

**SITE ASSESSMENT REPORT
CHEVRON SERVICE STATION NO. 9-0129
4700 Brooklyn Avenue NE
Seattle, Washington**

February 17, 2011

**Prepared for:
Washington State Department of Ecology
P.O. Box 47775
Olympia, Washington 98504-7775**

**Prepared by:
SAIC Energy, Environment & Infrastructure, LLC
18912 North Creek Parkway, Suite 101
Bothell, Washington 98011**

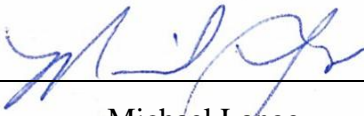
**On Behalf of:
Chevron Environmental Management Company
P.O. Box 6012
San Ramon, California 94583**

**SITE ASSESSMENT REPORT
CHEVRON SERVICE STATION NO. 9-0129
4700 Brooklyn Avenue NE
Seattle, Washington**

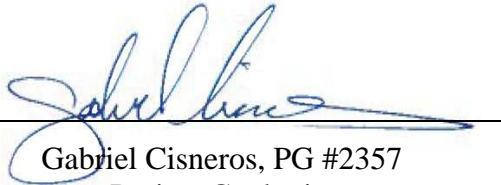
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Michael Lange
Project Manager



Gabriel Cisneros, PG #2357
Project Geologist



On Behalf of:
Chevron Environmental Management Company
P.O. Box 6012
San Ramon, California 94583

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**SITE ASSESSMENT REPORT
CHEVRON SERVICE STATION NO. 9-0129**

1. INTRODUCTION

On October 2, 2010, SAIC Energy, Environment & Infrastructure, LLC (SAIC) on behalf of Chevron Environmental Management Company (CEMC) performed a limited site assessment at Chevron Service Station No. 9-0129 in Seattle, Washington. The purpose of this investigation was to further define the lateral and vertical extent of petroleum impacts in soil and groundwater in the vicinity of the northern property boundary.

2. SITE BACKGROUND

2.1 SITE DESCRIPTION

The site property is located at 4700 East Brooklyn Avenue at the northwest corner of the intersection of Brooklyn Avenue NE and NE 47th Street in Seattle, Washington (Figure 1). The property is currently owned by WASU Inc. and operated as a Chevron-branded service station. Current station facilities include a station (mini-mart) building, four dispenser islands, and three 12,000-gallon underground storage tanks (USTs). A pay-for-parking area is located on the property, south of the station building.

The site property is bounded by an alleyway and a Bank of America to the east, a dry cleaning shop (Carson Cleaners) across Brooklyn Avenue NE to the west, a parking lot and shopping complex to the north, a shopping complex to the south, and a 76 service station across the intersection to the southwest.

There are currently 16 groundwater monitoring wells on the property. Monitoring wells MW-9, MW-10, and MW-13 are located within or adjacent to ingress/egress driveways; monitoring wells MW-15 and MW-16 are located adjacent to the east alleyway, and wells MW-1, MW-2, MW-4, and MW-5 are located in the vicinity of the dispenser islands (Figure 1).

2.2 SITE HISTORY

The site property was owned and operated as a service station by Chevron from November 1987 until November 29, 2003, at which time it was sold to Bedrock Northwest Inc. Bedrock Northwest Inc. sold the property to H&S Oil, LLC on August 3, 2004, who sold the property to the current owner, WASU Inc., on April 3, 2007.

3. PREVIOUS INVESTIGATION AND REMEDIATION ACTIVITIES

Petroleum-hydrocarbon contamination was first encountered at the site in December 1989 during the removal and replacement of three gasoline USTs and pump islands from the northern portion of the site. An undocumented, abandoned-in-place UST was discovered in the southwestern portion of the site at that time. Gasoline-range hydrocarbons (TPH-G) and benzene, ethylbenzene, toluene and total xylenes (BTEX) were detected at concentrations exceeding Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels in soil samples collected from the UST excavations. Approximately 900 cubic yards of affected soil were transported off site for disposal.

Following UST removal and replacement, 15 soil borings and 14 monitoring wells were installed in January 1990. Residual hydrocarbons were present in samples from eight of the 15 soil

borings with benzene contamination above MTCA Method A cleanup level in four of the soil borings.

GeoEngineers, Inc. (GEI) performed groundwater measurements and sampling from all monitoring wells in January and February 1990. Separate-phase hydrocarbons (SPH) were present in MW-4 and MW-12 with product thicknesses of 2.27 and 1.22 feet, respectively. Groundwater samples collected from MW-1, MW-2, MW-3, MW-7, MW-9, MW-10, MW-11, and MW-12 contained benzene concentrations exceeding the MTCA Method A cleanup level. Groundwater samples from MW-7, MW-11, and MW-12 contained concentrations of TPH-G above the MTCA Method A cleanup level.

