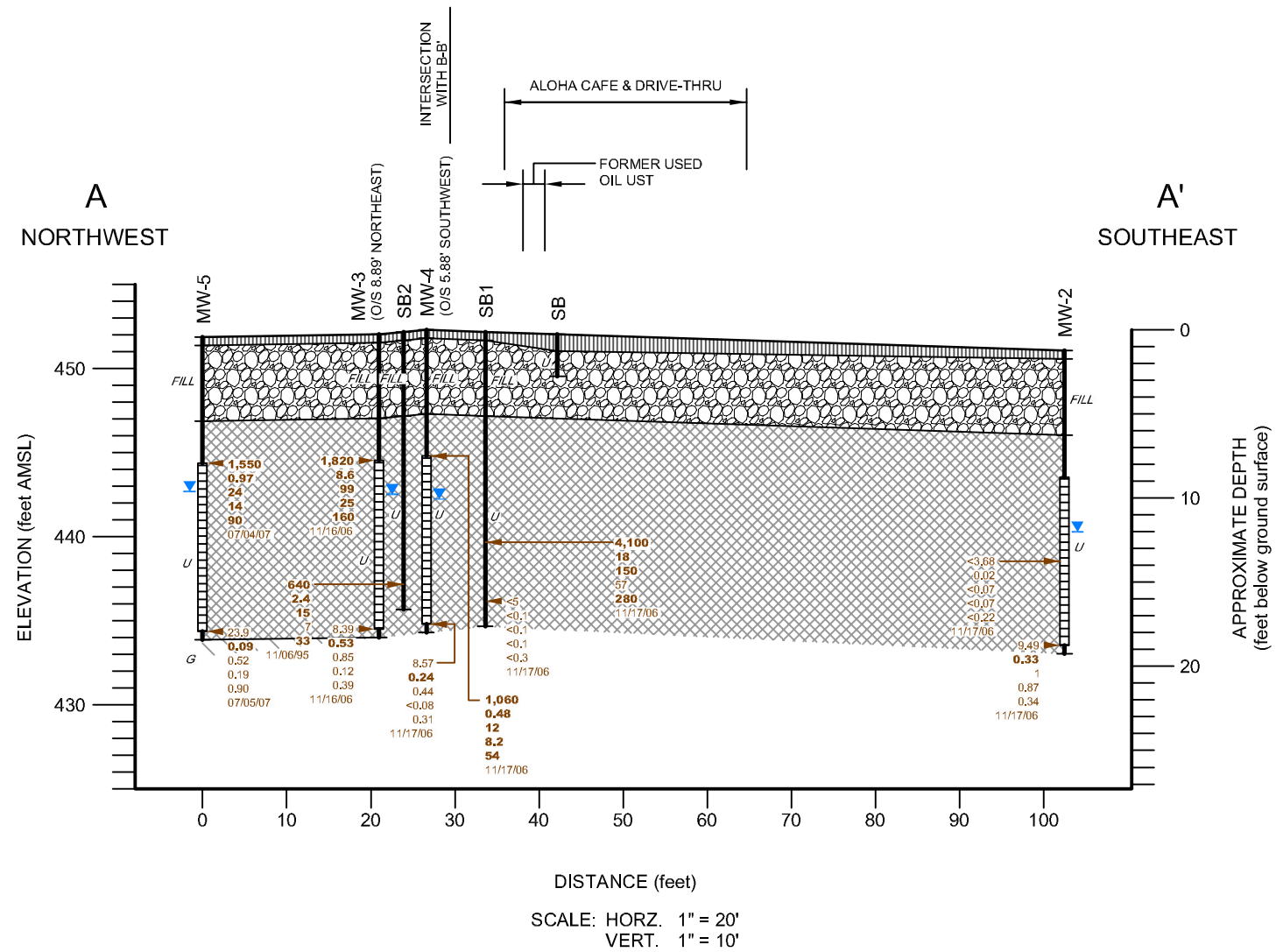
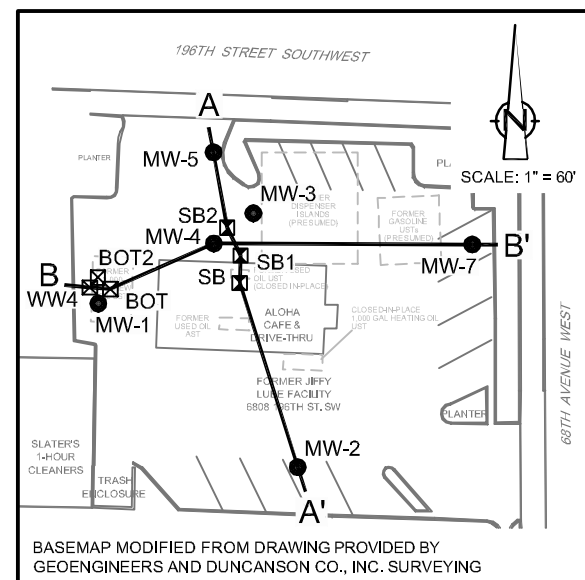


figure 5B  
**GEOLOGIC CROSS SECTION B-B' - FORMER LUBE FACILITY RELEASE**  
**FORMER JIFFY LUBE FACILITY**  
**6808 196TH STREET SOUTHWEST**  
*Lynnwood, Washington*

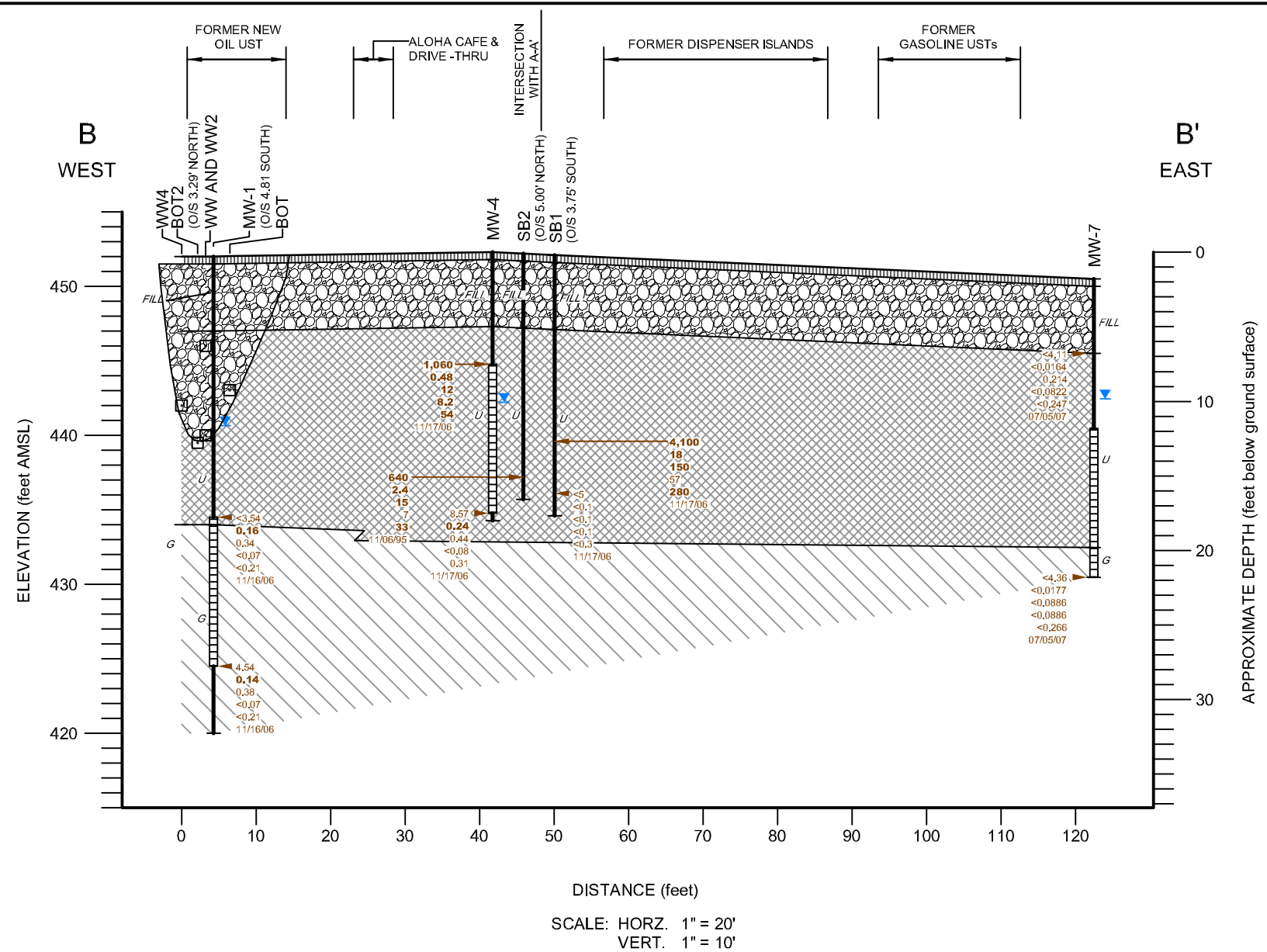


**LEGEND**

- WELL DESIGNATION
- GROUND SURFACE
- OBSERVATION WELL INSTALLATION
- STRATIGRAPHIC BOUNDARY
- FILL — TYPICAL SOIL CLASSIFICATION
- SCREENED INTERVAL
- BOTTOM OF BORING
- ▲ APPROXIMATE SOIL SAMPLE LOCATION
- ▲ HYDROCARBON CONCENTRATIONS IN SOIL (mg/kg)
- ▲ GROUNDWATER DEPTH (7/29/10)
- ▨ ASPHALT/CONCRETE
- ▨ FILL
- ▨ U - UNCONSOLIDATED SEDIMENTS/WEATHERED TILL - LOOSELY ARRANGED OR UNSTRATIFIED SEDIMENTS
- ▨ G - GLACIAL TILL - GLACIALLY REWORKED, DENSE MIXTURE OF CLAY, SILT, SAND, AND GRAVEL
- NOT ANALYZED
- < ANALYTE CONCENTRATION NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMIT
- O/S OFFSET
- BOLDED VALUE = CONCENTRATION EXCEEDS THE WASHINGTON STATE DEPARTMENT OF ECOLOGY'S MODEL TOXICS CONTROL ACT (MTC) METHOD A CLEANUP LEVEL**

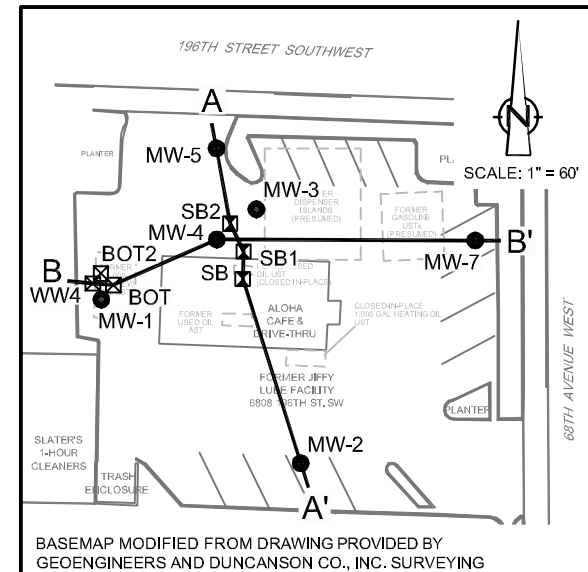


**figure 6A**  
**GEOLOGIC CROSS SECTION A-A' - FORMER GASOLINE SERVICE STATION RELEASE**  
**FORMER JIFFY LUBE FACILITY**  
**6808 196TH STREET SOUTHWEST**  
**Lynnwood, Washington**



**LEGEND**

- WELL DESIGNATION
- GROUND SURFACE
- OBSERVATION WELL INSTALLATION
- STRATIGRAPHIC BOUNDARY
- TYPICAL SOIL CLASSIFICATION
- SCREENED INTERVAL
- BOTTOM OF BORING
- ▲ APPROXIMATE SOIL SAMPLE LOCATION
- COMPLIANCE SOIL SAMPLE LOCATION
- ▨ ASPHALT/CONCRETE
- ▨ FILL
- ▨ U - UNCONSOLIDATED SEDIMENTS/WEATHERED TILL - LOOSELY ARRANGED OR UNSTRATIFIED SEDIMENTS
- ▨ G - GLACIAL TILL - GLACIALLY REWORKED, DENSE MIXTURE OF CLAY, SILT, SAND, AND GRAVEL
- NOT ANALYZED
- < ANALYTE CONCENTRATION NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMIT
- O/S OFFSET
- BOLDED VALUE = CONCENTRATION EXCEEDS THE WASHINGTON STATE DEPARTMENT OF ECOLOGY'S MODEL TOXICS CONTROL ACT (MTCA) METHOD A CLEANUP LEVEL**



**figure 6B**  
**GEOLOGIC CROSS SECTION B-B' - FORMER GASOLINE SERVICE STATION RELEASE**  
**FORMER JIFFY LUBE FACILITY**  
**6808 196TH STREET SOUTHWEST**  
**Lynnwood, Washington**

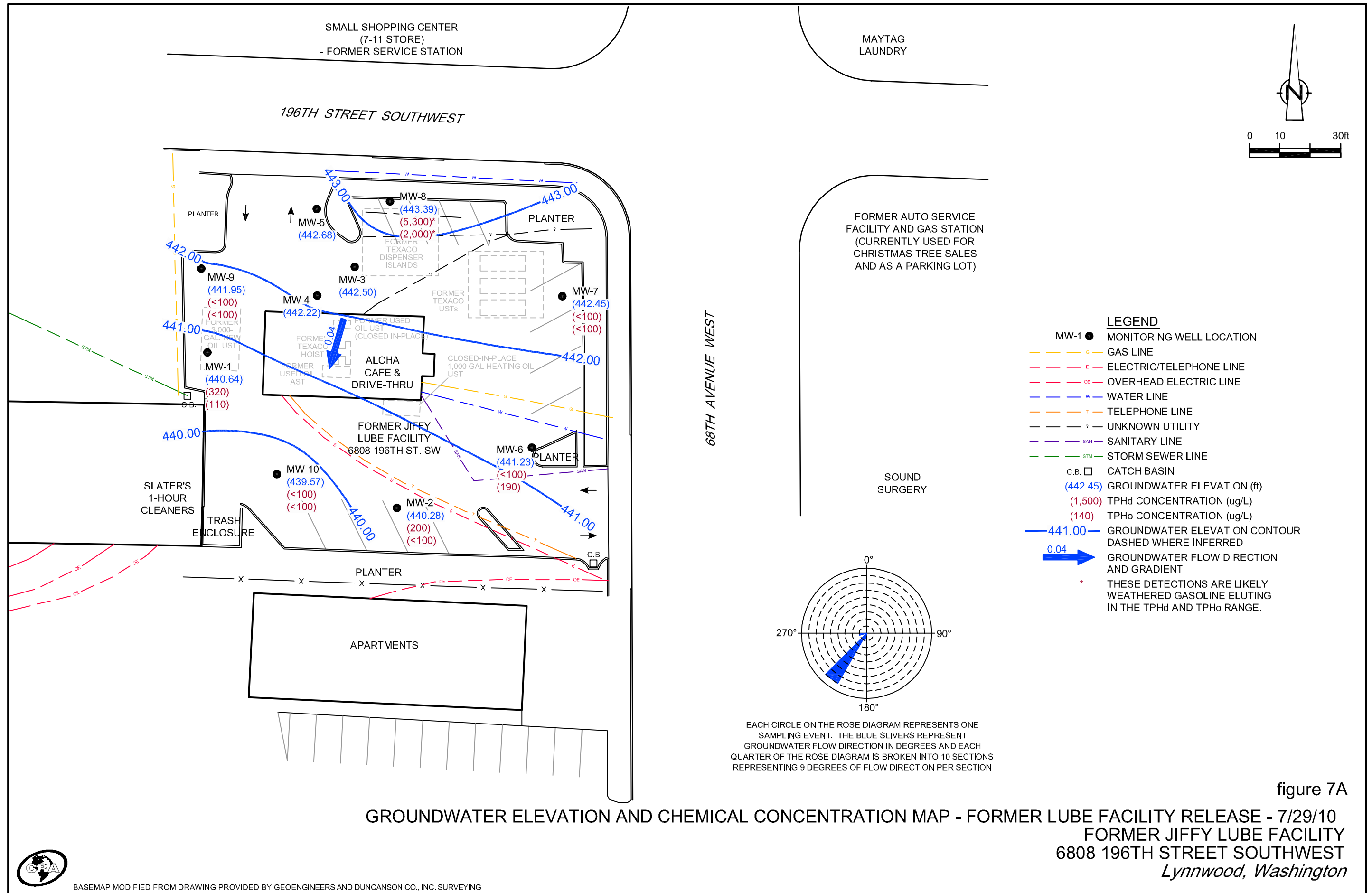


figure 7A

**GROUNDWATER ELEVATION AND CHEMICAL CONCENTRATION MAP - FORMER LUBE FACILITY RELEASE - 7/29/10  
 FORMER JIFFY LUBE FACILITY  
 6808 196TH STREET SOUTHWEST  
 Lynnwood, Washington**



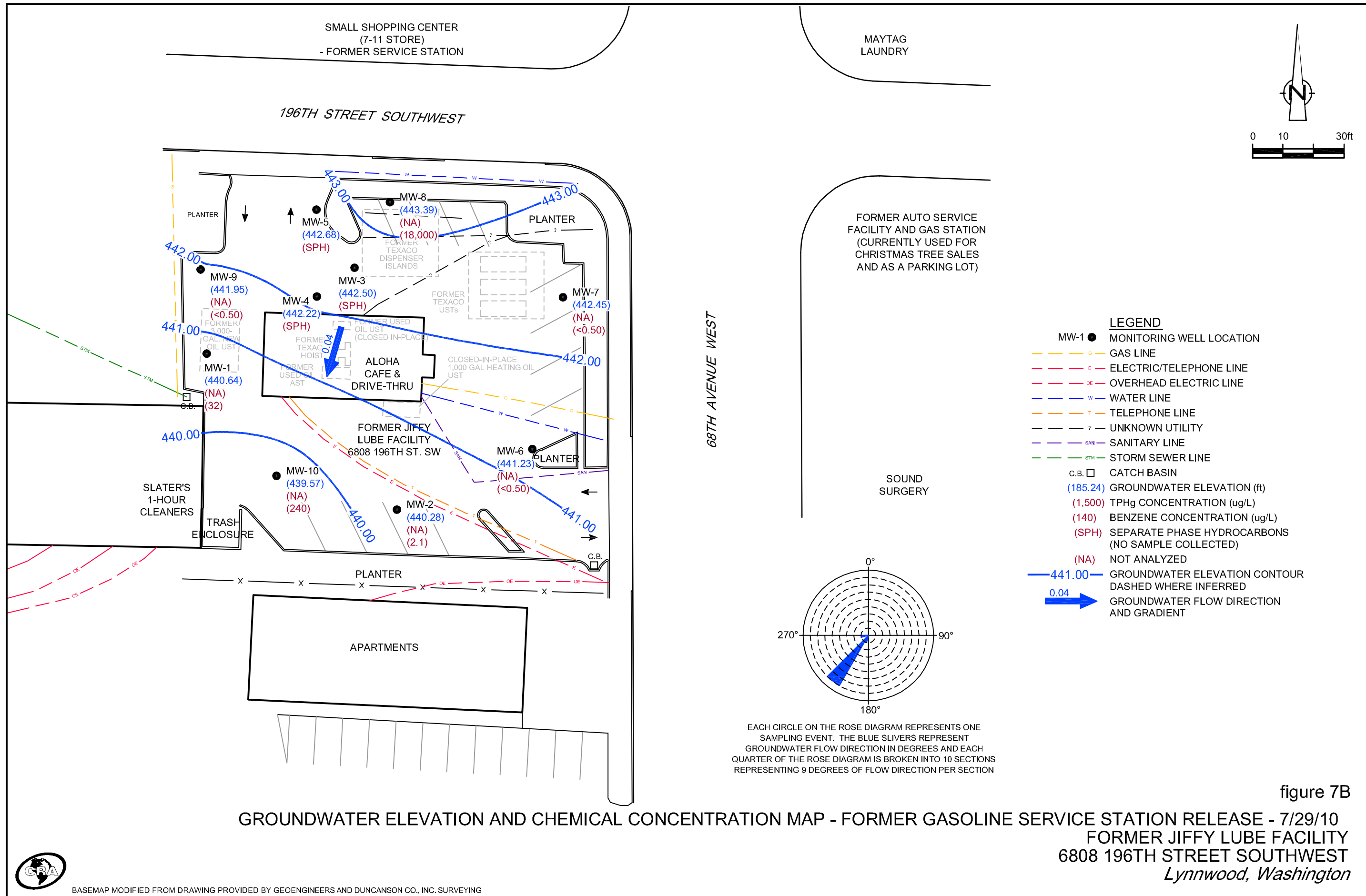


figure 7B

**GROUNDWATER ELEVATION AND CHEMICAL CONCENTRATION MAP - FORMER GASOLINE SERVICE STATION RELEASE - 7/29/10  
FORMER JIFFY LUBE FACILITY  
6808 196TH STREET SOUTHWEST  
Lynnwood, Washington**



## TABLES

TABLE 1

SUMMARY OF HISTORICAL ANALYTICAL SOIL DATA  
FORMER JIFFY LUBE FACILITY  
6808 196TH STREET SOUTHWEST, LYNNWOOD, WASHINGTON