H₂Oil Recovery Equipment installed a soil-vapor extraction (SVE) system in February 1990 under the direction of GeoEngineers, Inc. GEI received Puget Sound Air Pollution Control Authority (PSAPCA) approval to construct the system on April 20, 1990. The SVE system was activated on May 16, 1990, with a portable incineration combustion unit (ICU) to oxidize the extracted hydrocarbon vapors. The ICU was removed in 1991, and the SVE system emissions were discharged directly to the atmosphere. PSAPCA compliance was maintained by using a dilution valve. A July 18, 1995, report prepared by EMCON states the system used 11 of the existing site groundwater monitoring wells for vapor extraction. Air-sparging units were installed in vapor extraction wells MW-4 and MW-12 in March 1991 to reduce the thickness of SPH. The report further states that on November 22, 1994, EMCON removed SPH from monitoring well MW-12 and installed a groundwater aeration line to induce aeration of the product and to recover the volatile organics within the SVE system. In January 1996, EMCON estimated that 20,853 pounds of volatile organic vapors had been removed from soil beneath the site. There is no record of the system deactivation date.

In November 1991, SECOR performed a soil-vapor study for the property at 4557 Brooklyn Avenue (currently a 76 station). The property is located diagonally across the intersection of Brooklyn Avenue and NE 47th Street from the Chevron service station. Gasoline USTs were removed from this location in 1988. It appears that one of the goals of the SECOR study was to determine if the site had been impacted by petroleum hydrocarbons originating at the Chevron service station. The report concluded that the Chevron property was cross gradient of the 4557 Brooklyn Avenue site and "Based upon the study results no migration pathways from the Chevron property to the site were identified."

In 1992, an environmental investigation was conducted by Pacific Environmental Group, Inc. (Pacific) coinciding with a Stage II vapor recovery retrofit performed by A.L. Sleister and Sons Construction, Inc. (Sleister). Two soil samples were collected during the investigation: one sample was taken from an excavation trench and the other sample was collected from stockpiled soil associated with the excavation area. Concentrations of TPH-G in both samples were above MTCA Method A cleanup levels. Analytical results for BTEX compounds and Total Lead were below MTCA Method A cleanup levels.

In 2001, Delta Environmental Consultants, Inc. installed two additional monitoring wells (MW-15 and MW-16) near the alley along the eastern property boundary of the site. Soil analytical data indicated that all analyzed constituents were below MTCA Method A cleanup levels. However, the groundwater sample collected from monitoring well MW-16 contained concentrations of TPH-G, benzene, ethylbenzene, and total xylenes exceeding their respective MTCA Method A cleanup levels.

3.1 GEOLOGY AND HYDROLOGY

Previous site investigations and boring logs describe the subsurface as a thin layer of glacial till overlying a silty sand layer to approximately 25 feet below ground surface (bgs). Dense inorganic silt is encountered below 25 to 30 feet bgs, the maximum depth explored.

Groundwater gauging and sampling events indicate groundwater is typically encountered at approximately 16 feet bgs with a 5-foot seasonal fluctuation in elevation. Groundwater flow varies toward the southeast and northeast depending on seasonal variation. Dissolved-phase groundwater impacts remain in the south, southwest, southeast, and northwest sections of the property, along the western property boundary, and east of the southeast dispenser pump. SPH have not been observed at the site since August 2005. Analytical results for monitoring wells MW-3, MW-4, MW-6, MW-9, MW-10, MW-11, MW-12, MW-13, and MW-16 remain above the MTCA Method A cleanup levels for TPH-G and other constituents.

4. SITE ASSESSMENT ACTIVITIES

4.1 SOIL SAMPLING

4.1.1 Soil Borings

On October 2, 2010, one soil boring (SB-1) was advanced by Cascade Drilling Inc. under the supervision of SAIC in the northwest corner of the property using a hollow-stem auger drill rig. Three attempts were made to install a second soil boring to be completed as a groundwater monitoring well near the center of the northern property border; these attempts encountered refusal due to the presence of a thick concrete slab at approximately 2.5 to 3.5 feet bgs, which may have been an old building foundation. The locations of the completed and attempted borings installed during this site assessment are shown on Figure 1.