Sample ID	Consultant	Sample Date MTCA Method A Cleanup Levels	Depth feet bgs	HYDROCARBONS			PRIMARY VOCs						LEAD	OXYGENATES	PAHs		PCBs
				TPHg <sup>a</sup>	TPHd	TPHo	B	T	E	X	EDB	EDC	Total	MTBE	Naphthalene	Total cPAHs <sup>1</sup>	PCBs
				30/100 (mg/kg)	2,000 (mg/kg)	2,000 (mg/kg)	0.03 (mg/kg)	7 (mg/kg)	6 (mg/kg)	9 (mg/kg)	0.005 (mg/kg)	N/A (mg/kg)	250 (mg/kg)	0.1 (mg/kg)	5 (mg/kg)	0.1 (mg/kg)	1 (mg/kg)
SW	Nowicki & Associates	08/22/95	6	---	<25	<50	---	---	---	---	---	---	---	---	---	---	---
WW	Nowicki & Associates	08/22/95	6	---	<b>5,100</b>	<b>13,000</b>	---	---	---	---	---	---	---	---	---	---	---
WW2	Nowicki & Associates	08/22/95	NR	---	---	---	<0.1	<0.1	<0.1	<0.3	---	<0.1	---	---	---	---	---
BOT	Nowicki & Associates	08/22/95	9	---	27	66	---	---	---	---	---	---	---	---	---	---	---
BOT2	Nowicki & Associates	08/24/95	12.5	---	<25	<50	---	---	---	---	---	---	---	---	---	---	---
WW4	Nowicki & Associates	08/24/95	10	---	<25	<50	---	---	---	---	---	---	---	---	---	---	---
SB-16"	Nowicki & Associates	08/24/95	1.33	---	1,400	<b>5,200</b>	---	---	---	---	---	---	---	---	---	---	---
SB-24" c	Nowicki & Associates	08/24/95	2	---	630	2,000	---	---	---	---	---	---	---	---	---	---	---
SB1-12.5' b	Nowicki & Associates	11/06/95	12.5	<b>4,100</b>	<50	<100	<b>18</b>	<b>150</b>	<b>57</b>	<b>280</b>	---	---	---	---	---	---	---
SB1-16'	Nowicki & Associates	11/06/95	16	<5	---	---	<0.1	<0.1	<0.1	<0.3	---	---	---	---	---	---	---
SB2-15'	Nowicki & Associates	11/06/95	15	<b>640</b>	---	---	<b>2.4</b>	<b>15</b>	<b>7</b>	<b>33</b>	---	---	---	---	---	---	---
GW1-17.5 a	Cambria Environmental Technology, Inc.	11/16/06	17.5	<3.54	<10.9	<27.2	<b>0.16</b>	0.34	<0.07	<0.21	<0.04	<0.04	1.48	<0.35	<0.0108	<0.0195	<0.0108
GW1-27.5 a	Cambria Environmental Technology, Inc.	11/16/06	27.5	4.54	<10.6	<26.4	<b>0.14</b>	0.38	<0.07	<0.21	<0.04	<0.04	0.962	<0.36	<0.0106	<0.0192	<0.0106
SB1-7.5	Cambria Environmental Technology, Inc.	11/16/06	7.5	4.51	<10.8	<27.1	<b>0.14</b>	0.42	<0.08	<0.24	<0.04	<0.04	1.71	<0.41	0.1138	<0.0195	<0.0108
SB1-12.5	Cambria Environmental Technology, Inc.	11/16/06	12.5	12.3	<11.4	<28.6	<b>0.73</b>	1.7	0.18	0.9	<0.04	<0.04	2.06	<0.39	0.0152	<0.0208	<0.0115
GW3-7.5 a	Cambria Environmental Technology, Inc.	11/16/06	7.5	<b>1,820</b>	63.3	<27.9	<b>8.6</b>	<b>99</b>	<b>25</b>	<b>160</b>	<0.04	<0.04	6.69	<0.40	<b>5.86</b>	<0.0201	<0.0111
GW3-17.5 a	Cambria Environmental Technology, Inc.	11/16/06	17.5	8.39	<11.1	<27.8	<b>0.53</b>	0.85	0.12	0.39	<0.04	<0.04	1.55	<0.39	<0.0111	<0.0201	0.109
GW2-12.5 a	Cambria Environmental Technology, Inc.	11/17/06	12.5	<3.68	<11.0	<27.4	0.02	<0.07	<0.07	<0.22	<0.04	<0.04	1.6	<0.37	<0.0111	<0.0201	<0.0111
GW2-17.5 a	Cambria Environmental Technology, Inc.	11/17/06	17.5	9.49	<11.2	<28.1	<b>0.33</b>	1	0.87	0.34	<0.04	<0.04	1.4	<0.43	<0.0113	<0.0205	<0.0113
GW4-7.5 a	Cambria Environmental Technology, Inc.	11/17/06	7.5	<b>1,060</b>	30.9	<26.8	<b>0.48</b>	<b>12</b>	<b>8.2</b>	<b>54</b>	<0.04	<0.04	2.35	<0.38	4.10	<0.0194	<0.0107
GW4-17.5 a	Cambria Environmental Technology, Inc.	11/17/06	17.5	8.57	<11.0	<27.5	<b>0.24</b>	0.44	<0.08	0.31	<0.04	<0.04	1.58	<0.38	<0.0110	<0.01991	<0.0110
GW5-7.5 a	Cambria Environmental Technology, Inc.	11/17/06	7.5	<b>1,550</b>	62.4	<26.9	<b>0.97</b>	<b>24</b>	<b>14</b>	<b>90</b>	<0.04	<0.04	4.64	<0.39	<b>6.34</b>	<0.0195	<0.0108
GW5-17.5 a	Cambria Environmental Technology, Inc.	11/17/06	17.5	23.9	<11.0	<27.5	<b>0.09</b>	0.52	0.19	0.9	<0.04	<0.04	1.33	<0.37	0.0127	<0.0201	<0.0111
MW6@15'	CRA	07/05/07	15	<3.95	---	---	<0.0158	<0.0790	<0.0790	<0.237	<0.0790	<0.0790	1.45	<0.39	---	---	---
MW6@20'	CRA	07/05/07	20	<3.54	---	---	<b>0.0921</b>	<0.0708	<0.0708	<0.212	<0.0708	<0.0708	1.93	<0.35	---	---	---
MW7@5'	CRA	07/05/07	5	<4.11	---	---	<0.0164	0.214	<0.0822	<0.247	<0.0822	<0.0822	2.34	<0.41	---	---	---
MW7@20'	CRA	07/05/07	20	<4.36	---	---	<0.0177	<0.0886	<0.0886	<0.266	<0.0886	<0.0886	1.85	<0.44	---	---	---
MW8@15'	CRA	07/05/07	15	<b>834</b>	---	---	<b>2.91</b>	<b>30.9</b>	<b>7.76</b>	<b>49.7</b>	<0.0789	<0.0789	3.29	<0.39	---	---	---
MW8@20'	CRA	07/05/07	20	<4.19	---	---	<b>0.0486</b>	0.161	<0.0838	<0.252	<0.0838	<0.0838	1.46	<0.42	---	---	---
MW9@10'	CRA	07/06/07	10	<0.0364	---	---	<b>0.248</b>	<0.0854	0.0854	<0.256	<0.0854	<0.0854	1.96	<0.43	---	---	---
MW9@20'	CRA	07/06/07	20	<3.72	---	---	<b>0.104</b>	<0.0744	<0.0744	0.327	<0.0744	<0.0744	1.29	<0.37	---	---	---
MW10@5'	CRA	07/06/07	5	8.16	---	---	<b>0.119</b>	0.359	<0.0756	<0.227	<0.0756	<0.0756	5.91	<0.38	---	---	---
MW10@20'	CRA	07/06/07	20	3.99	---	---	<b>0.0532</b>	0.102	0.131	<0.228	<0.0795	<0.0794	1.54	<0.40	---	---	---
SO-241739-051010-HB-SB-3-5.0	CRA	05/10/10	5	<0.20	<5.0	<5.0	<0.00083	<0.00083	<0.00083	<0.0017	---	---	---	---	---	---	---
SO-241739-051010-HB-SB-4-5.0	CRA	05/10/10	5	<0.24	6.1	47	<0.0010	0.0018	<0.0010	0.0020	---	---	---	---	---	---	---



TABLE 1

SUMMARY OF HISTORICAL ANALYTICAL SOIL DATA  
FORMER JIFFY LUBE FACILITY  
6808 196TH STREET SOUTHWEST, LYNNWOOD, WASHINGTON

Sample ID	Consultant	Sample Date	Depth	HYDROCARBONS			PRIMARY VOCs						LEAD	OXYGENATES	PAHs		PCBs
				TPHg <sup>a</sup>	TPHd	TPHo	B	T	E	X	EDB	EDC	Total	MTBE	Naphthalene	Total cPAHs <sup>1</sup>	PCBs
		MTCA Method A Cleanup Levels		<b>30/100</b>	<b>2,000</b>	<b>2,000</b>	<b>0.03</b>	<b>7</b>	<b>6</b>	<b>9</b>	<b>0.005</b>	N/A	<b>250</b>	<b>0.1</b>	<b>5</b>	<b>0.1</b>	<b>1</b>
			feet bgs	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)

Notes:

-- = Not analyzed  
 All results in milligrams per kilogram (mg/kg) unless otherwise indicated.  
 Results in bold indicate an exceedance of the Model Toxics Control Act (MTCA) Method A cleanup level.  
 bgs = below ground surface (in feet)

Shaded soil sample locations were overexcavated per Nowicki (1995).

TPHg = Total petroleum hydrocarbons as gasoline analyzed by NWTPH-Gx

TPHd = Total petroleum hydrocarbons as diesel analyzed by NWTPH-Dx with silica gel cleanup

TPHo = Total petroleum hydrocarbons as motor oil analyzed by NWTPH-Dx with silica gel cleanup

Benzene, toluene, ethylbenzene, and xylenes (BTEX) analyzed by EPA 8260B

EDB = 1,2 Dibromoethane analyzed by EPA 8011

EDC = 1,2 Dichloroethane analyzed by EPA 8260B

MTBE = Methyl tertiary-butyl ether analyzed by EPA Method 8260B

TBA = Tertiary-butanol analyzed by EPA Method 8260B

DIPE = Di-isopropyl ether analyzed by EPA Method 8260B

ETBE = Ethyl tertiary-butyl ether analyzed by EPA Method 8260B

TAME = Tertiary-amyl methyl ether analyzed by EPA Method 8260B

VOCs = Volatile organic compounds analyzed by EPA Method 8260B

Total Lead analyzed by EPA Method 6020

<x = Not detected at reporting limit x

<x\* = Not detected, reporting limit x was above MTCA screening level

ND = Report indicates analyte not present above laboratory reporting limit (RL). RL was not provided in lab report.

a = soil sample was collected from the corresponding monitoring well location (e.g., GW1-27.5 was collected from monitoring well MW-1 at a depth of 27.5 feet bgs)

b = Concentration of TPHd and TPHo reported using method WTPH-HCID.

c = Concentration of TPHg reported using method WTPH-HCID.

TABLE 2

SUMMARY OF GROUNDWATER MONITORING DATA  
FORMER JIFFY LUBE FACILITY  
6808 196TH STREET SOUTHWEST,  
LYNNWOOD, WASHINGTON

Sample ID	Date	TOC	DTW	GWE	SPH Thickness	HYDROCARBONS			PRIMARY VOCs					OXYGENATES					LEAD	
						TPHg 800/1000	TPHd 500	TPHo 500	B 5	T 1000	E 700	X 1000	EDB 0.01	EDC 5	MTBE 20	TBA NE	DIPE NE	ETBE NE	TAME NE	Total 15
MW-1	12/28/06	451.74	9.75	441.99	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1	12/29/06	451.74	9.57	442.17	0.00	<b>42,100</b>	<255	<510 m	<b>9,190</b>	<b>2,140</b>	<b>1,090</b>	<b>4,100</b>	---	---	---	---	---	---	---	---
MW-1	02/15/07	451.74	10.10	441.64	0.00	<b>41,200</b>	<269	<538 m	<b>9,230</b>	<b>1,840</b>	<b>938</b>	<b>3,710</b>	---	---	<5.00	54.6	<1.00	<1.00	<1.00	---
MW-1	04/06/07	451.74	10.71	441.03	0.00	<b>30,200</b>	<258	<515 m	<b>7,450</b>	732	<b>718</b>	<b>2,310</b>	---	---	---	---	---	---	---	---
MW-1	07/09/07	451.74	10.78	440.96	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1	07/28/07	451.74	11.01	440.73	0.00	<b>5,850</b>	<258	<515 m	<b>2,400</b>	32.4	131	190	---	---	---	---	---	---	---	---
MW-1	10/01/07	451.74	13.98	437.76	0.00	<b>23,900</b>	<b>1,540 f,g</b>	<105	<b>6,270</b>	196	653	<b>1,340</b>	---	---	---	---	---	---	---	---
MW-1	01/10/08	451.74	9.43	442.31	0.00	<b>73,000</b>	<243	<485	<b>16,500</b>	<b>4,010</b>	<b>1,610</b>	<b>6,790</b>	---	---	---	---	---	---	---	---
MW-1	07/10/08	451.74	10.81	440.93	0.00	<b>800</b>	<b>1,400</b>	<300	<b>280</b>	13	2	33	---	---	---	---	---	---	---	---
MW-1	01/06/09	451.74	10.16	441.58	0.00	<100	190	<380	1	<1.0	<1.0	<1.0	---	---	<1.0	<10	<2.0	<2.0	<2.0	---
MW-1 *	07/13/09	451.74	11.14	440.60	0.00	<b>7,500</b>	<b>2,800 j</b>	<100	<b>1,200</b>	60	220	470	<0.010	<0.29	---	---	---	---	---	3.33
MW-1	07/29/10	451.74	11.10	440.64	0.00	---	320 j	110	<b>32</b>	2.9	17	48	---	---	---	---	---	---	---	---
MW-2	12/28/06	450.59	7.26	443.33	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	12/29/06	450.59	7.35	443.24	0.00	<b>2,640</b>	<253	<505 m	<b>21.7</b>	6.75	55.1	9.91	---	---	---	---	---	---	---	---
MW-2	02/15/07	450.59	8.03	442.56	0.00	249	<278	<556 m	2.06	<0.500	4.36	<1.00	---	---	<5.00	<50.0	<1.00	<1.00	<1.00	---
MW-2	04/06/07	450.59	8.50	442.09	0.00	180	<258	<515 m	1.83	0.518	2.61	<1.00	---	---	---	---	---	---	---	---
MW-2	07/09/07	450.59	8.62	441.97	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	07/28/07	450.59	8.96	441.63	0.00	<b>3,200</b>	<255	<510 m	<b>66.1</b>	7.86	137	20.4	---	---	---	---	---	---	---	---
MW-2	10/01/07	450.59	12.54	438.05	0.00	<b>3,980</b>	<b>1,080 g,h</b>	<105	<b>175</b>	13.7	331	47.4	---	---	---	---	---	---	---	---
MW-2	01/10/08	450.59	7.88	442.71	0.00	<b>5,000</b>	<243	<485	<b>214</b>	9.85	502	71.0	---	---	---	---	---	---	---	---
MW-2	07/10/08	450.59	9.98	440.61	0.00	540	<500	<200	4.9	<1	9.4	<1	---	---	---	---	---	---	---	---
MW-2	01/06/09	450.59	8.18	442.41	0.00	<b>9,200</b>	<100	<100	<b>390</b>	16	<b>840</b>	62.0	---	---	<10	<100	<20	<20	<20	---
MW-2	07/13/09	450.59	10.66	439.93	0.00	320	210 j	<100	3.8	<1.0	3.3	<1.0	<0.010	<0.50	---	---	---	---	---	<1.00
MW-2	07/29/10	450.59	10.31	440.28	0.00	---	200 j	<100	2.1	<1.0	<1.0	<1.0	---	---	---	---	---	---	---	---
MW-3	12/28/06	451.69	8.45	443.24	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	12/29/06	451.69	8.51	443.18	0.00	<b>171,000</b>	<b>608</b>	<510 m	<b>28,500</b>	<b>29,200</b>	<b>2,950</b>	<b>15,900</b>	---	---	---	---	---	---	---	---
MW-3	02/15/07	451.69	9.09	442.60	0.00	<b>263,000 a, b</b>	<b>2,580 c</b>	<2,750 m	<b>29,200</b>	<b>37,400</b>	<b>3,140</b>	<b>18,600</b>	---	---	<500 m	<5,000	<100	<100	<100	---
MW-3	04/06/07	451.69	9.66	442.03	0.00	<b>214,000</b>	<b>867 c</b>	<495	<b>26,600</b>	<b>37,500</b>	<b>2,850</b>	<b>16,800</b>	---	---	---	---	---	---	---	---
MW-3	07/09/07	451.69	9.81	441.88	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	07/28/07	451.69	10.13	441.56	0.00	<b>248,000</b>	<b>8,340 e</b>	<5,050 m	<b>28,600</b>	<b>37,400</b>	<b>2,810</b>	<b>12,800</b>	---	---	---	---	---	---	---	---
MW-3	10/01/07	451.69	13.96	437.73	0.00	<b>252,000</b>	<b>185,000 g,h</b>	<10,500 m	<b>29,300</b>	<b>35,200</b>	<b>3,260</b>	<b>19,300</b>	---	---	---	---	---	---	---	---
MW-3	01/10/08	451.69	9.34	442.37 d	0.02	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-3	01/14/08	451.69	9.06	442.63	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	01/21/08	451.69	8.27	443.42	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	02/26/08	451.69	8.40	443.30 d	0.01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	07/10/08	451.69	9.02	442.69 d	0.02	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-3	08/26/08	451.69	9.55	442.16 d	0.02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	09/22/08	451.69	10.00	441.71 d	0.03	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	01/06/09	451.69	8.47	443.24 d	0.02	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-3	07/29/10	451.69	9.21	442.50 d	0.03	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-4	12/28/06	452.01	9.41	442.60	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	12/29/06	452.01	9.36	442.65	0.00	<b>207,000</b>	<b>1,810</b>	<510 m	<b>32,400</b>	<b>39,700</b>	<b>3,200</b>	<b>18,800</b>	---	---	---	---	---	---	---	---
MW-4	02/15/07	452.01	9.96	442.05	0.00	<b>253,000 a, b</b>	<b>72,100 c</b>	<50,000 m	<b>31,500 a, b</b>	<b>40,500 a, b</b>	<b>2,990 a, b</b>	<b>18,100 a, b</b>	---	---	<500 m	<5,000	<100	<100	<100	---

SUMMARY OF GROUNDWATER MONITORING DATA  
FORMER JIFFY LUBE FACILITY  
6808 196TH STREET SOUTHWEST,  
LYNNWOOD, WASHINGTON

Sample ID	Date	TOC	DTW	GWE	SPH Thickness	HYDROCARBONS			PRIMARY VOCs					OXYGENATES					LEAD	
						TPHg 800/1000	TPHd 500	TPHo 500	B 5	T 1000	E 700	X 1000	EDB 0.01	EDC 5	MTBE 20	TBA NE	DIPE NE	ETBE NE	TAME NE	Total 15
MW-4	04/06/07	452.01	10.41	441.63 d	0.04	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-4	07/09/07	452.01	10.47	441.56 d	0.03	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	07/28/07	452.01	10.81	441.23 d	0.04	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-4	10/01/07	452.01	14.24	437.87 d	0.13	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-4	11/12/07	452.01	13.83	438.31 d	0.16	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	11/20/07	452.01	13.68	438.44 d	0.14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	11/26/07	452.01	13.52	438.58 d	0.11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	12/08/07	452.01	12.87	439.22 d	0.10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	12/14/08	452.01	12.41	439.66 d	0.07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	12/19/07	452.01	12.33	439.72 d	0.05	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	12/28/07	452.01	12.24	439.80 d	0.04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	01/10/08	452.01	9.61	442.42 d	0.03	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-4	01/14/08	452.01	9.23	442.80 d	0.02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	01/21/08	452.01	8.07	443.96 d	0.03	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	02/26/08	452.01	9.03	443.00 d	0.03	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	07/10/08	452.01	9.71	442.41 d	0.14	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-4	08/26/08	452.01	10.52	441.68 d	0.24	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	09/22/08	452.01	11.01	441.27 d	0.34	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	01/06/09	452.01	9.24	442.79 d	0.02	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-4	07/29/10	452.01	9.81	442.22 d	0.02	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-5	12/28/06	451.38	8.11	443.27	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	12/29/06	451.38	8.17	443.21	---	<b>122,000</b>	<b>603</b>	<515 m	<b>7,220</b>	<b>24,400</b>	<b>2,280</b>	<b>13,200</b>	---	---	---	---	---	---	---	---
MW-5	02/15/07	451.38	8.49	442.89	---	<b>771,000 a, b</b>	<b>49,200 c</b>	<5,000 m	<b>12,800 a, b</b>	<b>43,600 a, b</b>	<b>6,000 a, b</b>	<b>40,700 a, b</b>	---	---	<500 m	<5,000	<100	<100	<100	---
MW-5	04/06/07	451.38	9.08	442.32 d	0.03	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-5	07/09/07	451.38	9.19	442.21 d	0.03	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	07/28/07	451.38	9.58	441.83 d	0.04	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-5	10/01/07	451.38	13.16	438.28 d	0.08	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-5	11/12/07	451.38	12.74	438.69 d	0.06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	11/20/07	451.38	12.55	438.89 d	0.08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	11/26/07	451.38	12.48	438.95 d	0.06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	12/05/07	451.38	11.74	439.72 d	0.10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	12/14/07	451.38	11.53	439.90 d	0.06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	12/19/07	451.38	11.41	440.00 d	0.04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	12/28/07	451.38	11.29	440.12 d	0.04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	01/10/08	451.38	8.70	442.70 d	0.02	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-5	01/14/08	451.38	8.70	442.68	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	01/21/08	451.38	8.00	443.54 d	0.20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	02/26/08	451.38	8.02	443.50 d	0.17	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	07/10/08	451.38	8.68	442.97 d	0.34	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-5	08/26/08	451.38	8.86	442.73 d	0.26	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	09/22/08	451.38	9.18	442.36 d	0.20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	01/06/09	451.38	7.80	443.60 d	0.02	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-5	07/29/10	451.38	8.72	442.68 d	0.02	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-6	07/09/07	449.40	8.33	441.07	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 2

SUMMARY OF GROUNDWATER MONITORING DATA  
FORMER JIFFY LUBE FACILITY  
6808 196TH STREET SOUTHWEST,  
LYNNWOOD, WASHINGTON

Sample ID	Date	TOC	DTW	GWE	SPH Thickness	HYDROCARBONS			PRIMARY VOCs					OXYGENATES					LEAD	
						TPHg 800/1000	TPHd 500	TPHo 500	B 5	T 1000	E 700	X 1000	EDB 0.01	EDC 5	MTBE 20	TBA NE	DIPE NE	ETBE NE	TAME NE	Total 15
MW-6	07/28/07	449.40	8.61	440.79	0.00	52.4	<253	<505 m	<0.500	1.25	<0.500	<1.00	---	---	---	---	---	---	---	---
MW-6	10/01/07	449.40	12.22	437.18	0.00	<250	<105	<105	<1.00	<1.00	<1.00	<3.00	---	---	---	---	---	---	---	---
MW-6	01/10/08	449.40	7.86	441.54	0.00	<50.0	<250	<500	<0.500	<0.500	<0.500	<3.00	---	---	---	---	---	---	---	---
MW-6	07/10/08	449.40	7.87	441.53	0.00	<50	<500	<200	<1	<1	<1	<1	---	---	---	---	---	---	---	---
MW-6	01/06/09	449.40	6.10	443.30	0.00	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	---	---	<1.0	<10	<2.0	<2.0	<2.0	---
MW-6	07/13/09	449.40	8.47	440.93	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<1.00
MW-6	07/29/10	449.40	8.17	441.23	0.00	---	<100	190	<0.50	<1.0	<1.0	<1.0	---	---	---	---	---	---	---	---
MW-7	07/09/07	450.14	7.81	442.33	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	07/28/07	450.14	8.03	442.11	0.00	<50.0	<253	<495	<0.500	<0.500	<0.500	<1.00	---	---	---	---	---	---	---	---
MW-7	10/01/07	450.14	11.71	438.43	0.00	<250	<111	<111	1.78	<1.00	<1.00	<3.00	---	---	---	---	---	---	---	---
MW-7	01/10/08	450.14	7.32	442.82	0.00	51.2	<250	<500	<b>68.4</b>	1.26	79.7	110	---	---	---	---	---	---	---	---
MW-7	07/10/08	450.14	7.27	442.87	0.00	<50	<500	<200	<1	<1	<1	<1	---	---	---	---	---	---	---	---
MW-7	01/06/09	450.14	7.07	443.07	0.00	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	---	---	<1.0	<10	<2.0	<2.0	<2.0	---
MW-7	07/13/09	450.14	7.70	442.44	0.00	---	---	---	2.7	<1.0	<1.0	<1.0	---	---	---	---	---	---	---	<1.00
MW-7	07/29/10	450.14	7.69	442.45	0.00	---	<100	<100	<0.50	<1.0	<1.0	<1.0	---	---	---	---	---	---	---	---
MW-8	07/09/07	451.31	8.63	442.68	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	07/28/07	451.31	8.97	442.34	0.00	<b>266,000</b>	<b>8,580 e</b>	<5,210 m	<b>20,500</b>	<b>43,600</b>	<b>3,550</b>	<b>23,000</b>	---	---	---	---	---	---	---	---
MW-8	10/01/07	451.31	12.58	438.73	0.00	<b>181,000</b>	<b>6,540 g, i</b>	<1,110 m	<b>18,000</b>	<b>32,000</b>	<b>2,250</b>	<b>14,900</b>	---	---	---	---	---	---	---	---
MW-8	01/10/08	451.31	8.16	443.15	0.00	<b>202,000</b>	<b>9,190 c</b>	<4,850 m	<b>13,400</b>	<b>29,600</b>	<b>2,200</b>	<b>14,000</b>	---	---	---	---	---	---	---	---
MW-8	07/10/08	451.31	8.14	443.18 d	0.01	NOT SAMPLED - SPH PRESENT			---	---	---	---	---	---	---	---	---	---	---	---
MW-8	08/26/08	451.31	8.30	443.03 d	0.02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	09/22/08	451.31	8.80	442.52 d	0.01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-8	01/06/09	451.31	7.90	443.41	0.00	<b>22,000</b>	<b>6,900</b>	440	<b>2,700</b>	<b>6,300</b>	390	<b>4,300</b>	---	---	<20	<200	<40	<40	<40	---
MW-8	07/29/10	451.31	7.92	443.39	0.00	---	<b>5,300 j</b>	<b>2,000 j</b>	<b>18,000</b>	<b>40,000</b>	<b>17,000</b>	<b>110,000</b>	---	---	---	---	---	---	---	---
MW-9	07/09/07	451.75	10.83	440.92	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	07/28/07	451.75	11.02	440.73	0.00	<50.0	<248	<495	<0.500	<0.500	<0.500	<1.00	---	---	---	---	---	---	---	---
MW-9	10/01/07	451.75	14.07	437.68	0.00	299	174 f,g	<111	<b>5.52</b>	<1.00	<1.00	<3.00	---	---	---	---	---	---	---	---
MW-9	01/10/08	451.75	9.76	441.99	0.00	<50.0	<238	<476	<0.500	<0.500	<0.500	<3.00	---	---	---	---	---	---	---	---
MW-9	07/10/08	451.75	9.71	442.04	0.00	<50	<500	<1,000 m	<1	<1	<1	<1	---	---	---	---	---	---	---	---
MW-9	01/06/09	451.75	9.35	442.40	0.00	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	---	---	<1.0	<10	<2.0	<2.0	<2.0	---
MW-9	07/13/09	451.75	9.94	441.81	0.00	---	---	---	<0.50	<1.0	<1.0	<1.0	---	---	---	---	---	---	---	<1.00
MW-9	07/29/10	451.75	9.80	441.95	0.00	---	<100	<100	<0.50	<1.0	<1.0	<1.0	---	---	---	---	---	---	---	---
MW-10	07/09/07	451.43	12.44	438.99	0.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-10	07/28/07	451.43	12.77	438.66	0.00	<b>6,570</b>	307 c	<505 m	<b>299</b>	179	237	615	---	---	---	---	---	---	---	---
MW-10	10/01/07	451.43	14.87	436.56	0.00	<b>27,100</b>	<b>1,820 g, i</b>	<556 m	<b>1,510</b>	<b>1,220</b>	<b>1,210</b>	<b>2,650</b>	---	---	---	---	---	---	---	---
MW-10	01/10/08	451.43	10.52	440.91	0.00	<b>11,400</b>	<248	<495	<b>316</b>	237	<b>842</b>	604	---	---	---	---	---	---	---	---
MW-10	07/10/08	451.43	11.69	439.74	0.00	<b>1,400</b>	<500	<1,000 m	<b>1,400</b>	<b>1,200</b>	<b>710</b>	<b>2,310</b>	---	---	---	---	---	---	---	---
MW-10	01/06/09	451.43	10.11	441.32	0.00	<b>29,000</b>	120	<100	<b>4,800</b>	<b>1,400</b>	<b>1,800</b>	<b>5,100</b>	---	---	<10	<100	<20	<20	<20	---
MW-10 *	07/13/09	451.43	12.31	439.12	0.00	<b>4,800</b>	<100	<100	<b>1,600</b>	260	190	<b>1,000</b>	<0.010	<1.5	---	---	---	---	---	1.02
MW-10	07/29/10	451.43	11.86	439.57	0.00	---	<100	<100	<b>240</b>	9.9	45	89	---	---	---	---	---	---	---	---
SB-3 n	05/10/10	---	---	---	0.00	360	<b>1,600 j</b>	<100	<b>170</b>	<1.0	<1.0	<1.0	---	---	---	---	---	---	---	---

SUMMARY OF GROUNDWATER MONITORING DATA  
FORMER JIFFY LUBE FACILITY  
6808 196TH STREET SOUTHWEST,  
LYNNWOOD, WASHINGTON

Sample ID	Date	TOC	DTW	GWE	SPH Thickness	HYDROCARBONS			PRIMARY VOCs					OXYGENATES					LEAD		
						TPHg 800/1000	TPHd 500	TPHo 500	B 5	T 1000	E 700	X 1000	EDB 0.01	EDC 5	MTBE 20	TBA NE	DIPE NE	ETBE NE	TAME NE	Total 15	
SB-4 n	05/10/10	---	---	---	0.00	180	<b>2,400 j</b>	<100	<0.5	<1.0	<1.0	<1.0	---	---	---	---	---	---	---	---	---

**Notes:**

DTW = Depth to Water in feet  
 GWE = Groundwater Elevation in feet above mean sea level  
 TOC = Top of Casing in feet above mean sea level  
 SPH = Separate Phase Hydrocarbons  
 MTCA = Model Toxics Control Act  
 All results in micrograms per liter (µg/L) unless otherwise indicated.  
 TPHg = Total petroleum hydrocarbons as gasoline analyzed by NWTPH-Gx unless otherwise noted. The higher value is based on the assumption that no benzene is present in the groundwater sample. If any detectable amount of benzene is present in the groundwater sample, then the lower TPHg cleanup level is applicable.  
 TPHd = Total petroleum hydrocarbons as diesel, analyzed by NWTPH-Dx with silica gel cleanup unless otherwise noted.  
 TPHo = Total petroleum hydrocarbons as oil, analyzed by NWTPH-Dx with silica gel cleanup unless otherwise noted.  
 VOCs = Volatile organic compounds  
 BTEX = Benzene, toluene, ethylbenzene, and xylenes analyzed by EPA Method 8260B unless otherwise noted.  
 Xylenes = o-xylene + m,p-xylene  
 MTBE = Methyl tertiary-butyl ether analyzed by EPA Method 8260B  
 EDB = 1,2-Dibromoethane analyzed by EPA Method 8011  
 EDC = 1,2-Dichloroethane analyzed by EPA Method 8260B  
 TBA = Tertiary-butanol analyzed by EPA Method 8260B  
 DIPE = Di-isopropyl ether analyzed by EPA Method 8260B  
 ETBE = Ethyl tertiary-butyl ether analyzed by EPA Method 8260B  
 TAME = Tertiary-amyl methyl ether analyzed by EPA Method 8260B  
 Total Lead analyzed by EPA Method 6020 unless otherwise noted.  
 <x = Not detected at laboratory reporting limit x  
 NE = Not established  
 --- = Not analyzed  
 Concentrations in bold type indicate the analyte was detected above MTCA Method A cleanup levels

a = Due to multiple re-shots required for re-analysis, the aliquot of sample analyzed on the instrument was taken from a VOA vial containing headspace.  
 b = Sample container contained headspace  
 c = Results reported in the diesel organics range are primarily due to overlap from a gasoline-range product.  
 d = Groundwater elevation formula adjusted for the presence of SPH: (TOC - DTW) + (SPHT\*0.80)  
 e = Hydrocarbon pattern most closely resembles a blend of gasoline and diesel.  
 f = The primary contamination elutes between C8 and C28, which is in the diesel range.  
 g = The contamination did not match any standard in our library.  
 h = The primary contamination elutes between C8 and C14, which is in the mineral spirits range.  
 i = The primary contamination elutes between C8 and C16, which is in the kerosene range.  
 j = The sample chromatographic pattern for TPH does not match the chromatographic pattern of the specified standard.  
 m = The laboratory reporting limit exceeded the MTCA Method A cleanup level.  
 n = Grab groundwater sample taken from temporary well. Sample ID is abbreviated from GW-241739-051010-HB-[Unique ID].

\* = Sample also analyzed for one or more of the following: carcinogenic polycyclic aromatic hydrocarbons (cPAHs) by EPA Method 8270C-SIM, polychlorinated biphenyls (PCBs) by EPA Method 8082, and halogenated volatile organic compounds (HVOCs) by EPA Method 8260B. For those constituents analyzed, no concentrations exceeded the laboratory MDL. Please see applicable laboratory report(s) for more information.

APPENDIX A

ENVIRONMENTAL DOCUMENT LIST

**APPENDIX A - ENVIRONMENTAL DOCUMENT LIST**

Title	Author	Date	Submitted to Ecology	
			Y/N	Date
Lynnwood Quaker State Lube UST Closure Site Characterization	Nowicki & Associates	9/27/1995	Y	9/27/1995
Waste Oil UST - Characterization Soil Boring	Nowicki & Associates	11/20/1995	Y	11/20/1995
Phase I Environmental Site Assessment Limited Compliance Audit	FINEnvironmental, Inc.	1/28/2003	N	---
Limited Phase I Environmental Site Assessment	GeoEngineers, Inc.	2/11/2004	N	---
Groundwater Monitoring Report - Fourth Quarter 2006	Cambria Environmental Technology, Inc.	5/31/2007	Y	5/31/2007
Site Investigation Report	Conestoga-Rovers & Associates	5/31/2007	Y	5/31/2007
Groundwater Monitoring Report - First Quarter 2007	Conestoga-Rovers & Associates	6/27/2007	Y	6/27/2007
Groundwater Monitoring Report - Second Report 2007	Conestoga-Rovers & Associates	7/24/2007	Y	7/24/2007
Site Investigation Report	Conestoga-Rovers & Associates	10/23/2007	Y	10/23/2007
Groundwater Monitoring Report - Third Quarter 2007	Conestoga-Rovers & Associates	10/31/2007	Y	10/31/2007
Groundwater Monitoring Report - Fourth Quarter 2007	Conestoga-Rovers & Associates	2/29/2008	Y	2/29/2008
Groundwater Monitoring Report - First Quarter 2008	Conestoga-Rovers & Associates	4/17/2008	Y	4/17/2008
Groundwater Monitoring Report - Third Quarter 2008	Conestoga-Rovers & Associates	12/2/2008	Y	12/02/2008
Groundwater Monitoring Report - First Quarter 2009	Conestoga-Rovers & Associates	3/26/2008	Y	3/26/2008
2009 Annual Groundwater Monitoring Report	Conestoga-Rovers & Associates	2/8/2010	Y	2/8/2010
2010 Annual Groundwater Monitoring Report	Conestoga-Rovers & Associates	10/25/2010	Y	10/25/2010

APPENDIX B

LEGAL DESCRIPTION OF PROPERTY, PRESENT OWNER AND  
OPERATOR, KNOWN PAST OWNERS AND OPERATORS



<u>Known Listing of Owners and Operators</u>		
<u>Owner</u>	<u>Business Operator</u>	<u>Approximate Years of Site Occupation</u>
Strickland Real Estate Holdings, LLC	Aloha Café	2006-present
Lorena Strickland Family	Jiffy Lube	2000-2006
Lorena Strickland Family	Quaker Minit Lube	1987-2000
Lorena Strickland Family	Speedi-Lube	1977-1987
Lorena Strickland Family	The Texas Company (Texaco)	1959-1977
Lorena Strickland Family	Unknown (likely undeveloped)	Prior to 1959

## Property Account Summary

Parcel Number	27042000200600	Property Address	6808 196TH ST SW , LYNNWOOD, WA 98036-5041
---------------	----------------	------------------	--

### Parties - For changes use 'Other Property Data' menu

Role	Percent	Name	Mailing Address
Taxpayer	100	STRICKLAND-WILLIFORD LORENA M	PO BOX 1004, EVERETT, WA 98206 United States
Owner	100	STRICKLAND REAL ESTATE HOLDINGS LLC	PO BOX 1004, EVERETT, WA 98206 United States

### General Information

Property Description	Section 20 Township 27 Range 04 Quarter NW - BEG NE COR NW1/4 TH S 170FT TH W 170FT TH N 170FT TH E 170FT EXC N & E 30FT TH OF FOR CO RD & ALSO EXC R/W TO CITY OF LYN ORD NO 752 (PAR 213) DTD 9-23-1974 DAF - BAAP LY 30FT S & 30FT W NE COR NW1/4 SD SEC SD PT BEING TPB TH W 140FT TH S 8FT TH E 128FT TH SE 16.97FT TAP LY 20FT S OF POB TH N 20FT POB
Property Category	Land and Improvements
Status	Active, Host Other Property, Locally Assessed
Tax Code Area	00452

### Property Characteristics

Use Code	549 Other Retail Trade - Food NEC
Unit of Measure	Acre(s)
Size (gross)	0.42

### Related Properties

2755949 is Located On this property

### Active Exemptions

No Exemptions Found

If you wish to pay your property taxes on-line now, select one of the following options and press the button "Add To Payment List". If this property is noted as "Delinquency" in the General Information Status field, additional costs may be added monthly. At certain dates within the delinquency process, all outstanding taxes, assessments, interest, penalties, and costs are due in certified funds. Make Check or Money Order to "Snohomish County Treasurer". Send to Snohomish County Treasurer, 3000 Rockefeller Ave, M/S 501, Everett, WA 98201

### Installments Payable

Tax Year	Installment	Due Date	Principal	Interest, Penalties and Costs	Total Due	Cumulative Due	Select to Pay
2009	Delinquent	10/31/2009	2,374.40	688.59	3,062.99	3,062.99	<input type="radio"/>
2010	Delinquent	04/30/2010	5,105.73	1,327.47	6,433.20	9,496.19	<input type="radio"/>
2011	1	04/30/2011	2,480.50	297.66	2,778.16	12,274.35	<input type="radio"/>
2011	2	10/31/2011	2,480.50	0.00	2,480.50	14,754.85	<input type="radio"/>

[Add To Payment List](#)

[View Detailed Statement](#) Detailed information about taxes and all other charges displayed above.

[Calculate Future Payoff](#) Taxes, interest and penalty due on a specific future date.

Statement of Payable/Paid For Tax Year:

### Distribution of Current Taxes

District	Rate	Amount
CITY OF LYNNWOOD	2.369523	1,151.59
EDMONDS SCHOOL DISTRICT NO 15	4.149544	2,016.68
PUB HOSP #2	0.057643	28.01
PUB HOSP #2	0.095378	46.35
SNOHOMISH COUNTY-CNT	0.868378	422.03
SNOISLE REGIONAL LIBRARY	0.450643	219.01
STATE	2.206383	1,072.31
SNOHOMISH CONSERVATION DISTRICT		5.02
<b>TOTALS</b>	<b>10.197493</b>	<b>4,961.00</b>

### Pending Property Values

Pending Tax Year	Market Land Value	Market Improvement Value	Market Total Value	Current Use Land Value	Current Use Improvement	Current Use Total Value
2012	293,100	71,900	365,000	0	0	0

### Property Values

Value Type	Tax Year 2011	Tax Year 2010	Tax Year 2009	Tax Year 2008	Tax Year 2007
Taxable Value Regular	486,000	580,900	581,900	512,000	468,400
Exemption Amount Regular					

Exemption Amount Regular					
Market Total	486,000	580,900	581,900	512,000	468,400
Assessed Value	486,000	580,900	581,900	512,000	468,400
Market Land	342,700	396,900	397,900	312,900	312,900
Market Improvement	143,300	184,000	184,000	199,100	155,500
Personal Property					

#### Levy Rate History

Tax Year	Total Levy Rate
2010	8.780704
2009	8.160831
2008	8.202782

#### Real Property Structures

Description	Type	Year Built	More Information
ALOHA CAFE	Commercial	1959	<a href="#">View Detailed Structure Information</a>

#### Property Sales (since 7/31/1999)

Transfer Date	Receipt Date	Sales Price	Excise Number	Deed Type	Grantor (Seller)	Grantee (Buyer)	Other Parcels
12/31/2002	1/8/2003	\$0	175310	QC	WILLIFORD WILLIAM CHESTER	STRICKLAND REAL ESTATE HOLDINGS LLC	No
12/31/2002	1/8/2003	\$0	175312	QC	STRICKLAND-WILLIFORD LORENA	STRICKLAND REAL ESTATE HOLDINGS LLC	No
12/18/2002	1/8/2003	\$0	175311	QC	STRICKLAND REX THOMAS	STRICKLAND REAL ESTATE HOLDINGS LLC	No

#### Property Maps

Neighborhood Code	Township	Range	Section	Quarter	Parcel Map
5508000	27	04	20	NW	<a href="#">View parcel maps for this Township/Range/Section</a>

#### Receipts

Date	Receipt No.	Amount Applied
05/04/2009 00:00	5113048	2,374.39
11/04/2008 00:00	4848484	2,099.91
05/19/2008 13:38	4618725	2,141.91
11/05/2007 00:00	4334806	2,058.11
05/07/2007 00:00	4084292	2,058.10
04/25/2006 00:00	3392693	4,226.87

#### Events

Effective Date	Entry Date-Time	Type	Remarks
12/31/2002	06/30/2003 12:03	Property Assigned To Transfer/Sale	Property Assigned to Transfer/Sale. Filing No.: 175312, Quit Claim Deed by sasklm
12/31/2002	06/30/2003 11:59	Taxpayer Changed	Property Transfer Filing No.: 175310 12/31/2002 by sasklm
12/31/2002	06/30/2003 11:59	Property Assigned To Transfer/Sale	Property Assigned to Transfer/Sale. Filing No.: 175310, Quit Claim Deed by sasklm
12/31/2002	06/18/2003 14:22	Owner Added	Party/Property Relationship by sassls
12/31/2002	02/10/2003 08:40	Taxpayer Changed	Property Transfer Filing No.: 175310 12/31/2002 by sasset
12/31/2002	01/08/2003 12:09	Excise Processed	Property Transfer Filing No.: 175312, Quit Claim Deed 12/31/2002 by strnls
12/31/2002	01/08/2003 11:53	Taxpayer Changed	Property Transfer Filing No.: 175310 12/31/2002 by strnls
12/31/2002	01/08/2003 11:53	Excise Processed	Property Transfer Filing No.: 175310, Quit Claim Deed 12/31/2002 by strnls
12/30/2002	06/18/2003 14:23	Owner Terminated	Party/Property Relationship by sassls
12/18/2002	06/30/2003 11:58	Property Assigned To Transfer/Sale	Property Assigned to Transfer/Sale. Filing No.: 175311, Quit Claim Deed by sasklm
12/18/2002	01/08/2003 12:01	Excise Processed	Property Transfer Filing No.: 175311, Quit Claim Deed 12/18/2002 by strnls

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APPENDIX C

SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIVITIES

**SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIVITIES**

**1995 Underground Storage Tank Closure:** In August 1995, Nowicki and Associates, Inc. (Nowicki) conducted compliance sampling in the process of underground storage tank (UST) decommissioning activities during a conversion to an aboveground storage tank (AST) system at the Property. One 3,000-gallon new oil UST was removed and one 500-gallon waste oil UST was closed-in-place during the conversion at the Property. Soil samples were collected from the sidewalls and bottom of the new oil UST excavation. Laboratory analytical results indicated concentrations of total petroleum hydrocarbons (TPH) as diesel (TPHd) and TPH as heavy oil (TPHo) above the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A screening levels in soil samples collected from west sidewall. Nowicki overexcavated observed petroleum hydrocarbon impacted soil. Approximately 65 tons of petroleum-hydrocarbon impacted soil was removed from the new oil UST excavation. Final soil sample locations from the sidewalls and bottom of the new oil UST excavation were below laboratory reporting limits for TPHd and TPHo. No other concentrations were reported. Soil samples were collected from one soil boring, SB, advanced just south of the waste oil UST at depths of 1.33 and 2 feet below ground surface (bgs). Laboratory analytical results indicated concentrations of TPHd and TPHo above MTCA Method A screening levels in samples collected from boring SB. The overlying building foundation made removal of petroleum hydrocarbon impacted soil around the waste oil UST untenable, and the soil was left in place. Additional information is available in Nowicki's *Lynnwood Quaker State Lube UST Closure Site Characterization*, dated September 27, 1995.