4.1.2 Boring Installation and Soil Sample Retrieval

Prior to beginning site assessment activities, all underground utilities were marked by Utilities Underground Location Center. In addition, SAIC contracted Underground Locating Services (ULS) to verify the presence of all subsurface structures on the subject property. Before drilling activities, the location for SB-1 was cleared to 8 feet bgs using a vacuum truck and air knife in compliance with Chevron's Borehole Clearance requirements. On clearing the location to 8 feet bgs, the soil boring was advanced to approximately 25 feet bgs using a hollow-stem auger drill rig.

Shallow samples were collected from 1 to 8 feet bgs using a hand auger. Soil samples deeper than 8 feet bgs were collected at 2.5-foot intervals using a split-spoon sampler. Soil samples were field screened for odor, sheen, staining, and organic vapors with a photo-ionization detector (PID). Visual descriptions of the soil types observed along with the field screening results are recorded on the soil boring log provided as Appendix A.

Two samples were collected from soil boring SB-1 and submitted for laboratory analysis by Lancaster Laboratories, Inc. (Lancaster) of Pennsylvania. Samples selected for laboratory analysis were collected just above and below the groundwater table.

4.1.3 Soil Sampling

Soil samples collected for laboratory analysis were retrieved from the split-spoon sampler using clean nitrile gloves or with a laboratory-supplied, single-use disposable sampling syringe barrel

set in a special preset handle. The syringe barrel and handle are designed to collect soil samples for volatile analysis and then transfer the sample directly into a 40-milliliter (mL) volatile organic analysis (VOA) vial containing an appropriate preservative in accordance with United States Environmental Protection Agency (USEPA) Method 5035A. Soil samples collected for non-volatile analysis were retained in laboratory-supplied glass jars with a Teflon[®] lined plastic lid. All sample containers were stored in a pre-cooled ice chest during storage on site and during transport to the analytical laboratory. All samples were transported to Lancaster under proper chain-of-custody procedures and analyzed for TPH-G by Ecology Method NWTPH-Gx; diesel-range and heavy-oil range hydrocarbons by Ecology Method NWTPH-Dx extended range with silica-gel cleanup; BTEX and methyl tertiary butyl ether (MTBE) by USEPA method 8260B; and Lead by USEPA Method 6020.

4.1.4 Boring Completion

Soil boring SB-1 was advanced to approximately 25 feet bgs. After soil samples had been collected, the boring was backfilled with hydrated bentonite chips up to 3 feet bgs. Concrete was placed in the borehole from 3 feet bgs to 3 inches bgs, and the final 3 inches were filled with Quickset. The three additional attempted borings were cleared to between approximately 2.5 and 3.5 feet bgs. The attempted borings were backfilled with bentonite chips and concrete and then capped with Quickset.

5. SOIL ANALYTICAL RESULTS

Lancaster analytical reports and chain-of-custody forms are included as Appendix B. The analytical results for the two soil samples collected for boring SB-1 are also provided in Table 1. None of the target analytes selected for analysis were detected in the two soil samples above MTCA Method A limits.

6. QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

6.1 DECONTAMINATION PROCEDURES

All reusable soil sampling equipment was decontaminated by washing in a Liquinox[™] solution followed by an initial rinse in tap water and a final rinse in deionized water. Sample collection bowls and sheen pans were decontaminated immediately after collecting, logging, and screening each sample. All other single-use disposable soil sampling materials/equipment, such as gloves, single-use sample syringes, and plastic bags were discarded immediately after use and disposed of as municipal waste.

6.2 QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

The 40-mL VOA vial trip blanks were utilized for quality control during soil sampling. Lancaster supplied trip blanks containing USEPA Method 5035A preservatives to accompany the soil samples as they were collected and returned to the laboratory for analysis. Lancaster analyzed the trip blank samples for Volatile Organic Compounds by USEPA Method 8260B as requested on the chain-of-custody forms. A set of trip blank vials was placed in the cooler containing 40-mL VOA vials.

6.3 QUALITY ASSURANCE/QUALITY CONTROL RESULTS

None of the target analytes selected for analysis by USEPA Method 8260B were detected in the trip blank samples submitted (Appendix B).

7. CONCLUSIONS

7.1 SUMMARY OF FINDINGS

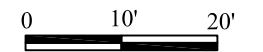
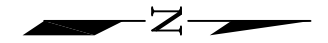
The proposed scope of work was to install one monitoring well and one soil boring to better define the extent of petroleum impacts in soil and groundwater on the property. On encountering refusal on a large, extensive concrete slab in three attempted locations, only one soil boring was completed. The SB-1 soil boring was not completed as a monitoring well because the location would not help to delineate groundwater impacts. None of the target analytes selected for analysis were detected in the soil samples collected.