**1995 Soil Characterization Report:** In November 1995, Nowicki conducted an additional Site investigation to characterize subsurface impacts to soil and groundwater at the Site. Two soil borings, SB1 and SB2, were advanced to the north of the former waste oil UST. Laboratory analytical results indicated concentrations of TPH as gasoline (TPHg) and benzene, toluene, ethylbenzene, and xylenes (BTEX) above the MTCA Method A screening levels. More information is available in Nowicki's *Waste Oil UST – Characterization Soil Boring*, dated November 20, 1995.

**2003 Phase I Environmental Site Assessment:** In January 2003, FINE Environmental, Inc. (FINE) conducted a Phase I Site assessment. Results of the inspection indicated that the subject property formerly operated as a

Texaco-branded gasoline service station prior to 1977. Results also identified Leaking UST (LUST) sites at adjacent properties to the north and east. More information is available in FINE's *Phase I Environmental Site Assessment Limited Compliance Audit*, dated January 28, 2003.

**2004 Phase I Environmental Assessment:** In December 2003, GeoEngineers, Inc. (GeoEngineers) completed a Phase I Site assessment prior to Shell's purchase of the Jiffy Lube facility operating on the Property. Results of the inspection indicated similar findings of the Phase I conducted by FINE in 2003. More information is available in GeoEngineers' *Limited Phase I Environmental Site Assessment*, dated February 11, 2004.

**November 2006 Site Investigation:** In November 2006, Cambria Environmental Technology (Cambria) installed five monitoring wells (MW-1 through MW-5) and advanced one soil boring (SB-1) at the Property. Soil samples were collected from each boring and submitted for laboratory analysis. Analytical results indicated benzene concentrations above MTCA Method A screening levels in soil samples collected from each of the soil borings at depths ranging from 7.5 to 27.5 feet bgs. TPHg, toluene, ethylbenzene, and total xylenes were detected above MTCA Method A screening levels in soil samples collected from borings MW-3, MW-4, and MW-5. More information is available in Conestoga-Rovers & Associates' (CRA) *Site Investigation Report*, dated May 31, 2007.

**July 2007 Site Investigation:** In July 2007, CRA conducted an additional Site investigation, including the installation of five monitoring wells (MW-6 through MW-10). Laboratory analytical results from soil samples collected from four out of five well borings indicated concentrations of benzene above the MTCA Method A screening level. TPHg and total xylenes concentrations were additionally detected above the MTCA Method A screening levels in soil samples collected from boring MW-8 at 15 and 20 feet bgs. More information is available in CRA's *Site Investigation Report*, dated October 23, 2007.

APPENDIX D

AVAILABLE HISTORICAL SOIL BORING LOGS

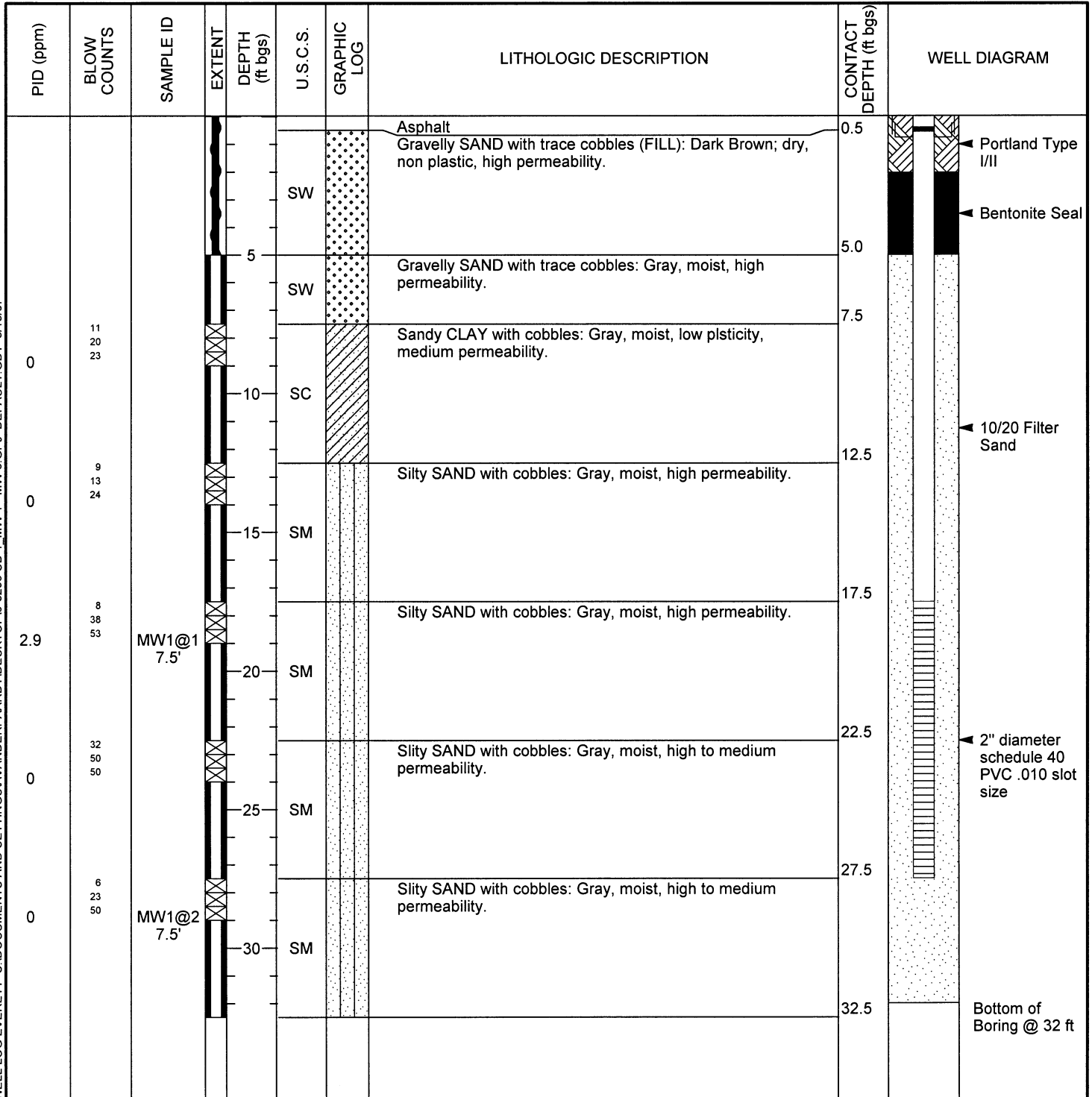


Cambria Environmental Technology, Inc.  
 8620 Holly Drive, Suite 210  
 Everett, WA 98208  
 Telephone: 425.353.6670  
 Fax: 425.353.6443

# BORING/WELL LOG

<b>CLIENT NAME</b>	Shell Oil Products US	<b>BORING/WELL NAME</b>	MW-1
<b>JOB/SITE NAME</b>	LYNN6808	<b>DRILLING STARTED</b>	16-Nov-06
<b>LOCATION</b>	6808 196th Street, Lynnwood, WA	<b>DRILLING COMPLETED</b>	16-Nov-06
<b>PROJECT NUMBER</b>	248-1739	<b>WELL DEVELOPMENT DATE (YIELD)</b>	28-Dec-06 (12/29/2006)
<b>DRILLER</b>	Boart Longyear Drilling	<b>GROUND SURFACE ELEVATION</b>	452 ft above msl
<b>DRILLING METHOD</b>	Hollow-stem auger	<b>TOP OF CASING ELEVATION</b>	452.00 ft above msl
<b>BORING DIAMETER</b>	8"	<b>SCREENED INTERVAL</b>	17.5 to 27.5 ft bgs
<b>LOGGED BY</b>	Bryan Palmer	<b>DEPTH TO WATER (First Encountered)</b>	NA
<b>REVIEWED BY</b>	T. Crotwell	<b>DEPTH TO WATER (Static)</b>	NA
<b>REMARKS</b>			

WELL LOG EVERETT C:\DOCUMENTS AND SETTINGS\AVANDERP\AARDT\DES\KTOP19-3299 SB-1\_MW-1 - MW-5.GPJ DEFAULT.GDT 3/13/07



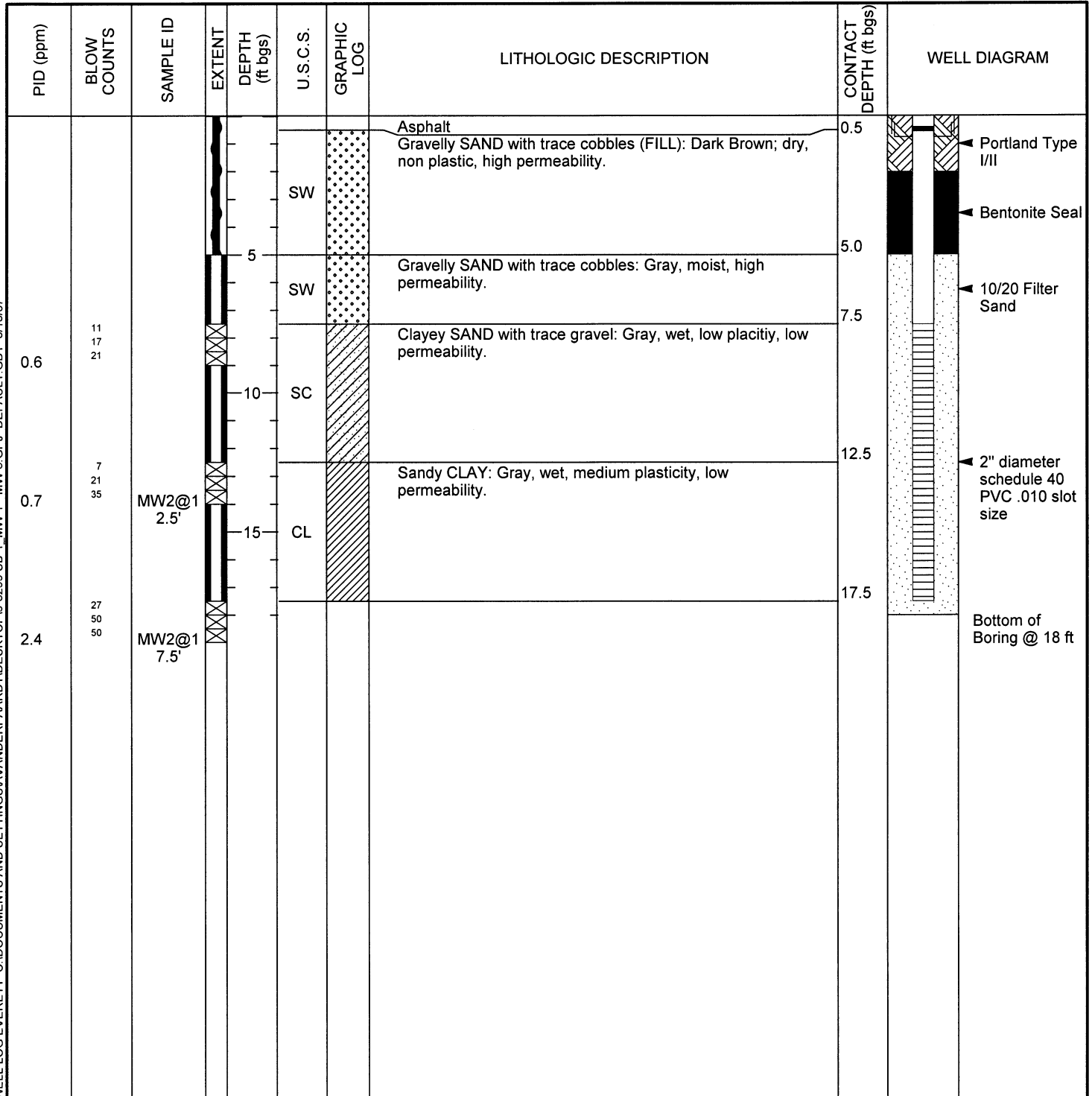




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# BORING/WELL LOG

<b>CLIENT NAME</b>	Shell Oil Products US	<b>BORING/WELL NAME</b>	MW-2
<b>JOB/SITE NAME</b>	LYNN6808	<b>DRILLING STARTED</b>	16-Nov-06
<b>LOCATION</b>	6808 196th Street, Lynnwood, WA	<b>DRILLING COMPLETED</b>	17-Nov-06
<b>PROJECT NUMBER</b>	248-1739	<b>WELL DEVELOPMENT DATE (YIELD)</b>	28-Dec-06 (12/29/2006)
<b>DRILLER</b>	Boart Longyear Drilling	<b>GROUND SURFACE ELEVATION</b>	451.04 ft above msl
<b>DRILLING METHOD</b>	Hollow-stem auger	<b>TOP OF CASING ELEVATION</b>	451.04 ft above msl
<b>BORING DIAMETER</b>	8"	<b>SCREENED INTERVAL</b>	7.5 to 17.5 ft bgs
<b>LOGGED BY</b>	Bryan Palmer	<b>DEPTH TO WATER (First Encountered)</b>	NA
<b>REVIEWED BY</b>	T. Crotwell	<b>DEPTH TO WATER (Static)</b>	NA
<b>REMARKS</b>			



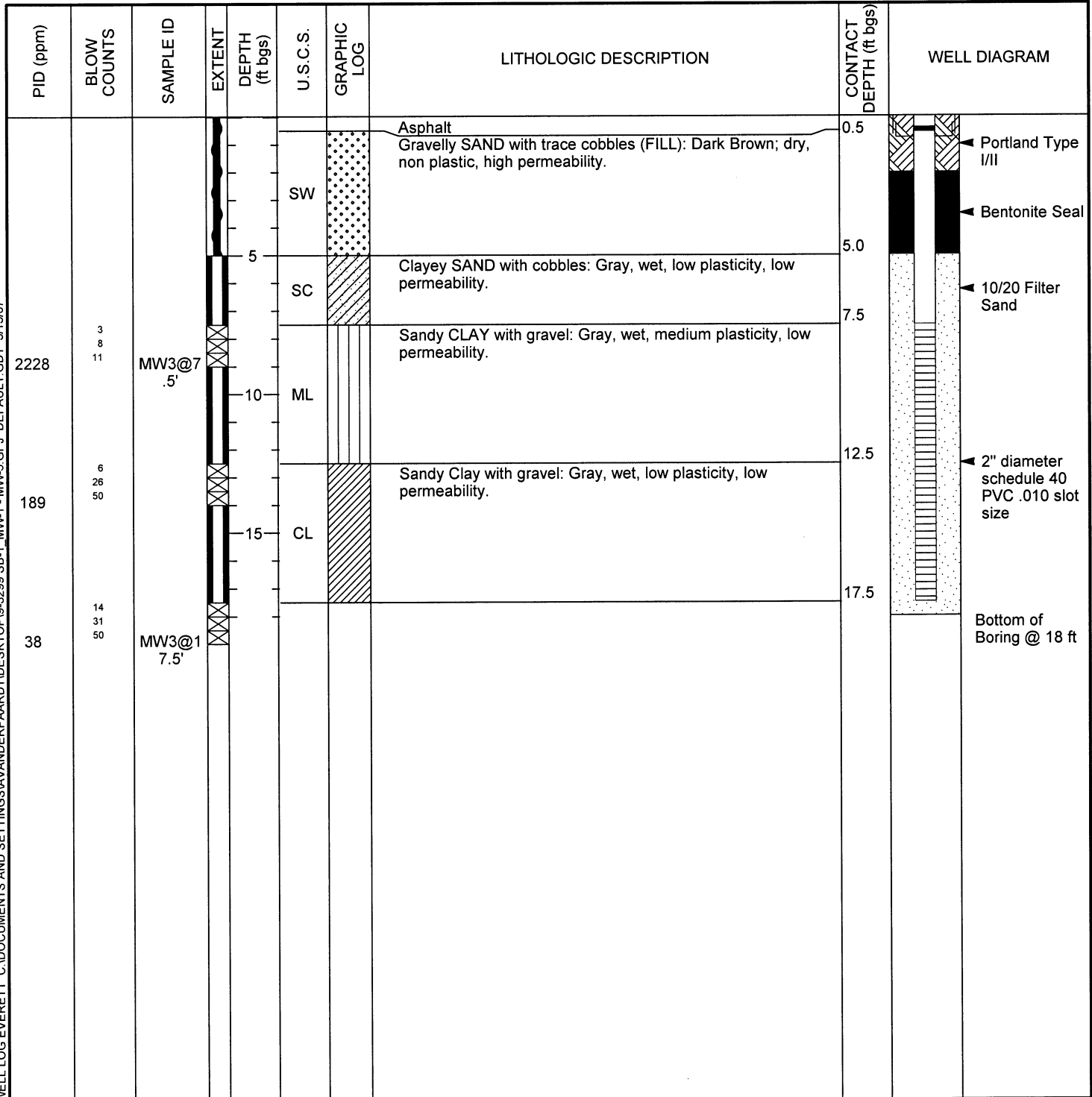
WELL LOG EVERETT C:\DOCUMENTS AND SETTINGS\AVANDERPAARD\DESKTOP\19-3299 SB-1\_MW-1 - MW-5.GPJ DEFAULT.GDT 3/13/07



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# BORING/WELL LOG

<b>CLIENT NAME</b>	Shell Oil Products US	<b>BORING/WELL NAME</b>	MW-3
<b>JOB/SITE NAME</b>	LYNN6808	<b>DRILLING STARTED</b>	16-Nov-06
<b>LOCATION</b>	6808 196th Street, Lynnwood, WA	<b>DRILLING COMPLETED</b>	16-Nov-06
<b>PROJECT NUMBER</b>	248-1739	<b>WELL DEVELOPMENT DATE (YIELD)</b>	28-Dec-06 (12/29/2006)
<b>DRILLER</b>	Boart Longyear Drilling	<b>GROUND SURFACE ELEVATION</b>	452.01 ft above msl
<b>DRILLING METHOD</b>	Hollow-stem auger	<b>TOP OF CASING ELEVATION</b>	452.01 ft above msl
<b>BORING DIAMETER</b>	8"	<b>SCREENED INTERVAL</b>	7.5 to 17.5 ft bgs
<b>LOGGED BY</b>	Bryan Palmer	<b>DEPTH TO WATER (First Encountered)</b>	NA
<b>REVIEWED BY</b>	T. Crotwell	<b>DEPTH TO WATER (Static)</b>	NA
<b>REMARKS</b>			



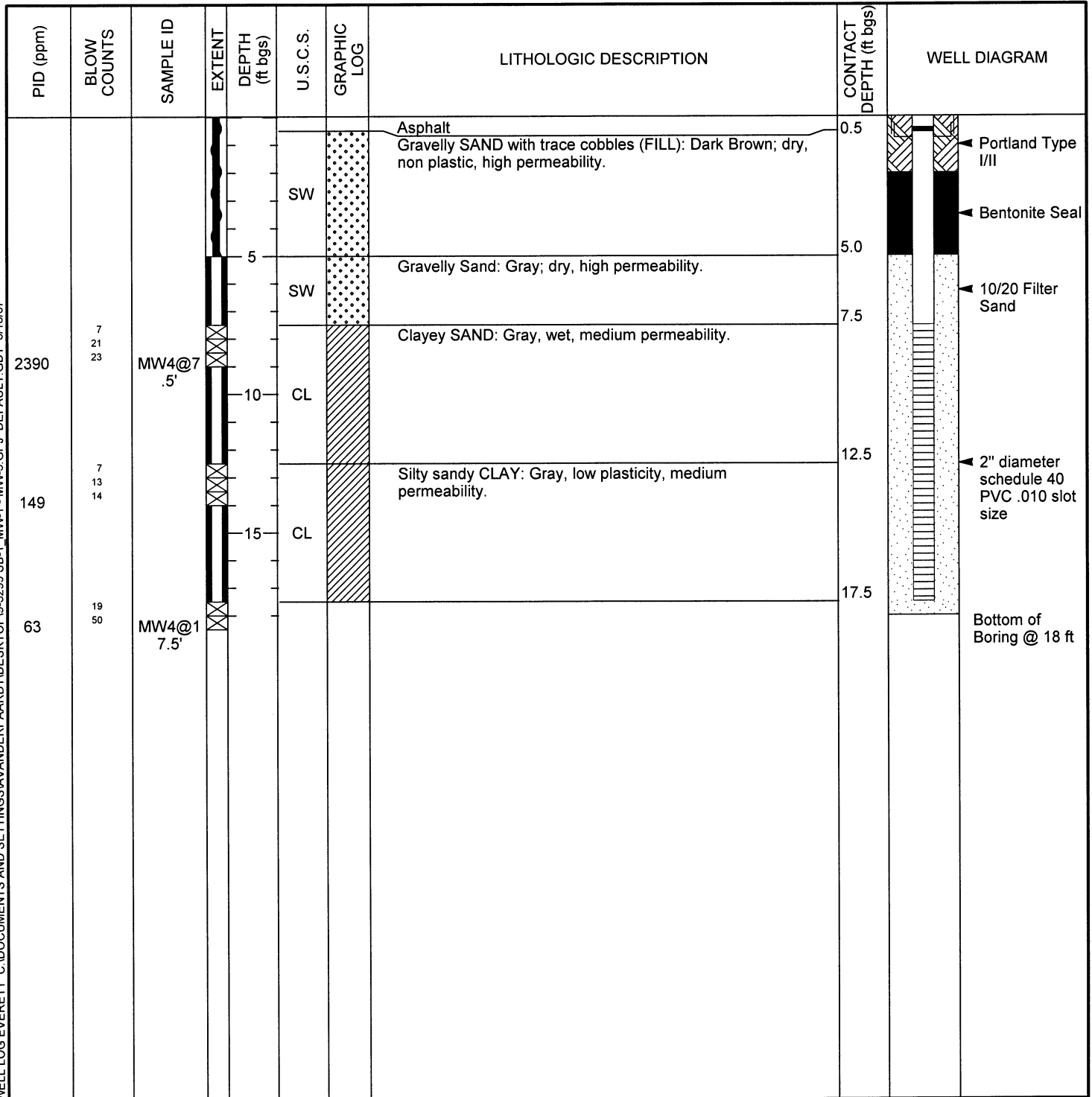
WELL LOG EVERETT C:\DOCUMENTS AND SETTINGS\AVANDERPAARDT\DES\KTOP19-3299 SB-1\_MW-1 - MW-5.GPJ DEFAULT.GDT 3/13/07



Cambria Environmental Technology, Inc.  
 8620 Holly Drive, Suite 210  
 Everett, WA 98208  
 Telephone: 425.353.6670  
 Fax: 425.353.6443

# BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	BORING/WELL NAME	MW-4
JOB/SITE NAME	LYNN6808	DRILLING STARTED	16-Nov-06
LOCATION	6808 196th Street, Lynnwood, WA	DRILLING COMPLETED	16-Nov-06
PROJECT NUMBER	248-1739	WELL DEVELOPMENT DATE (YIELD)	28-Dec-06 (12/29/2006)
DRILLER	Boart Longyear Drilling	GROUND SURFACE ELEVATION	452.28 ft above msl
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	452.28 ft above msl
BORING DIAMETER	8"	SCREENED INTERVAL	7.5 to 17.5 ft bgs
LOGGED BY	Bryan Palmer	DEPTH TO WATER (First Encountered)	NA
REVIEWED BY	T. Crotwell	DEPTH TO WATER (Static)	NA
REMARKS			



WELL LOG EVERETT C:\DOCUMENTS AND SETTINGS\AVANDERPAARD\DES\KTOP19-3299 SB-1\_MW-1 - MW-5.GPJ DEFAULT.GDT 3/13/07



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# BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	BORING/WELL NAME	MW-5
JOB/SITE NAME	LYNN6808	DRILLING STARTED	16-Nov-06
LOCATION	6808 196th Street, Lynnwood, WA	DRILLING COMPLETED	17-Nov-06
PROJECT NUMBER	248-1739	WELL DEVELOPMENT DATE (YIELD)	28-Dec-06 (12/29/2006)
DRILLER	Boart Longyear Drilling	GROUND SURFACE ELEVATION	451.85 ft above msl
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	451.58 ft above msl
BORING DIAMETER	8"	SCREENED INTERVAL	7.5 to 17.5 ft bgs
LOGGED BY	Bryan Palmer	DEPTH TO WATER (First Encountered)	NA
REVIEWED BY	T. Crotwell	DEPTH TO WATER (Static)	NA

REMARKS

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
				0.5			Asphalt	0.5	<p>Portland Type I/II            Bentonite Seal            10/20 Filter Sand            2" diameter schedule 40 PVC .010 slot size</p>
				5.0	SW		Gravelly SAND with trace cobbles (FILL): Dark Brown; dry, non plastic, high permeability.	5.0	
				7.5	SC		Clayey SAND with gravel: Gray, dry, medium permeability.	7.5	
2956	11 17 14	MW5@7 .5'	X	10.0	CL		Sandy CLAY: Gray, wet, low plasticity, medium permeability.	10.0	
499	11 14 9		X	12.5	CL		Sandy CLAY: Gray, wet, low plasticity, low permeability.	12.5	
72.5	17 32 50	MW5@1 7.5'	X	17.5				17.5	Bottom of Boring @ 18 ft

WELL LOG EVERETT C:\DOCUMENTS AND SETTINGS\AVANDERPAARDT\DESKTOP\19-3299 SB-1 MW-1 - MW-5.GPJ DEFAULT.GDT 3/13/07



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# BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	BORING/WELL NAME	SB-1
JOB/SITE NAME	LYNN6808	DRILLING STARTED	16-Nov-06
LOCATION	6808 196th Street, Lynnwood, WA	DRILLING COMPLETED	17-Nov-06
PROJECT NUMBER	248-1739	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Boart Longyear Drilling	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	Not Surveyed
BORING DIAMETER	8"	SCREENED INTERVAL	NA
LOGGED BY	Bryan Palmer	DEPTH TO WATER (First Encountered)	NA
REVIEWED BY	T. Crotwell	DEPTH TO WATER (Static)	NA
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft. bgs)	WELL DIAGRAM
0				0			Asphalt	0.5	
				5	SW		Gravelly SAND with trace cobbles (FILL): Dark Brown; dry, non plastic, high permeability.	5.0	
7.7	3 8 9			7.7	SW		Gravelly SAND with trace cobbles: Gray; dry, high permeability.	7.5	
				10	SC		Clayey SAND with trace cobbles: Gray; wet, low plasticity, low permeability.	12.5	
24.2	3 4 9	SB1@1 2.5'		12.5			Gravelly SAND: Gray; moist, low permeability.	12.5	
				15	SW			17.5	
7	11 24 50	SB1@1 7.5'		17.5				17.5	Bottom of Boring @ 18 ft

WELL LOG EVERETT C:\DOCUMENTS AND SETTINGS\AVANDERPAARDT\DESKTOP\9-3299 SB-1\_MW-1 - MW-5.GPJ DEFAULT.GDT 3/13/07



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 526 Commerce Center - Building B  
 1420 80th Street SW, Suite A  
 Everett, WA 98203  
 Telephone: (425) 212-5100  
 Fax: (425) 212-5199

# BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	BORING/WELL NAME	MW-6
JOB/SITE NAME	LYNN6808	DRILLING STARTED	05-Jul-07
LOCATION	6808 196th Street, Lynnwood, WA	DRILLING COMPLETED	05-Jul-07
PROJECT NUMBER	241739	WELL DEVELOPMENT DATE (YIELD)	05-Jul-07
DRILLER	Boart Longyear Drilling	GROUND SURFACE ELEVATION	449.87 ft above msl
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	452.00 ft above msl
BORING DIAMETER	8"	SCREENED INTERVAL	10 to 20 fbg
LOGGED BY	Bryan Palmer	DEPTH TO WATER (First Encountered)	15.0 fbg (06-Jul-07)
REVIEWED BY	T. Crotwell	DEPTH TO WATER (Static)	NA
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
440				0.5	SW		Asphalt Fill SAND with trace gravel: Dark Brown; moist, non plastic, high permeability.	0.5	
				5.0	SC		Sandy CLAY: Gray, wet, low plasticity, low permeability.	5.0	
301	15 21 27			10.0	GC		Gravelly CLAY with trace cobbles: Gray, wet, low plasticity, low permeability.	10.0	
670	51 20 30	MW6@1 5'		15.0	SP		Gravelly SAND with trace cobbles: Gray, wet, non plastic, high permeability.	15.0	
1821	50 for 6	MW6@2 0'		20.0				20.0	

WELL LOG (PID) EVERETT \\FROCKLIN\APPS\GINT\PROJECTS\PALMER.GPJ DEFAULT.GDT 8/28/07



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# BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	BORING/WELL NAME	MW-7
JOB/SITE NAME	LYNN6808	DRILLING STARTED	05-Jul-07
LOCATION	6808 196th Street, Lynnwood, WA	DRILLING COMPLETED	05-Jul-07
PROJECT NUMBER	241739	WELL DEVELOPMENT DATE (YIELD)	05-Jul-07
DRILLER	Boart Longyear Drilling	GROUND SURFACE ELEVATION	450.48 ft above msl
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	451.04 ft above msl
BORING DIAMETER	8"	SCREENED INTERVAL	10 to 20 fbg
LOGGED BY	Bryan Palmer	DEPTH TO WATER (First Encountered)	14.0 fbg (07-Jul-07)
REVIEWED BY	T. Crotwell	DEPTH TO WATER (Static)	NA
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
966		MW7@5'		0.5	SW		Asphalt Fill SAND with trace gravel: Dark Brown; moist, non plastic, high permeability.	0.5	<p>Portland Type I/II            Bentonite Seal            10/20 Filter Sand            2" diameter schedule 40 PVC .010 slot size            Bottom of Boring @ 20 fbg</p>
				5.0	SC		Clayey SAND with trace gravel: Gray, moist, non plastic, medium permeability.	5.0	
120	9 12 10			10.0	SP		Gravelly SAND: Gray, moist, non plastic, low permeability.	10.0	
60	17 18 20			15.0	SP		Gravelly SAND wth trace cobbles: Gray, wet, non plastic, high permeability.	15.0	
290	26 50	MW7@20'		20.0				20.0	

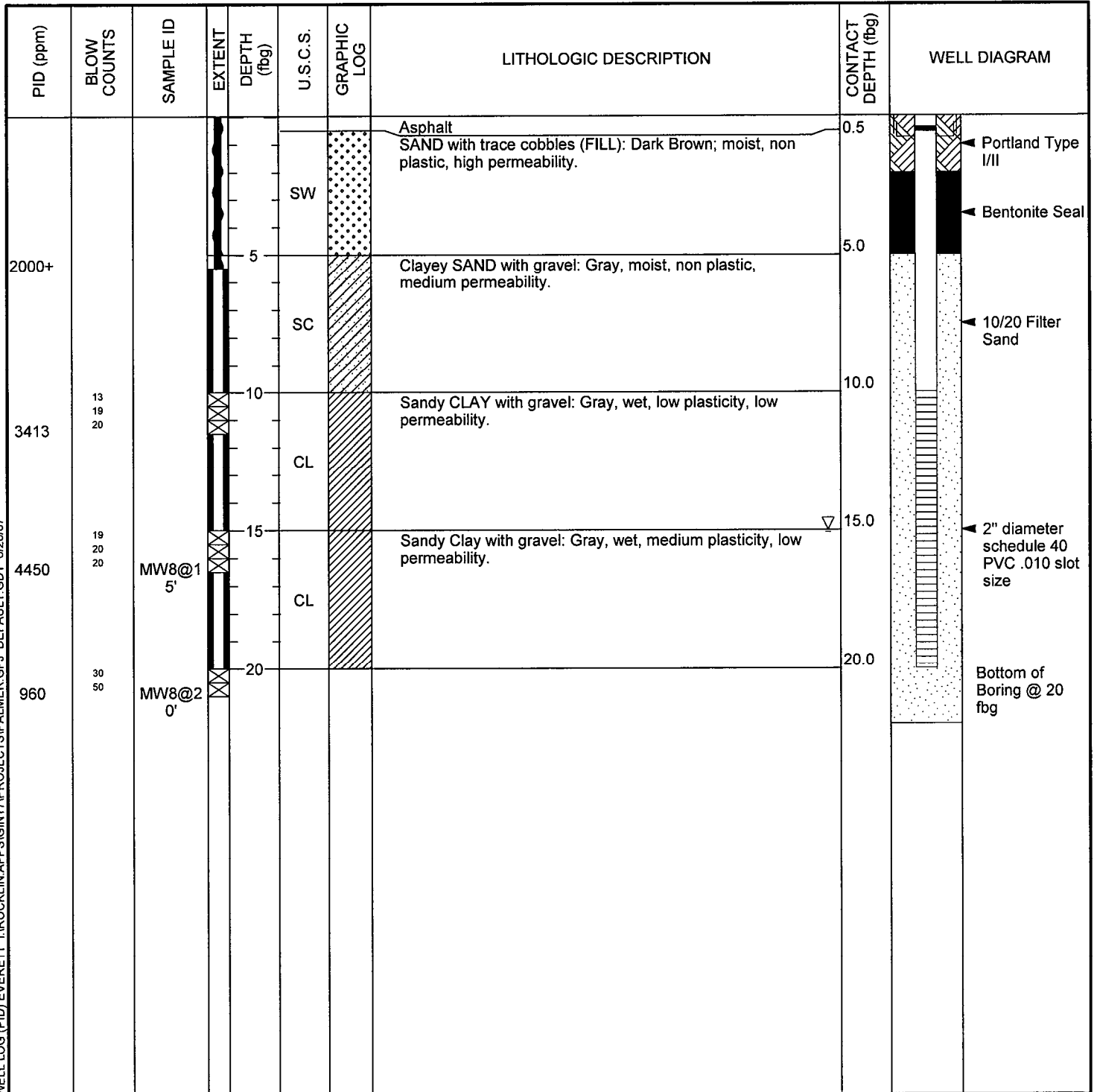
WELL LOG (PID) EVERETT I:\ROCKLIN-APPS\GINT\PROJECTS\PALMER.GPJ DEFAULT.GDT 8/28/07



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# BORING/WELL LOG

<b>CLIENT NAME</b>	Shell Oil Products US	<b>BORING/WELL NAME</b>	MW-8
<b>JOB/SITE NAME</b>	LYNN6808	<b>DRILLING STARTED</b>	05-Jul-07
<b>LOCATION</b>	6808 196th Street, Lynnwood, WA	<b>DRILLING COMPLETED</b>	06-Jul-07
<b>PROJECT NUMBER</b>	241739	<b>WELL DEVELOPMENT DATE (YIELD)</b>	06-Jul-07
<b>DRILLER</b>	Boart Longyear Drilling	<b>GROUND SURFACE ELEVATION</b>	451.7 ft above msl
<b>DRILLING METHOD</b>	Hollow-stem auger	<b>TOP OF CASING ELEVATION</b>	452.01 ft above msl
<b>BORING DIAMETER</b>	8"	<b>SCREENED INTERVAL</b>	10 to 20 fbg
<b>LOGGED BY</b>	Bryan Palmer	<b>DEPTH TO WATER (First Encountered)</b>	15.0 fbg (08-Jul-07)
<b>REVIEWED BY</b>	T. Crotwell	<b>DEPTH TO WATER (Static)</b>	NA
<b>REMARKS</b>			



WELL LOG (PID) EVERETT I:\ROCKLIN\APPS\GINT\PROJECTS\PALMER.GPJ DEFAULT.GDT 8/28/07





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# BORING/WELL LOG

<b>CLIENT NAME</b>	Shell Oil Products US	<b>BORING/WELL NAME</b>	MW-9
<b>JOB/SITE NAME</b>	LYNN6808	<b>DRILLING STARTED</b>	05-Jul-07
<b>LOCATION</b>	6808 196th Street, Lynnwood, WA	<b>DRILLING COMPLETED</b>	06-Jul-07
<b>PROJECT NUMBER</b>	241739	<b>WELL DEVELOPMENT DATE (YIELD)</b>	06-Jul-07
<b>DRILLER</b>	Boart Longyear Drilling	<b>GROUND SURFACE ELEVATION</b>	452.18 ft above msl
<b>DRILLING METHOD</b>	Hollow-stem auger	<b>TOP OF CASING ELEVATION</b>	452.28 ft above msl
<b>BORING DIAMETER</b>	8"	<b>SCREENED INTERVAL</b>	10 to 20 fbg
<b>LOGGED BY</b>	Bryan Palmer	<b>DEPTH TO WATER (First Encountered)</b>	16.0 fbg (09-Jul-07)
<b>REVIEWED BY</b>	T. Crotwell	<b>DEPTH TO WATER (Static)</b>	NA
<b>REMARKS</b>			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
				0.5			Asphalt	0.5	<p>Portland Type I/II</p> <p>Bentonite Seal</p> <p>10/20 Filter Sand</p> <p>2" diameter schedule 40 PVC .010 slot size</p> <p>Bottom of Boring @ 20 fbg</p>
				5	SW		Fill SAND with trace gravel: Dark Brown; dry, non plastic, high permeability.	5.0	
201				10	SW		Fill SAND with trace gravel: Dark Brown; moist, non plastic, high permeability.	10.0	
2000+	50	MW9@1 0'	X	10	CL		Sandy CLAY with trace gravel: Gray, moist, low plasticity, medium permeability.	10.0	
1250	50		X	15	SC		Clayey SAND with gravel: Gray, wet, non plastic, medium permeability.	15.0	
300+	50	MW9@2 0'	X	20				20.0	

WELL LOG (PID) EVERETT I:\ROCKLIN\APPS\GINT\PROJECTS\PALMER.GPJ DEFAULT.GDT 8/28/07



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# BORING/WELL LOG

<b>CLIENT NAME</b>	Shell Oil Products US	<b>BORING/WELL NAME</b>	MW-10
<b>JOB/SITE NAME</b>	LYNN6808	<b>DRILLING STARTED</b>	05-Jul-07
<b>LOCATION</b>	6808 196th Street, Lynnwood, WA	<b>DRILLING COMPLETED</b>	06-Jul-07
<b>PROJECT NUMBER</b>	241739	<b>WELL DEVELOPMENT DATE (YIELD)</b>	06-Jul-07
<b>DRILLER</b>	Boart Longyear Drilling	<b>GROUND SURFACE ELEVATION</b>	451.72 ft above msl
<b>DRILLING METHOD</b>	Hollow-stem auger	<b>TOP OF CASING ELEVATION</b>	451.58 ft above msl
<b>BORING DIAMETER</b>	8"	<b>SCREENED INTERVAL</b>	10 to 20 fbg
<b>LOGGED BY</b>	Bryan Palmer	<b>DEPTH TO WATER (First Encountered)</b>	17.0 fbg (10-Jul-07)
<b>REVIEWED BY</b>	T. Crotwell	<b>DEPTH TO WATER (Static)</b>	NA
<b>REMARKS</b>			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
			0.5	SW		Asphalt Gravelly SAND with trace cobbles (FILL): Dark Brown; moist, non plastic, high permeability.	0.5	<p>Portland Type I/II Bentonite Seal 10/20 Filter Sand 2" diameter schedule 40 PVC .010 slot size Bottom of Boring @ 20 fbg</p>
900	25 5	MW10@ 5'	5	CL		Gravelly SAND with trace cobbles: Gray with Dark Brown streaks; wet, non plastic, high to medium permeability.	5.0	
63	39 50		10	CL		Sandy CLAY with trace gravel: Gray, wet, low plasticity, low permeability.	10.0	
480	27 50		15	CL		Clayey SAND with trace gravel: Gray, wet, non plastic, medium permeability.	15.0	
360	37 50	MW10@ 20'	20				20.0	

WELL LOG (PID) EVERETT I:\ROCKLIN\_APPS\GINT\PROJECTS\PALMER.GPJ\_DEFAULT.GDT\_8/28/07

APPENDIX E

SOIL BORING LOGS FOR SB-3 AND SB-4



# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 6808 Lynnwood  
 PROJECT NUMBER: 241739  
 CLIENT: Shell Oil Products US  
 LOCATION: 6820 196th St. SW, Lynnwood, WA

HOLE DESIGNATION: SB-3  
 DATE COMPLETED: May 11, 2010  
 DRILLING METHOD: Hollow-stem Auger  
 FIELD PERSONNEL: H. Bays  
 NOTES: Air-knifed to 5.3ft BGS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Soil Boring	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID
	Asphalt at surface.	0.50	Concrete					
2	<b>SW - SAND with gravel:</b> little fines, loose, medium sand, tan-brown, damp, no odor.				X			0.2
4	- Increasing cobbles, gray-olive. at 4.5ft BGS			SB-3-5.0	X			0.3
6								
8								
10	- Dense, olive-gray, moist at 10.0ft BGS		Hydrated bentonite chips		X	0.4	50	0.6
12								
14	- Increasing fines, wet at 14.5ft BGS				X	0.5	50	0.6
16								
18								
20	<b>SM - Silty SAND with gravel:</b> dense, fine sand, gray, dry, no odor. END OF HOLE @ 20.0ft BGS	19.50 20.00			X	0.3	50	0.4
22								
24								

**TEMPORARY WELL DETAILS**  
 Borehole Diameter: 12"  
 Screened interval:  
 5.00 to 20.00ft BGS  
 Length: 15ft  
 Material: PVC  
 Seal:  
 0.00 to 3.00ft BGS  
 Material: Bentonite chips  
 Sand Pack:  
 3.00 to 20.00ft BGS  
 Material: Sand

**NOTES:** MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE  
 WATER FOUND ▼ 5/11/2010    STATIC WATER LEVEL ▼ 5/11/2010  
 CHEMICAL ANALYSIS ○

OVERBURDEN LOG - TEMPORARY WELL 241739-BORING LOGS.GPJ CRA\_CORP.GDT 8/6/10



# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 6808 Lynnwood  
 PROJECT NUMBER: 241739  
 CLIENT: Shell Oil Products US  
 LOCATION: 6820 196th St. SW, Lynnwood, WA

HOLE DESIGNATION: SB-4  
 DATE COMPLETED: May 11, 2010  
 DRILLING METHOD: Hollow-stem Auger  
 FIELD PERSONNEL: H. Bays  
 NOTES: Air-knifed to 5.0ft BGS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Soil Boring	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	N' VALUE	PID
2	<b>SW - SAND with gravel and cobbles:</b> little fines, medium sand, dense, damp, reddish light brown, no odor.		Concrete		X			0.3
4	- Increase in fines, more olive-gray brown than red at 4.0ft BGS			SB-4-5.0	X			0.2
8	<b>SM - Silty SAND with gravel:</b> dense, medium to fine sand, olive-gray, moist, no odor.	7.50						
10			Hydrated bentonite chips		X	0.5	50	0.6
14	- Some cobbles, dry at 14.5ft BGS				X	0.3	50	0.3
18	- Increasing cobbles at 17.5ft BGS							
20	- Fine sand, dry at 19.5ft BGS				X	0.4	50	0.1
	END OF HOLE @ 20.5ft BGS	20.50						

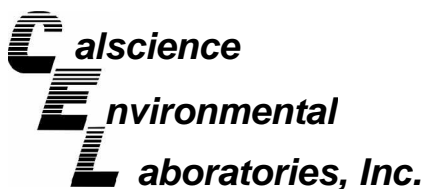
**TEMPORARY WELL DETAILS**  
 Borehole Diameter: 12"  
 Screened interval:  
 5.00 to 20.00ft BGS  
 Length: 15ft  
 Material: PVC  
 Seal:  
 0.00 to 3.00ft BGS  
 Material: Bentonite chips  
 Sand Pack:  
 3.00 to 20.50ft BGS  
 Material: Sand

**NOTES:** MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE  
 WATER FOUND ∇ 5/11/2010    STATIC WATER LEVEL ▼ 5/11/2010  
 CHEMICAL ANALYSIS ○

OVERBURDEN LOG - TEMPORARY WELL - 241739-BORING LOGS.GPJ CRA\_CORP.GDT 8/6/10

APPENDIX F

LABORATORY ANALYTICAL REPORTS



## Supplemental Report 1

May 21, 2010

Justin Foslien  
Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

Subject: **Calscience Work Order No.: 10-05-0847**  
**Client Reference: 6808 196th St. SW, Lynwood, WA**

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 5/12/2010 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

A handwritten signature in black ink that reads "Philip Samelle for".