7.2 RECOMMENDED FUTURE ACTIONS

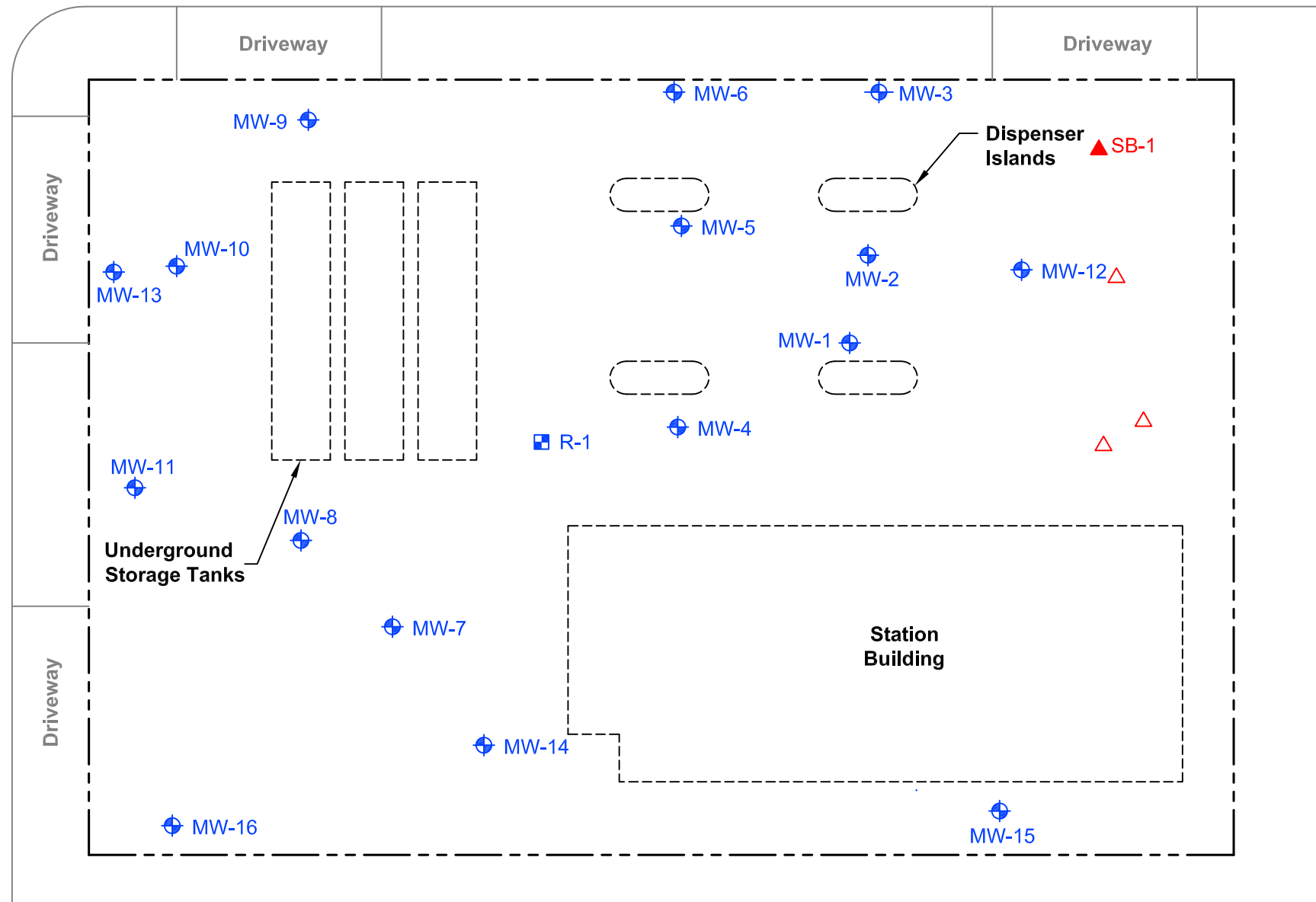
Due to the extensive concrete slab in the proposed monitoring well location, the extent of dissolved-phase groundwater impacts and affected soil was not delineated. Additional borings and monitoring wells will need to be installed on the parking lot property to the north to fully delineate the soil and groundwater impacts. Site access for the property to the north will be required. Removal of all soil impacts beneath the property via excavation may occur if future property redevelopment results in a change of the property use or if a major station renovation is undertaken. Until such time as remedial alternatives are possible, quarterly groundwater monitoring will continue at the property.