Calscience Environmental  
Laboratories, Inc.  
Xuan H. Dang  
Project Manager

## Analytical Report



Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

Date Received: 05/12/10  
Work Order No: 10-05-0847  
Preparation: EPA 3550B  
Method: NWTPH-Dx  
Units: mg/kg

Project: 6808 196th St. SW, Lynwood, WA

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SO-241739-051010-HB-SB-3-5.0	10-05-0847-1-A	05/10/10 08:28	Solid	GC 43	05/12/10	05/12/10 20:56	100512B02S

Comment(s): -The sample extract was subjected to Silica Gel treatment prior to analysis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
TPH as Diesel Range	ND	5.0	1		TPH as Motor Oil Range	ND	5.0	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>						
Decachlorobiphenyl	105	61-145							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SO-241739-051010-HB-SB-4-5.0	10-05-0847-2-A	05/10/10 09:22	Solid	GC 43	05/12/10	05/12/10 21:16	100512B02S

Comment(s): -The sample extract was subjected to Silica Gel treatment prior to analysis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
TPH as Diesel Range	6.1	5.0	1		TPH as Motor Oil Range	47	5.0	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>						
Decachlorobiphenyl	110	61-145							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-838-72	N/A	Solid	GC 43	05/12/10	05/13/10 09:04	100512B02S

Parameter	Result	RL	DF	Qual
TPH as Diesel Range	ND	5.0	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Decachlorobiphenyl	104	61-145		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers





## Analytical Report



Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

Date Received: 05/12/10  
Work Order No: 10-05-0847  
Preparation: EPA 3510C  
Method: NWTPH-Dx  
Units: ug/L

Project: 6808 196th St. SW, Lynwood, WA

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-241739-051010-HB-SB-3	10-05-0847-3-G	05/11/10 10:00	Aqueous	GC 45	05/13/10	05/14/10 05:08	100513B04

Comment(s): -The sample chromatographic pattern for TPH does not match the chromatographic pattern of the specified standard.  
Quantitation of the unknown hydrocarbon(s) in the sample was based upon the specified standard.

-The sample extract was subjected to Silica Gel treatment prior to analysis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
TPH as Diesel Range	1600	100	1		TPH as Motor Oil Range	ND	100	1	
Surrogates:	REC (%)	Control Limits	Qual						
Decachlorobiphenyl	75	68-140							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-241739-051010-HB-SB-4	10-05-0847-4-G	05/11/10 10:30	Aqueous	GC 45	05/13/10	05/14/10 05:25	100513B04

Comment(s): -The sample chromatographic pattern for TPH does not match the chromatographic pattern of the specified standard.  
Quantitation of the unknown hydrocarbon(s) in the sample was based upon the specified standard.

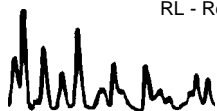
-The sample extract was subjected to Silica Gel treatment prior to analysis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
TPH as Diesel Range	2400	100	1		TPH as Motor Oil Range	ND	100	1	
Surrogates:	REC (%)	Control Limits	Qual						
Decachlorobiphenyl	71	68-140							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-840-227	N/A	Aqueous	GC 45	05/13/10	05/14/10 04:21	100513B04

Parameter	Result	RL	DF	Qual
TPH as Diesel Range	ND	100	1	
Surrogates:	REC (%)	Control Limits	Qual	
Decachlorobiphenyl	96	68-140		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

Date Received: 05/12/10  
Work Order No: 10-05-0847  
Preparation: EPA 5030B  
Method: NWTPH-Gx

Project: 6808 196th St. SW, Lynwood, WA

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-241739-051010-HB-SB-3	10-05-0847-3-D	05/11/10 10:00	Aqueous	GC 5	05/12/10	05/12/10 14:44	100512B01

Comment(s): -The sample chromatographic pattern for TPH does not match the chromatographic pattern of the specified standard. Quantitation of the unknown hydrocarbon(s) in the sample was based upon the specified standard.

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	360	100	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	89	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-241739-051010-HB-SB-4	10-05-0847-4-D	05/11/10 10:30	Aqueous	GC 5	05/12/10	05/12/10 15:17	100512B01

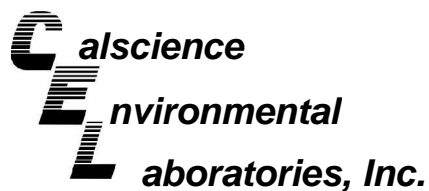
Comment(s): -The sample chromatographic pattern for TPH does not match the chromatographic pattern of the specified standard. Quantitation of the unknown hydrocarbon(s) in the sample was based upon the specified standard.

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	180	100	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	93	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-743-553	N/A	Aqueous	GC 5	05/12/10	05/12/10 10:45	100512B01

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	100	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	88	38-134			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

Date Received: 05/12/10  
Work Order No: 10-05-0847  
Preparation: EPA 5035  
Method: NWTPH-Gx

Project: 6808 196th St. SW, Lynwood, WA

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SO-241739-051010-HB-SB-3-5.0	10-05-0847-1-I	05/10/10 08:28	Solid	GC 1	05/10/10	05/14/10 20:41	100514B01

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	0.20	0.809		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	82	60-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SO-241739-051010-HB-SB-4-5.0	10-05-0847-2-I	05/10/10 09:22	Solid	GC 1	05/10/10	05/14/10 21:13	100514B01

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	0.24	0.951		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	82	60-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-848-93	N/A	Solid	GC 1	05/14/10	05/14/10 16:57	100514B01

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	0.25	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	82	60-126			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

**Analytical Report**



Conestoga-Rovers & Associates  
 1420 80th St. SW, Suite A  
 Everett, WA 98203-6248

Date Received: 05/12/10  
 Work Order No: 10-05-0847  
 Preparation: EPA 5035  
 Method: EPA 8260B  
 Units: mg/kg

Project: 6808 196th St. SW, Lynwood, WA

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SO-241739-051010-HB-SB-3-5.0	10-05-0847-1-F	05/10/10 08:28	Solid	GC/MS QQ	05/10/10	05/15/10 19:45	100515L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.00083	0.826		Toluene	ND	0.00083	0.826	
Ethylbenzene	ND	0.00083	0.826		Xylenes (total)	ND	0.0017	0.826	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control</u>	<u>Qual</u>	
		<u>Limits</u>					<u>Limits</u>		
Dibromofluoromethane	125	71-137			1,2-Dichloroethane-d4	151	58-160		
1,4-Bromofluorobenzene	103	66-126			Toluene-d8	109	87-111		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SO-241739-051010-HB-SB-4-5.0	10-05-0847-2-F	05/10/10 09:22	Solid	GC/MS QQ	05/10/10	05/15/10 20:12	100515L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	0.998		Toluene	0.0018	0.0010	0.998	
Ethylbenzene	ND	0.0010	0.998		Xylenes (total)	ND	0.0020	0.998	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control</u>	<u>Qual</u>	
		<u>Limits</u>					<u>Limits</u>		
Dibromofluoromethane	124	71-137			1,2-Dichloroethane-d4	150	58-160		
1,4-Bromofluorobenzene	103	66-126			Toluene-d8	105	87-111		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	095-01-025-19,412	N/A	Solid	GC/MS QQ	05/15/10	05/15/10 13:04	100515L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Toluene	ND	0.0010	1	
Ethylbenzene	ND	0.0010	1		Xylenes (total)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control</u>	<u>Qual</u>	
		<u>Limits</u>					<u>Limits</u>		
Dibromofluoromethane	119	71-137			1,2-Dichloroethane-d4	130	58-160		
1,4-Bromofluorobenzene	100	66-126			Toluene-d8	106	87-111		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

## Analytical Report



Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

Date Received: 05/12/10  
Work Order No: 10-05-0847  
Preparation: EPA 5030B  
Method: EPA 8260B  
Units: ug/L

Project: 6808 196th St. SW, Lynwood, WA

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-241739-051010-HB-SB-3	10-05-0847-3-B	05/11/10 10:00	Aqueous	GC/MS QQ	05/13/10	05/13/10 12:57	100513L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	170	0.50	1		Toluene	ND	1.0	1	
Ethylbenzene	ND	1.0	1		Xylenes (total)	ND	1.0	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	106	80-132			1,2-Dichloroethane-d4	111	80-141		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	100	76-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-241739-051010-HB-SB-4	10-05-0847-4-A	05/11/10 10:30	Aqueous	GC/MS QQ	05/13/10	05/13/10 14:45	100513L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Toluene	ND	1.0	1	
Ethylbenzene	ND	1.0	1		Xylenes (total)	ND	1.0	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	105	80-132			1,2-Dichloroethane-d4	108	80-141		
Toluene-d8	102	80-120			1,4-Bromofluorobenzene	99	76-120		

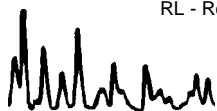
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TB	10-05-0847-5-A	05/10/10 00:00	Aqueous	GC/MS FF	05/12/10	05/12/10 20:46	100512L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Toluene	ND	1.0	1	
Ethylbenzene	ND	1.0	1		Xylenes (total)	ND	1.0	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	110	80-132			1,2-Dichloroethane-d4	126	80-141		
Toluene-d8	102	80-120			1,4-Bromofluorobenzene	87	76-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-001-755	N/A	Aqueous	GC/MS FF	05/12/10	05/12/10 12:47	100512L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Toluene	ND	1.0	1	
Ethylbenzene	ND	1.0	1		Xylenes (total)	ND	1.0	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	92	80-132			1,2-Dichloroethane-d4	118	80-141		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	90	76-120		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



**Analytical Report**



Conestoga-Rovers & Associates  
 1420 80th St. SW, Suite A  
 Everett, WA 98203-6248

Date Received: 05/12/10  
 Work Order No: 10-05-0847  
 Preparation: EPA 5030B  
 Method: EPA 8260B  
 Units: ug/L

Project: 6808 196th St. SW, Lynwood, WA

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-001-768	N/A	Aqueous	GC/MS QQ	05/13/10	05/13/10 12:30	100513L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Toluene	ND	1.0	1	
Ethylbenzene	ND	1.0	1		Xylenes (total)	ND	1.0	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	104	80-132			1,2-Dichloroethane-d4	110	80-141		
Toluene-d8	101	80-120			1,4-Bromofluorobenzene	100	76-120		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Quality Control - Spike/Spike Duplicate



Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

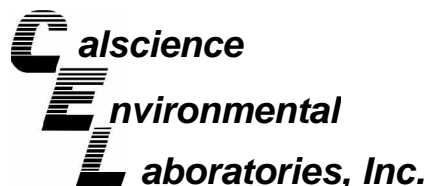
Date Received: 05/12/10  
Work Order No: 10-05-0847  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project 6808 196th St. SW, Lynwood, WA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-05-0353-9	Aqueous	GC 5	05/12/10	05/12/10	100512S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Gasoline	97	103	68-122	6	0-18	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - Spike/Spike Duplicate



Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

Date Received: 05/12/10  
Work Order No: 10-05-0847  
Preparation: EPA 5030B  
Method: EPA 8260B

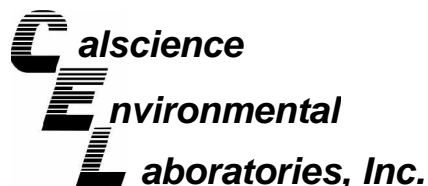
Project 6808 196th St. SW, Lynwood, WA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-05-0268-1	Aqueous	GC/MS FF	05/12/10	05/12/10	100512S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	104	111	72-120	6	0-20	
Carbon Tetrachloride	114	122	63-135	6	0-20	
Chlorobenzene	104	110	80-120	6	0-20	
1,2-Dibromoethane	106	110	80-120	4	0-20	
1,2-Dichlorobenzene	97	107	80-120	9	0-20	
1,2-Dichloroethane	106	114	80-120	7	0-20	
1,1-Dichloroethene	103	109	60-132	6	0-24	
Ethylbenzene	112	118	78-120	5	0-20	
Toluene	104	114	74-122	8	0-20	
Trichloroethene	111	117	69-120	5	0-20	
Vinyl Chloride	87	94	58-130	7	0-20	
Methyl-t-Butyl Ether (MTBE)	93	101	72-126	8	0-21	
Tert-Butyl Alcohol (TBA)	85	98	72-126	15	0-20	
Diisopropyl Ether (DIPE)	88	96	71-137	8	0-23	
Ethyl-t-Butyl Ether (ETBE)	103	112	74-128	9	0-20	
Tert-Amyl-Methyl Ether (TAME)	105	113	76-124	7	0-20	
Ethanol	103	112	35-167	8	0-48	

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - Spike/Spike Duplicate



Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

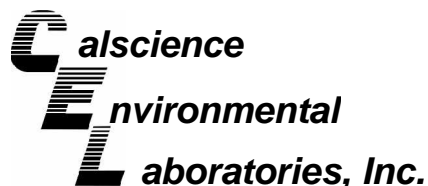
Date Received: 05/12/10  
Work Order No: 10-05-0847  
Preparation: EPA 5030B  
Method: EPA 8260B

Project 6808 196th St. SW, Lynwood, WA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
GW-241739-051010-HB-SB-3	Aqueous	GC/MS QQ	05/13/10	05/13/10	100513S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	89	96	72-120	2	0-20	
Carbon Tetrachloride	86	88	63-135	2	0-20	
Chlorobenzene	99	100	80-120	1	0-20	
1,2-Dibromoethane	99	101	80-120	2	0-20	
1,2-Dichlorobenzene	94	93	80-120	1	0-20	
1,1-Dichloroethene	114	109	60-132	5	0-24	
Ethylbenzene	100	102	78-120	2	0-20	
Toluene	98	100	74-122	2	0-20	
Trichloroethene	96	98	69-120	2	0-20	
Vinyl Chloride	90	88	58-130	2	0-20	
Methyl-t-Butyl Ether (MTBE)	103	99	72-126	4	0-21	
Tert-Butyl Alcohol (TBA)	84	82	72-126	2	0-20	
Diisopropyl Ether (DIPE)	106	105	71-137	1	0-23	
Ethyl-t-Butyl Ether (ETBE)	95	95	74-128	0	0-20	
Tert-Amyl-Methyl Ether (TAME)	91	93	76-124	3	0-20	
Ethanol	117	98	35-167	15	0-48	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

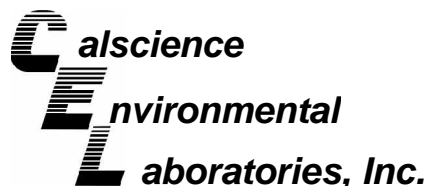
Date Received: N/A  
Work Order No: 10-05-0847  
Preparation: EPA 3550B  
Method: NWTPH-Dx

Project: 6808 196th St. SW, Lynwood, WA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-838-72	Solid	GC 43	05/12/10	05/13/10	100512B02S

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
TPH as Diesel Range	99	98	75-123	1	0-12	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

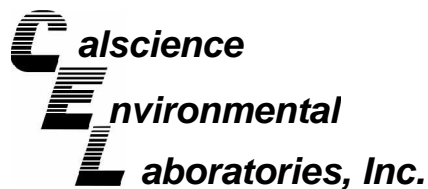
Date Received: N/A  
Work Order No: 10-05-0847  
Preparation: EPA 3510C  
Method: NWTPH-Dx

Project: 6808 196th St. SW, Lynwood, WA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-840-227	Aqueous	GC 45	05/13/10	05/14/10	100513B04

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
TPH as Diesel Range	117	107	75-117	9	0-13	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

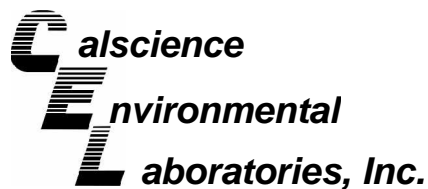
Date Received: N/A  
Work Order No: 10-05-0847  
Preparation: EPA 5030B  
Method: NWTPH-Gx

Project: 6808 196th St. SW, Lynwood, WA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-743-553	Aqueous	GC 5	05/12/10	05/12/10	100512B01

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
TPH as Gasoline	105	102	78-120	2	0-10	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

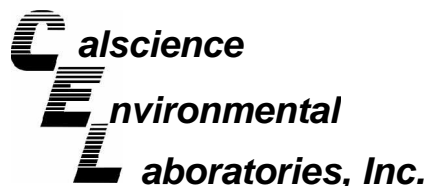
Date Received: N/A  
Work Order No: 10-05-0847  
Preparation: EPA 5035  
Method: NWTPH-Gx

Project: 6808 196th St. SW, Lynwood, WA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-848-93	Solid	GC 1	05/14/10	05/14/10	100514B01

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
TPH as Gasoline	108	111	55-139	3	0-18	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

Date Received: N/A  
Work Order No: 10-05-0847  
Preparation: EPA 5035  
Method: EPA 8260B

Project: 6808 196th St. SW, Lynwood, WA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
095-01-025-19,412	Solid	GC/MS QQ	05/15/10	05/15/10	100515L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	102	101	85-115	80-120	1	0-11	
Carbon Tetrachloride	107	106	68-134	57-145	1	0-14	
Chlorobenzene	98	97	83-119	77-125	1	0-9	
1,2-Dibromoethane	99	98	80-120	73-127	1	0-20	
1,2-Dichlorobenzene	92	90	57-135	44-148	2	0-10	
1,1-Dichloroethene	118	118	72-120	64-128	1	0-10	
Ethylbenzene	101	101	80-120	73-127	1	0-20	
Toluene	99	98	67-127	57-137	1	0-10	
Trichloroethene	97	96	88-112	84-116	2	0-9	
Vinyl Chloride	116	107	57-129	45-141	8	0-16	
Methyl-t-Butyl Ether (MTBE)	106	107	76-124	68-132	1	0-12	
Tert-Butyl Alcohol (TBA)	81	80	31-145	12-164	2	0-23	
Diisopropyl Ether (DIPE)	116	116	74-128	65-137	0	0-10	
Ethyl-t-Butyl Ether (ETBE)	99	99	77-125	69-133	0	0-9	
Tert-Amyl-Methyl Ether (TAME)	91	90	81-123	74-130	1	0-10	
Ethanol	100	99	44-152	26-170	2	0-24	

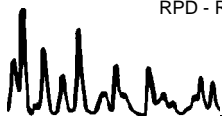
Total number of LCS compounds : 16

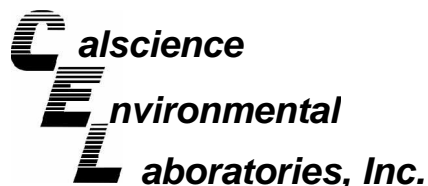
Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

Date Received: N/A  
Work Order No: 10-05-0847  
Preparation: EPA 5030B  
Method: EPA 8260B

Project: 6808 196th St. SW, Lynwood, WA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-14-001-755	Aqueous	GC/MS FF	05/12/10	05/12/10	100512L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	104	103	80-122	73-129	1	0-20	
Carbon Tetrachloride	115	110	68-140	56-152	5	0-20	
Chlorobenzene	108	104	80-120	73-127	3	0-20	
1,2-Dibromoethane	112	107	80-121	73-128	4	0-20	
1,2-Dichlorobenzene	105	104	80-120	73-127	1	0-20	
1,1-Dichloroethene	105	103	72-132	62-142	3	0-25	
Ethylbenzene	117	114	80-126	72-134	3	0-20	
Toluene	106	106	80-121	73-128	0	0-20	
Trichloroethene	111	114	80-123	73-130	3	0-20	
Vinyl Chloride	87	88	67-133	56-144	1	0-20	
Methyl-t-Butyl Ether (MTBE)	103	95	75-123	67-131	8	0-20	
Tert-Butyl Alcohol (TBA)	101	98	75-123	67-131	3	0-20	
Diisopropyl Ether (DIPE)	114	112	71-131	61-141	2	0-20	
Ethyl-t-Butyl Ether (ETBE)	107	103	76-124	68-132	5	0-20	
Tert-Amyl-Methyl Ether (TAME)	107	108	80-123	73-130	1	0-20	
Ethanol	103	94	61-139	48-152	8	0-27	

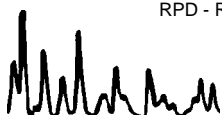
Total number of LCS compounds : 16

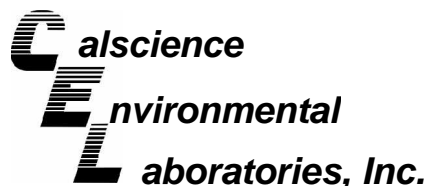
Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



Conestoga-Rovers & Associates  
1420 80th St. SW, Suite A  
Everett, WA 98203-6248

Date Received: N/A  
Work Order No: 10-05-0847  
Preparation: EPA 5030B  
Method: EPA 8260B

Project: 6808 196th St. SW, Lynwood, WA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-14-001-768	Aqueous	GC/MS QQ	05/13/10	05/13/10	100513L01		
<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>ME CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Benzene	99	99	80-122	73-129	0	0-20	
Carbon Tetrachloride	81	84	68-140	56-152	4	0-20	
Chlorobenzene	98	98	80-120	73-127	0	0-20	
1,2-Dibromoethane	99	99	80-121	73-128	0	0-20	
1,2-Dichlorobenzene	96	93	80-120	73-127	3	0-20	
1,1-Dichloroethene	83	108	72-132	62-142	26	0-25	X
Ethylbenzene	99	99	80-126	72-134	0	0-20	
Toluene	97	97	80-121	73-128	0	0-20	
Trichloroethene	97	96	80-123	73-130	1	0-20	
Vinyl Chloride	97	99	67-133	56-144	2	0-20	
Methyl-t-Butyl Ether (MTBE)	102	101	75-123	67-131	1	0-20	
Tert-Butyl Alcohol (TBA)	85	103	75-123	67-131	19	0-20	
Diisopropyl Ether (DIPE)	106	105	71-131	61-141	1	0-20	
Ethyl-t-Butyl Ether (ETBE)	98	98	76-124	68-132	0	0-20	
Tert-Amyl-Methyl Ether (TAME)	95	94	80-123	73-130	0	0-20	
Ethanol	131	133	61-139	48-152	2	0-27	

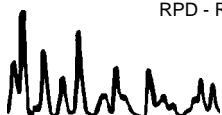
Total number of LCS compounds : 16

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Not Pass(See Narrative)

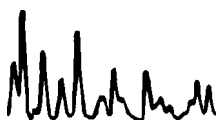
RPD - Relative Percent Difference , CL - Control Limit





Work Order Number: 10-05-0847

<u>Qualifier</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
B	Analyte was present in the associated method blank.
E	Concentration exceeds the calibration range.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis. Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture.





# Shell Oil Products Chain Of Custody Record

LAB (LOCATION)  
 CALSCIENCE (CULLEN GULF CA)  
 SPL Houston ( )  
 XENCO ( )  
 TEST AMERICA ( )  
 OTHER ( )

Please Check Appropriate Box:  
 ENV. SERVICES  
 MOTIVA RETAIL  
 MOTIVA SDCM  
 CONSULTANT  
 SHELL PIPELINE  
 SHELL RETAIL  
 LUBES  
 OTHER ( )

SAMPLING COMPANY: **Conestoga-Rovers & Associates**  
 ADDRESS: **1420 80th St SW, Suite , Everett, WA 98203**  
 PROJECT CONTACT (Hardcopy or PDF Report to):  
**Justin Fisher & copy to Shell Lab Billing @ CRAWORLD.COM**  
 E-MAIL: **justin@CRAWORLD.COM**  
 TELEPHONE: **425-212-5100** FAX: **425-212-5199**  
 TURNAROUND TIME (CALENDAR DAYS):  
 STANDARD (14 DAY)  5 DAYS  3 DAYS  2 DAYS  ON WEEKEND  
 LA - RWQCB REPORT FORMAT  UST AGENCY:  
 SPECIAL INSTRUCTIONS OR NOTES:  
**Copy final report to Shell.Lab.Billing@craworld.com**  
**See SPL PM for WA Dept. of Ecology MTCA Method A cleanup levels for minimum detection limits**

Print Bill To Contact Name: **John Baker 241797.95.10.03**  
 INCIDENT # (ENV SERVICES): **97605410**  
 DATE: **5/11/10**  
 CHECK IF NO INCIDENT # APPLIES:   
 PO # **448-41021318** PO # **172952**  
 STATE **WA**  
 SITE ADDRESS, Street and City: **6808 196th St SW Lynnwood**  
 PHONE NO.: **425-212-5100**  
 E-MAIL: **cschweigert@CRAWORLD.COM**  
 ED DELIVERABLE TO (Name, Company, Office Location):  
**Christine Schweigert, CRA, Everett**  
 SAMPLER NAME(S) (Print):  
**Heather Buys**  
 CONSULTANT PROJECT NO.: **241793.95.10.03**  
 LAB USE ONLY: **05-0847**

LAB USE ONLY	Field Sample Identification		PRESERVATIVE			NO. OF CONT.		
	DATE	TIME	HCL	HNO3	H2SO4		NONE	OTHER
1	50-241797-051110-AB-SB-3	5/10	0828	So				9
2	50-241797-051010-AB-SB-4	5/10	0722	So				7
3	GW-241797-051110-AB-SB-3	5/11	1000	GW				7
4	GW-241797-051110-AB-SB-4	5/11	1030	GW				7

REQUESTED ANALYSIS																
Container PID Readings or Laboratory Notes	TEMPERATURE ON RECEIPT C°	n-Hexane (907B)	NWTPH-EPH	NWTPH-VPH	Pest (8080)	VOCs Full list (8260B)	PAHs (8070 SIM)	PCBs (8082)	Total Lead (6020)	EDC (8011)	EDC (8260B)	TAME, ETBE (8260B)	5 Oxygenates, MTBE, TBA, DPE	BTEX (8260B)	NWTPH-DX w/Silica Gel Cleanup	NWTPH-GX
Soil is Standard Turnaround														X	X	X
GW are 24hrs Turnaround														X	X	X

Relinquished by (Signature): **Heather Buys**  
 Relinquished by (Signature): **Fedex**  
 Relinquished by (Signature): **Heather Buys**  
 Received by (Signature): **Fedex**  
 Received by (Signature): **prey A-va**  
 Date: **5-11-10** Time: **1315**  
 Date: **5/12/10** Time: **10:00**  
 Date: **5/12/10** Time: **10:00**

From **[Redacted]**  
 Date **[Redacted]**  
 Sender's name **[Redacted]** Phone **[Redacted]**  
 Company **[Redacted]**  
 Address **[Redacted]** Dept./Floor/Suite/Room **[Redacted]**  
 City **[Redacted]** State **WA** ZIP **98115**

**Our Internal Billing Reference**

Recipient's name **[Redacted]** Phone **714 975-5911**  
 Company **[Redacted]**  
 Recipient's Address **7490 Lincoln Way** Dept./Floor/Suite/Room **[Redacted]**  
 Address **[Redacted]** Dept./Floor/Suite/Room **[Redacted]**  
 City **[Redacted]** State **CA** ZIP **92841-1427**



8653 2796 6447

**4a Express Package Service**

**FedEx Priority Overnight**  
 Next business morning.\* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

**FedEx Standard Overnight**  
 Next business afternoon.\* Saturday Delivery NOT available.

**FedEx 2Day**  
 Second business day.\*\* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected. FedEx Envelope rate not available. Minimum charge: One-pound rate.

**FedEx Express Saver**  
 Third business day.\* Saturday Delivery NOT available.

**FedEx First Overnight**  
 Earliest next business morning delivery to select locations.\* Saturday Delivery NOT available.

\* To most locations.

**4b Express Freight Service**

**FedEx 1Day Freight\***  
 Next business day.\*\* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

**FedEx 2Day Freight**  
 Second business day.\*\* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

**FedEx 3Day Freight**  
 Third business day.\*\* Saturday Delivery NOT available.

\* Call for Confirmation. \*\* To most locations.

**5 Packaging**

**FedEx Envelope\***  **FedEx Pak\*** (Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak)  **FedEx Box**  **FedEx Tube**  **Other**

\* Declared value limit \$500.

**6 Special Handling**

**SATURDAY Delivery**  
 Not available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.

**HOLD Weekday at FedEx Location**  
 Not available for FedEx First Overnight.

**HOLD Saturday at FedEx Location**  
 Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Does this shipment contain dangerous goods?  
 No  Yes (As per attached Shipper's Declaration)  Yes (Shipper's Declaration not required)

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

Dry Ice (Dry Ice, 3 UN 1845) x \_\_\_\_\_ kg  Cargo Aircraft Only

**7 Payment Bill to:**

Enter FedEx Acct. No. or Credit Card No. below. Obtain Recip. Acct. No.

**Sender Acct. No.** (in Section 1 will be billed)  **Recipient**  **Third Party**  **Credit Card**  **Cash/Check**

Total Packages **[Redacted]** Total Weight **99** Total Declared Value\* **\$ 0.00**

\* Our liability is limited to \$100 unless you declare a higher value. See back for details. Credit Card Auth.

**8 Residential Delivery Signature Options**

If you require a signature, check Direct or Indirect.

**No Signature Required**  
 Package may be left without obtaining a signature for delivery.

**Direct Signature**  
 Someone at recipient's address may sign for delivery. Fee applies.

**Indirect Signature**  
 If no one is available at recipient's address, someone at a neighboring address may sign for delivery. Fee applies.

**520**

0847

FedEx.COM 1.800.GoFedEx 1.800.463.3339

# SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: CRA

DATE: 05/12/10

**TEMPERATURE:** Thermometer ID: SC1 (Criteria: 0.0°C – 6.0°C, not frozen)

Temperature 2.6 °C + 0.5°C (CF) = 3.1 °C     Blank     Sample

Sample(s) outside temperature criteria (PM/APM contacted by: \_\_\_\_\_).

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature:     Air     Filter     Metals Only     PCBs Only    Initial: PS

**CUSTODY SEALS INTACT:**

Cooler     \_\_\_\_\_     No (Not Intact)     Not Present     N/A    Initial: PS

Sample     \_\_\_\_\_     No (Not Intact)     Not Present    Initial: PS

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
<input type="checkbox"/> No analysis requested. <input type="checkbox"/> Not relinquished. <input type="checkbox"/> No date/time relinquished.			
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers and sufficient volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analyses received within holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pH / Residual Chlorine / Dissolved Sulfide received within 24 hours.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation noted on COC or sample container.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**CONTAINER TYPE:**

**Solid:**  4ozCGJ     8ozCGJ     16ozCGJ     Sleeve (\_\_\_\_)     EnCores®     TerraCores®     60 mL PJ

**Water:**  VOA     VOA<sup>2</sup>h     VOAna<sub>2</sub>     125AGB     125AGBh     125AGBp     1AGB     1AGBna<sub>2</sub>     1AGBs

500AGB     500AGJ     500AGJs     250AGB     250CGB     250CGBs     1PB     500PB     500PBna

250PB     250PBn     125PB     125PBz<sub>2</sub>na     100PJ     100PJna<sub>2</sub>     \_\_\_\_\_     \_\_\_\_\_     \_\_\_\_\_

**Air:**  Tedlar®     Summa®    **Other:**  \_\_\_\_\_    **Trip Blank Lot#:** 100505p    **Labeled/Checked by:** PS

**Container:** C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope    **Reviewed by:** WJC

**Preservative:** h: HCL n: HNO<sub>3</sub> na<sub>2</sub>: Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> na: NaOH p: H<sub>3</sub>PO<sub>4</sub> s: H<sub>2</sub>SO<sub>4</sub> z<sub>2</sub>na: ZnAc<sub>2</sub>+NaOH f: Field-filtered    **Scanned by:** PS

WORK ORDER #: 10-05-0847

## SAMPLE ANOMALY FORM

**SAMPLES - CONTAINERS & LABELS:**

- Sample(s)/Container(s) NOT RECEIVED but listed on COC
- Sample(s)/Container(s) received but NOT LISTED on COC
- Holding time expired – list sample ID(s) and test
- Insufficient quantities for analysis – list test
- Improper container(s) used – list test
- Improper preservative used – list test
- No preservative noted on COC or label – list test & notify lab
- Sample labels illegible – note test/container type
- Sample label(s) do not match COC – Note in comments
  - Sample ID
  - Date and/or Time Collected
  - Project Information
  - # of Container(s)
  - Analysis
- Sample container(s) compromised – Note in comments
  - Water present in sample container
  - Broken
  - Without Label(s)
- Air sample container(s) compromised – Note in comments
  - Flat
  - Low in volume
  - Leaking (Not transferred - duplicate bag submitted)
  - Leaking (transferred into Calscience Tedlar® Bag\*)
  - Leaking (transferred into Client's Tedlar® Bag\*)
- Other: \_\_\_\_\_

**Comments:**

(-5) T B RECEIVED 1 VIALS W/ HCL  
NOT ON COC (NO PREPARE TIME  
PER LABEL) .

**HEADSPACE – Containers with Bubble > 6mm or ¼ inch:**

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Cont: received	Analysis

Comments: \_\_\_\_\_

\*Transferred at Client's request.

Initial / Date: PS 05/12/10

APPENDIX G

TERRESTRIAL ECOLOGICAL EVALUATION EXCLUSION FORM



# Voluntary Cleanup Program

## Washington State Department of Ecology Toxics Cleanup Program

### TERRESTRIAL ECOLOGICAL EVALUATION EXCLUSION FORM

Under the Model Toxics Control Act (MTCA), a Terrestrial Ecological Evaluation (TEE) is not required if the Site meets the criteria in WAC 173-340-7491 for an exclusion. If you determine that your Site does not require a TEE, please complete this form and submit it to the Department of Ecology (Ecology) at the appropriate time, either with your VCP Application or with a subsequent request for a written opinion. Please note that exclusion from the TEE does not exclude the Site from an evaluation of aquatic or sediment ecological receptors.

If your Site does not meet the criteria for exclusion under WAC 173-340-7491, then you may have to conduct a simplified TEE in accordance with WAC 173-340-7492 or a site-specific TEE in accordance with WAC 173-340-7493. If you have questions about conducting a simplified or site-specific TEE, please contact the Ecology site manager assigned to your Site or the appropriate Ecology regional office.

#### Step 1: IDENTIFY HAZARDOUS WASTE SITE AND EVALUATOR

Please identify below the hazardous waste site for which you are documenting an exclusion from conducting a TEE and the name of the person who conducted the evaluation.

Facility/Site Name: Former Jiffy Lube Facility No. 171152

Facility/Site Address: 6808 196<sup>th</sup> Street Southwest, Lynnwood, WA

Facility/Site No: 27496218

VCP Project No.: NW2070

Name of Evaluator: Timothy C. Mullin

#### Step 2: DOCUMENT BASIS FOR EXCLUSION

The bases for excluding a site from a terrestrial ecological evaluation are set forth in WAC 173-340-7491(1). Please identify below the basis for excluding your Site from further evaluation. Please check all that apply.

##### POINT OF COMPLIANCE – WAC 173-340-7491(1)(A)

- 1-  No contamination present at site.
- 2-  All contamination is 15 feet below ground level prior to remedial activities.
- 3-  All contamination is six feet below ground level and an institutional control has been implemented as required by WAC 173-340-440.
- 4-  All contamination is below a site-specific point of compliance established in compliance with WAC 173-340-7490(4)(b) with an institutional control implemented as required by WAC 173-340-440. ***Please provide documentation that describes the rationale for setting a site-specific point of compliance.***

##### BARRIERS TO EXPOSURE – WAC 173-340-7491(1)(b)

- 5-  All contaminated soil, is or will be, covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife and an institutional control has been implemented as required by WAC 173-340-440. *An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.*

## Step 2: DOCUMENT BASIS FOR EXCLUSION continued

### UNDEVELOPED LAND – WAC 173-340-7491(1)(c)

“Undeveloped land” is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

“Contiguous” undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

- 6- There is less than one-quarter acre of contiguous undeveloped land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.
- 7- For sites not containing any of the chemicals mentioned above, there is less than one-and-a-half acres of contiguous undeveloped land on or within 500 feet of any area of the Site.

### BACKGROUND CONCENTRATIONS – WAC 173-340-7491(1)(d)

- 8- Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709.

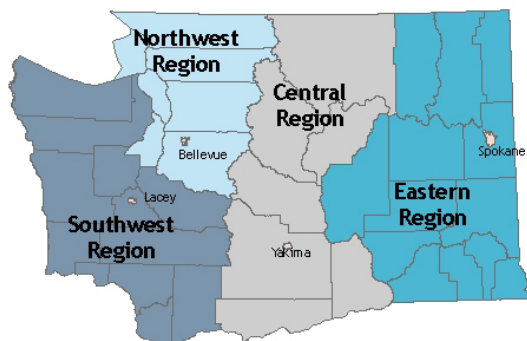
## Step 3: PROVIDE EXPLANATION FOR EXCLUSION (IF NECESSARY)

The Site is fully paved with asphalt or concrete. None of the chemicals listed in point 6 (above) are present at the site. Less than 1.5 acres of undeveloped land is on or within 500 feet of any area of the Site.

Attach additional pages if necessary.

## Step 4: SUBMITTAL

Please mail your completed form to Ecology at the appropriate time, either with your VCP Application or with a subsequent request for a written opinion. If you complete the form after you enter the VCP, please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.

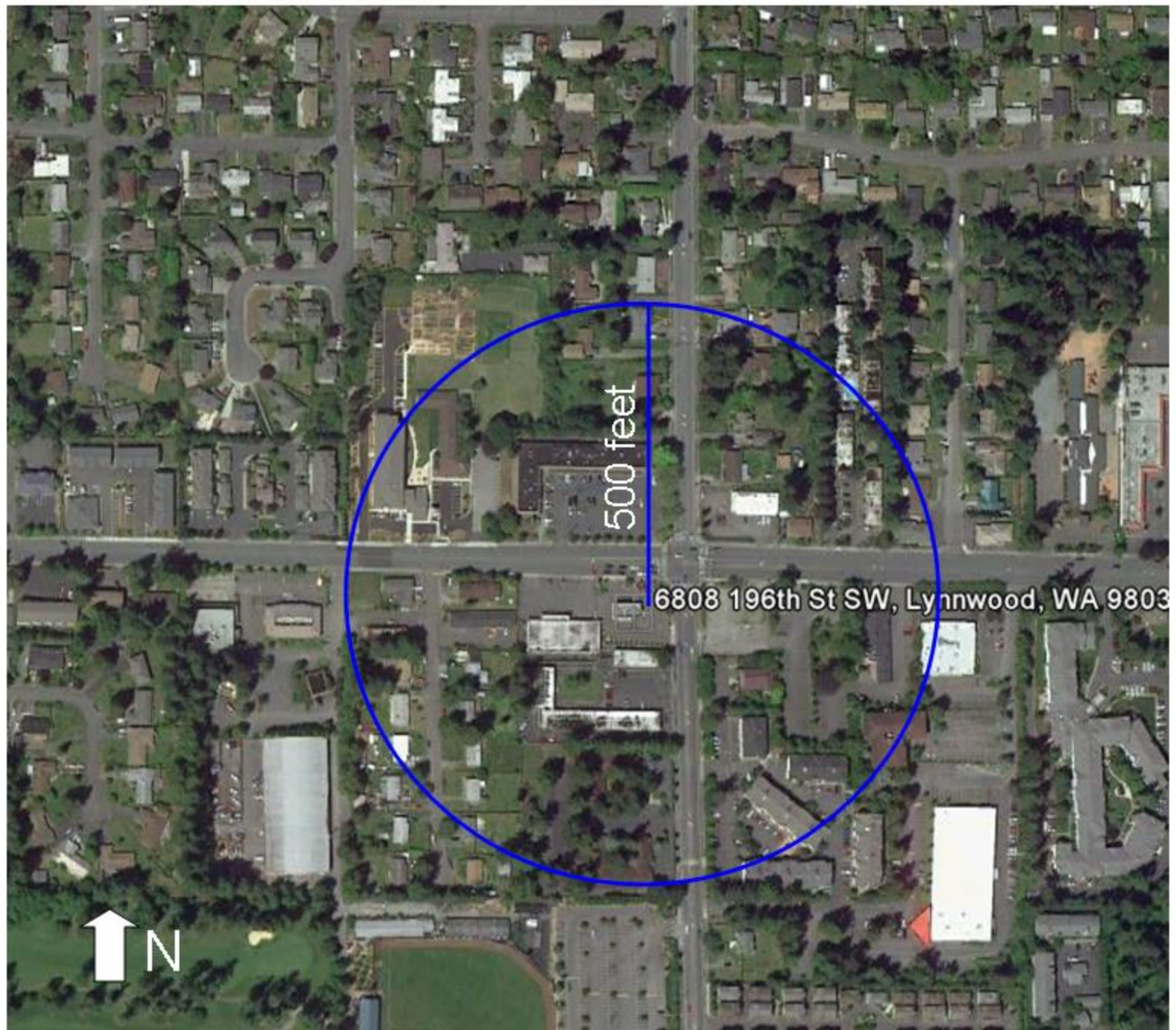


<b>Northwest Region:</b> Attn: Sara Maser 3190 160 <sup>th</sup> Ave. SE Bellevue, WA 98008-5452	<b>Central Region:</b> Attn: Mark Dunbar 15 W. Yakima Ave., Suite 200 Yakima, WA 98902
<b>Southwest Region:</b> Attn: Scott Rose P.O. Box 47775 Olympia, WA 98504-7775	<b>Eastern Region:</b> Patti Carter N. 4601 Monroe Spokane WA 99205-1295

If you need this publication in an alternate format, please call the Toxics Cleanup Program at 360-407-7170. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.