Figure

BROOKLYN AVENUE



NE 47TH STREET



LEGEND

- MW-6 GROUNDWATER MONITORING WELL
- TP-4 VAPOR EXTRACTION WELL
- SB-1 SOIL BORING (SAIC, 2010)
- ATTEMPTED MONITORING WELL/
SOIL BORING (SAIC, 2010)



Chevron Service Station No. 9-0129
 4700 Brooklyn Avenue
 Seattle, Washington

Figure 1
 Site Map

Table

TABLE 1
SOIL ANALYTICAL RESULTS
CHEVRON SERVICE STATION NO. 9-0129
4700 Brooklyn Ave,
Seattle, Washington
Concentrations reported in mg/kg

Sample ID	Sample Depth (ft)	Date	MTBE ¹	TPH-DRO ²	TPH-HRO ²	TPH-GRO ³	Benzene ¹	Toluene ¹	Ethylbenzene ¹	Total Xylenes ¹	Lead
SB-1-15	15	10/2/10	0.0006 U	3.3 U	11 U	1.2 U	0.0006 U	0.001 U	0.001 U	0.001 U	2.28
SB-1-17.5	17.5	10/2/10	NA	3.6 U	12 U	1.3 U	0.0005 U	0.001 U	0.001 U	0.001 U	NA
MTCA Method A CULs			0.1	2,000	2,000	30	0.03	7.0	6.0	9.0	250

EXPLANATIONS:

mg/kg = Milligrams per

TPH = Total Petroleum Hydrocarbons

TPH-DRO = TPH as Diesel-Range Organics

TPH-HRO = TPH as Heavy Oil-Range Organics

TPH-GRO = TPH as Gasoline-Range Organics

BTEX = Benzene, toluene, ethylbenzene, and total xylenes

MTBE = Methyl Tertiary Butyl Ether

U = Analyte not detected at or above the listed method detection limit

NA = Not analyzed

MTCA = Model Toxics Control Act

CULs = Cleanup levels

USEPA = United States Environmental

Ecology = Washington State Department of Ecology

1 MTBE and BTEX analyzed by USEPA Method 8260B.

2 TPH-DRO and TPH-HRO analyzed by Ecology Method NWTPH-Dx with silica-gel cleanup.

3 TPH-GRO analyzed by Ecology Method NWTPH-Gx.

**Appendix A:
Boring Log**

Appendix B:
Laboratory Analytical Report

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

Chevron
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

October 12, 2010

Project: 90129

Submittal Date: 10/05/2010
Group Number: 1214782
PO Number: 0015061199
Release Number: SKANCE
State of Sample Origin: WAClient Sample DescriptionSB-1-15 Grab Soil Sample
SB-1-17.5 Grab Soil Sample
TB-1-100210 Water SampleLancaster Labs (LLI) #6102847
6102848
6102849

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC SAIC
COPY TO
ELECTRONIC SAIC
COPY TO

Attn: Mike Lange

Attn: Peter Catterall

Questions? Contact your Client Services Representative
Jill M Parker at (717) 656-2300 Ext. 1241

Respectfully Submitted,



Marla S. Lord
Senior Specialist



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: SB-1-15 Grab Soil Sample
Facility# 90129
4700 Brooklyn Ave NE - Seattle, WA

LLI Sample # SW 6102847
LLI Group # 1214782
Account # 11255

Project Name: 90129

Collected: 10/02/2010 11:40 by GC

Chevron

6001 Bollinger Canyon Rd L4310
 San Ramon CA 94583

Submitted: 10/05/2010 09:30

Reported: 10/12/2010 16:12

Discard: 11/12/2010

BS115

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles SW-846 8260B			mg/kg	mg/kg	
10950	Benzene	71-43-2	N.D.	0.0006	1.08
10950	Ethylbenzene	100-41-4	N.D.	0.001	1.08
10950	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.0006	1.08
10950	Toluene	108-88-3	N.D.	0.001	1.08
10950	Xylene (Total)	1330-20-7	N.D.	0.001	1.08
GC Volatiles ECY 97-602 NWT PH-Gx			mg/kg	mg/kg	
02005	TPH by NWT PH-Gx soils	n.a.	N.D.	1.2	28.17
GC Extractable TPH ECY 97-602 NWT PH-Dx w/Si Gel modified			mg/kg	mg/kg	
02214	DRO C12-C24 w/Si Gel	n.a.	N.D.	3.3	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	11	1
Metals SW-846 6020			mg/kg	mg/kg	
06135	Lead	7439-92-1	2.28	0.0111	2
Wet Chemistry SM20 2540 G			%	%	
00111	Moisture	n.a.	8.5	0.50	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10950	BTEX/MTBE 8260 Soil	SW-846 8260B	1	X102801AA	10/07/2010 06:34	Holly Berry	1.08
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201027922481	10/02/2010 11:40	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201027922481	10/02/2010 11:40	Client Supplied	1
07579	GC/MS-Field Preserved MeOH-NC	SW-846 5035A	1	201027922481	10/02/2010 11:40	Client Supplied	1
02005	NWT PH-Gx soil C7-C12	ECY 97-602 NWT PH-Gx	1	10272A31C	10/06/2010 17:55	Marie D John	28.17
06647	GC Field Preserved MeOH	SW-846 5035A	1	201027922481	10/02/2010 11:40	Client Supplied	n.a.

Sample Description: SB-1-15 Grab Soil Sample
Facility# 90129
4700 Brooklyn Ave NE - Seattle, WA

LLI Sample # SW 6102847
LLI Group # 1214782
Account # 11255

Project Name: 90129

Collected: 10/02/2010 11:40 by GC

Chevron

6001 Bollinger Canyon Rd L4310
 San Ramon CA 94583

Submitted: 10/05/2010 09:30

Reported: 10/12/2010 16:12

Discard: 11/12/2010

BS115

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	102790028A	10/07/2010 21:03	Melissa McDermott	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	102790028A	10/06/2010 23:30	Patricia L Foreman	1
06135	Lead	SW-846 6020	1	102806150001A	10/10/2010 13:11	Choon Y Tian	2
06150	ICP/MS SW-846 Solid Digest	SW-846 3050B	1	102806150001	10/07/2010 13:13	James L Mertz	1
00111	Moisture	SM20 2540 G	1	10278820003B	10/05/2010 17:26	Scott W Freisher	1

Sample Description: SB-1-17.5 Grab Soil Sample
Facility# 90129
4700 Brooklyn Ave NE - Seattle, WA

LLI Sample # SW 6102848
LLI Group # 1214782
Account # 11255

Project Name: 90129

Collected: 10/02/2010 11:50 by GC

Chevron

6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

Submitted: 10/05/2010 09:30

Reported: 10/12/2010 16:12

Discard: 11/12/2010

BS117

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles			mg/kg	mg/kg	
10950	Benzene	71-43-2	N.D.	0.0005	0.86
10950	Ethylbenzene	100-41-4	N.D.	0.001	0.86
10950	Toluene	108-88-3	N.D.	0.001	0.86
10950	Xylene (Total)	1330-20-7	N.D.	0.001	0.86
GC Volatiles			mg/kg	mg/kg	
02005	TPH by NWTPH-Gx soils	n.a.	N.D.	1.3	26.05
GC Extractable TPH w/Si Gel			mg/kg	mg/kg	
02214	DRO C12-C24 w/Si Gel	n.a.	N.D.	3.6	1
02214	HRO C24-C40 w/Si Gel	n.a.	N.D.	12	1
Wet Chemistry			%	%	
00111	Moisture	n.a.	16.8	0.50	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10950	BTEX 8260 Soil	SW-846 8260B	1	X102801AA	10/07/2010 06:57	Holly Berry	0.86
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201027922481	10/02/2010 11:50	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201027922481	10/02/2010 11:50	Client Supplied	1
07579	GC/MS-Field Preserved MeOH-NC	SW-846 5035A	1	201027922481	10/02/2010 11:50	Client Supplied	1
02005	NWTPH-Gx soil C7-C12	ECY 97-602 NWTPH-Gx	1	10272A31C	10/06/2010 18:32	Marie D John	26.05
06647	GC Field Preserved MeOH	SW-846 5035A	1	201027922481	10/02/2010 11:50	Client Supplied	n.a.
02214	NWTPH-Dx soil w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	102790028A	10/07/2010 21:44	Melissa McDermott	1
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	102790028A	10/06/2010 23:30	Patricia L Foreman	1
00111	Moisture	SM20 2540 G	1	10278820003B	10/05/2010 17:26	Scott W Freisher	1

Sample Description: TB-1-100210 Water Sample
Facility# 90129
4700 Brooklyn Ave NE - Seattle, WA

LLI Sample # WW 6102849
LLI Group # 1214782
Account # 11255

Project Name: 90129

Collected: 10/02/2010 11:30

Chevron

Submitted: 10/05/2010 09:30

6001 Bollinger Canyon Rd L4310

Reported: 10/12/2010 16:12

San Ramon CA 94583

Discard: 11/12/2010

TB1BS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles SW-846 8260B					
10943	Benzene	71-43-2	N.D.	ug/l 0.5	1
10943	Ethylbenzene	100-41-4	N.D.	0.5	1
10943	Toluene	108-88-3	N.D.	0.5	1
10943	Xylene (Total)	1330-20-7	N.D.	0.5	1
GC Volatiles ECY 97-602 NWTPH-Gx					
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	ug/l 50	1

General Sample Comments

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	BTEX 8260B Water	SW-846 8260B	1	D102802AA	10/07/2010 15:01	Daniel H Heller	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	D102802AA	10/07/2010 15:01	Daniel H Heller	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	10284B07A	10/12/2010 10:43	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	10284B07A	10/12/2010 10:43	Marie D John	1

Quality Control Summary

Client Name: Chevron

Group Number: 1214782

Reported: 10/12/10 at 04:12 PM

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: D102802AA	Sample number(s): 6102849							
Benzene	N.D.	0.5	ug/l	82		79-120		
Ethylbenzene	N.D.	0.5	ug/l	86		79-120		
Toluene	N.D.	0.5	ug/l	84		79-120		
Xylene (Total)	N.D.	0.5	ug/l	88		80-120		
Batch number: X102801AA	Sample number(s): 6102847-6102848							
Benzene	N.D.	0.0005	mg/kg	101	101	80-120	1	30
Ethylbenzene	N.D.	0.001	mg/kg	101	101	80-120	0	30
Methyl Tertiary Butyl Ether	N.D.	0.0005	mg/kg	83	84	74-121	2	30
Toluene	N.D.	0.001	mg/kg	100	101	80-120	0	30
Xylene (Total)	N.D.	0.001	mg/kg	102	102	80-120	0	30
Batch number: 10272A31C	Sample number(s): 6102847-6102848							
TPH by NWTPH-Gx soils	N.D.	1.0	mg/kg	94	84	67-119	11	30
Batch number: 10284B07A	Sample number(s): 6102849							
NWTPH-Gx water C7-C12	N.D.	50.	ug/l	109	100	75-135	9	30
Batch number: 102790028A	Sample number(s): 6102847-6102848							
DRO C12-C24 w/Si Gel	N.D.	3.0	mg/kg	81		60-120		
HRO C24-C40 w/Si Gel	N.D.	10.	mg/kg					
Batch number: 102806150001A	Sample number(s): 6102847							
Lead	0.0120	0.0101	mg/kg	107		80-120		
Batch number: 10278820003B	Sample number(s): 6102847-6102848							
Moisture				100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
 Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: D102802AA	Sample number(s): 6102849 UNSPK: P103122								
Benzene	103	102	80-126	1	30				
Ethylbenzene	105	105	71-134	0	30				
Toluene	102	102	80-125	1	30				
Xylene (Total)	106	106	79-125	0	30				
Batch number: X102801AA	Sample number(s): 6102847-6102848 UNSPK: P103395								

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

 Client Name: Chevron
 Reported: 10/12/10 at 04:12 PM

Group Number: 1214782

Sample Matrix Quality Control

 Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
 Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS</u> <u>%REC</u>	<u>MSD</u> <u>%REC</u>	<u>MS/MSD</u> <u>Limits</u>	<u>RPD</u>	<u>RPD</u> <u>MAX</u>	<u>BKG</u> <u>Conc</u>	<u>DUP</u> <u>Conc</u>	<u>DUP</u> <u>RPD</u>	<u>Dup RPD</u> <u>Max</u>
Benzene	104		55-143						
Ethylbenzene	101		44-141						
Methyl Tertiary Butyl Ether	78		55-129						
Toluene	101		50-146						
Xylene (Total)	101		44-136						
Batch number: 10284B07A Sample number(s): 6102849 UNSPK: P104169									
NWTPH-Gx water C7-C12	105		57-157						
Batch number: 102790028A Sample number(s): 6102847-6102848 BKG: 6102847									
DRO C12-C24 w/Si Gel						N.D.	N.D.	0 (1)	20
HRO C24-C40 w/Si Gel						N.D.	N.D.	0 (1)	20
Batch number: 102806150001A Sample number(s): 6102847 UNSPK: P104431 BKG: P104431									
Lead	44 (2)	-53 (2)	75-125	19	20	15.2	11.4	29*	20
Batch number: 10278820003B Sample number(s): 6102847-6102848 BKG: 6102847									
Moisture						8.5	8.0	6	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

 Analysis Name: UST VOCs by 8260B - Water
 Batch number: D102802AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6102849	106	98	97	98
Blank	104	98	97	100
LCS	102	99	98	104
MS	104	98	97	102
MSD	103	99	96	103
Limits:	80-116	77-113	80-113	78-113

 Analysis Name: VOCs by 8260B - Solid
 Batch number: X102801AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6102847	106	104	94	91
6102848	107	103	95	93
Blank	105	106	94	93
LCS	99	103	103	100
LCSD	98	98	103	100
MS	102	111*	102	102
Limits:	71-114	70-109	70-123	70-111

Analysis Name: NWTPH-Gx soil C7-C12

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron
Reported: 10/12/10 at 04:12 PM

Group Number: 1214782

Surrogate Quality Control

Batch number: 10272A31C
Trifluorotoluene-F

6102847	85
6102848	82
Blank	88
LCS	96
LCSD	88

Limits: 61-122

Analysis Name: NWTPH-Gx water C7-C12
Batch number: 10284B07A
Trifluorotoluene-F

6102849	93
Blank	90
LCS	104
LCSD	104
MS	115

Limits: 63-135

Analysis Name: NWTPH-Dx soil w/Si Gel
Batch number: 102790028A
Orthoterphenyl

6102847	102
6102848	95
Blank	109
DUP	107
LCS	111

Limits: 50-150

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



221529
 For Lancaster Laboratories use only
 Acct. #: 11255 Sample #: 6102847-49 SCR#: 94959

WBS - NWRTR - 90129 - Ø - LAB

Grp # 1214782

Facility #: <u>90129</u> Site Address: <u>4700 Brooklyn Ave NE, Seattle, WA</u> Chevron PM: <u>Olivia Skane</u> Lead Consultant: <u>SAIC</u> Consultant/Office: <u>Bothell, WA</u> Consultant Prj. Mgr.: <u>P. Cattrell</u> Consultant Phone #: <u>425-482-3321</u> Fax #: <u>425-485-5566</u> Sampler: <u>G. Cisneros / A. Conner</u> Service Order #: _____ <input type="checkbox"/> Non SAR: _____				Matrix <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil <input type="checkbox"/> Air		Analyses Requested Preservation Codes Total Number of Containers 8260 full scan PAHs by 8260 Naphth 8260 Extended Ring Silica Gel Cleanup Lead Total Diss. Method VP/MEPH NWTPH HClID quantification BTEX only by 8260 Moisture				Preservative Codes H = HCl T = Thiosulfate N = HNO ₃ B = NaOH S = H ₂ SO ₄ O = Other <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run ___ oxy s on highest hit <input type="checkbox"/> Run ___ oxy s on all hits													
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Oil	Air	Total Number of Containers	8260 full scan	PAHs by 8260	Naphth 8260	Extended Ring	Silica Gel Cleanup	Lead Total	Diss. Method	VP/MEPH	NWTPH HClID	quantification	BTEX only by 8260	Moisture	Comments / Remarks	
SB-1-15	10/2/10	1140	/		/				7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ⓧ Analyze for EDB, EDC, n-hexane and CPAHs only if BTEX/TPH-G are present above MDL.
SB-1-17.5	10/2/10	1150	/		/				6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
TB-1-100210	10/2/10	1130	/		/				2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Turnaround Time Requested (TAT) (please circle) STP TAT 24 hour 72 hour 48 hour 4 day <u>5 day</u>										Relinquished by: <u>[Signature]</u> Date: <u>8/2/10</u> Time: <u>1110</u>		Received by: _____ Date: _____ Time: _____											
Data Package Options (please circle if required) QC Summary Type I - Full Type VI (Raw Data) Disk / EDD WIP (RWQCB) Standard Format Disk _____ Other.										Relinquished by: <u>[Signature]</u> Date: <u>10/04/10</u> Time: <u>1500</u>		Received by: _____ Date: _____ Time: _____											
Relinquished by Commercial Carrier: UPS <u>FedEx</u> Other _____										Received by: <u>[Signature]</u> Date: <u>10/05/10</u> Time: <u>0930</u>		Temperature Upon Receipt <u>1.9</u> °C Custody Seals Intact? <u>Yes</u> No											

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm	ng	nanogram(s)
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	l	liter(s)
m3	cubic meter(s)	ul	microliter(s)
<	less than - The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
J	estimated value – The result is \geq the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ).		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers	Inorganic Qualifiers
A TIC is a possible aldol-condensation product	B Value is $<$ CRDL, but \geq IDL
B Analyte was also detected in the blank	E Estimated due to interference
C Pesticide result confirmed by GC/MS	M Duplicate injection precision not met
D Compound quantitated on a diluted sample	N Spike sample not within control limits
E Concentration exceeds the calibration range of the instrument	S Method of standard additions (MSA) used for calculation
N Presumptive evidence of a compound (TICs only)	U Compound was not detected
P Concentration difference between primary and confirmation columns $>$ 25%	W Post digestion spike out of control limits
U Compound was not detected	* Duplicate analysis not within control limits
X,Y,Z Defined in case narrative	+ Correlation coefficient for MSA $<$ 0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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