241739(7). TEE aerial with 500 foot radius.



## APPENDIX H

### SEPARATE PHASE HYDROCARBON FUEL FINGERPRINT ANALYSIS



Carol Campagna  
Shell Oil Products US  
Carson, California  
USA

**Shell Global Solutions (US) Inc.**  
Westhollow Technology Center  
3333 Highway 6 South  
Houston, TX 77082-3101  
USA  
Tel +1 281-544 8215  
Fax +1 281-544 8727  
Email: Ileana.Rhodes@Shell.com

December 21, 2009

Re: Analysis of Phase Separate Hydrocarbons from MW-3, MW-4 and MW-6 from a Site Located in 6808 196<sup>th</sup> St., SW, Lynnwood, WA

Dear Carol:

We analyzed samples from MW-3, MW-4 and MW-6 collected 11/5/2009 at a site in Lynnwood, WA. All three samples contain weathered leaded gasoline with a mixture of lead alkyls that were only available from the mid-1960s to the mid-1980s. All samples have partial loss of volatiles and no oxygenates were detected. Table 1 includes a summary of selected target compounds. The chromatograms are shown in Figures 1 – 3. There is no indication of presence any lubricating oils in the sample.

According to historical documents from the City of Lynnwood, this property was developed in 1958 and operated as a Texaco-branded gasoline service station from 1959 to 1977. In 1977, the station building was remodeled and the property was converted to a Speedi-Lube automobile oil change service facility until sometime between 2003 and 2006 when the property became a restaurant. The former service station facilities included a station building, three gasoline underground storage tanks (USTs) located in the northeast corner of the property, two dispenser islands, a heating oil UST, and a waste oil UST. Facilities associated with the former oil change service station included a 500-gallon used oil UST, a 3,000-gallon new oil UST, and two service bays. Both USTs were installed in 1982 and decommissioned in 1995 during a conversion to an aboveground storage tank (AST) system; the used oil UST was abandoned in place and the new oil UST was removed from the Site.

The weathered leaded gasoline found in these wells is unequivocally from releases during the site use as a gasoline service station prior to 1977. Speedi-Lube operations did not dispense or stored gasoline onsite. Releases of waste oil from gasoline engines contain residual gasoline (<10%) but the primary component is the lubricating oil which is totally absent in the samples analyzed.

Figure 4 shows a comparison of chromatograms from analysis of the sample from MW-3 and samples of fresh and used motor oil. Note there is no motor oil detected at all in the sample from

MW-3. The mechanism of fuel transfer into motor oil and fate in with engine operation is described in Figure 5.

Please let me know if you have any questions.

Best regards,



Ileana Rhodes, Ph.D.

Team Lead – Environmental Chemistry

cc Cristin Bruce

**Table 1: Selected Target Compounds**

			11/5/2009	11/5/2009	11/5/2009
<b>Compound</b>	<b>Method</b>	<b>Units</b>	<b>MW-3</b>	<b>MW-4</b>	<b>MW-6</b>
Ethanol	GC/MS	wt%	ND(<0.01)	ND(<0.01)	ND(<0.01)
MTBE	GC/MS	wt%	ND(<0.01)	ND(<0.01)	ND(<0.01)
DIPE	GC/MS	wt%	ND(<0.01)	ND(<0.01)	ND(<0.01)
ETBE	GC/MS	wt%	ND(<0.01)	ND(<0.01)	ND(<0.01)
TAME	GC/MS	wt%	ND(<0.01)	ND(<0.01)	ND(<0.01)
Isopentane	GC/FID	wt%	0.90	0.82	1.3
Methylcyclohexane	GC/FID	wt%	2.6	3.0	3.1
Isooctane	GC/MS	wt%	0.15	0.12	0.1
Benzene	GC/MS	wt%	0.88	0.59	0.34
Toluene	GC/MS	wt%	5.2	5.1	4.7
Ethylbenzene	GC/MS	wt%	1.2	1.3	1.3
p&m-Xylene	GC/MS	wt%	5.7	6.0	5.8
o-Xylene	GC/MS	wt%	2.0	2.2	1.9
1,2,4-Trimethylbenzene	GC/FID	wt%	3.4	3.4	3.2
Total Sulfur	XRF	ppm	215	152	127
Total Lead	XRF	g/gallon	0.79	0.22	0.17
Organic Lead	GC/MS	g/gallon	0.68	0.21	0.13
GC/MS: Gas chromatography with mass spectrometry detection					
GC/FID: Gas chromatography with flame ionization detection					
XRF: X-ray fluorescence					

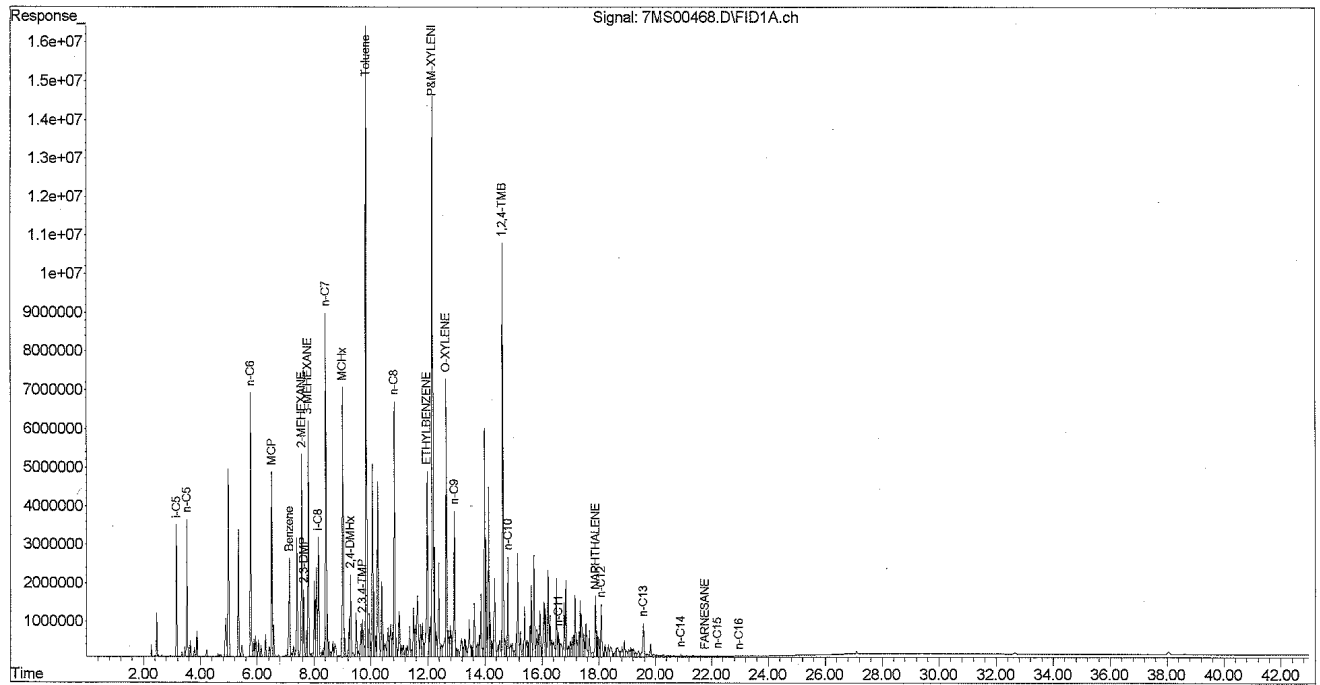


Figure 1: Gas chromatogram from analysis of a sample from MW-3.

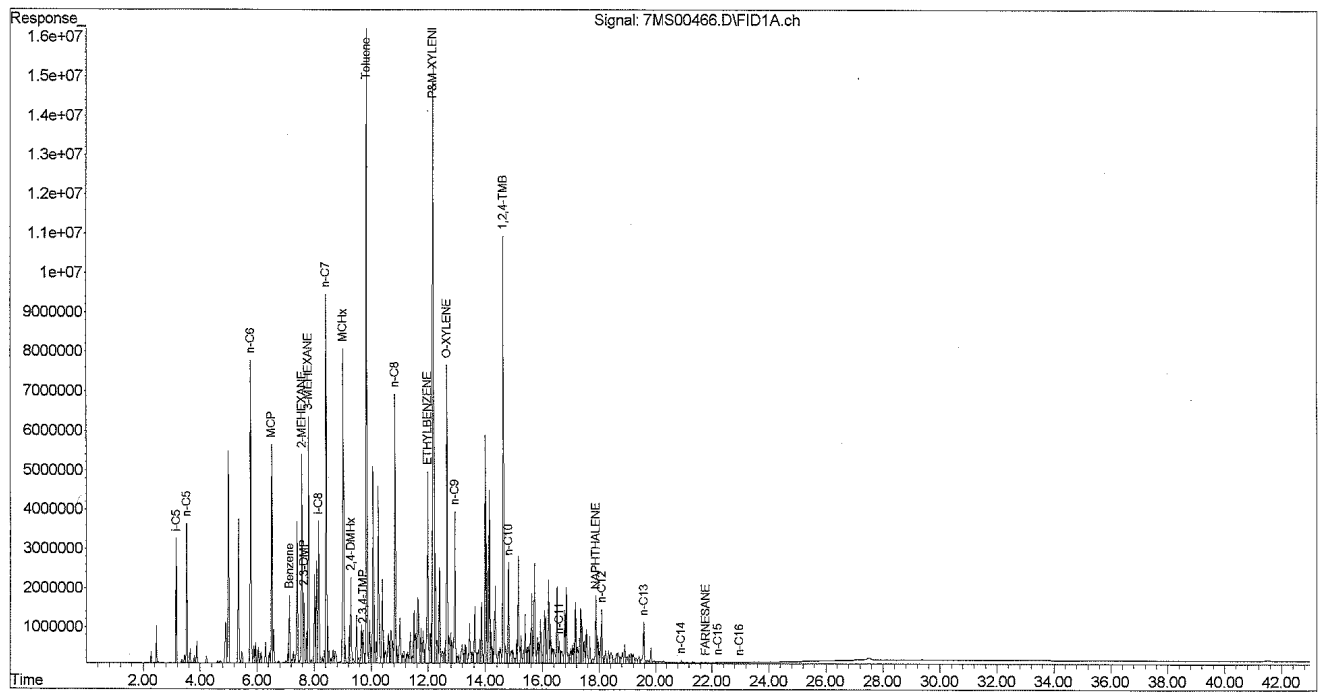


Figure 2: Gas chromatogram from analysis of a sample from MW-4.

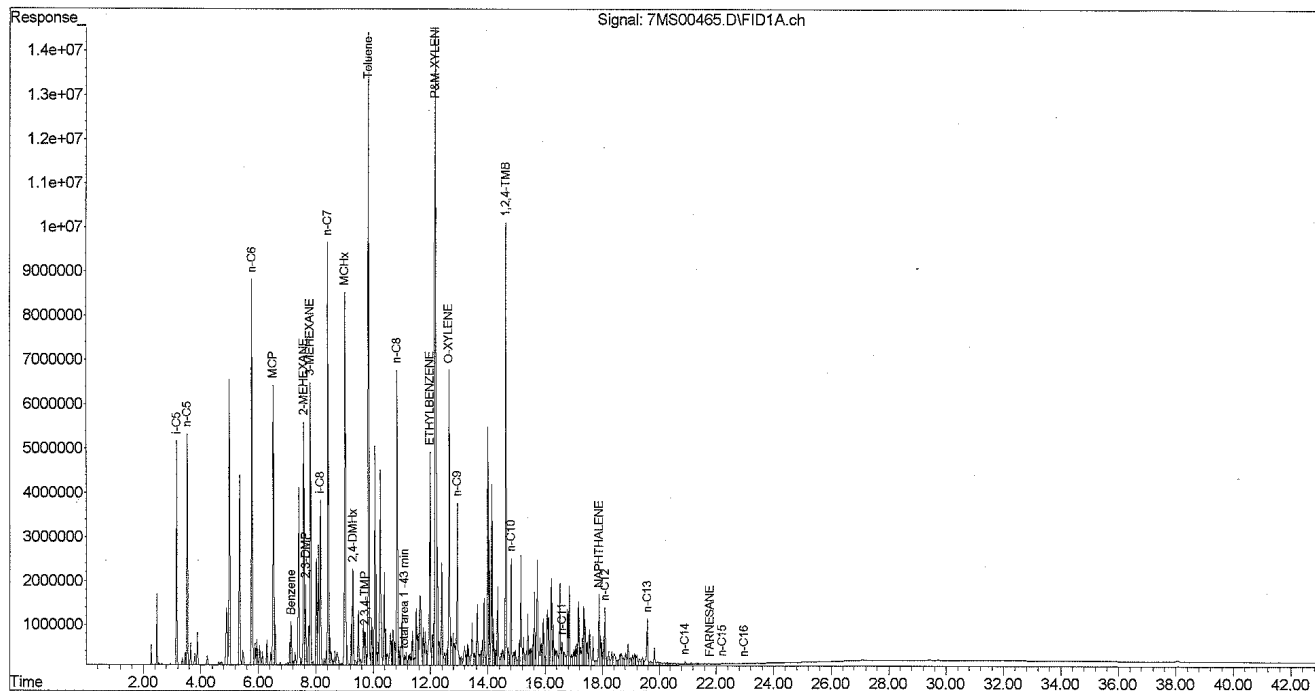
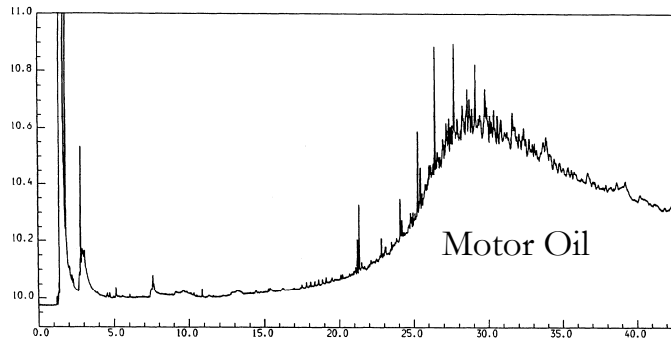
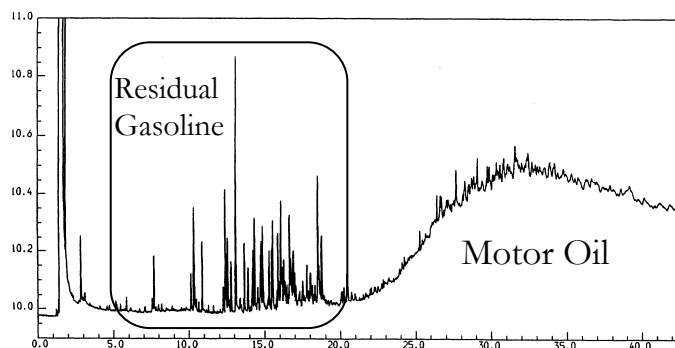


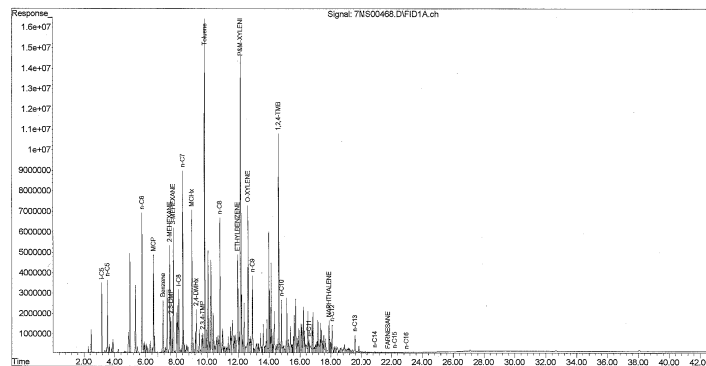
Figure 3: Gas chromatogram from analysis of a sample from MW-6.



Chromatogram from analysis of a sample of unused lubricating motor oil spiked in soil



Chromatogram from analysis of a sample of used lubricating motor oil from a test engine



Chromatogram from analysis of a sample from MW-3. No evidence of oil at all.

**Figure 4:** Comparison of chromatograms from analysis of the sample from MW-3 and samples of fresh and used motor oil. Note there is no motor oil detected at all in the sample from MW-3.



## HOW DOES FUEL GET INTO THE MOTOR OIL?

Used motor oil is diluted with fuel during engine operation

- ⇒ Blowby (combustion chamber gases blowing past the piston rings) can be more pronounced in high mileage engines with worn piston rings
- ⇒ Under cold start and warm-up conditions, more liquid fuel is transported past the rings and into the oil
- ⇒ After the engine warm-up, some of the more volatile components of gasoline vaporize and are removed from the oil via the positive crankcase ventilation system (PCV)
- ⇒ Higher boiling components remain in the motor oil and will resemble weathered gasoline. There can be 1 to 10% fuel in used motor oil
- ⇒ Oil dilution takes place with any fuel (gasoline, diesel). Allowances are made for this in oil formulations and engine performance testing

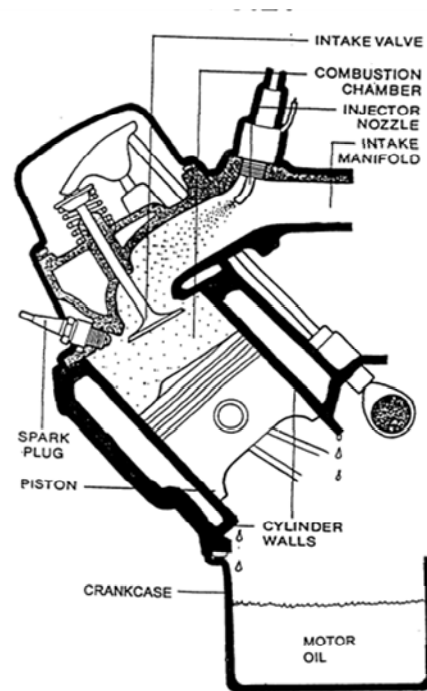


Figure 5: Mechanism of fuel transfer into motor oil and fate in with engine operation.



# Shell Oil Products Chain Of Custody Record

LAB (LOCATION)  
 CALSCIENCE ( )  
 SPL Houston ( )  
 XENCO ( )  
 TEST AMERICA ( )  
 OTHER Shell, Houston, TX

Please Check Appropriate Box:  
 ENV. SERVICES     MOTIVA RETAIL     SHELL RETAIL  
 MOTIVA SDBCH     CONSULTANT     LUBES  
 SHELL PIPELINE     OTHER

Print Bill To Contact Name: Carol Compagna    INCIDENT # (ENV SERVICES) 97760154110     CHECK IF NO INCIDENT # APPLIES  
 PO #    SFP #    DATE: 11/5/09  
 171152    PAGE: 1 of 1

SAMPLING COMPANY: Conestoga-Rovers & Associates    LOG CODE:    SITE ADDRESS: Street and City 16208 Flinth St SW, Lynnwood, WA    State WA    GLOBAL ID NO.:  
 ADDRESS: 1420 80th St SW, Suite , Everett, WA 98203    EDP DELIVERABLE TO (Name, Company, Office Location):  
 PROJECT CONTACT (Name/Company & POC Report to): Justin Foslien    EMAIL: ediel m/s/09    CONSULTANT PROJECT NO.: 241739-2009-2  
 TELEPHONE: 425-212-5100    FAC: 425-212-6199    EMAIL: jfoslien@cravworld.com    SAMPLER NAME(S) (If any): Tom Mullen, CRA    LAB USE ONLY

TURNAROUND TIME (CALENDAR DAYS):  
 STANDARD (14 DAY)     5 DAYS     3 DAYS     2 DAYS     24 HOURS     RESULTS NEEDED ON WEEKEND  
 LA - RWQCB REPORT FORMAT     UST AGENCY:

SPECIAL INSTRUCTIONS OR NOTES:  
**VERY IMPORTANT!!!**  
 See Laboratory PM for WA Dept. of Ecology MTCA Method A cleanup levels for minimum detection limits

### REQUESTED ANALYSIS

Lab Use Only	Field Sample Identification	SAMPLING		MATRIX	PRESERVATIVE						NO. OF CONT.	REQUESTED ANALYSIS												TEMPERATURE ON RECEIPT °C	Container PID Readings or Laboratory Notes				
		DATE	TIME		HCL	HNO3	H2SO4	NONE	OTHER	NWTPH-Gx		NWTPH-Dx w/Sulfur Gel Cleanup	BTEX (8260B)	5 Oxygenates, MTBE, TBA, DPE, TAME, ETBE (8280B)	EDC (8260B)	EDC (8011)	Total Lead (6020)	PCBs (6052)	PAHs (8070 SIM)	VOCs Full list (8260B)	Pest (8080)	NWTPH-VPH	NWTPH-EPH			In-Herance (8071E)	Sulfides		
	241739-110509-TM-MW-4	11/05/09	1215	LWML AG	X						1	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
	241739-110509-TM-MW-3	11/05/09	1230	LWML AG	X						1	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
	241739-110509-TM-MW-5	11/05/09	1245	LWML AG	X						1	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
	Trip Blank			AG				X				X	X																

Relinquished by (Signature): [Signature]    Received by (Signature): To FedEx    Date: 11/05/09    Time: 1445  
 Relinquished by (Signature):    Received by (Signature): [Signature]    Date: 11/6/09    Time: 1315  
 Relinquished by (Signature):    Received by (Signature):    Date:    Time: